Post, Charles H (DEC)

From: Post, Charles H (DEC)
Sent: Friday, December 14, 2018 2:31 PM
To: 'Robert Glazier'; Granger, Mark
Cc: Chad M. Moose (cmoose@wm.com); Adam Gray; Aron Krasnopoler
Subject: RE: Emerging Contaminant Work Plan for Cortese Landfill Site

Good Afternoon All –

The Department has received and reviewed the Emerging Contaminant Work Plan dated November 30, 2018 for this site and has no comment. Please let me know when the next round of routine groundwater sampling will be performed; seven day advance notice would be appreciated.

If you have any questions or need further clarification, please feel free to reach out to me at any time.

Best Regards,
Charlie

Charles Post
Project Manager, Division of Environmental Remediation

New York State Department of Environmental Conservation
625 Broadway, Albany, NY 12233-1706
P: 518-402-9768 | Charles.Post@dec.ny.gov

www.dec.ny.gov | |

From: Robert Glazier <RGlazier@Geosyntec.com>
Sent: Friday, November 30, 2018 5:04 PM
To: Granger, Mark <Granger.Mark@epa.gov>; Greco, Jonathan (DEC) <jonathan.greco@dec.ny.gov>; Post, Charles H (DEC) <charles.post@dec.ny.gov>
Cc: Chad M. Moose (cmoose@wm.com) <cmoose@wm.com>; Adam Gray <AGray@Geosyntec.com>; Aron Krasnopoler <AKrasnopoler@Geosyntec.com>
Subject: Emerging Contaminant Work Plan for Cortese Landfill Site

Attached please find the Emerging Contaminant Work Plan requested in NYSDEC's letter to Mr. Mark DeVine of the Cortese Landfill PRP Group dated September 24, 2018. If you have any questions, please do not hesitate to contact us.

Bob Glazier, P.G. in PA and NY
Principal

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Via Email

30 November 2018

John Greco
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233

Subject: Emerging Contaminant Assessment
Cortese Landfill Site, Narrowsburg, New York

Dear Mr. Greco:

On behalf of the Cortese Landfill PRP Group (the Group), 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 Cortese Landfill Site (the Site) (NYSDEC Site No. 353001) located in Narrowsburg, New York. This Plan was prepared in response to New York State Department of Environmental Conservation's (NYSDEC) request in the letter[1] dated 24 September 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. The ECA Plan is detailed in the remainder of this letter.

EMERGING CONTAMINANT ASSESSMENT PLAN

Groundwater Sample Locations

Groundwater samples will be collected from five monitoring wells at the Site that include MW-4B, EX-1, MW-18B, MW-5, and MW-3B. The location of those monitoring wells, along with other relevant Site features including estimated total volatile organic compound (VOC) iso-concentration contours representing the extent of VOCs in groundwater prior to OU4 active treatment (i.e. air

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[1] NYSDEC, 2018. Request for Sampling of Emerging Contaminants, Site Name: Cortese Landfill, Site ID: 353001, 24 September 2018.

sparging and soil vapor extraction) in April 2013, are illustrated on **Figure 1**. Groundwater elevation and flow direction maps for the Site, from April, July, and October 2017, were previously presented as Figures 4-2 through 4-4 in the 2017 Annual Report[2]. Those figures are included herein as **Attachment A** for reference to illustrate historical groundwater flow patterns at the Site.

EX-1, which has historically been used to monitor contaminant concentrations on the downgradient edge of the source area, was selected for the ECA to document emerging contaminants concentrations at the source area. MW-18B, located in the downgradient, central portion of the plume, was selected as a downgradient monitoring location. MW-4B is located generally upgradient of the source areas, just outside the Site boundary, and will be sampled to assess emerging contaminant concentrations in groundwater flowing onto the Site (i.e., background). Samples will also be collected from side gradient wells MW-5 and MW-3B to evaluate emerging contaminant concentrations between the Site and the Town's public water supply well to the west.

