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Protecting drinking water and human health for over 30 years

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436 Dwight Street, Springfield, MA 01103

RE: Please perform a full audit and take emergency corrective action to compel Shutesbury RTN 1-21489 & RTN 1-18707 compliance with 21E/MCP employing best available scientific OHM assessment/remediation practices at the town-owned 21-acre "Lot 0-32" property

Emailed on June 23, 2022 for electronic RTN 1-21489 submission

Dear Ms. Stinehart, Mr. Motamedi, Mr. Slowick and Mr. Ziegler,

Introduction:

Available evidence suggests an "imminent hazard" may exist at and downgradient to the historically contaminated 21E site. Therefore, I implore DEP to please perform a full audit and take emergency corrective action to protect human health and compel Shutesbury RTN 1-21489 and RTN 1-18707 compliance with 21E/MCP employing best available scientific OHM assessment/remediation practices at the town-owned 21-acre "Lot 0-32" property.

Best available 21E/MCP scientific practices compel Shutesbury to test for OHM in shallow groundwater to ascertain whether any Critical Exposure Pathways ("CEPs") exist by which OHM may be transported by water and air to human receptors (children and adults) invited by town officials to stroll about the marked-off with rainbow flowered archways demarcation for the proposed public library and community gardens.

On December 29, 2010, Shutesbury environmental consultant Fuss & O'Neill, first provided an extensive but incomplete list of known disposal sites/Recognized Environmental Conditions ("RECs") at the historic location of the town's only landfill ("Ms. Torres indicated that approximately 13 dumpsters of automotive and household debris was removed from the property prior to the town's acquisition of the property"). Unfortunately, only a few of Fuss & O'Neill's lengthy list of known disposal sites/RECs were ever identified on a map or credibly investigated.

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Fuss & O'Neill's December 29, 2010 summary of historic use at the active 21E site indicates a compelling need for a comprehensive site assessment, based on the long history of dumping, disposal, probable and known contamination, the practice of burning garbage and a house, the removal of the 21-acre onsite topsoil, filling in of wetland depressions/vernal pools, and other abuses that the property has been subjected to since it was first used in 1735.

Cleaning up the historically contaminated site would be a good idea, but whether it is feasible and financially wise to do so will not be possible to judge until a Comprehensive Site Assessment ("CSA") is completed using best available scientific practices in accordance with EPA/DEP guidance. Until such CSA preliminary work is done, the proposed use of the site for a library and community gardens is extremely premature.

Hydrogeologic conditions at this site make it relatively simple and inexpensive to test for DNAPL (like PCB) or LNAPL (like C5-C8 aliphatic hydrocarbons – gasoline) in shallow groundwater. Here, radial flow groundwater percolates down a gently sloped elongated hill, fanning out to the west, northwest, north, northeast and east, on an impermeable confining layer of glacial till 1-3 feet below the surface, into manmade/glacially-trenched preferred OHM migration pathways, leaching into wetlands that potentially supply drinking water to more than ten Town Center wells located less than 500 feet downgradient from the 21E site. To better understand the site hydrogeology, please review an attached: 1) aerial photograph showing DEP wetlands outlined in green and "hydraulic connections" in thin blue lines; 2) a 2010 "Shutesbury Figure 2 [Library] Site Plan"; and 3) a photograph of a back hoe trenched 4-5 foot "Perc Test #1" hole taken in 2010 that illustrates the 21E site stratigraphy discussed herein.

Even though it is relatively simple and inexpensive to test for DNAPL and LNAPL in shallow groundwater, Shutesbury only tested for PCB in water at two well point locations (GP-2 and GP-3 in 2012) throughout the 21-acre dump. DNAPL/PCB concentrations in GP-3 water exceeded reportable levels. DNAPL/PCB concentrations in GP-2 water was found just under.

The town's apparent aversion to perform water tests downgradient from known or suspected OHM disposal site/REC sources makes it impossible to ascertain whether any Critical Exposure Pathways ("CEPs") exist by which OHM may be transported by water and air to human receptors in the vicinity of the proposed public library and community gardens. Such failure to perform best available scientific analysis required by 21E/MCP is, "presumed to constitute irreparable harm to the public health… or the environment." (Chapter 21E, §11).

Shutesbury violations of 310 CMR 40.0833, Phase II Performance Standards:

Shutesbury persistently failed to: (1) collect, develop and evaluate sufficient information to support conclusions and Opinions regarding: (a) the source, nature, extent, and potential impacts of releases of DNAPL/LNAPL oil and/or hazardous material; (b) the risk of

harm posed by the disposal site to health, safety, public welfare and the environment; and (c) the need to conduct remedial actions at the disposal.

