

Former Marble Quarry Landfill
109-125 Marbledale Road
Tuckahoe, New York

NYSDEC Brownfield Cleanup Program #C360143

Community Meeting #2
November 30, 2016



HydroEnvironmental
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Supplemental Environmental Work Completed Since September 27, 2016

- Installation of five deep soil borings (to depths of 22 to 87 feet)
- Three deep bedrock wells (to depths of 85 plus ftbg)
- Three shallow wells (depths ranging from 20 to 40 ftbg)
- Collection of soil samples from each deep boring location for full parameters list
- Collected three samples for Dioxins and split samples with the NYSDEC
- Collection of soil pre-characterization samples: 38 of 49 borings completed as of 11/30/16; Source Area Borings Complete

Supplemental Environmental Work Completed Since September 27, 2016 (Cont.)

- Soil Vapor Extraction (SVE) Pilot Test Well Installation – Four Wells and Twelve Monitoring Points Completed
- Completion of SVE Pilot Testing at each SVE well (November 17-21, 2016; Air Sampling Data Pending)
- Collection of first round of groundwater samples from three bedrock and overburden monitor well pairs (November 16-22, 2016; Data Pending)

Hollow Stem Auger and Air Rotary Drilling



Installing Deep Bedrock Monitor Wells



Air Monitoring Station



Air Monitoring Instrumentation



SVE Pilot Test



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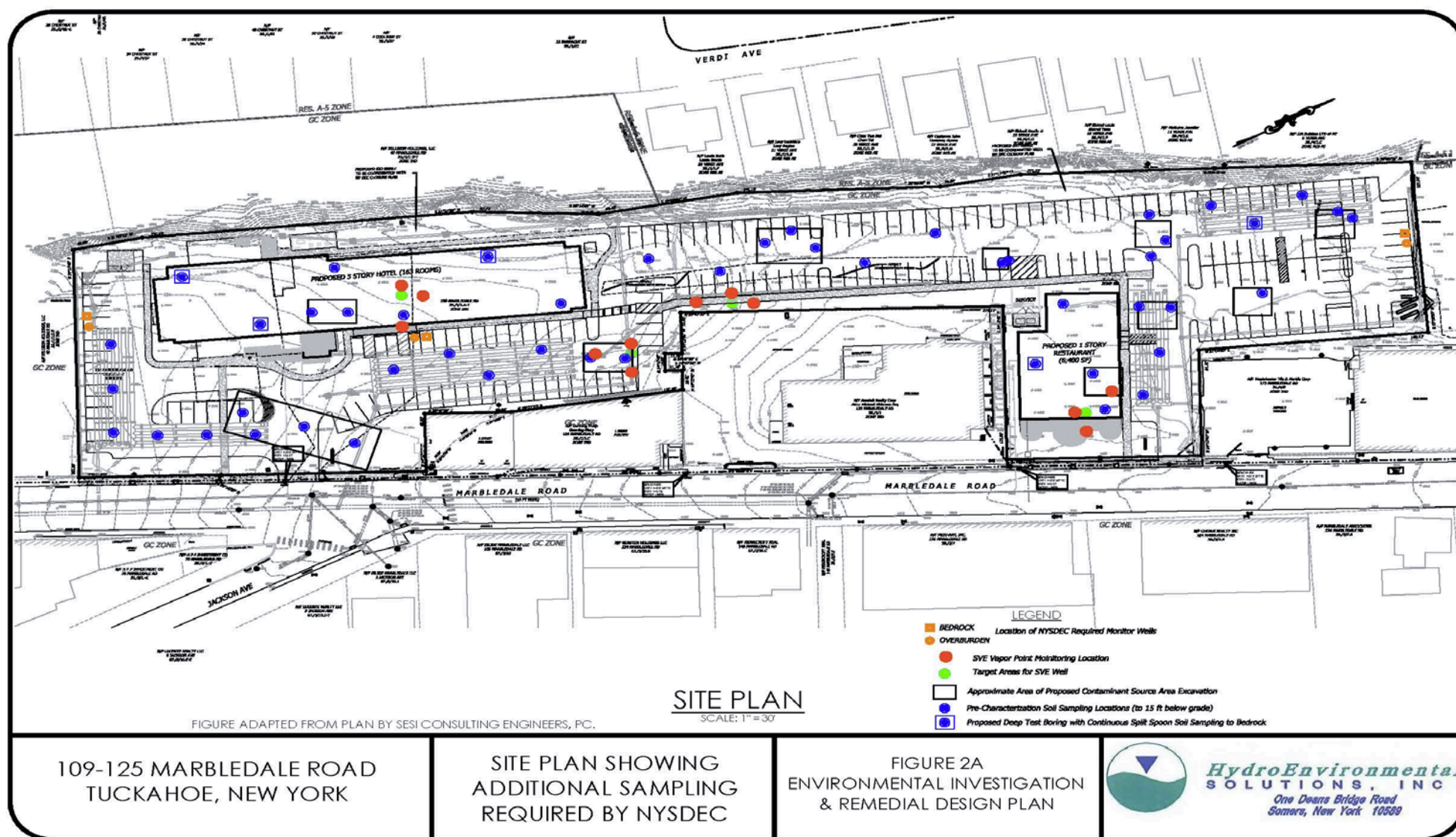
SVE Pilot Test