Wells MW-5 and MW-3B were included at the request of NYSDEC even though they are located side gradient from the Site, outside of the migration pathway of site-related VOCs and are not part of the current monitoring network. They are located downgradient from the publicly-owned treatment works (POTW) as shown by the potentiometric surfaces in **Attachment A**. Therefore, it is possible that if emerging contaminants were released from the POTW, they might be detected at MW-5 and/or MW-3B but are not site-related. These wells were monitored for VOCs and 1,4-dioxane (using low-level specific-ion monitoring [SIM] methods with very low detection limits) in 2015. No VOCs and no 1,4-dioxane were detected in the samples from those two wells. Conversely, over 1,000 ug/L total VOCs and over 100 ug/L of 1,4-dioxane were detected in the source area. Those data provide an additional line of evidence, in addition to the groundwater potentiometric surface, that there is not a migration pathway from the source area to these two wells.

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. Therefore, collection of PFAS samples require special sample collection and handling procedures to protect against false positives. One of the additional challenges for the Site is that dedicated bladder pumps and pump tubing installed in the

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[2] Beech and Bonaparte Engineering P.C., 2018. 2017 Annual Report, Cortese Landfill Site, Narrowsburg, New York, Document Number MD18002, 30 March 2018.

monitoring wells have PFAS-containing components (i.e. Teflon®). To mitigate against potential false positive effects on samples results, the dedicated pump and tubing at each location will need to be temporarily removed and water in the well casing purged prior to sample collection. To further reduce the risk of cross-contamination during sampling, field 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® soap for decontamination.

Sample Collection Methods

Within 150 days of NYSDEC approval of this Plan, groundwater samples will be collected from monitoring wells. Prior to the sampling event, depth to groundwater will be measured at MW-3B, MW-4B, MW-5, MW-10, MW-16, EX-1, MW-18C, and MW-1B to document groundwater flow direction in the surficial aquifer during the event. Groundwater samples will be collected by first temporarily removing the dedicated bladder pumps and pump tubing that have PFAS-containing components. A reusable decontaminated stainless-steel pump and disposable high-density polyethylene (HDPE) discharge tubing will then be inserted into the monitoring well. At least five well-volumes will be purged from the monitoring well prior to sample collection. Water purged from the wells will be periodically 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 five well-volumes have been removed from the monitoring well. Following sample collection, the stainless-steel pump and HDPE tubing will be removed and the dedicated bladder pump and tubing will be reinstalled at each location. 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) in accordance with the Site health and safety plan.
- Obtain a depth to water measurement with a decontaminated water level meter.
- Remove the dedicated pump and tubing from the monitoring well. The pump and tubing should be placed in a trash bag to prevent contact with and potential contamination from surrounding surfaces.

- Install a decontaminated stainless-steel monsoon pump with new high-density polyethylene (HDPE) tubing to purge the well. Operate the pump at a flow rate of 1 to 2 gallons per minute. Where necessary, a lower flow rate should be used to prevent dewatering of the monitoring well.
- Consistent with historical Site practice, purge water generated during groundwater sampling will be discharged to the ground surface in the vicinity of the well and allowed to infiltrate. Solid waste materials generated during the sampling event such as PPE and pump discharge tubing will be discarded in the local municipal waste stream.
- Water quality field parameters will be recorded every three to five minutes from a calibrated water quality meter. Additionally, color, clarity and any noticeable odors will be documented.
- Upon reaching five well-volumes, 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. Reduce the pump flow rate to avoid splashing while filling sample containers.
- Check to make sure the caps are tight and then place on ice immediately.
- Reinstall the dedicated pump and tubing that were previously removed.
- 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, and one equipment rinsate blank. Lab-provided PFAS-free water will be used as the source water for the equipment blank. 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 on the landfill cover system.
- Fill the first container with 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 sensor 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 discharged to the surface of the landfill cover system and allowed to infiltrate.

Laboratory Analysis

Groundwater samples will be submitted to Test America laboratory in Buffalo, New York for analysis of 1,4-dioxane via EPA Method 8270 selective-ion monitoring (SIM) and Eurofins Lancaster Laboratories Environmental, LLC (ELLE) for analysis of PFAS via modified EPA method 537. TestAmerica and ELLE are ELAP certified laboratories in the State of New York for the analytes indicated. Target constituents, analytical performance standards specified in the Guidance, method detection limits (MDL) and reporting limits (RL) that can be routinely achieved by the laboratories, and other data quality indicators for the ECA are summarized on **Table 2**. As shown on **Table 2**, the RL for several PFAS constituents 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 TestAmerica and ELLE down to the MDL to meet the performance standard.

