NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, NY 14414-9516
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www.dec.ny.gov

Via E-mail

September 19, 2018

Mr. Scott Pittenger, Regional Manager Environmental Remediation
Norfolk Southern Corporation
1200 Peachtree St, NE – Box 13
Atlanta, GA 30309

Re: Emerging Contaminants Assessment Plan
Pennsylvania Lines LLC, Elmira 5th Street Yard Site #c808050
Elmira, Chemung County

Dear Mr. Pittenger:

The New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) has completed the review of "Emerging Contaminant Assessment Plan" for the Pennsylvania Lines LLC, 5th Street Yard Site #c808050, dated 3 August 2018, and approve contingent on the following comments:

1. All work is done in accordance with DEC's Emerging Contaminant Sampling Guidance dated July 2018.

2. Confirmation that no private wells exist in the area and public water is supplied to the surrounding community.

Provided that the above comments are appropriately addressed, notice to proceed is granted. Please provide an updated RAWP PDI Work Plan schedule.

As a reminder, all final documents and reports should be compiled into one single electronic format file that is submitted or transferable to the Department (file share, email or compact computer discs (CDs)). The electronic document file format should be Adobe® Acrobat® Portable Document Format (PDF) file and must be searchable. Effective immediately, all data submitted to the DER must be in the DEC-approved Electronic Data Deliverable (EDD). Moreover, new data must be submitted on a continuous basis immediately after data validation occurs but in no event more than 90 days after the data has been submitted to the remedial party or its consultant(s). In other words, data is not to be held and submitted with the related reports.

Please contact me at (585) 226-5480 if you have any questions regarding this letter.

Sincerely,

Timothy Schneider, P.E.
Professional Engineer 1

A. Gray
T. Fucillo
B. Schilling
M. Cruden
D. Harkawik
J. Kenny
J. Deming

Beech and Bonaparte engineering p.c.
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Via Email

3 August 2018

Mr. Timothy Schneider, P.E.
New York State Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, NY 14414

Subject: Emerging Contaminant Assessment Plan
Pennsylvania Lines LLC, Elmira 5th Street Site #C808050
Elmira, Chemung County, New York

Dear Mr. Schneider:

On behalf of Norfolk Southern Railway Company (NSRC), Beech and Bonaparte Engineering, PC, a wholly-owned New York State licensed engineering affiliate of Geosyntec Consultants, (collectively Geosyntec) has prepared this Emerging Contaminant Assessment (ECA) Plan (the Plan) for the Pennsylvania Lines LLC, Elmira 5th Street Yard (the Site) (NYSDEC Site No. C808050) located in Elmira, Chemung County, New York. This Plan was prepared in response to New York State Department of Environmental Conservation's (NYSDEC) request in the letter[1] dated 28 June 2018 to collect groundwater samples from the Site and analyze the samples for 1,4-dioxane and a select group of per- and polyfluoroalkyl substances (PFAS) in accordance with the NYSDEC Guidance accompanying the letter.

Unless otherwise specified herein, methods and procedures and quality assurance (QA)/quality control (QC) measures implemented during the ECA will be consistent with the Field Sampling Plan (FSP)/Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP) included as

[1] NYSDEC, 2018. Request for Sampling of Emerging Contaminants, Pennsylvania Lines LLC, Elmira 5th Street Yard – BCP Site #C808050, 28 June 2018.

Appendices A and B, respectively, to the Pre-Design Investigation (PDI) Work Plan[2]. The ECA Plan is detailed in the remainder of this letter.

EMERGING CONTAMINANT ASSESSMENT PLAN

Groundwater Sample Locations

Groundwater samples will be collected from three monitoring wells, MW-6, MW-14, and MW-17, that form a transect through the southern portion of the Site. The location of those monitoring wells, along with other relevant Site features, are illustrated on **Figure 1**. A groundwater elevation and flow direction map for the Site was previously presented as Figure 6-15 in the Remedial Investigation/Remedial Alternative Report[3]. That figure is included herein as **Attachment A** for reference to illustrate historical groundwater flow patterns at the Site.

