

CORRECTIVE ACTION PLAN
June 2010
Village of Millbrook, New York
35 Merritt Ave
SPILL NO. 08-13879

1. As of the effective date of this Stipulation Agreement (STIP) specific to DEC Spill No. 08-13879, Respondent will implement this Corrective Action Plan (CAP) to remove remaining subsurface petroleum-based impacts in accordance with applicable standards. Figures 1, 2 and 3 (attached) depict the general site location, spill area on the site, and remedial system lay-out, respectively.

2. Proposed measures to be undertaken pursuant to this CAP require treatment of impacted groundwater and discharge of the treated effluent to the Village's wastewater treatment plant (WTP). One passive air venting point source will also be installed under this CAP. Respondent shall be authorized to undertake such treatment and discharge in accordance with the general conditions and standards offered in NYSDEC's Attachment 3 and Appendix 1. No discharge related to remediation at this site shall exceed air and water effluent limits offered in Attachment 3.

3. Respondent will ensure the Phase II excavation area is completely backfilled while maintaining product recovery in a newly installed 24-inch diameter sump which is surrounded by permeable stone in the Phase II area (Figure 2). Currently, the proposed sump is located on the upgradient edge of the delineated free phase product shown on Figure 2. If the proposed pilot testing does not show a depression in the water table affecting the free-phase product (FPP) identified in wells installed at 33 and 31 Merritt Avenue, additional recovery wells may be installed on either 33 or 31 Merritt Avenue to recover FPP.

4. Respondent will excavate and dispose of remaining impacted soils from the Phase III Excavation Area to the extent practicable. Backfilling will include use of permeable stone fill in the saturated zone and to a depth of approximately three (3) feet below ground surface (bgs). The permeable stone will be covered by filter fabric to limit clogging of the stone backfill. The remaining excavation will be backfilled with compacted soil to approximately one foot bgs. The remaining excavation will be filled with organic-rich topsoil except in areas where driveways or future buildings will be constructed.

5. Respondent will design and build a product recovery system which will be operated until recoverable FPP is substantially eliminated at this site. The proposed recovery system will contain necessary components designed to extract residual FPP from pumped groundwater. A pilot test will first be performed to aid in the sizing and selection of system components. The pilot test will also be used to determine if the proposed recovery system is adequate based on hydrogeologic conditions.

The system will generally include a petroleum-resistant pump, buried liquid transfer piping/electric wiring connected to a heated shed on Village property, an oil water separator unit with a product recovery drum, followed by a granular activate carbon polishing or low profile air-stripping unit to treat any collected groundwater prior to discharge. The discharge line will be equipped with an effluent sample tap, and the recovery system will contain a high liquid level alarm to shut down the system in the event of a component failure.

6. Respondent will complete installation and start-up of a passive venting system to create a pathway for releasing residual vapors which may otherwise potentially become trapped in the subsurface. The system will be constructed using perforated two-inch diameter PVC pipes placed in the Phase II and III excavation areas during backfilling at depth of 3.5 feet bgs at locations shown in Figure 3. Solid portions of PVC piping will be extended to the Village Hall, joined together in a pipe manifold and extended one foot above the roof peak. Respondent will use a photo-ionization detector (PID) to estimate bulk VOC emission concentrations during the first week of operation. Respondent will collect an air stack grab sample for analysis at a certified laboratory once per quarter for the first year of operation to compare discharge concentrations against those presented in Appendix 1. If warranted, the system may be upgraded to include active ventilation and treatment of the vapors. Vapor levels exceeding the Appendix 1 (attached) criteria measured during the first week of operation shall establish the requirement for carbon filtration.

7. Quarterly submittals will be sent to the Department, and the affected property owners located at 33 and 31 Merritt Avenue through the first year of operation summarizing the effectiveness of the proposed system based on management of recovered product and discharge effluent concentrations. Readings will be collected from the passive air extraction system upon start-up and quarterly thereafter through the first year of operation. Groundwater quality will be monitored each quarter within an existing network of onsite wells (MW-14, MW-20, MW-30, MW-36 and MW-38). The wells will be analyzed on a quarterly basis for 8260 STARS/8270 STARS (VOCs and SVOCs, respectively) through June 2011 and compared to NYSDEC's groundwater quality standards summarized in TOGS 1.1.1.