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 reports from TestAmerica and 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

Robert M. Glazier, P.G.
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 Table Elevation Maps From 2017 Annual Report

Copies to:

Chad Moose, Waste Management
Mark Granger, USEPA
Charles Post, NYSDEC

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

Emerging Contaminant Assessment
Cortese Landfill Site
Narrowsburg, New York

Analytical Group	Analytical Method	Analytical Laboratory	Containers (number, size, type)	Preservation Requirements (chemical, temperature, etc.)	Maximum Holding Time (preparation/analysis)
PFAS	EPA 537 Modified	Eurofins Lancaster Laboratories Environmental (ELLE)	2 x 250 mL HDPE bottle	Cool to < 6ºC	7 days/40 days
1,4-Dioxane	EPA 8270 SIM	Test America - Buffalo, New York	3 x 40 mL glass VOA vials	HCl to pH <2, no headspace, cool to < 6ºC	14 days

Notes:
ºC - Celcius
HDPE - high density polyethylene
mL – milliliters
SIM - selective ion monitoring

TABLE 2
TARGET CONSTITUENTS, REFERENCE LIMITS, AND SCREENING VALUES

Emerging Contaminant Assessment
Cortese Landfill Site
Narrowsburg, 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	30
	Perfluorohexanesulfonic acid	355-46-4	ng/L	2	0.4	2.0	70-130	30	71-131	30	30	30
	Perfluoroheptanesulfonic acid	375-92-8	ng/L	2	0.4	2.0	70-130	30	64-135	30	30	30
	Perfluorooctanessulfonic acid	1763-23-1	ng/L	2	0.4	2.0	70-130	30	67-138	30	30	30
	Perfluorodecanesulfonic acid	335-77-3	ng/L	2	0.6	2.0	70-130	30	60-135	30	30	30
	Perfluorobutanoic acid	375-22-4	ng/L	2	2.0	6.0	70-130	30	74-142	30	30	30
	Perfluoropentanoic acid	2706-90-3	ng/L	2	2.0	6.0	70-130	30	74-134	30	30	30
	Perfluorohexanoic acid	307-24-4	ng/L	2	0.4	2.0	70-130	30	75-135	30	30	30
	Perfluoroheptanoic acid	375-85-9	ng/L	2	0.4	1.0	70-130	30	76-140	30	30	30
	Perfluorooctanoic acid	335-67-1	ng/L	2	0.3	1.0	70-130	30	72-138	30	30	30
	Perfluorononanoic acid	375-95-1	ng/L	2	0.4	2.0	70-130	30	72-148	30	30	30
	Perfluorodecanoic acid	335-76-2	ng/L	2	0.9	2.0	70-130	30	69-148	30	30	30
	Perfluoroundecanoic acid	2058-94-8	ng/L	2	0.4	2.0	70-130	30	75-146	30	30	30
	Perfluorododecanoic acid	307-55-1	ng/L	2	0.5	2.0	70-130	30	75-136	30	30	30
	Perfluorotridecanoic acid	72629-94-8	ng/L	2	0.4	1.0	70-130	30	61-145	30	30	30
	Perfluorotetradecanoic acid	376-06-7	ng/L	2	0.3	1.0	70-130	30	74-135	30	30	30
	6:2 Fluorotelomer sulfonate	27619-97-2	ng/L	2	1.0	2.0	70-130	30	66-155	30	30	30
	8:2 Fluorotelomer sulfonate	39108-34-4	ng/L	2	2.0	6.0	70-130	30	66-148	30	30	30
	Perfluroroctanesulfonamide	754-91-6	ng/L	2	0.5	3.0	70-130	30	65-164	30	30	30
	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9	ng/L	2	1.0	3.0	70-130	30	62-167	30	30	30
	N-ethyl perfluorooctanesulfonamidoacetic acid	2991-50-6	ng/L	2	1.0	3.0	70-130	30	55-169	30	30	30
1,4-Dioxane EPA Method 8270 SIM	1,4-Dioxane	123-91-1	µg/L	0.35	0.100	0.200	40-140	20	40-140	20	30	30