Soil Precharacterization Drilling



Site Plan Showing Supplemental Environmental Work



Remaining Environmental Work to be Completed in 2016

- Finish Pre-Characterization Soil Borings and Sampling (11 Borings remaining as of 11/30/16)

Supplemental Environmental Work General Information

- All Supplemental Environmental Work Completed to Date was conducted under the Direct Supervision of the NYSDEC and Village Environmental Consultant (HDR).
- All work conducted was compliant with approved RAWP and Decision Document.
- The Environmental Work was conducted in accordance with the October 19, 2016 Village Board approved Resolution and the NYSDEC and HDR approved Supplemental Environmental Investigation and Remedial Design Work Plan.
- The work was completed in accordance with the approved CAMP, QAPP and HASP.
- The work was completed in accordance with DER-10 and all applicable NYSDEC Guidelines and Regulations pertaining to BCP Sites.

Supplemental Environmental Work

Preliminary Results

CAMP Results: No dust or VOC action level exceedances were observed during the first two months of supplemental environmental work both on- and off-site.

On-site HASP Monitoring: No exceedances were observed in the work space or on-site during the first two months of supplemental environmental monitoring including VOCs, %LEL, % Oxygen.

Radioactivity Screening by NYSDEC: NYSDEC monitoring for radioactivity did not detect anything above natural background levels in all soil samples analyzed during continuous soil sampling related to the installation of shallow monitor wells (OW-1 and OW-2) and deep test borings (DB-1 through DB-5).

Supplemental Environmental Work Preliminary Results (continued)

Deep Soil Borings Results (DB-1 through DB-5)

Only several exceedance of the NYS Commercial Use Soil Cleanup Objectives were documented:

- Polycyclic aromatic hydrocarbons (PAHs) at DB-4 (16-20 ftbg) and DB-5 (4-6 ftbg) for Benzo(a)anthracene and Dibenzo(a,h)anthracene at DB-5 (4-6 ftbg).
- Metals including arsenic and lead at DB-1 (5-9 ftbg) and DB-3 (57-59 ftbg), respectively. Cadmium at DB-2 (70-74 ftbg).
- While there were numerous exceedances of Unrestricted Use Soil Cleanup Objectives, this is a commercially zoned site not suitable for any unrestricted use and, therefore, these objectives are inapplicable.