8. Within 10 days of receipt of the Department's notice of approval of the remediation plan, (described in paragraphs 3 -7 above and Figure 3 attached), Respondent shall implement the approved remediation plan.

9. This approved remediation plan shall be made part of the STIP agreement between the Respondent and the Department.

Any modifications to this CAP must be approved in advance in writing by the Department. Prior to any modification of the CAP, the affected property owners located at 33 and 31 Merritt Avenue shall be also contacted.

Attachments:

Figure 1: Site Location Map

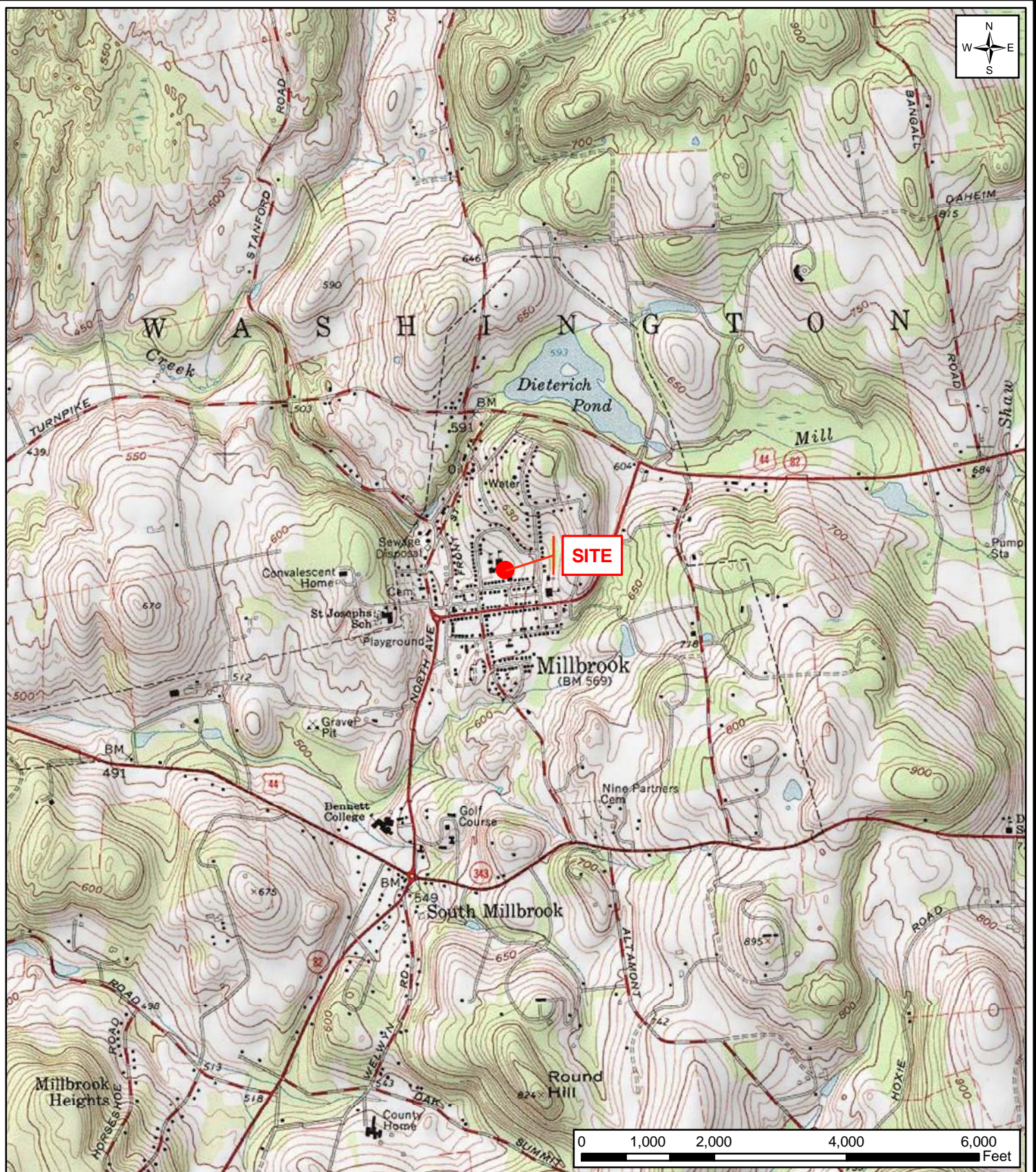
Figure 2: Phase III Excavation Area Map

Figure 3: SVE Piping and Product Recovery System Lay-out

STIP Guidance Attachment 3 and Appendix 1 Discharge Limits

TOGS 1.1.1 Groundwater Guidance Values

FIGURES



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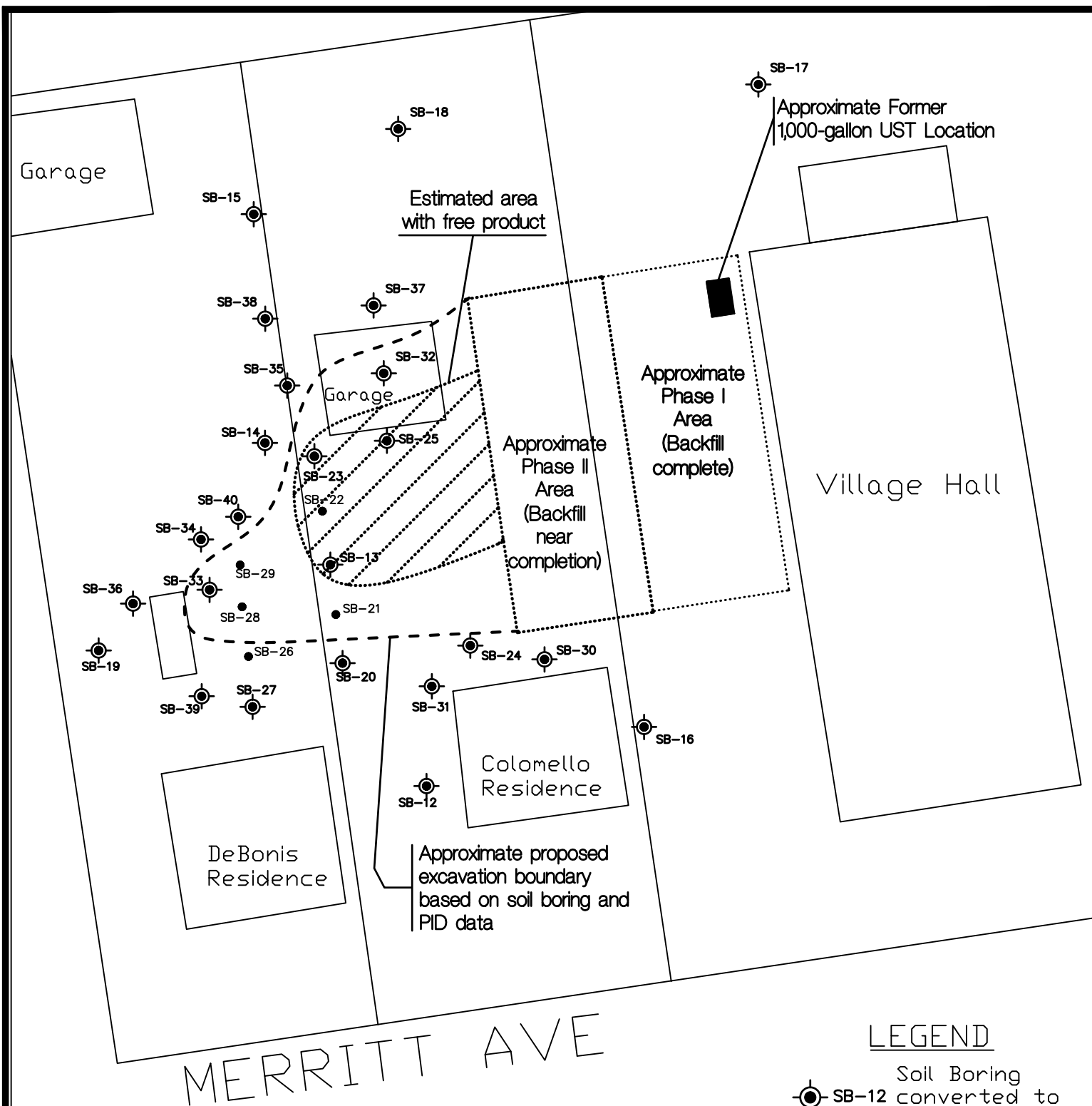
Millbrook Village Hall