MW-6 was selected for sampling because that location has historically had the highest VOC concentrations measured in groundwater. MW-14, which is located generally upgradient of MW-6 just within the property boundary, will be sampled to assess emerging contaminant concentrations in groundwater flowing onto the Site (i.e., background). A sample will be collected from MW-17, which is located generally downgradient of MW-6, to evaluate emerging contaminant concentrations in groundwater in the proximity of the downgradient property boundary.

ECA groundwater samples from the proposed wells will be collected during the site-wide groundwater monitoring event proposed in the PDI Work Plan. Pending NYSDEC approval of this Plan and the PDI Work Plan, the sampling event is expected to occur in the fall of 2018.

PFAS Sampling Considerations

There is potential for false positive PFAS detections due to the low (part-per-trillion) detection limits associated with PFAS analysis and the ubiquitous nature and variety of potential sources of trace levels of PFASs. To reduce the risk of cross-contamination during sampling, field

[2] Geosyntec, 2018. Pre-Design Investigation Work Plan, Pennsylvania Lines LLC, Elmira 5th Street Yard Site, revised 27 June 2018.
[3] Gannett Fleming, 2013. Final Remedial Investigation/Remedial Alternatives Report, Fifth Street Yard, Elmira, New York, NYSDEC # V00446-8, 9 December 2013.

personnel will err on the side of caution by excluding the following materials from the sampling event:

- Teflon® containing materials including but not limited to pipe thread wrap, tubing, fittings, gaskets in pumps or other field equipment;
- Low density polyethylene (LDPE) materials (e.g., sampling container components, pump components, decontamination solution containers);
- Grundfos and bladder pumps;
- Waterproof field books and markers (no sharpies);
- Post-It Notes or similar materials;
- Aluminum foil;
- Chemical (blue) ice packs;
- Synthetic water resistant or stain resistant clothing;
- Gore-Tex™ boots or field gear or water resistant treated leather boots;
- Fabric softener and clothing recently washed in fabric softener;
- Fire-retardant field clothes or water resistant treated heavy canvas type materials such as Carhartt® clothing;
- Tyvek®;
- Cosmetics, moisturizers, hand cream, and other related products;
- Fast food wrappers or bags.

Materials that are acceptable for use in lieu of the above-listed items include the following:

- High density polyethylene (HDPE) materials including tubing, sheeting and pump components;
- Stainless steel pumps;
- Sample bottles that are HDPE or polypropylene and do not have Teflon-lined caps;
- Silicon tubing;
- Untreated (non-waterproof) field books, loose paper, and ball-point pens;
- "Regular" water-based ice for sample cooling;
- Sunscreens and insect repellents without PFASs, examples of which include most baby sunscreens, Avon Skin So Soft Bug Guard Plus SPF 30 and Repel Lemon Eucalyptus Insect repellent;
- Rubber boots or HDPE boots (fireman boots or similar);

- Clothes that are well laundered, non-treated, and made from natural material such as cotton; and,
- Alconox® and/or Liquinox® soaps for decontamination.

Sample Collection Methods

Groundwater samples will be collected from monitoring wells using low-flow sampling techniques. Purging of groundwater will be performed at relatively low flow rates (between 0.1 and 0.5 liters per minute) in order to minimize drawdown of the surrounding water table and minimize stress on the formation. Water purged from the wells will be monitored for the following water quality field parameters: temperature, pH, specific conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity to document changes in water quality. Samples will be collected when three consecutive readings indicate stability in the field parameters. Laboratory analytical methods, sample container and preservation requirements, and analysis holding times for the project are summarized on **Table 1**. The procedures that will be followed during groundwater sampling are:

