TOWN OF MILLIS

BOARD OF HEALTH
900 Main Street • Millis, MA 02054
Fax: 978-313-7839

NOTICE OF PUBLIC HEARING

This hearing is being held remotely consistent with the Act Relative to Extending Certain State of Emergency Accommodations, suspending certain provisions of the Open Meeting Law, signed by Governor Baker on July 16, 2022, extending remote participation through March 31, 2023.

The Millis Board of Health will hold an Advertised Virtual Public Hearing on **Monday, October 3, 2022, at 6:00 p.m. via Zoom**.

To participate, use this link: **https://us02web.zoom.us/j/86977034525** and enter Meeting ID: **869 7703 4525** or Dial +13092053325,,86977034525# US on any phone and the chair will direct you in the call. Online materials for the hearing will be posted at: https://www.millisma.gov/board-health

The purpose of the virtual public hearing is to review the application for licensure of 617 Therapeutics for a marijuana cultivation facility to be located at 1073 Main Street, Millis, MA 02054 pursuant to the Board of Health's "REGULATION TO ENSURE THE SANITARY AND SAFE OPERATION OF MARIJUANA BUSINESSES AND THE SALE OF MARIJUANA," and to receive public comment. For questions or to submit public comments: Please call 508-376-7042 or email jmcveigh@millisma.gov

MILLIS BOARD OF HEALTH

Matthew Fuller, PHD, Chair
JaiKaur LeBlanc, Member
Donna Scotland, Member
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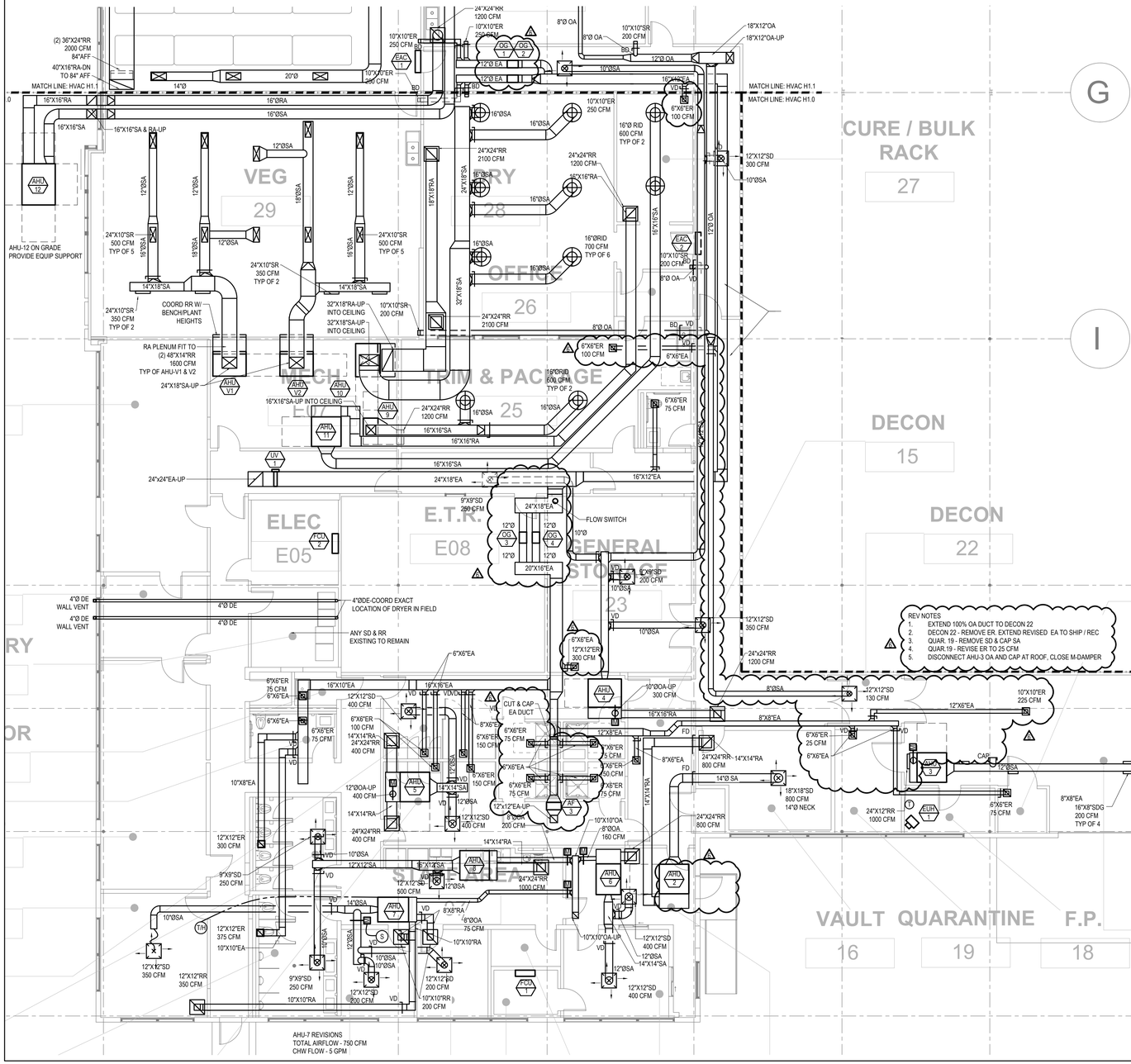


1 First Floor Plan Part A
SCALE: 1/8"=1'-0"

2 First Floor Plan Part B
SCALE: 1/8"=1'-0"

CAVENEY
architectural collaborative, inc.
128 WARREN ST ■ LOWELL, MA 01852
info@caveneyarch.com
978 - 770 - 0518

