



PRINCIPAL
David J. Crawford, PE (NY, MA, VT)

Crawford & Associates Engineering, PC

Engineering Consultants, Planners, Geologists & Surveyors

Hudson Office - 551 Warren St. • Suite 301 • Hudson, NY 12534

Tel: (518) 828-2700 • Fax: (518) 828-2723 • www.crawfordandassociates.com

Clifton Park Office - 1 Barney Rd. • Suite 109 • Clifton Park, NY 12065

Tel: (518) 982-1301 • Fax: (518) 828-2723 • www.crawfordandassociates.com

ASSOCIATES

Brandee K. Nelson, PE, LEED (NY)
Andrew P. Aubin, PE, LEED (NY, VT)
Daniel J. Russell, LS

January 28, 2015

Revised February 11, 2015

Mr. Timothy W. Wales, PE, City Engineer
City of Saratoga Springs
474 Broadway
Saratoga Springs, NY 12866

**Re: Proposal for Additional Engineering Services
Saratoga Springs Landfill Waste Edge Evaluation
C&A# 4458.00**

Dear Mr. Wales,

Over the past several months, we have been working with the City of Saratoga Springs to investigate the waste edge at the north end of the City's closed landfill. We have reviewed available design and landfill closure documents to determine how the waste edge was originally characterized at the Weibel Avenue landfill, obtained permission to access properties adjacent to the north end of the landfill, conducted a limited amount of field work, summarized the initial findings, and participated in initial meetings with the City and the New York State Department of Environmental Conservation (NYSDEC). We have reviewed available documents from the City as well as the NYSDEC, via a Freedom of Information Act request. As you are aware, we originally proposed to obtain access to two parcels and conduct a limited amount of field work. Obtaining permission to access the properties has been a lengthy and onerous process. The Stone property access took more than three months and required the assistance of special counsel and NYSDEC to compel the owner to cooperate. As for the National Grid parcel, our request to access is, to this day, winding its way through the National Grid bureaucracy. Incidentally, NYSDEC has indicated they do not believe it necessary to further investigate National Grid's parcel. *This proposal reflects an additional scope of services for explosive gas monitoring, as requested by the NYSDEC in early February. The revisions are shown in italicized text.*

Our field work, conducted with the assistance of City personnel, was completed in late November. The preliminary findings have been summarized and provided to the City and the NYSDEC. Preliminarily, the landfill cap edge was located; however, waste was found at several locations on the property beyond the landfill cap and at varying depths up to 10 feet below grade. Due to the extraordinary depth the waste was found at, the two days of field work estimated for the investigation was insufficient to fully characterize the type and extent of the waste materials.

We respectfully request to modify our scope of work to include quantifying the waste volume and proposing remedial options for managing the waste consistent with NYSDEC regulations for solid waste (6 NYCRR Part 360) and also address additional work NYSDEC has requested. Based on a meeting with the NYSDEC and the City, held January 13th, NYSDEC is requesting a work plan which will provide a more extensive investigation of the nature and extent of the waste materials on site. They have also requested quantification of the volume of waste on site, *an investigation of explosive gases being generated by the waste*, as well as a plan



for the removal of the waste. We also anticipate the need to provide the City with waste remediation alternatives and costs so that the most cost effective solution can be pursued. Thus we are requesting the City authorize additional services as outlined below:

Engineering Tasks – Additional Services

1. Prepare a supplemental investigation work procedure for approval by NYSDEC. Conduct field work by *completing an explosive gas survey consistent with 6 NYCRR Part 360 – 2.15*, observing and documenting the digging of test pits of sufficient depth to quantify the horizontal and vertical extent of the waste material on the Stone property. We understand the City can provide an excavator and operator to complete the excavation work. *The explosive gas survey will consist of inserting a probe in a grid pattern into the subsurface to a depth of approximately 8 feet. Soil gas will then be drawn from the subsurface and analyzed with a handheld meter to determine the presence or absence of methane. We will record the level of methane detected. The regulations required three rounds explosive gas monitoring, and recommend the work be completed during frozen or wet ground conditions.*

Crawford & Associates assumes *3 days of field work will be required to complete the three rounds of soil gas monitoring at 8 points on a grid of 50 feet on center, and 3 days of field work will be needed to excavate a grid of test pits with depths up to 10 feet and spacing of 25 feet on center. We will log the observations in the pits, noting depth of waste and identifying rubbish free soil beneath the waste. All test pits will be photographed. As during the first investigation, a health and safety plan will be in place to monitor explosive gas levels throughout the duration of the work. We assume the City surveyor will survey the additional test pit locations and provide us the data. We will coordinate with the NYSDEC on the schedule for the field work, and will support the City's efforts to obtain access to the site for the additional field investigation.*

2. Prepare Report of Findings for submission to the City. The preliminary Report of Findings we prepared, dated December 3, 2014, will be expanded to include a summary of the additional field work, calculations of the estimated volume, *summary of findings on explosive gases*, drawings and cross sections depicting the horizontal and vertical extent of waste in the subsurface, up to three alternatives for remediating the waste and preliminary cost estimates for remedial work, as well as an outline of the procedure for conducting the recommended remedial alternative. We will prepare a drawing of the location of the waste. We will also prepare up to 4 cross sections of the site subsurface to characterize the depth and extent of waste. These cross sections are necessary for us to estimate the volume of waste which will need to be remediated. The Report and drawings will be issued to the City and to the NYSDEC for review and comment. We will be available for three meetings with the City and NYSDEC.
3. Depending on the remedial alternative selected by the City and authorized by the NYSDEC, Crawford & Associates would anticipate the following additional work which we can provide costs for at the appropriate time:
 - a. Preparation of a Workplan for the chosen remedial work for submission to the NYSDEC for approval as part of an amendment to the Closure Plan for the Landfill.



- b. Preparation of plans and specifications for bidding waste relocation work. Crawford & Associates would anticipate the use of City front end documents.
- c. Assistance during the bid process in answering questions, attending a pre-bid meeting if needed and review of bids.

Proposed Engineering Fees

Crawford & Associates proposes to complete tasks 1 and 2 as described above for a proposed fee not to exceed \$17,800. Task 3 may or may not be required depending on the remedial alternative most appropriate for the City, thus we will provide a price for these services in a supplemental proposal.

Due to the unpredictable nature of this project, there may be additional work needed to coordinate and advise the City on circumstances which may arise. We propose to provide these additional services on a time and material basis in accordance with our Schedule of Fees, previously provided.

We hope you find this proposal acceptable. If you have any questions, please feel free to contact me at the below number or via my email at david@crawfordandassociates.com or brandee@crawfordandassociates.com. We look forward to continuing to working with the City of Saratoga Springs.

Very truly yours,
Crawford & Associates Engineering & Land Surveying, P.C.

A handwritten signature in blue ink, appearing to read 'David J. Crawford'.

David J. Crawford, P.E.
Principal

A handwritten signature in blue ink, appearing to read 'Brandee Nelson'.

Brandee Nelson, P.E., LEED AP
Vice President