Figure 1 - Site Location Map



35 Merritt Avenue
Village of Millbrook, Town of Washington, Dutchess County, New York

Source: U.S.G.S. Topographic Map of the Millbrook, New York Quadrangle,
Dated 1960, 7.5-Minute Series.

Drawn:	EJO
Date:	May 2010
Scale:	1:24,000
Project:	41012.00
Figure:	1



LEGEND

-  SB-12 Soil Boring converted to Monitoring Well
 SB-22 Soil Boring only

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Village of Millbrook - Village Hall Area
NYSDEC Spill No. 08-13879

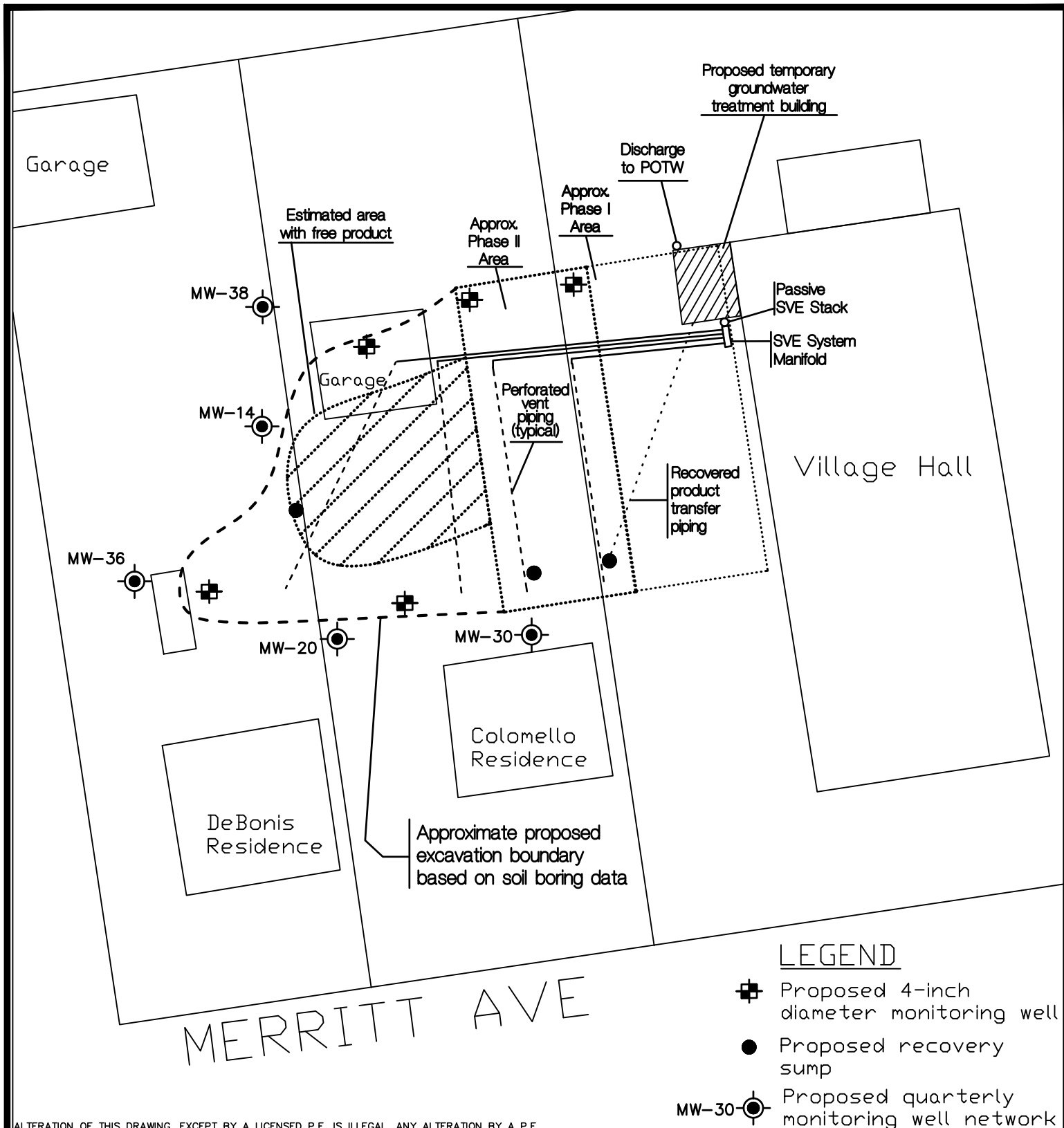
Proposed Phase III
Excavation Plan

31 - 35 Merritt Avenue

drawn EJD/CSD	checked DPM
date 5/2010	scale 1"=30'
project no. 41012.00	
sheet no.	

Figure 2

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Village of Millbrook - Village Hall Area
NYSDEC Spill No. 08-13879

Proposed Remedial
Structures Layout

31 - 35 Merritt Avenue

drawn EJD/CSD	checked DPM
date 5/2010	scale 1"=30'
project no. 41012.00	
sheet no.	

Figure 3

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Drawing Name: X:\4\41001-41100\41012.00_Village of Millbrook Oil Spill Support\Figures\DWG\Figs2 and 3_Remedial.dwg Date Printed: Jun 03, 2010, 4:55pm

NYSDEC STIP GUIDANCE ATTACHMENT 3: Wastewater Effluent Limits

Attachment 3

Wastewater Discharge Limits

- 1. General Conditions Applicable to All Wastewater Discharges**
- 2. Table 1: Wastewater Limits for Groundwater Discharges**
- 3. Table 2: Wastewater Limits for Surface Water Discharges**

General Conditions Applicable to All Wastewater Discharges

1. Advance notice shall be given to the Department of any planned changes in the treatment facility or activity which may result in noncompliance with effluent limitations.
2. Any noncompliance which may endanger health or the environment must be reported orally within 24 hours from the time Respondent becomes aware of the circumstances. A written report shall also be provided within 5 days. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if it has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent the noncompliance and its recurrence.
3. Bypasses which do not cause a violation of effluent limitations are allowable, but only for essential maintenance, repairs or replacement to assure efficient and proper operation. The Department must be given 5 days advance written notice of any anticipated bypass. The Department shall be notified within 24 hours of any unanticipated bypass.

Bypass is prohibited, and the Department may take enforcement action, unless:

- the bypass was unavoidable to prevent loss of life, personal injury, public health hazard, or severe property damage;
- there were no feasible alternatives to the bypass such as the use of auxiliary treatment facilities or retention of untreated wastes; and
- required notices were submitted to the Department and, with the exception of emergency conditions, were accepted by the Department.

"Bypass" means the intentional or unintentional diversion of wastewater around any portion of a treatment facility for the purpose or effect of reducing the degree of treatment intended to be provided by the bypassed treatment facility.

"Severe property damage" means substantial damage to property, damage to treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which would not reasonably be expected to occur in the absence of a bypass.