OWNER:
617 THERAPEUTIC
HEALTH CENTER
1073 MAIN STREET
MILLIS MA 02054

MEP, FP, FA:
BLW ENGINEERS, INC.
311 GREAT ROAD
LITTLETON MA 01460

CIVIL:
BEALS AND THOMAS, INC.
144 TURNPIKE ROAD
SOUTHBOROUGH MA 01772

617 THC CULTIVATION
1073 MAIN STREET, MILLIS, MA 02054

CONSTRUCTION DOCUMENTS

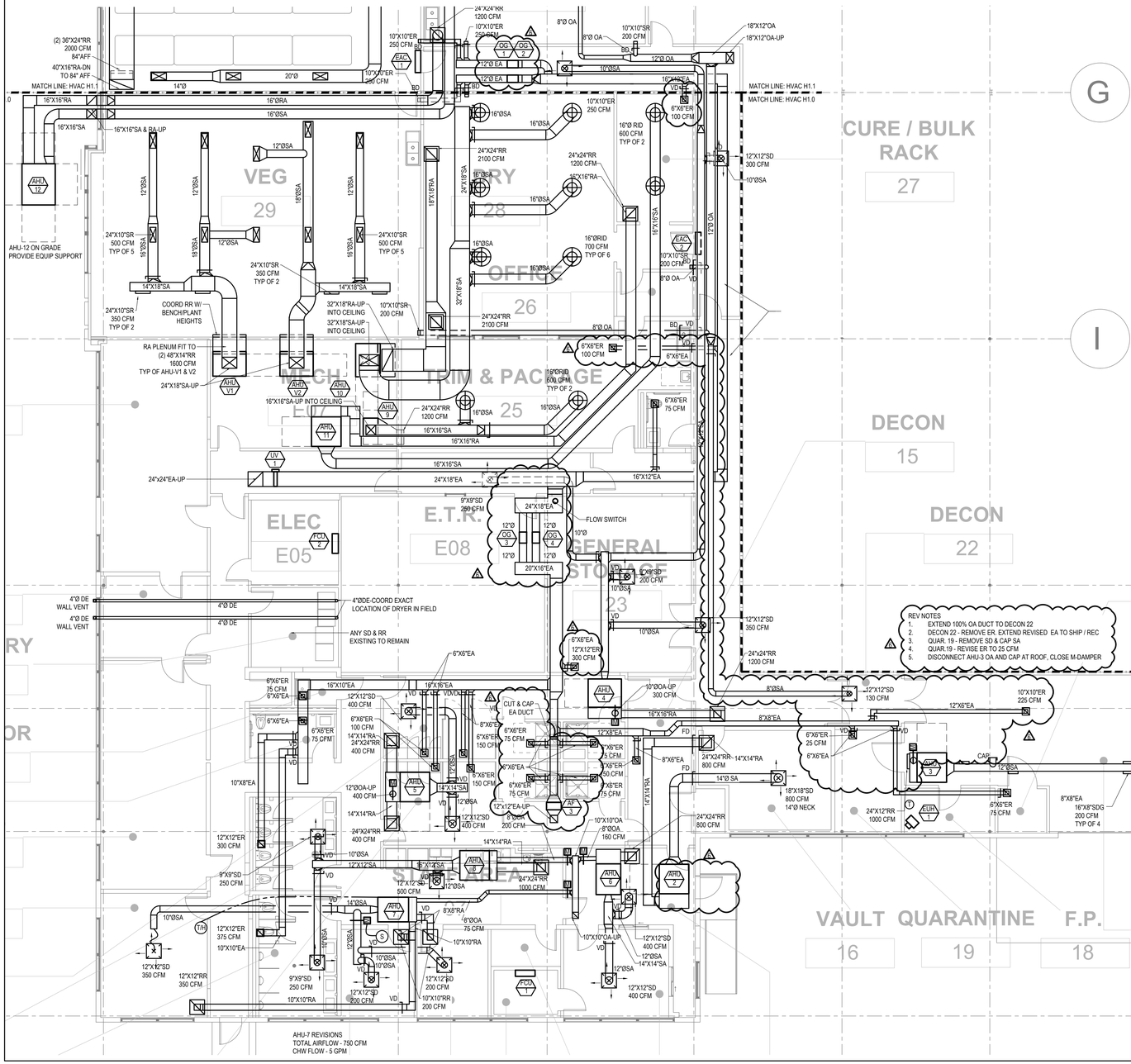
PROJ. NO.	2006-02
DATE:	JULY 7, 2021
DRAWN BY:	DS

REVISIONS

NO.	DATE	NOTES
1	06.25.21	CD SET
2	07.07.21	CD SET
3	07.26.21	100 %CD SET
4	11.19.21	HVAC REV
5	02.16.22	ELEC REV
6	06.03.22	OWNER REV