- Obtain laboratory-provided PFAS-free sample containers prior to sampling and don appropriate level of Personal Protective Equipment (PPE) as described in the HASP.
- Conduct air monitoring as outlined in the HASP and in Section 4.6 of the PDI Work Plan.
- Obtain a depth to water measurement with a decontaminated water level meter.
- Install a decontaminated stainless-steel monsoon pump with new high-density polyethylene (HDPE) tubing to purge the well. The pump should be set to the midpoint of the screen interval if the screen is submerged, or midpoint of the water column if the water level is in the screened interval. Attach pump discharge tubing to the flow through cell.
- Operate the pump at a low flow rate (between 0.1 and 0.5 liters per minute). Use a graduated cylinder or other graduated container to measure the flow rate. Adjust pump settings to achieve desired flow rate that also minimizes drawdown of the initial water level (i.e., <0.3 feet [ft] of the initial water level).
- Purge water and other IDM generated during groundwater sampling will be managed as outlined in Section 3.5.3 of the FSP/QAPP.
- Water quality field parameters will be recorded every three to five minutes from a calibrated water quality meter (see below). At least one flow through cell and tubing volume will be purged between readings. Additionally, color, clarity and any noticeable odors will be documented. Water will continue to be purged from the well until the

drawdown of water level has stabilized and three consecutive measurements have stabilized according to the following criteria:

  - pH, ± 0.1 unit;
  - temperature, ± 10%;
  - specific conductivity, ±3%;
  - ORP, ± 10 millivolts
  - DO, ± 10% or less than 0.5 milligrams per liter; and
  - turbidity, ± 10% or less than 10 nephelometric turbidity units (NTUs)

- Upon reaching stabilization criteria, don a new set of nitrile gloves and fill laboratory-provided sample containers (with the appropriate type and volume of preservative) directly from the sample pump discharge tube while maintaining the approximate flow rate established during purging.
- Check to make sure the caps are tight and then place on ice immediately.
- Follow the sample handling and labeling procedures outlined in Section 3.7 and 3.8 of the FSP/QAPP.
- Complete loose paper field forms and enter sampling information in the bound field book following sample collection as outlined in Sections 3.8.5 and 3.8.6 of the FSP/QAPP.
- Decontaminate reusable sampling equipment as detailed in the section below.

Field QC samples will be collected and analyzed to assess the precision and accuracy of groundwater sampling activities. Field QC samples will include one blind field duplicate, one matrix spike/matrix spike duplicate, one field blank, and one equipment rinsate blank. Lab-provided PFAS-free water will be used as the source water for field and equipment blanks. Each sample cooler will also be shipped with a temperature blank.

Decontamination

Decontamination will be necessary for reusable equipment including submersible pumps and water level indicators. A three-step decontamination process will be conducted as follows:

- Place three stainless-steel containers in an established decontamination area. Due to the low-potential for emerging contaminants and planned soil cover over the Site, a secondary containment unit is not required.
- Fill the first container lab-provided PFAS-free water. Add sufficient soap powder or solution to cause suds to form in the basin. Using a clean coarse scrub brush, wash the

pump and power cord or water level sensor and tape thoroughly in the soap solution in the first container, removing visible residues. While submersed in the soap solution, the pump should be turned on and a minimum of one gallon pumped through the system. Allow excess soap to drain off the equipment when finished.

- Fill the second container with lab-provided PFAS-free water and rinse the pump and power cord or water level sensor and tape. While submersed, the pump should be turned on and a minimum of one gallon pumped through the system.
- Fill the third container with lab-provided PFAS-free water and rinse the pump and power cord or water level senor and tape. While submersed, the pump should be turned on and a minimum of one gallon pumped through the system.

Decontamination water generated during groundwater sampling will be managed for disposal as outlined in Section 3.5.3 of the FSP/QAPP.