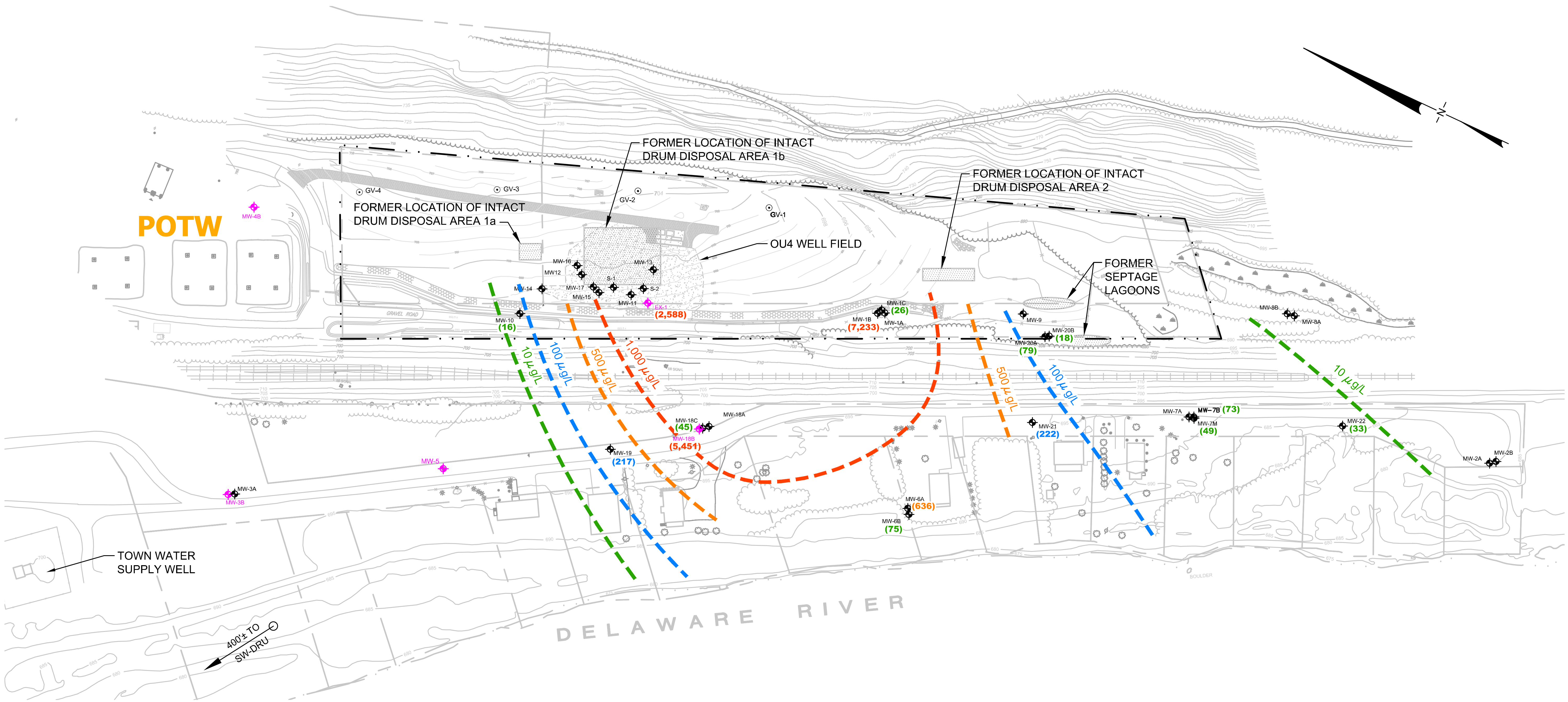
Notes:

[1] Performance Standard values (reporting limit for PFAS and method detection limit for 1,4-dioxane) were specified in NYSDEC's Request for Sampling of Emerging Contaminants (24 September 2018).