HVAC FLOOR PLAN

H1.0



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HVAC FLOOR PLAN

H1.0

617 THC

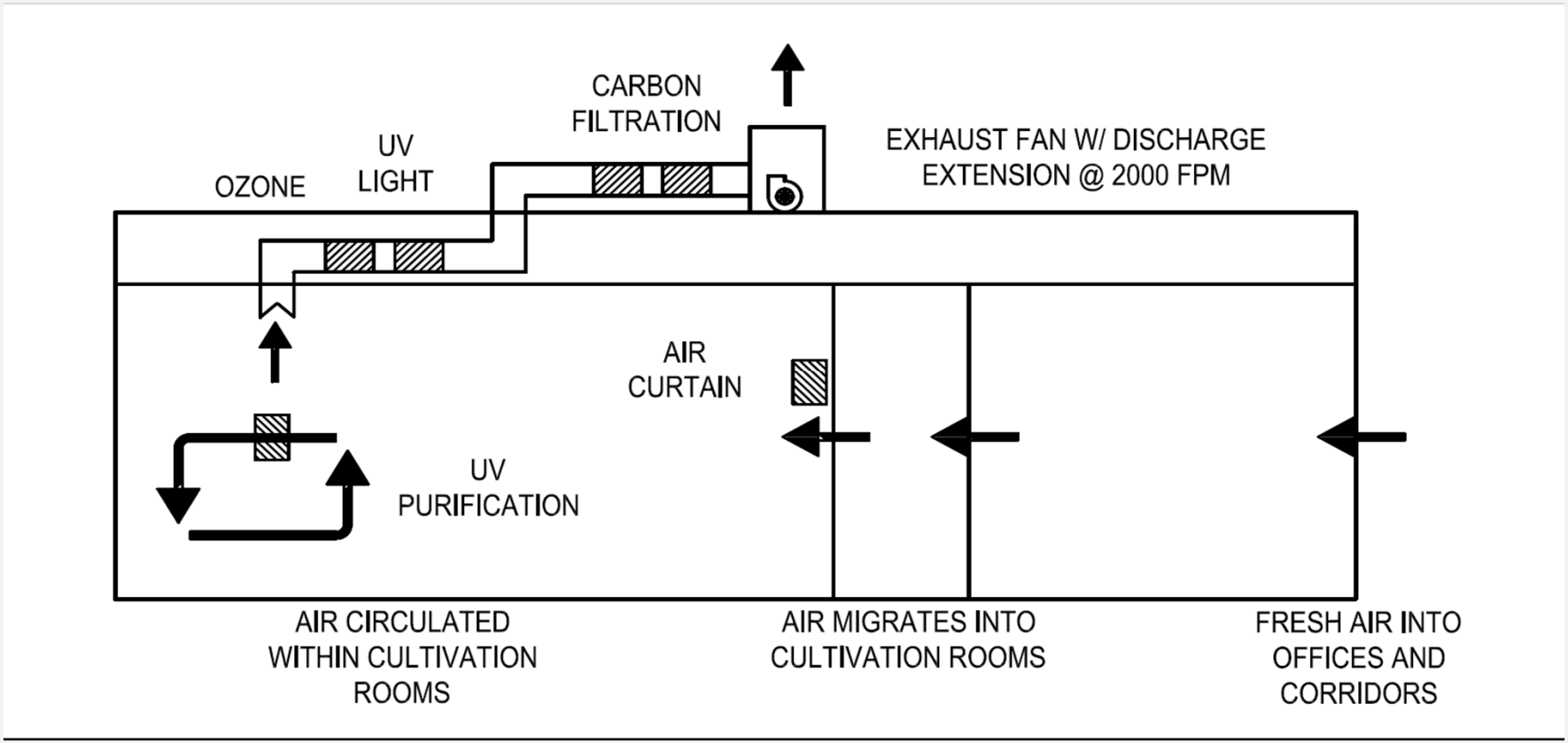
Odor Control Approach

OVERVIEW

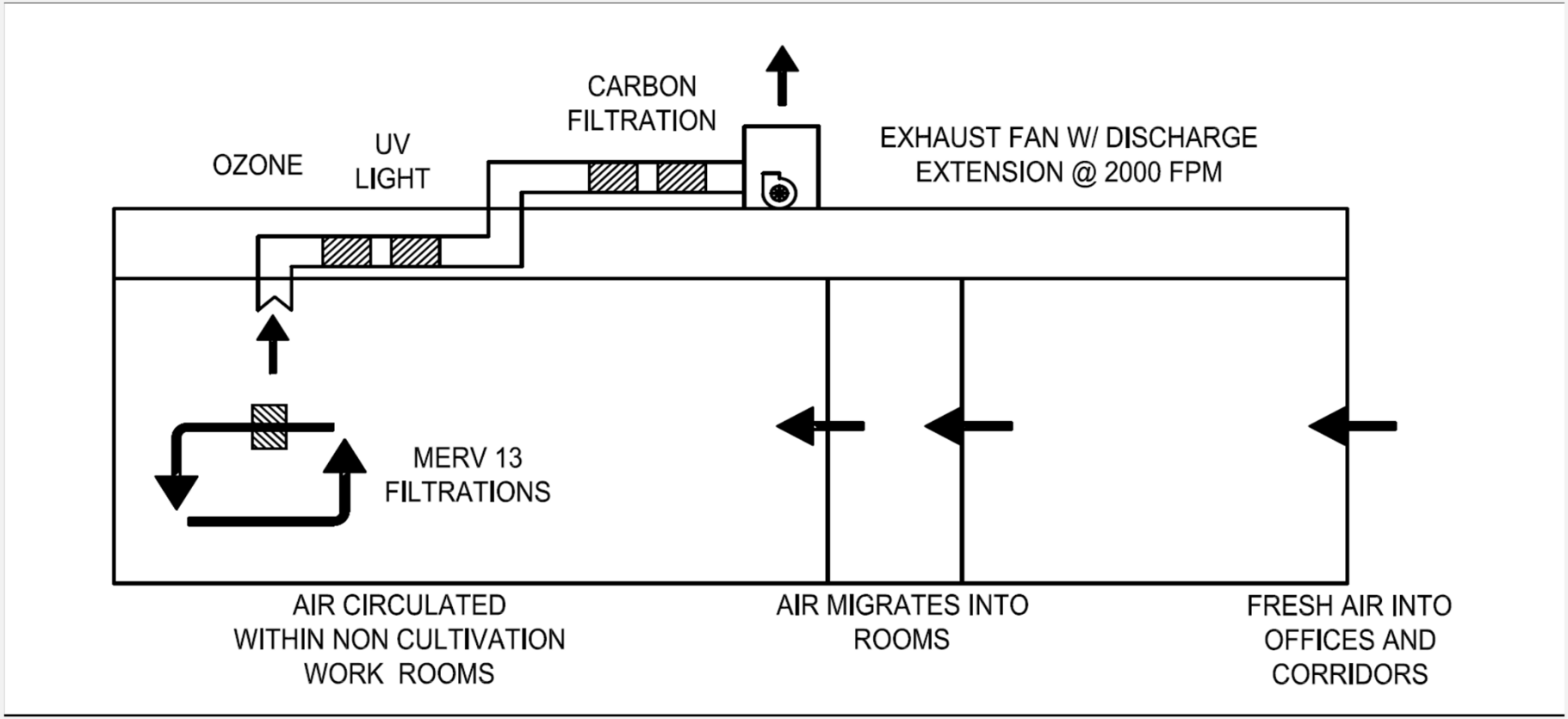
MULTI-FACETED APPROACH TO ODOR CONTROL

1. BUILDING PRESSURE
2. FLOWER ROOM PROVIDED MERV 13 FILTRATION WITH UV LIGHT AIR PURIFICATION
3. CARBON FILTRATION ON EXHAUST AIR
4. OZONE GENERATOR ON EXHAUST AIR