Laboratory Analysis

Collected groundwater samples will be submitted to Eurofins Lancaster Laboratories Environmental, LLC (ELLE) for analysis of PFAS via modified EPA method 537 and 1,4-dioxane via SW-846 method 8260C selective-ion monitoring (SIM). ELLE is an ELAP certified laboratory in the State of New York for both analyses. Target constituents, analytical performance standards specified in the Guidance, method detection limits (MDL) and reporting limits (RL) that can be routinely achieved by the laboratory, and other data quality indicators for the ECA are summarized on **Table 2**. As shown on **Table 2**, the RL for several PFAS constituents and 1,4-dioxane is above the performance standard requested in the Guidance. However, the method detection limit (MDL) is less than or equal to the performance standard for all constituents. Sample results will be reported by ELLE down to the MDL to meet the performance standard.

Laboratory QA/QC will be consistent with Section 4.2 of the FSP/QAPP.

REPORTING

The analytical results will be provided in a format consistent with the NYSDEC Category B data deliverable requirements. A Data Usability Summary Report (DUSR) will be prepared to assess validity of the data.

Within 90 days of receiving the laboratory report from ELLE, a letter report that documents the ECA sampling event and laboratory analytical results will be provided to NYSDEC. The report will include a NYSDEC-approved electronic data deliverable.

CLOSING

Should you have any questions or require any additional information regarding the information presented herein, please do not hesitate to contact the undersigned at (410) 381-4333.

Regards,

Adam Gray
Project Manager

James Wang, Ph.D.
Principal

Attachments:

Table 1 – Analytical Methods, Containers, Preservative, and Holding Times
Table 2 – Target Constituents, Reference Limits, and Screening Values
Figure 1 – Site Plan
Attachment A – Groundwater Elevations and Groundwater Flow Direction Map – 2009

Copies to:

Scott Pittenger, Norfolk Southern Railway Company
Helen Hart, Norfolk Southern Railway Company
Thomas Fucillo, Menter, Rudin, and Trivelpiece, P.C.
Paul Botek, Geosyntec Consultants, Inc.
Dennis Harkawik, NYSDEC
Bernette Schilling, NYSDEC
Michael Cruden, NYSDEC
Julia Kenney, NYSDOH
Justin Deming, NYSDOH

TABLE 1
ANALYTICAL METHODS, CONTAINERS, PRESERVATIVES, AND HOLDING TIMES

ECA Work Plan
Elmira 5th Street Yard
Elmira, New York

Analytical Group	Analytical Method	Containers (number, size, type)	Preservation Requirements (chemical, temperature, etc.)	Maximum Holding Time (preparation/analysis)
PFAS	EPA 537 Modified	2 x 250 mL HDPE bottle	Cool to < 6ºC	14 days/28 days
1,4-Dioxane	SW-846 8260C SIM	3 x 40 mL glass VOA vials	HCl to pH <2, no headspace, cool to < 6ºC	14 days

Notes:
SW-846 - USEPA "SW-846 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", April 1998, 5th edition.
ºC - Celcius
HDPE - high density polyethylene
mL – milliliters
SIM - selective ion monitoring