[2] The Analytical Reporting Limit and Method Detection Limit listed are those that can be routinely achieved by the analytical laboratories (Eurofins Lancaster Laboratories Environmental (ELLE) for PFAS; Test America laboratory in Buffalo, New York for 1,4-dioxane).

[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



LEGEND

	PROPERTY BOUNDARIES
	APPROXIMATE EDGE OF DELAWARE RIVER
	FENCE
	LANDFILL COVER ELEVATION CONTOUR
	PRE-EXISTING TOPOGRAPHY ELEVATION CONTOUR
	MONITORING WELL
	PROPOSED WELL FOR EMERGING CONTAMINANT ASSESSMENT
	SITE BOUNDARY
(217)	TOTAL VOC CONCENTRATION (NOTE 2)
	INFERRED TOTAL VOCs ISOCONCENTRATION CONTOUR

NOTES:

1. TOTAL TCL VOC DATA SHOWN FOR APRIL 2013. ND STANDS FOR NON-DETECT.

150 75 0 150

SCALE: 1" = 150'

SITE PLAN

CORTESE LANDFILL SITE
NARROWSBURG, NEW YORK

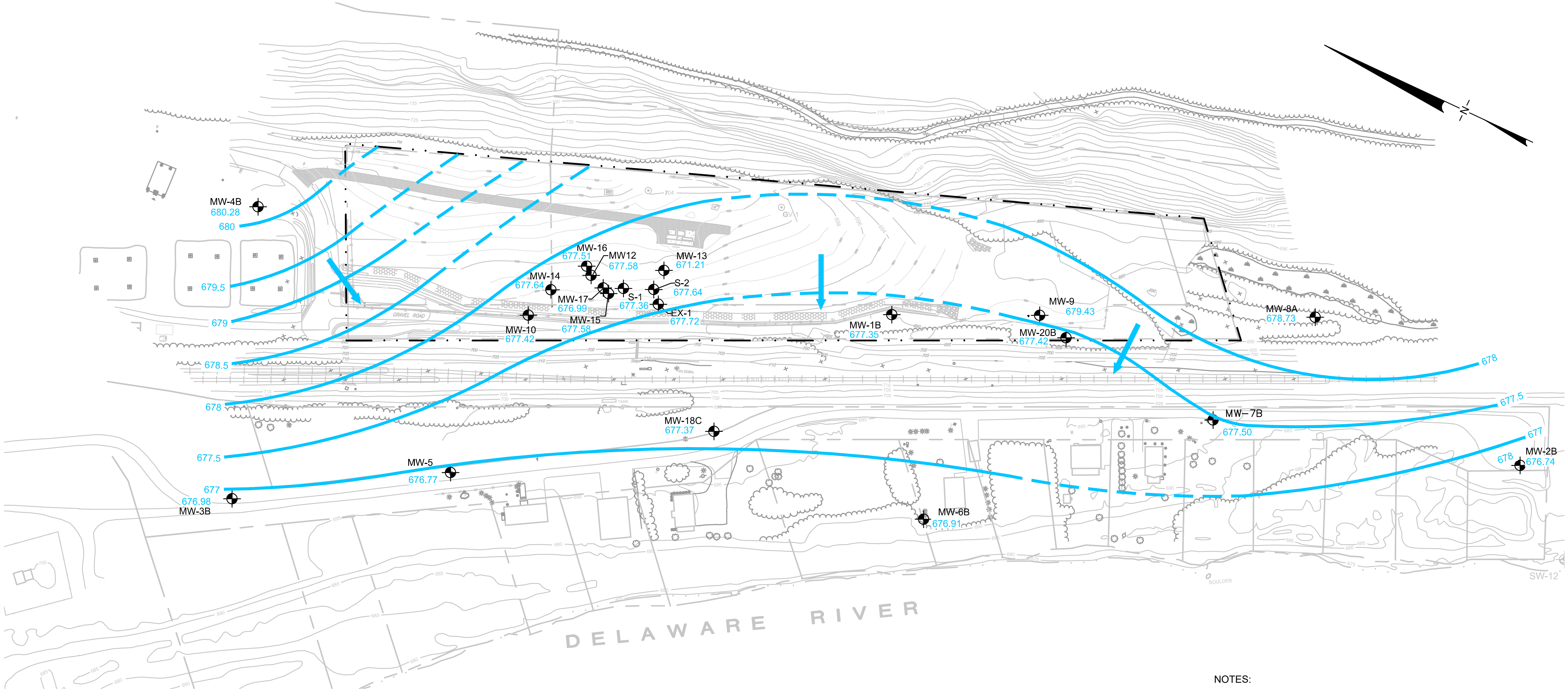
Geosyntec consultants
COLUMBIA, MARYLAND