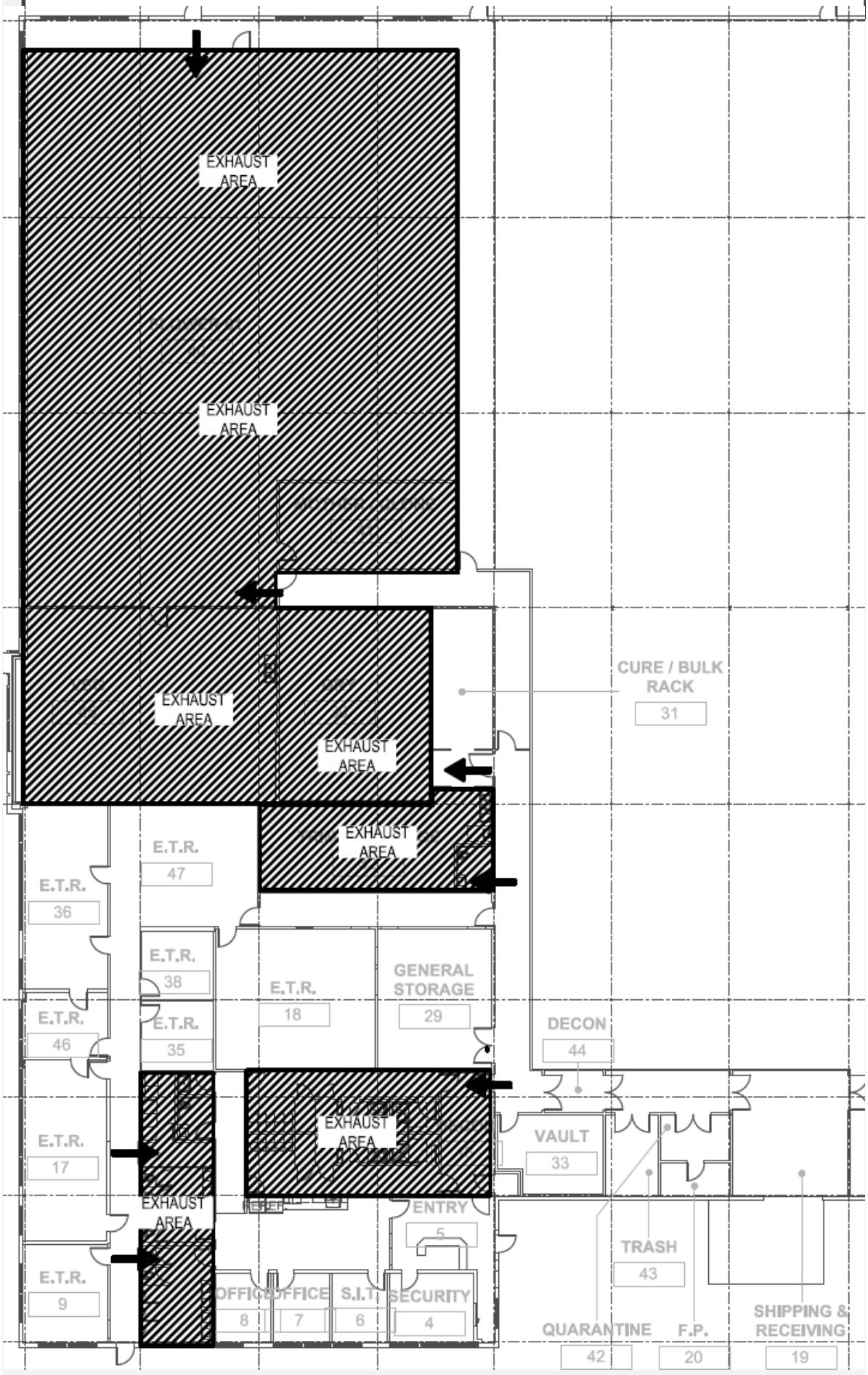
CULTIVATION VENTILATION
MULTI FACETED APPROACH



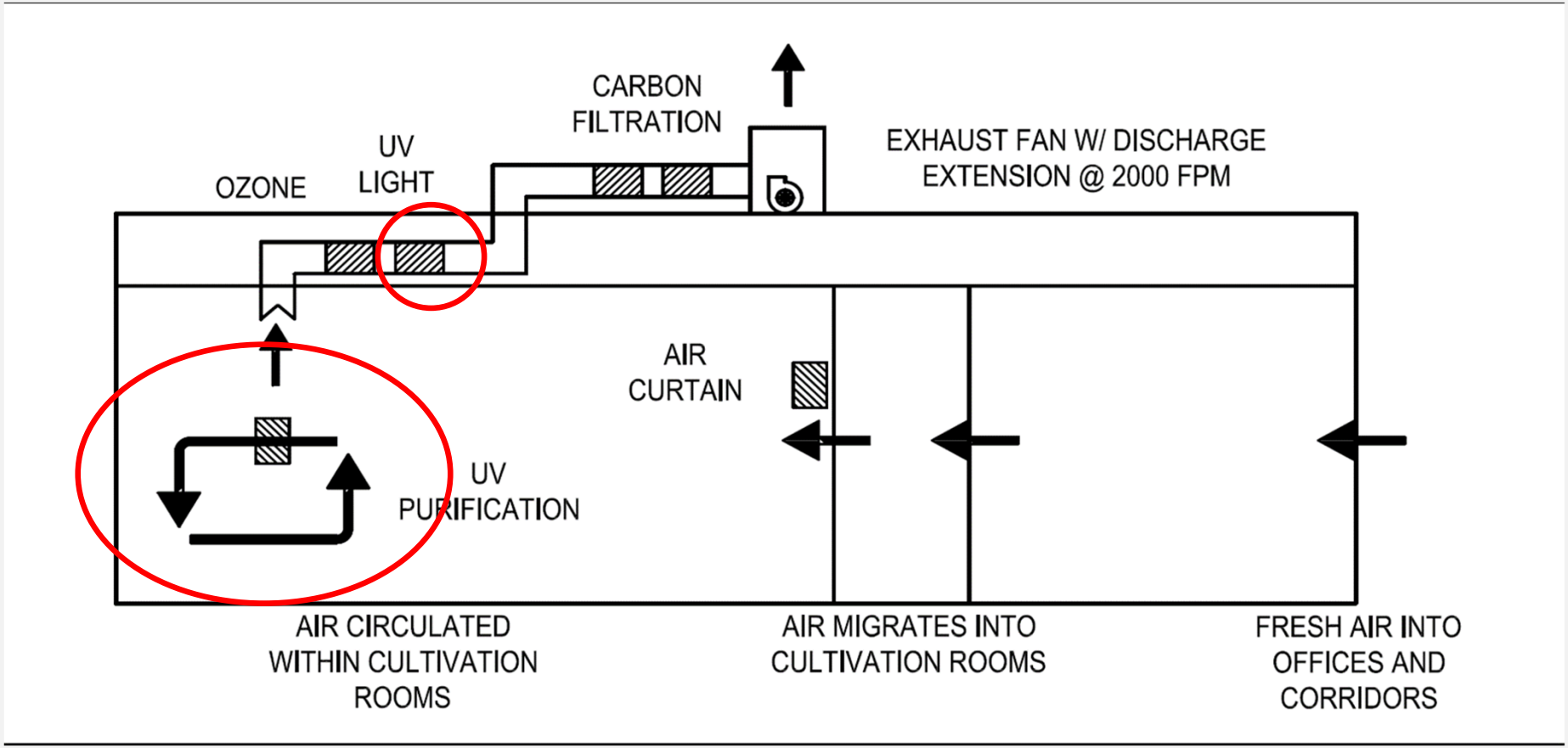
NON-CULTIVATION ZONES
MULTI FACETED APPROACH



1. BUILDING PRESSURE



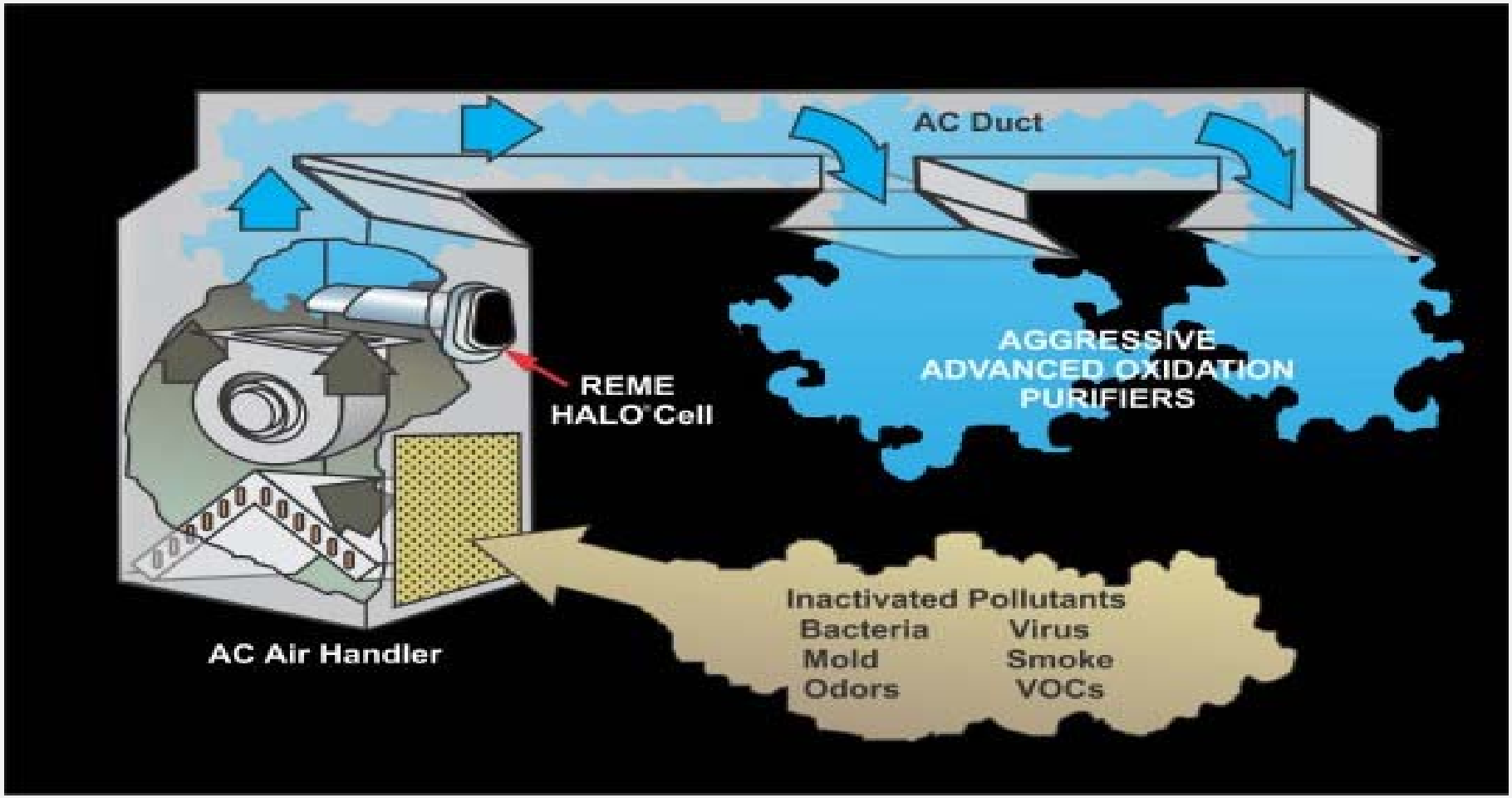
2. UV LIGHT


CARBON
FILTRATION
UV
LIGHT
OZONE
EXHAUST FAN W/ DISCHARGE
EXTENSION @ 2000 FPM
AIR
CURTAIN
UV
PURIFICATION
AIR CIRCULATED
WITHIN CULTIVATION
ROOMS
AIR MIGRATES INTO
CULTIVATION ROOMS
FRESH AIR INTO
OFFICES AND
CORRIDORS

2. UV FILTRATION

- This system is being used at Non-Disclosed Facilities in MA and is currently being designed into the MA market.
- This is a proven technology that is being already used in a wide variety of industries. For example:
  - Hospitals and Doctors offices
  - Schools & day cares
  - Vets & animal hospitals
  - Food processing & manufacturing plants