TABLE 2
TARGET CONSTITUENTS, REFERENCE LIMITS, AND SCREENING VALUES

ECA Work Plan
Elmira 5th Street Yard
Elmira, New York

Analytical Group & Method	Analyte	CAS Number	Units	Performance Standard[1]	Method Detection Limit[2]	Reporting Limit[2]	MS/MSD [3]		LCS/LCSD [3]		Laboratory Duplicate Maximum RPD[3]	Field Duplicate Maximum RPD
							Recovery	Maximum RPD	Recovery	Maximum RPD		
PFAS EPA 537 Modified	Perfluorobutanesulfonic acid	375-73-5	ng/L	2	0.3	2.0	70-130	30	73-128	30	30	20
	Perfluorohexanesulfonic acid	355-46-4	ng/L	2	0.4	2.0	70-130	30	71-131	30	30	20
	Perfluoroheptanesulfonic acid	375-92-8	ng/L	2	0.4	2.0	70-130	30	64-135	30	30	20
	Perfluorooctanessulfonic acid	1763-23-1	ng/L	2	0.4	2.0	70-130	30	67-138	30	30	20
	Perfluorodecanesulfonic acid	335-77-3	ng/L	2	0.6	2.0	70-130	30	60-135	30	30	20
	Perfluorobutanoic acid	375-22-4	ng/L	2	2.0	6.0	70-130	30	74-142	30	30	20
	Perfluoropentanoic acid	2706-90-3	ng/L	2	2.0	6.0	70-130	30	74-134	30	30	20
	Perfluorohexanoic acid	307-24-4	ng/L	2	0.4	2.0	70-130	30	75-135	30	30	20
	Perfluoroheptanoic acid	375-85-9	ng/L	2	0.4	1.0	70-130	30	76-140	30	30	20
	Perfluorooctanoic acid	335-67-1	ng/L	2	0.3	1.0	70-130	30	72-138	30	30	20
	Perfluorononanoic acid	375-95-1	ng/L	2	0.4	2.0	70-130	30	72-148	30	30	20
	Perfluorodecanoic acid	335-76-2	ng/L	2	0.9	2.0	70-130	30	69-148	30	30	20
	Perfluoroundecanoic acid	2058-94-8	ng/L	2	0.4	2.0	70-130	30	75-146	30	30	20
	Perfluorododecanoic acid	307-55-1	ng/L	2	0.5	2.0	70-130	30	75-136	30	30	20
	Perfluorotridecanoic acid	72629-94-8	ng/L	2	0.4	1.0	70-130	30	61-145	30	30	20
	Perfluorotetradecanoic acid	376-06-7	ng/L	2	0.3	1.0	70-130	30	74-135	30	30	20
	6:2 Fluorotelomer sulfonate	27619-97-2	ng/L	2	1.0	2.0	70-130	30	66-155	30	30	20
	8:2 Fluorotelomer sulfonate	39108-34-4	ng/L	2	2.0	6.0	70-130	30	66-148	30	30	20
	Perfluroroctanesulfonamide	754-91-6	ng/L	2	0.5	3.0	70-130	30	65-164	30	30	20
	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9	ng/L	2	1.0	3.0	70-130	30	62-167	30	30	20
	N-ethyl perfluorooctanesulfonamidoacetic acid	2991-50-6	ng/L	2	1.0	3.0	70-130	30	55-169	30	30	20
1,4-Dioxane SW-846 8260C SIM	1,4-Dioxane	123-91-1	µg/L	0.28	0.2	0.4	80-130	30	80-130	30	30	20

Notes:
[1] Performance Standard values are reporting and method detection limits specified in NYSDEC's Request for Sampling of Emerging Contaminants (28 June 2018).
[2] The Analytical Reporting Limit and Method Detection Limit listed are those that can be routinely achieved by the analytical laboratory (Eurofins Lancaster Laboratories).
[3] Default laboratory Recovery and Relative Percent Difference goals.
CAS - Chemical Abstracts Service
PFAS - per- and polyfluoroalkyl substances
RPD - relative percent difference
SIM - selective ion monitoring
ng/L - nanograms per liter
µg/L - micrograms per liter

EXISTING LOCKED PERIMETER FENCE

CLEMENS CENTER PARKWAY

FIFTH STREET

BROKEN ASPHALT

GRAVEL ROAD

CONCRETE PAD

MW-100

MW-12

MW-13

MW-3

MW-17

MW-8

MW-5

MW-16

MW-2

MW-4

MW-11

MW-10

MW-9

MW-6

MW-1

MW-7

MW-14

MW-15

NORFOLK SOUTHERN RAILWAY

EXISTING LOCKED PERIMETER FENCE

N

MONITORING WELL (NO SAMPLE)

ECA MONITORING WELL

0 100' 200'