Shutesbury violations of 310 CMR 40.0835(4)(b), failing to submit a Disposal Site Map:

Shutesbury refuses to provide a detailed Disposal Site Map depicting all investigatory and sampling points (wetlands, vernal pools, ponds, streams, private wells, disposal site/REC boundaries, monitoring points, buildings, floor, storm and septic system tanks/pipes/leach tanks, subsurface utilities, monitoring wells, borings, test pits, other relevant sampling and screening points) relevant to the Comprehensive Site Assessment (CSA), the boundaries of the known Disposal Sites, and… the areal and vertical extent of contamination from each "Disposal Site" as defined at 310 CMR 40.0006.

Shutesbury violations of 310 CMR 40.0835(4)(d)3, failing to submit a comprehensive description/maps of site hydrogeologic conditions, including groundwater potentiometric surface(s), gradients, flow rates, and flow direction(s):

Shutesbury's Phase II CSAs (Comprehensive Site Assessments) from 2012 – 2022, failed to provide a comprehensive description and depiction of site hydrogeologic conditions, showing radial flow groundwater percolating down a gently sloped elongated hill, fanning out to the west, northwest, north, northeast and east, on an impermeable confining layer of glacial till 1-3 feet below the surface, into manmade/glacially-trenched "preferred OHM migration pathways", into downgradient wetland resources that likely provide water to more than ten Town Center private wells less than 500 feet downgradient from the site.\

Shutesbury's erroneous retraction of RTN 1-18707 21E (.544 ppb PCB):

On April 10, 2012, Shutesbury's LSP found, "PCB levels in GP-2 were 0.544 parts per billion, which exceeds the RCGW-1 Reportable Concentration of 0.50 ppb promulgated by the MADEP."

On April 24, 2012, DEP issued its M.G.L. c. 21E and 310 CMR 40.0000 Release Notification and Notice of Responsibility as to RTN 1-18707:

> "PCBs were found in a groundwater sample at concentrations up to 0.544 micrograms per liter or "µg/1" (exceeds the applicable GW-1 reportable concentration) within 500 feet of private drinking water supply wells. This condition constitutes a reportable release as listed in the…"MCP"… The Department has reason to believe that the release… may be a disposal site as defined in the MCP… The Department also has reason to believe that you (as used in this letter "you" refers to the Town of Shutesbury) are a potentially responsible party (PRP) with liability under Section S(a) of M.G.L. c. 21E. This liability is "strict", meaning that it is not based on fault, but solely on your status as owner,

operator, generator, transporter, disposer or other person specified in said Section S(a). This liability is also ".joint and several", meaning that you are liable for all response action costs incurred at a disposal site even if there are other liable parties."

On May 30, 2012, Shutesbury retracted its April 10, 2021 finding of reportable *1E* PCB (DNAPL at *.544 ppb PCB)* based on an erroneous argument::

"Because the latest samples from GP-2 [.206 ppb] and GP-3 [.233 ppb] did not contain cloudy sedimentation, it appears that the prior result of detectable PCB concentrations was due to sediment interference and not dissolved PCBs in groundwater."

Given that PCB is a DNAPL that can co-exist in a dissolved (in water) or in a liquid phase where multi-phased (liquid and dissolved) residual PCB/clay/silt particles pass through GP-2 and GP-3 well point screens, sedimentation (cloudiness) in GP-2 or GP-3 would not and does not negate the reportable concentration of multi-phased (liquid and dissolved) DNAPL/PCB tested for, and found, in GP-2.

In violation of 310 CMR 40.1003 (7) NAPL, Shutesbury's LSP failed to conceptualize a Permanent or Temporary Solution at the Shutesbury site where NAPL (PCB) is or was visibly present at levels requiring notification under the provisions of 310 CMR 40.0300 unless and until response actions are taken in the future to adequately assess the nature, extent, and mobility of the NAPL, and, where necessary, remedial actions are taken to adequately contain or remove such NAPL

21E/MCP requires Shutesbury perform shallow groundwater testing to determine the source, nature, and extent of the LNAPL release (in groundwater) detected at boring B-9 in accordance with OTO's October 5, 2021 RTN 1-21489 Conclusion

The extent of this reportable NAPL release into groundwater, detected at soil boring B-9 (considerably below the assumed groundwater table), is likely to extend north down a gently sloped impermeable confining layer of glacial till and migrate in manmade/glacially-trenched preferred OHM migration pathways, leaching into wetlands potentially underlying the proposed library and community gardens site.