  - Being implemented into Cannabis Grow Facilities
- This is how it works…

2. UV FILTRATION

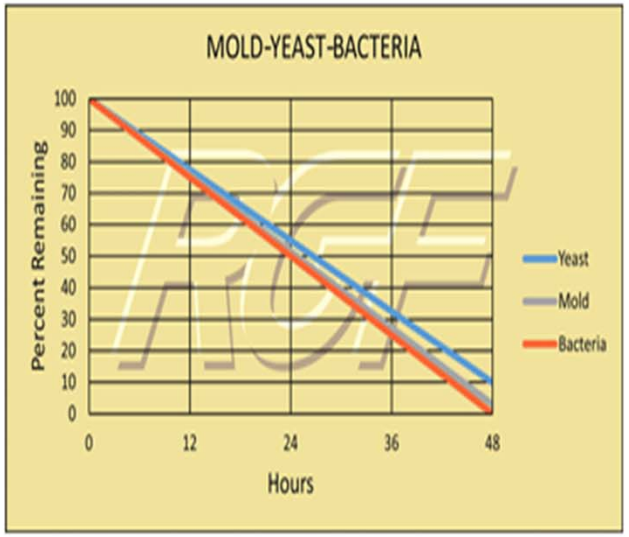


2. UV LIGHT PERFORMANCE

Testing Summary: 97-98% reduction in Mold
Testing Summary: 90+% reduction in Yeast
Testing Summary: 99% reduction in Bacteria

The purpose of these tests was to evaluate the effect RGF's Advanced Oxidation Technology has on mold, yeast and bacteria (TPC). This test was performed utilizing a standard 2,000 sq. ft. home and 3,000 sq. ft. simulated home.

Tested by California Microbiology Center

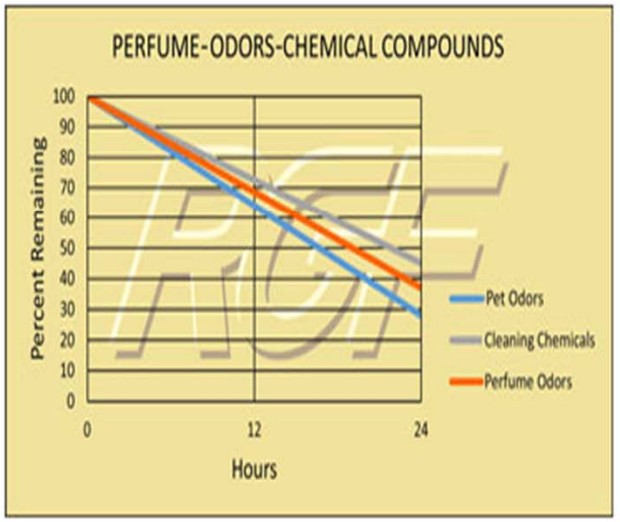


2. UV LIGHT PERFORMACE

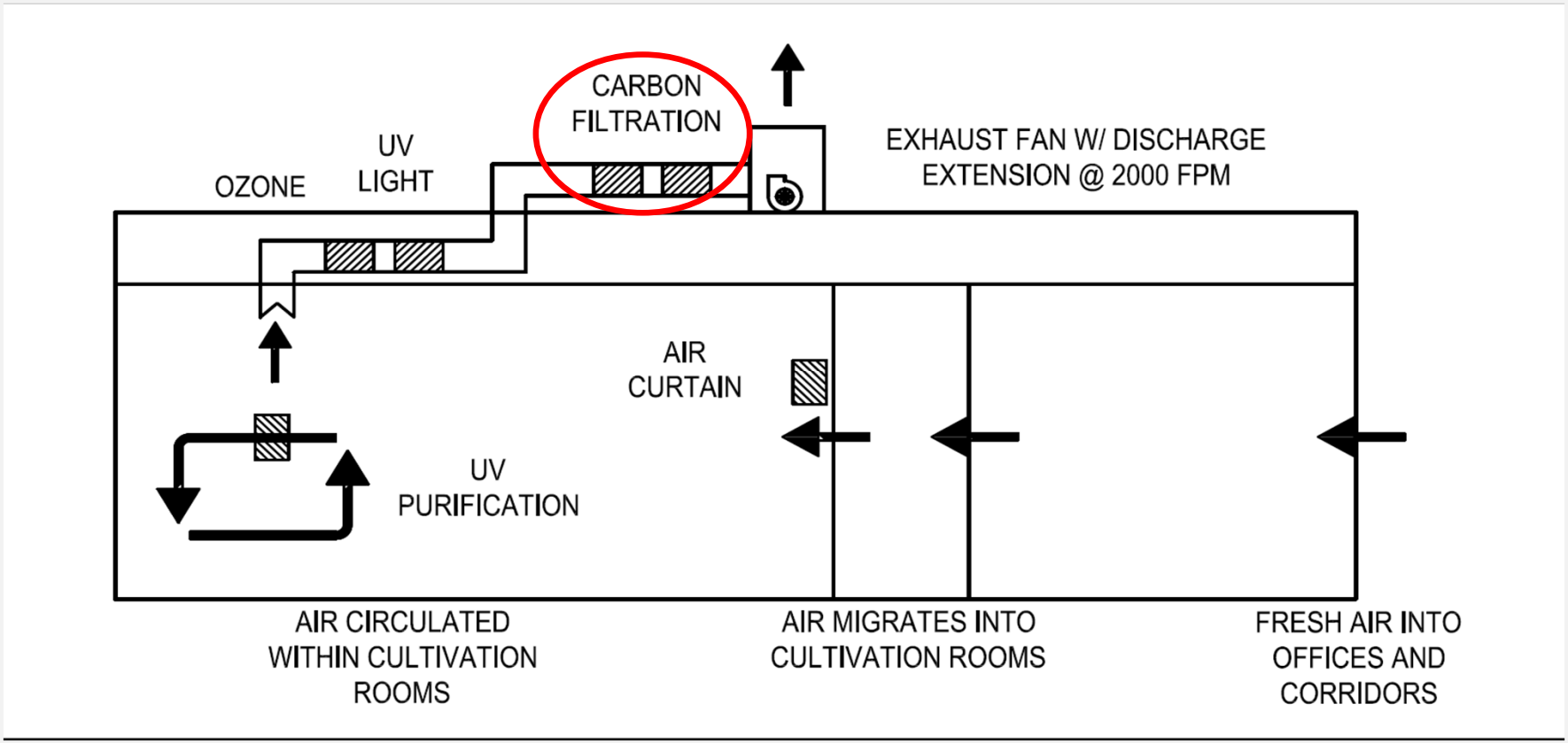
Testing Summary: Cleaning Chemicals – 55% reduction in 24 hours
Testing Summary: Pet Odors – 72% reduction in 24 hours
Testing Summary: Perfume Odors – 63+% reduction in 24 hours