DATE:	NOVEMBER 2018
PROJECT NO.	MR0562L
DOCUMENT NO.	MD18208
FILE NO.	0562F001
FIGURE NO.	1

P:\cadd\0562-cortese\0562\600\0562F001.dwg, 3, 11/13/2018 11:47:42 AM, bferrick

ATTACHMENT A

GROUNDWATER TABLE ELEVATION MAPS FROM 2017 ANNUAL REPORT



NOTES:

1. SEE FIGURES 1-2 AND 4-1 FOR FEATURE REFERENCES.
2. DEPTH TO WATER MEASUREMENTS TAKEN ON 24 APRIL 2017.
3. ONLY MONITORING WELLS SCREENED IN THE UPPER SAND AND GRAVEL UNIT WERE USED TO INTERPOLATE POTENTIOMETRIC CONTOURS

150 75 0 150

SCALE: 1" = 150'

LEGEND

- LANDFILL PROPERTY BOUNDARY
- APPROXIMATE EDGE OF DELAWARE RIVER
- FENCE
- LANDFILL COVER ELEVATION CONTOUR
- PRE-EXISTING TOPOGRAPHY ELEVATION CONTOUR
- 674.69 GROUNDWATER TABLE ELEVATION (FEET-MSL) (NOTE 2)
- 675 GROUNDWATER ELEVATION CONTOUR (FEET-MSL)
- PREDOMINANT DIRECTION OF SHALLOW GROUNDWATER FLOW
- SITE BOUNDARY