TABLE 1
Wastewater Limits For Groundwater Discharges

GROUP A		
COMPOUND	GASOLINE	FUEL OIL
pH range	6.5 - 8.5	6.5 - 8.5
Benzene	1.0 ug/l	1.0 ug/l
Ethylbenzene	5 ug/l	5 ug/l
Toluene	5 ug/l	5 ug/l
o-Xylene	5 ug/l	5 ug/l
m-Xylene	5 ug/l	5 ug/l
p-Xylene	5 ug/l	5 ug/l
Mixed xylenes	5 ug/l	5 ug/l
Naphthalene	10 ug/l	10 ug/l
MTBE	10 ug/l	10 ug/l

TABLE 1 (Continued)
Wastewater Limits For Groundwater Discharges

GROUP B		
COMPOUND	GASOLINE	FUEL OIL
Isopropyl benzene	5 ug/l	5 ug/l
n-Propyl benzene	5 ug/l	5 ug/l
p-Isopropyl benzene	5 ug/l	5 ug/l
1,2,4-Trimethyl benzene	5 ug/l	5 ug/l
1,3,5-Trimethyl benzene	5 ug/l	5 ug/l
n-Butyl benzene	5 ug/l	5 ug/l
sec-Butyl benzene	5 ug/l	5 ug/l
t-Butyl benzene	5 ug/l	5 ug/l
Anthracene	N / A	50 ug/l
Dibenz (a,h) anthracene	N / A	50 ug/l
Fluorene	N / A	50 ug/l
Fluoranthene	N / A	50 ug/l
Phenanthrene	N / A	50 ug/l
Pyrene	N / A	50 ug/l
Acenaphthene	N / A	20 ug/l
Benzo (a) anthracene	N / A	20 ug/l *
Benzo (b) fluoranthene	N / A	20 ug/l *
Chrysene	N / A	20 ug/l *
Benzo (a) pyrene	N / A	20 ug/l *
Benzo (g,h,i) perylene	N / A	20 ug/l *
Indeno (1,2,3-c,d) pyrene	N / A	20 ug/l *
Benzo (k) fluoranthene	N / A	20 ug/l *

N / A = not applicable

* The groundwater standards or guidance values for these compounds are not currently detectable by standard laboratory methods. These discharge limits are practical and enforceable limits.

TABLE 2
Wastewater Limits For Surface Water Discharges

COMPOUND	GASOLINE	FUEL OIL
pH range	6.5 - 8.5	6.5 - 8.5
Benzene ¹	7 ug/l	7 ug/l
Ethylbenzene	5 ug/l	5 ug/l
Toluene	5 ug/l	5 ug/l
o-Xylene	5 ug/l	5 ug/l
m-Xylene	5 ug/l	5 ug/l
p-Xylene	5 ug/l	5 ug/l
Mixed xylenes	5 ug/l	5 ug/l
Naphthalene	10 ug/l	10 ug/l
MTBE	10 ug/l	10 ug/l

N A = not applicable

¹ The benzene limits for discharge to Class A surface waters are applicable for water bodies capable of 7:1 dilution ratio of base flow to discharge flow. The Division of Water may be consulted for assistance as needed.

NYSDEC STIP GUIDANCE APPENDIX 1: SVE Discharge Limits

Soil Vapor Extraction System (SVES) Benzene Emission Limits

Stack Height (feet)	Air Flow (cfm)	Maximum Benzene Emissions (ppm-v)	Maximum Benzene Emissions (ug/m³)	Maximum Benzene Emissions (lbs/hr)
15	50	8.00	26360	0.00494
	100	4.00	13180	0.00494
	150	2.66	8787	0.00494
	200	2.00	6590	0.00494
	250	1.60	5272	0.00494
20	50	14.88	49069	0.00919
	100	7.44	24535	0.00919
	150	4.96	16356	0.00919
	200	3.72	12267	0.00919
	250	2.98	9814	0.00919
25	50	24.10	79458	0.01488
	100	12.05	39729	0.01488
	150	8.03	26486	0.01488
	200	6.02	19864	0.01488
	250	4.82	15892	0.01488
30	50	35.72	117806	0.02206
	100	17.86	58903	0.02206
	150	11.91	39269	0.02206
	200	8.93	29452	0.02206
	250	7.14	23561	0.02206