The purpose of this test was to evaluate the effect RGF's Advanced Oxidation Technology has on cleaning chemicals, pet odors and perfume odors. This test was performed utilizing two 500 cubic foot test chambers and a ten-person odor panel. The qualitative assessments of the ten-person odor panel were then used as a means to determine the odor reduction.

Tested by C&W Engineering (Independent PE Firm)



3. CARBON FILTRATION



3. CHARCOAL FILTRATION

- Proven technology… Used in various industries to remove VOC/Odor

- This is how it works…

- This system is being used at the Following facilities…
- Here are some big ones in Canada (we have 40+ Systems or more at each one) :
- Aphria
- Cannara
- Cannatech
- Sundial

MODERATE DUTY APPLICATIONS

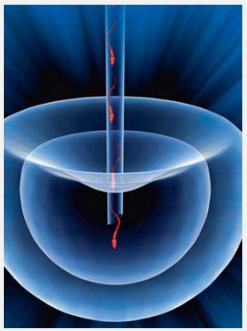
Airport Jet Fumes

Cannabis Grow/Extraction Odors

Hospital Helipad Fumes

Wastewater Treatment Odors

Medical Products Warehouse Ethylene Oxide Fumes



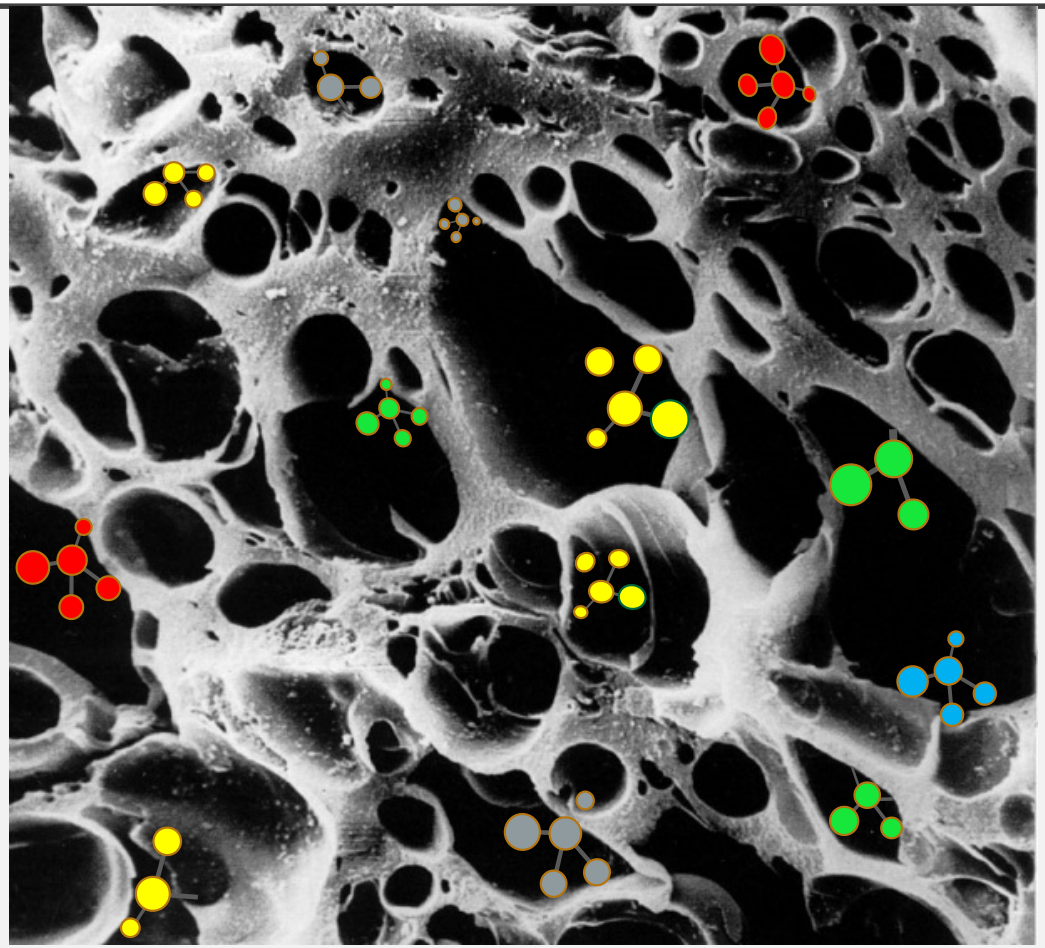
In-Vitro Fertilization VOCs

Industrial Process Odors & Fumes

HOW DOES MOLECULAR FILTRATION WORK: PHYSICAL ADSORPTION

- Relatively large and slow molecules travel into the network of pores and stick to the surface through light intermolecular forces (like a spider climbing a wall)