GROUNDWATER TABLE ELEVATION - APRIL 2017

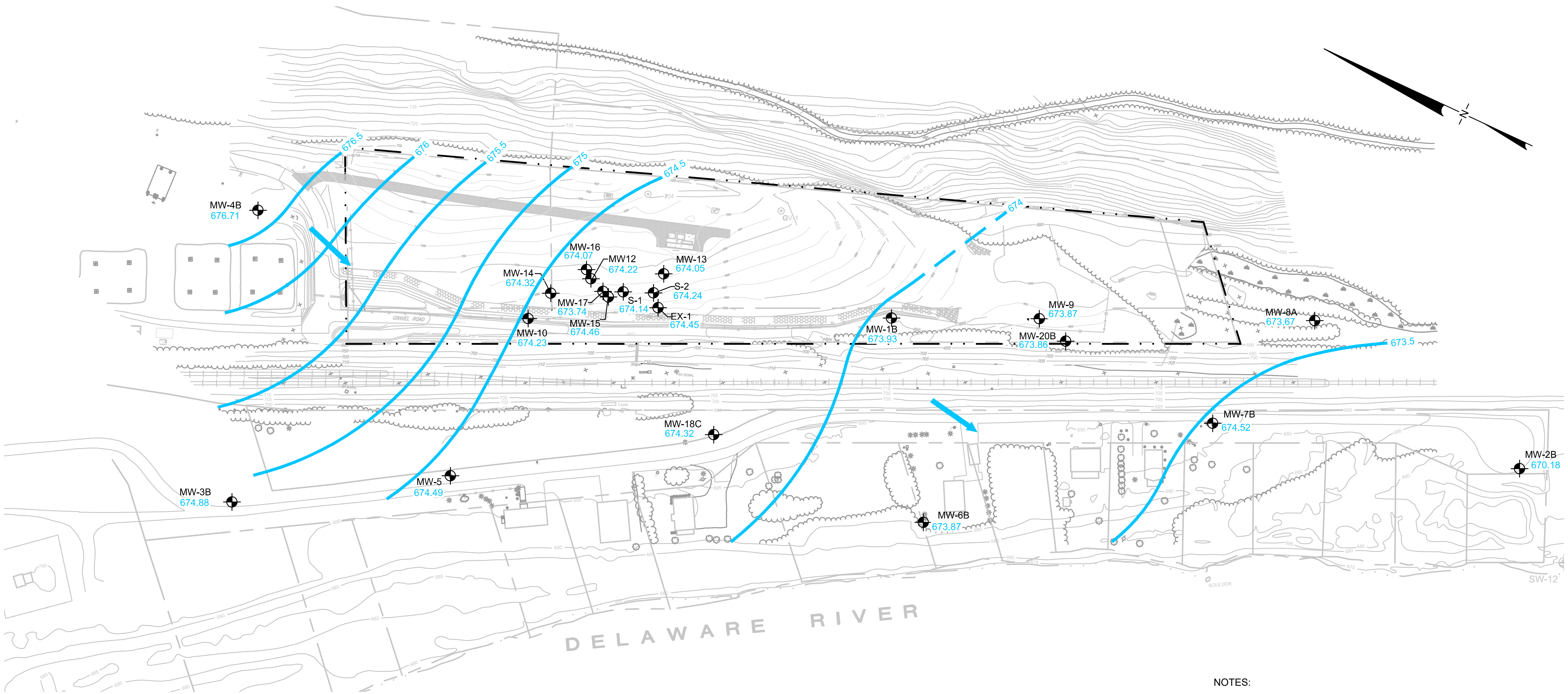
CORTESE LANDFILL SITE

NARROWSBURG, NEW YORK

Geosyntec consultants

COLUMBIA, MARYLAND

DATE:	MARCH 2018
PROJECT NO.	MR0562K
DOCUMENT NO.	MD18002
FILE NO.	05621704
FIGURE NO.	4-2



NOTES:

1. SEE FIGURES 1-2 AND 4-1 FOR FEATURE REFERENCES.
2. DEPTH TO WATER MEASUREMENTS TAKEN ON 31 JULY 2017.
3. ONLY MONITORING WELLS SCREENED IN THE UPPER SAND AND GRAVEL UNIT WERE USED TO INTERPOLATE POTENTIOMETRIC CONTOURS

150 75 0 150

SCALE: 1" = 150'