On February 1, 2022, DEP issued its most recent 21E Notice of Responsibility regarding a release of OHM (RTN 1-21489) at 66 Leverett Road:

"The Release Notification Form (RNF) and supporting information indicate that soil at the site is contaminated with the VPH fraction C5-C8 Aliphatic Hydrocarbons at concentrations at or above the applicable S-1/RC… There is no mention of the former TVOR facility in the documents provided to OTO… VPH was

detected in a soil sample collected from 8 to 10 feet below the ground surface at boring B-9, which was adjacent to a concrete pad."

Shutesbury violations of 310 CMR 40.0835(4)(e)2, failing to identify and characterize existing and potential migration pathways of OHM;

Shutesbury failed to identify or characterize existing and potential migration pathways of 21E site OHM/NAPL in groundwater, as required by the MCP.

As evidenced by the changes found in newer topographic maps as compared to older, an abundance of manmade potential migration pathways for OHM contamination were etched into the gently sloping hill made of till. reportedly by bulldozers and backhoes digging and trenching out the glacial till, possibly at soil boring hotspot B-9 above and most noticeably south of the demolished 3-bay automotive garage where a reportable level of PCB concentration was found in GP-2 groundwater.

Man-made trenched flow OHM migration pathways are evident throughout this 21E site, in each and every location where the impermeable confining layer of glacial till was dugout or etched into, including the locations where the foundation of the 3-bay garage and floor drainage/other underground utilities were excavated trenched, and at the location where the foundation of the burnt house was excavated and underground utilities (including septic system water/waste pipes, failed septic tank and failed leaching pit) were trenched.

Preferential PCB migration pathways originating from under the now removed cracked foundation of the 3-car garage, and directly under the location of the open sump pump hole in the floor, and other subsurface utility lines located onsite should be tested to confirm or deny the presence of OHM in groundwater moving east or potentially north (as assumed by Shutesbury) from underneath the demolished garage. **Please be advised that the PCB concentration** in **well GP-3 (east of the garage adjacent to unattached drainage outlet) was 0.425 ppb** – just below the Reportable Concentration of 0.50 ppb promulgated by DEP.

Preferential PCB migration pathways originating from under the rusted 50 gallon drums and automotive waste site (**"PCB levels in GP-2 were 0.544 parts per billion, which exceeds the RCGW-1 Reportable Concentration of 0.50 ppb")** should be tested to determine the lateral extent of PCB in groundwater flowing from GP-2. potentially to the east (supplying groundwater to three downgradient wells) and/or to the north (supplying groundwater to more than seven downgradient wells within 500 feet of the 21E site).

MassGIS/DEP maps (see attached) also show onsite "hydraulic connections"/ subsurface streams fanning out to the west, north and east into bordering vegetated wetlands, are all potential OHM migration pathways/critical exposure pathways in groundwater that should be investigated.

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Alarmingly, potential DNAPL, LNAPL and PFAS migration pathways may exist underlying and/or near the proposed library and community garden sites, near where the fire department burnt down the house and the town dug up and filled in the house foundation, a septic leach pit, utility lines, in turn leaching into Leverett Road storm drains and trenched utility/electrical/water lines, migrating in groundwater supplying water to numerous Town Center private wells.

Shutesbury violations of 310 CMR 40.0835(4)(f), failing to include a characterization of the source(s), nature, and extent of OHM at the 21E Disposal Site, or the presence, distribution, and stability of non-aqueous phase liquids (like PCB) tabulation of analytical testing results, in accordance with

Shutesbury failed to ever provide a **Conceptual Site Model (CSM)** in compliance with **310 CMR 40.0006 (12),** including a site-specific description of how contaminants entered the environment, how contaminants have been and may be transported within the environment, and routes of exposure to human and environmental receptors that provides a dynamic framework for assessing site characteristics and risk, identifying and addressing data gaps and managing uncertainty, eliminating or controlling contaminant sources, developing and conducting response action strategies, and evaluating whether those strategies have been effective in achieving desired endpoints. **At sites at which NAP is or may be present, this includes the body of fundamental scientific principles describing the behavior of fluid flow in porous media necessary to assess NAPL in subsurface strata.**

The evidence here shows an abundance of "non-Stable NAPL", with a footprint migrating along preferred flow paths fanning west-north-east, discharging into boundary wetlands that supply drinking water for up to ten Town Center private wells. Shutesbury's failure to provide a comprehensive CSM suggests the town is unwilling to accurately and scientifically measure or control OHM release and transport anywhere on/off the 21-acre disposal site and/or perform any evidence-based "routes of human exposure" investigations.