SCALE IN FEET

SITE PLAN
EMERGING CONTAMINANT ASSESSMENT

5TH STREET YARD,
ELMIRA, NEW YORK

Geosyntec consultants

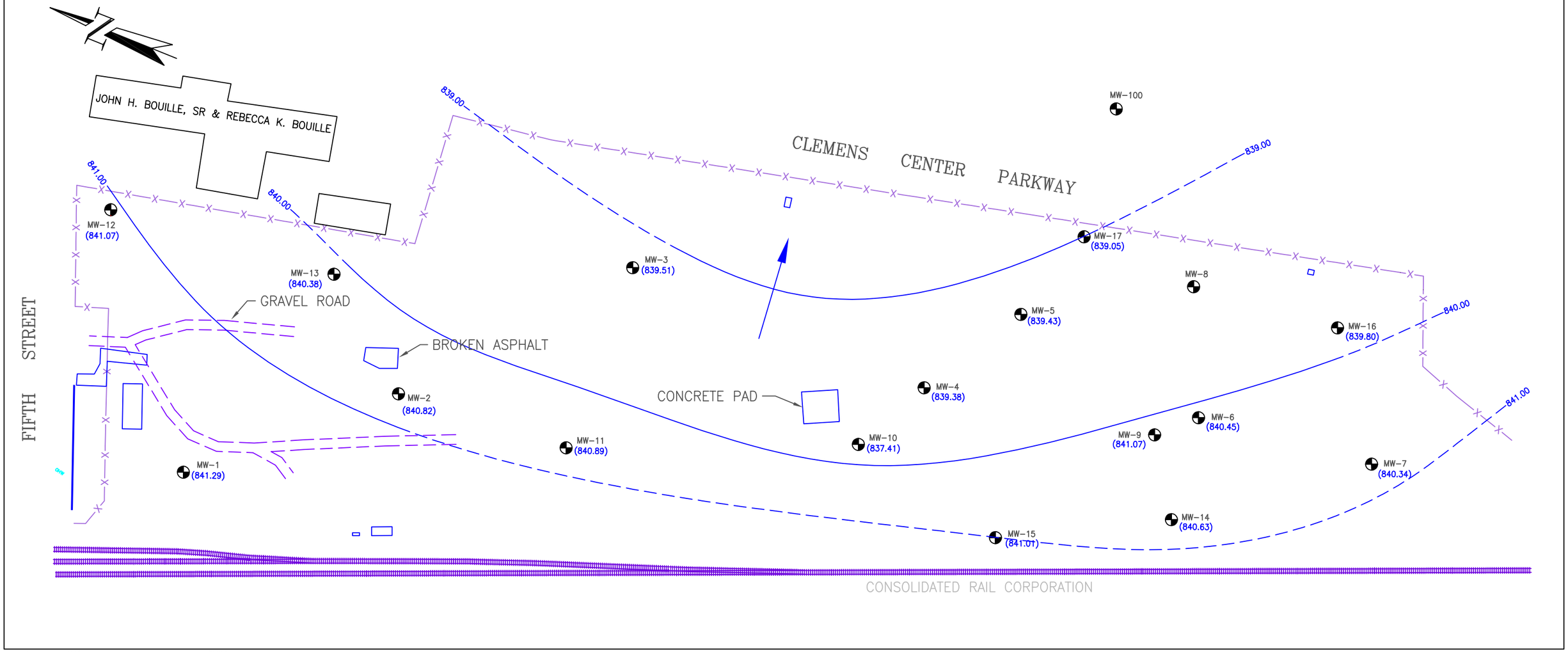
COLUMBIA, MARYLAND | AUGUST 2018

FIGURE 1

P:\CADD\1502-ELMIRA\1502F001

ATTACHMENT A

GROUNDWATER ELEVATIONS AND GROUNDWATER FLOW DIRECTION MAP - 2009



0 50 200

SCALE: 1" = 100'

LEGEND

- MONITORING WELL LOCATION
- (840.82) WATER LEVEL ELEVATION
- 840 ISOELEVATION CONTOUR (DASHED WHERE INFERRED)

GROUNDWATER ELEVATIONS AND GROUNDWATER FLOW DIRECTION MAP – 2009

FIFTH STREET YARD
FINAL REMEDIAL INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
ELMIRA, NEW YORK