August 28, 2023

Mr. Eugene Melnyk, P.E.
Remediation Engineer
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
700 Delaware Ave
Buffalo, NY 14209

Re: 267 Marilla Street, NYSDEC Site No. C915290
Vertical Hydraulic Barrier Wall
Soil/Bentonite Clay Mixture Workplan

Dear Mr. Melnyk:

Roux Environmental Engineering & Geology, DPC (Roux) has prepared this letter to outline the procedure to determine the soil/bentonite clay mixture(s) that will meet the specifications for use in the remedial cutoff wall construction at 267 Marilla Street (Site) (NYSDEC BCP Site No. C915290). A description of the procedure and laboratory testing is presented in further detail below.

There are two sources of soil that will be mixed with bentonite to create the backfill for the slurry wall excavation. They are the Albright Knox Art Gallery (AK) clay soils and native clay soils from the site. The AK soil is located at the Tecumseh Site in Lackawanna, New York. The AK soil was generated from an excavation at the AK site and consists of a homogeneous low permeability clay that meets unrestricted Soil Cleanup Objectives. The other soil source is the clay unit beneath the fill materials at the site into which the slurry wall will be embedded.

Roux will collect four representative samples of the AK soil from the storage pile at the Tecumseh Site. Four 5-gallon buckets will be obtained and labeled AK-2, AK-4, AK-6 and AK-8. Clay soils from the AIM site will be collected via test pitting with an excavator. A community air monitoring station will be set up downwind of the excavation and the work monitored by a QEP to assure perimeter CAMP thresholds are not exceeded. Four 5-gallon buckets will be obtained and labeled AIM-2, AIM-4, AIM-6 and AIM-8.

The samples will then be used to make individual soil/bentonite clay slurry mixtures. The samples will be weighed using a scale; a weight of 25 lbs of untreated soils will be targeted in each bucket. The samples will then be individually supplemented with clay bentonite at a soil/bentonite ratio mixture of approximately 2%, 4%, 6% and 8 %, respectively as shown in the table below The supplemented samples will then be manually mixed with water to form a homogenous blend with a slump of 2-6 inches, as measured by slump cone testing. The actual weight of soil may vary from that shown below so as there is enough backfill mixture to run the slump cone test. The weight of bentonite added will be adjusted as needed to achieve the target percent mixtures.

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Soil Source	Test %Bentonite to Soil	Planned Soil Weight (lbs)	Planned Bentonite Weight (lbs)[1]
AK-2	2	25	0.5
AK-4	4	25	1.0
AK-6	6	25	1.5
AK-8	8	25	2.0
AIM-2	2	25	0.5
AIM-4	4	25	1.0
AIM-6	6	25	1.5
AIM-8	8	25	2.0

1. Amount of bentonite to be adjusted as needed to meet target percentages by weight.

The slump will be determined using a slump cone in accordance with "Standard Test Method for Slump of Hydraulic-Cement Concrete" (ASTM C 143). As such there will be 8 samples obtained from the backfill (bentonite, water and soil mixtures). Each backfill mixture will be tested by a qualified slils testing laboratory (e.g., 3rd Rock) for hydraulic conductivity via ASTM Method D5084, Method C.

A report will be provided to the Department describing any variations from the mixing procedures and the results of the testing as compared to the project specifications as well as the targeted full-scale mix ratio.

If you have any questions or concerns, please contact us.

Sincerely,

ROUX ENVIRONMENTAL ENGINEERING AND GEOLOGY, D.P.C.

Thomas H. Forbes, P.E.
Vice President, Principal Engineer

c:) S. Iyer (AIM)
S. Rophail (AIM)
E. Warren (Roux)
R. Laport (Roux)