In conclusion, I implore DEP to please perform a full audit and take emergency corrective action to protect human health and compel Shutesbury RTN 1-21489 and RTN 1-18707 compliance with 21E/MCP employing best available scientific OHM assessment/ remediation practices at the town-owned 21-acre "Lot 0-32" 66 Leverett Road property.

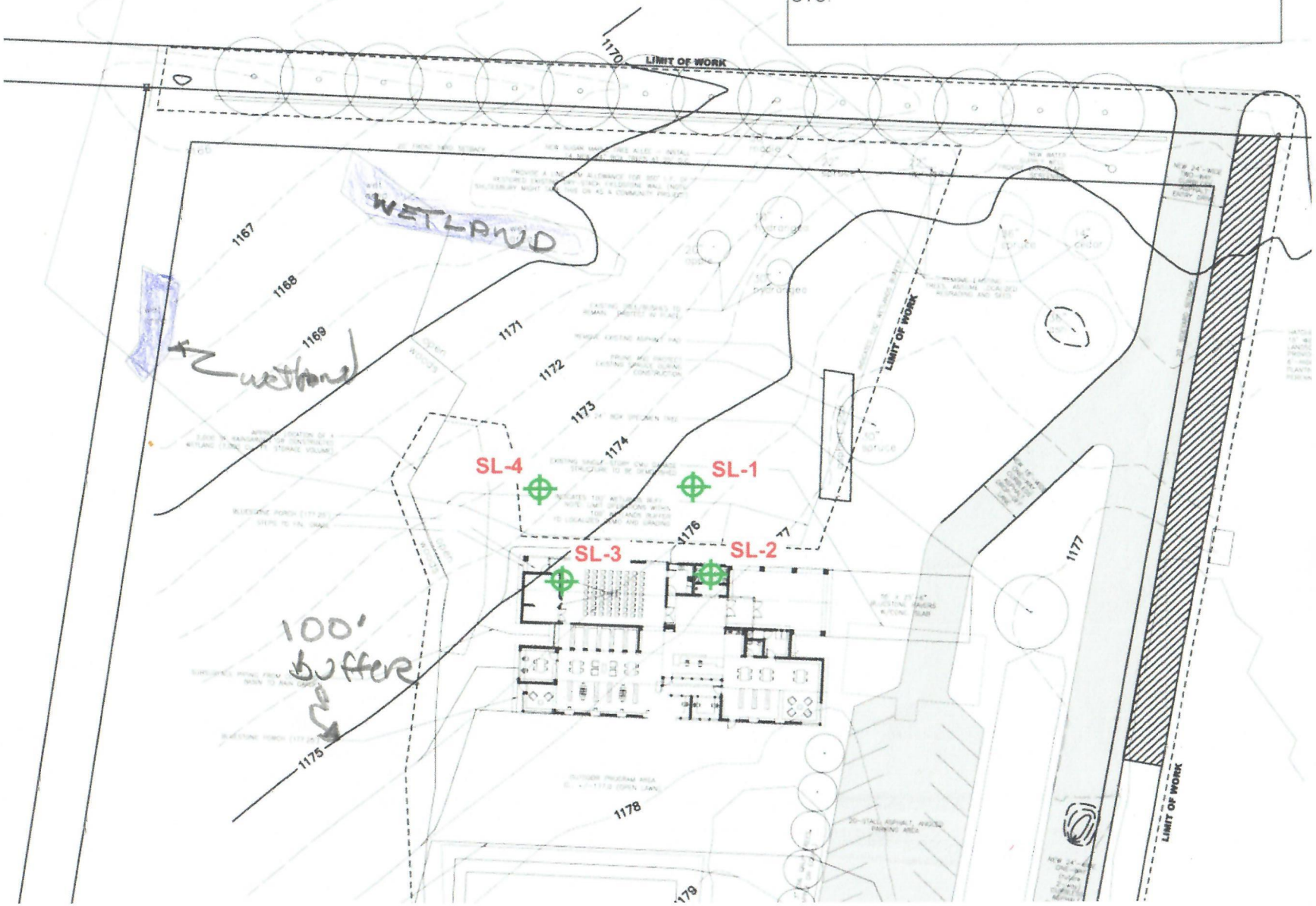
Respectfully submitted on June 23, 2022,

/s/ Michael Hootstein
Legacy Environmental Group
Principal Hydrogeologist

LEVERETT ROAD
WS1

FIGURE 2 - SITE PLAN

| - SOIL BORINGS PERFORMED BY SEABOARD ENVIRONMENTAL DRILLING ON 6/23/2010, OBSERVED BY OTO.



Perc Test #1 Shutesbury Library
60 Leverett Road
Shutesbury MA
06.29.2010