Supplemental Environmental Work Preliminary Results (continued)

Dioxin Soil Results:

- Two Samples split with the NYSDEC (Third sample has been collected).
- Dioxin Soil Results are compared to the World Health Organization (WHO) 2005 Toxicity Equivalent Values (TEQ) for soils, which are not New York guidance numbers or standards but the only applicable value number available for purpose of comparison.
- When results are compared to TEQ, they indicate that trace concentrations of Dioxin are present in soil but are **below** the guidance identified for soil. Nonetheless, continuing to minimize dust and monitoring is still the recommended approach.
- Both NYSDEC and HES collected Dioxin samples indicating the same result and/or similar results.
- NYSDOH has looked at the results and concluded that the CAMP dust action level has an adequate margin of safety for Dioxin TEQs in the range detected.

Supplemental Environmental Work Preliminary Results (continued)

Source Area Soil Results:

The following exceedances of Commercial Soil Cleanup Objectives were observed:

- Metals including barium and copper at SA-1 and SA-2. Lead at SA-1.
- SVOCs at SA-3, SA-7 and SA-9 for Benzo(a)pyrene. At SA-3 and SA-9 for Benzo(a)anthracene, Benzo(b)fluoranthene and Dibenzo(a,h)anthracene. Indeno(1,2,3-cd)pyrene at SA-9.

No exceedances of the Commercial Soil Cleanup Objectives were observed at SA-4, SA-5, SA-6, SA-8 and SA-10.

Proposed Future Construction Work – Order of Operations

Projected Startup Date - December 15, 2016

1. Data compilation and review to determine if any modifications to the Work Plan are necessary regarding excavation and soil moving/CAMP. NYSDEC and HDR review of foundation plan and to confirm Resolution is being followed.
2. Clear and Prepare Site
3. Excavate and Dispose of Source Material Areas at off-site Disposal Facility
4. Implement Site-Wide Cut and Fill Plan
5. Install Site Utilities, Stormwater Retention Systems and SVE System(s). Design SVE/SSDS, review and approval of same by NYSDEC.
6. Second round of groundwater sampling.
7. Foundation and Geotechnical Assessment – Carlin Simpson Geotechnical Engineer has replaced dynamic compaction concept with 2 alternative methods to be discussed in the plan - Geo piers and Geo Grid.
8. Install Building Foundations – Hotel and Restaurant.
9. Install Vegetative and Engineered Site Wide Caps.
10. Third round of groundwater sampling.