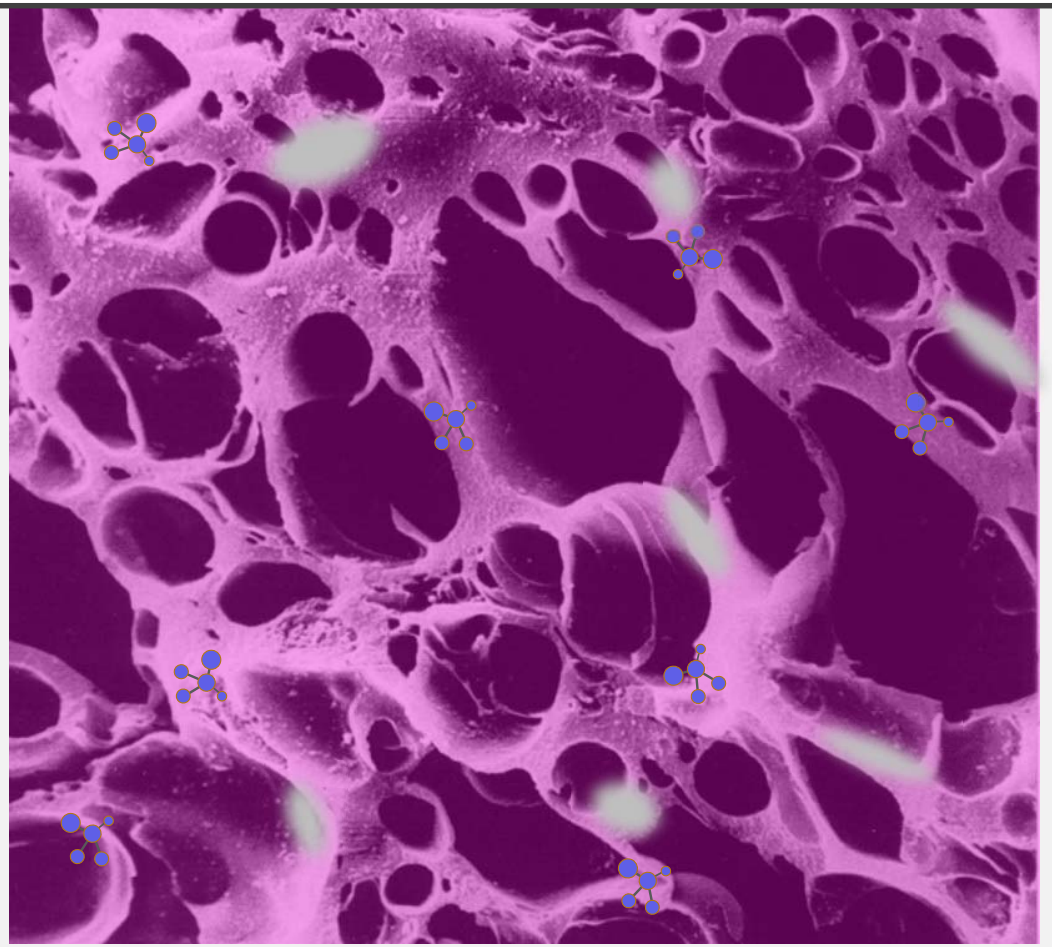
- Examples:
  - beta-myrcene (cannabis), ozone & nitrogen dioxide (traffic and jet fumes)
  - millions of VOCs



HOW DOES MOLECULAR FILTRATION WORK: CHEMICAL ADSORPTION

- Smaller and faster (aka- more volatile) gas molecules collide with the surface to create an irreversible chemical reaction (often discoloring the filter media)

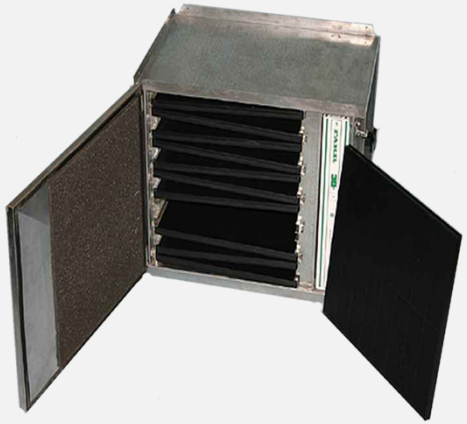
- Examples:
  - hydrogen sulfide (wastewater)
  - formaldehyde (morgues)
  - chlorine gas (battery plants)



TYPICAL ODOR CONTROL FILTRATION SYSTEMS IN CANNABIS FACILITIES

(HUNDREDS OF POUNDS OF ACTIVATED CARBON)

CamCarb CG Cylinders
with activated carbon media
Sized for 250 feet/minute
Excellent removal efficiency
Inherently leak-free
Exhaust or recirculation