LEGEND

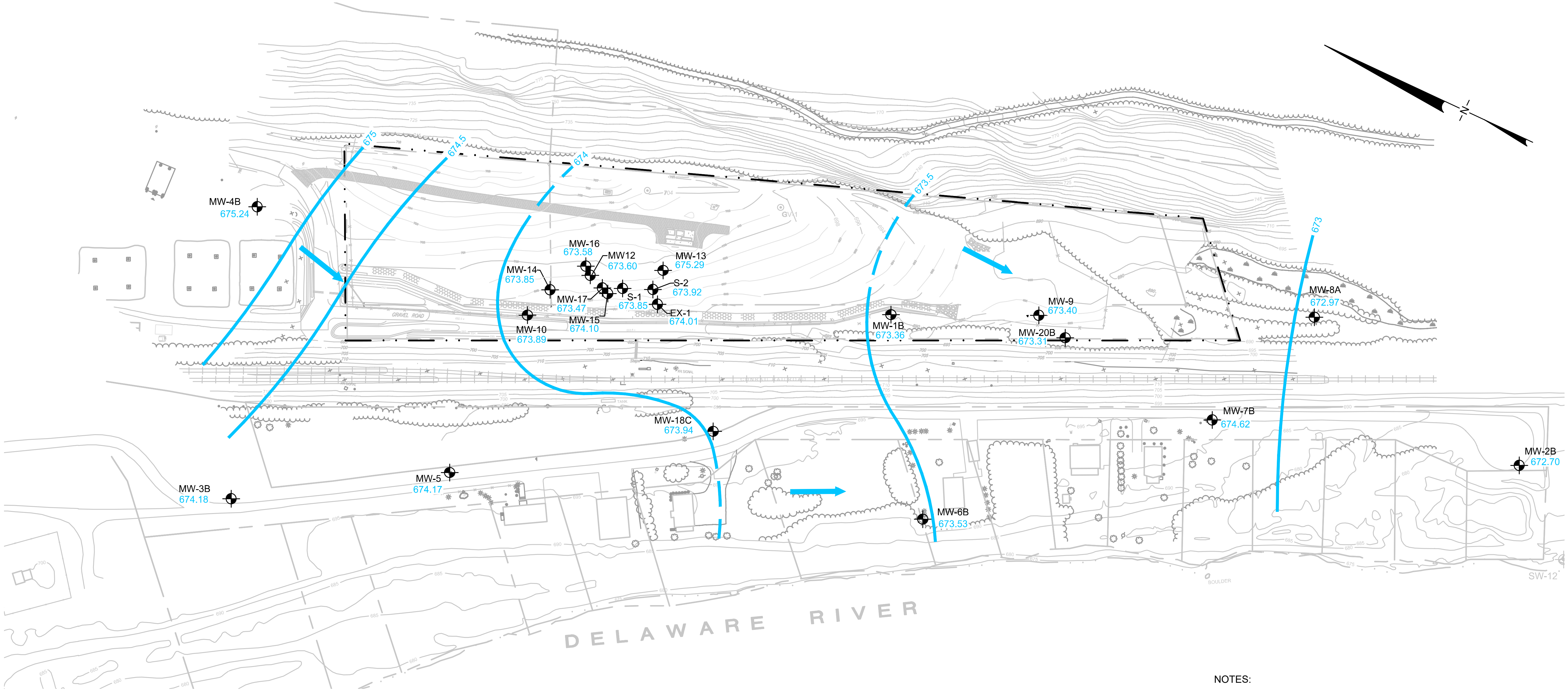
- LANDFILL PROPERTY BOUNDARY
- APPROXIMATE EDGE OF DELAWARE RIVER
- FENCE
- LANDFILL COVER ELEVATION CONTOUR
- PRE-EXISTING TOPOGRAPHY ELEVATION CONTOUR
- 674.69 GROUNDWATER TABLE ELEVATION (FEET-MSL) (NOTE 2)
- 675 GROUNDWATER ELEVATION CONTOUR (FEET-MSL)
- PREDOMINANT DIRECTION OF SHALLOW GROUNDWATER FLOW
- SITE BOUNDARY

GROUNDWATER TABLE ELEVATION - JULY 2017

CORTESE LANDFILL SITE
NARROWSBURG, NEW YORK

Geosyntec consultants
COLUMBIA, MARYLAND

DATE:	MARCH 2018
PROJECT NO.	MR0562K
DOCUMENT NO.	MD18002
FILE NO.	05621705
FIGURE NO.	4-3



LEGEND

LANDFILL PROPERTY BOUNDARY

APPROXIMATE EDGE OF DELAWARE RIVER

FENCE

LANDFILL COVER ELEVATION CONTOUR

PRE-EXISTING TOPOGRAPHY ELEVATION CONTOUR

674.69 GROUNDWATER TABLE ELEVATION (FEET-MSL) (NOTE 2)

675 GROUNDWATER ELEVATION CONTOUR (FEET-MSL)

PREDOMINANT DIRECTION OF SHALLOW GROUNDWATER FLOW

SITE BOUNDARY

NOTES:

1. SEE FIGURES 1-2 AND 4-1 FOR FEATURE REFERENCES.
2. DEPTH TO WATER MEASUREMENTS TAKEN ON 17 OCTOBER 2017.
3. ONLY MONITORING WELLS SCREENED IN THE UPPER SAND AND GRAVEL UNIT WERE USED TO INTERPOLATE POTENTIOMETRIC CONTOURS

150 75 0 150

SCALE: 1" = 150'

GROUNDWATER TABLE ELEVATION - OCTOBER 2017

CORTESE LANDFILL SITE

NARROWSBURG, NEW YORK

Geosyntec consultants

COLUMBIA, MARYLAND

DATE:	MARCH 2018
PROJECT NO.	MR0562K
DOCUMENT NO.	MD18002
FILE NO.	05621706
FIGURE NO.	4-4

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