DRAFT: Subject to Change



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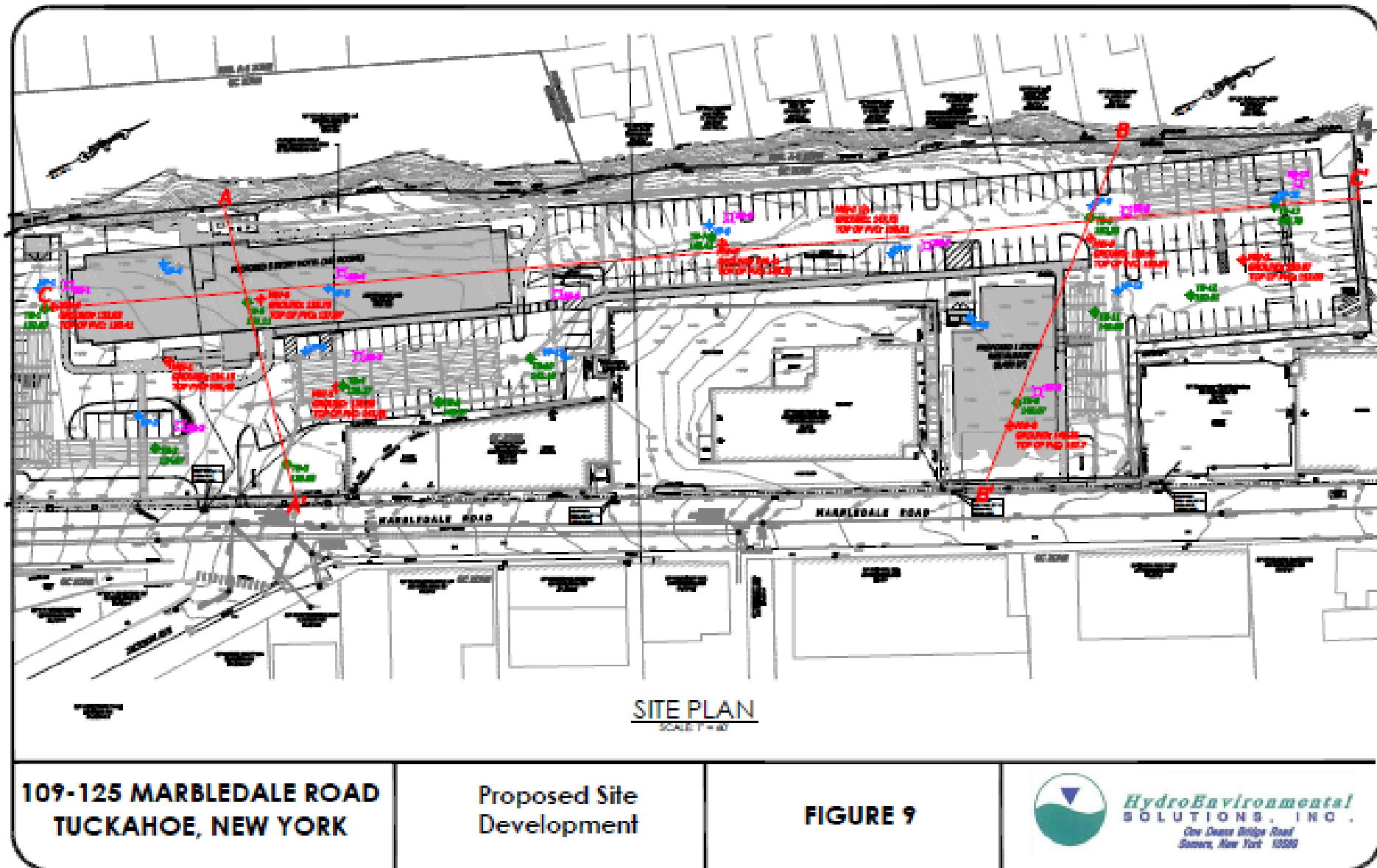
Task Name - NYSDEC Approved RAWP	Duration	Start	Finish
Contaminant Source Material Removal and Disposal	30 Days	12/1/2016	12/31/2016
Design and Install Site Wide Cap	120 Days	1/1/2017	4/30/2017
Design and Install Sub Slab Depressurization and SVE Systems	150 Days	5/1/2017	9/30/2017
Compile NYSDEC BCP FER and SMP	90 Days	10/1/2017	12/31/2017
Task Name - Supplemental RAWP Environmental Work	Duration	Start	Finish
Implement Site Wide Soil Pre-Characterization	30 Days	11/7/2016	12/7/2016
Install Three Sets of Nested Monitor Wells (Bedrock and Overburden)	14 Days	10/11/2016	10/31/2016
Install Four SVE Wells and Nine Vapor Monitoring Points	4 Days	10/20/2016	10/28/2016
Conduct SVE Pilot Test	5 Days	11/14/2016	11/19/2016
Conduct Groundwater Monitoring and Sampling (3 field days, One Year Duration)	3 days	11/14/2016	11/14/2017
Compile Supplemental Work Summary Letter	30 Days	11/20/2016	12/20/2016
Design SVE System and Compile SVE Design Report	30 Days	11/20/2016	12/20/2016

Additional Project Updates

As noted above, Deep Dynamic Compaction (DDC) will not be used during installation of building foundations. Methods to be used include:

1. *Geo-piers and over excavation*
2. *Geo-grid and replace with dense graded aggregate (DGA)*

Proposed Future Site Development



Thank You for Attending the Tuckahoe
Community Meeting Related to the
Marbledale BCP Site!

Questions?