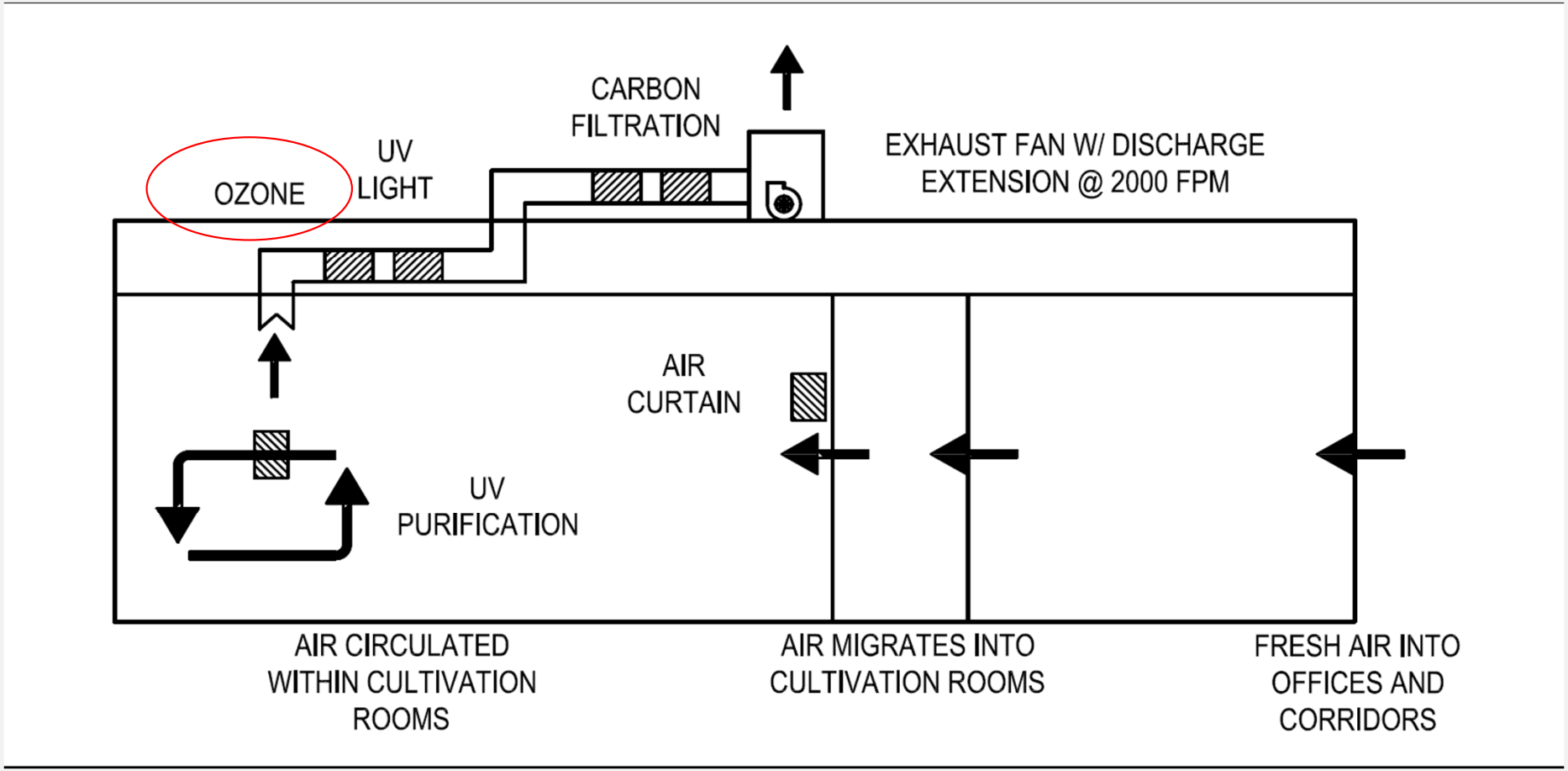


CamCarb PG Panels
With activated carbon media
Sized for 250 feet/minute
Good removal efficiency
Low pressure drop
Exhaust or recirculation

CamCarb PG Panels
4-8 Air Changes/Hour
Modular design
Cylinders in molecular state
Designed for recirculation

Note: pleated carbon filters cannot handle the concentrations of odors generated in a cannabis facility!

5. OZONE GENERATION



5. OZONE GENERATION

- Many areas of applications, Restaurants, Food Production, Agriculture, and helps reduce the following:
  - Reducing restaurant cooking odors released into the local environment
  - Air disinfection. Ozone kills mold spores, bacteria and microorganisms
  - Killing bacteria, yeast, mold and insects

- Ozone technology
  - Ozone is a naturally occurring gas in nature. A moledule consisting of three oxygen atoms.
  - How it works – Ozone is generated by the unit and the molecules are pulled into the air stream. The ozone molecules attach to unwanted mold, bacteria and/or odor particle, breaks them down into water vapor and minerals. The broken down particles then follow the exhaust air stream and are discharged outside.
  - Independently tested and proven by a third-party laboratory certified in ASTM International, CEN (European), and ISO method practices.

CAVENEY ARCHITECTURAL COLLABORATIVE

MEMO

NOVEMBER 18, 2021

MEMORANDUM RE: 617 THC ODOR MITIGATION PLAN

CAC is the Architect-of-Record for the 617 THC Cultivation Facility located at 1073 Main Street in Millis, Massachusetts. CAC has issued Construction Documents, Construction Sketches, RFI responses, and in-person directives regarding the project wall types. Details of these assemblies can be found below. The attached plans are to be used for reference as they relate to the wall construction in and around the demising / "tenant" separation walls and the furred out walls at Flower 01 (Room #39) and Veg (Room #27) at the building envelope.

- Demising / "tenant" separation walls, types 2 and 2a, are intended to provide a 1-HR fire rated partition to separate the phase 1 work area from the building shell to remain unoccupied and unconditioned until future phases. This is a UL-419 assembly. This wall assembly is as follows:
    - (1) layers of ⅝" abuse resistant, firecode (Type X) gypsum board
    - 3-⅝" 20 gauge steel metal studs installed at max. 24" on center, attached to floor and ceiling.
    - A minimum 2" of closed-cell spray foam insulation in the stud cavity. This spray foam provides a vapor barrier which means air and moisture will not penetrate the assembly.
    - (1) layers of ⅝" abuse resistant, firecode (Type X) gypsum board
    - On wall type 2a, an additional PVC panel layer is included on the interior cultivation room side of the demising walls.
    - All penetrations to be fire sealed with appropriate sealant.
    - The intent of a fire rated partition to separate space is to prevent the spread of fire and smoke from one area to another for a designated amount of time based upon independent lab testing and approval of the assembly. The UL-419

assembly is tested to withstand flame and smoke spread for a minimum of 1-HR. This is achieved by providing materials that can withstand flame and smoke damage, and preventing air flow from one side of the assembly to the other. A side benefit of this assembly is that it is airtight and reduces sound transmission between rooms.

    - All doors within fire rated walls are designed to have the same fire rating as the assembly in which they are installed. This means that the door also provides a 1-HR separation between the phase 1 work area and the building shell space. These doors include a fire separation and also smoke gasketing which does not allow the transmission of air, smoke, or odor. The only doors installed in these demising walls are on the northern wall of Flower 01 (Room #39); on the northern wall of the clean hallway adjacent to Mother / Clone (Room #38), and on the eastern wall of Shipping & Receiving (Room #22). These doors will be monitored and alarmed emergency exit doors, meaning the only time they will be used is in case of emergency.

- Exterior furring walls type 7a at Flower 01 (Room #39) and Veg (Room #27) are intended to provide a clean interior wall surface, insulation, and a more tightly controlled cultivation environment for these rooms. This wall assembly is as follows:
    - Existing exterior CMU walls
    - 3-⅝" 20 gauge steel metal studs installed at max. 24" on center, attached to floor and ceiling.
    - A minimum 2" of closed-cell spray foam insulation in the stud cavity. This spray foam provides a vapor barrier which means air and moisture will not penetrate the assembly.
    - ½" PVC panels directly attached to the metal studs.
    - There are no exterior doors or windows at these wall types in Flower 01 (Room #39) or Veg (Room #27).

ACENTECH

33 Moulton Street
Cambridge MA 02138
617 499 8000
acentech.com

April 26, 2021 (revised August 29, 2022)

Mark Goldberg
Cultivation Officer
617 Therapeutics Holding Company, LLC
1073 Main Street
Millis, MA

Subject: Facility Sound Study
617 Therapeutics
Millis, MA
Acentech Project No. 634450

Dear Mark:

Acentech has completed a facility sound study of the future 617 Therapeutics site in Millis, MA. This study has included community noise measurements, a review of applicable regulations, and computer modeling to estimate project sound levels at noise sensitive locations.

This report presents the findings and recommendations of the sound study. Our revisions reflect the comments received from the Town's noise control peer reviewer, which we appreciate and have incorporated. These comments appear in APPENDIX B. We also had opportunity to meet with the peer reviewer on-site on July 21, and have incorporated their additional comments in this revision.

SITE INFORMATION

617 Therapeutics will occupy a currently vacant industrial building lot located at 1073 Main Street in Millis, MA. The site is adjacent to numerous commercial buildings with some outdoor mechanical equipment to the south of the site, a cemetery to the north-east, and wetlands to the north-west.

Single family residences occupy the land east of the site. Many residences are two-story structures. The nearest residence is 1059 Main Street, approximately 585 ft from the proposed project location. While Millis has significant tree growth, there is direct line of site from the nearest residence to the site, though no direct line of site to the future location of the HVAC/MEP equipment which will be installed on the west side of the building. There is some variation in the nearby terrain, with the facility about 14 feet lower in elevation than the nearest residence.

APPLICATION REGULATIONS

Sound produced by the project is subject to state and local regulations, as summarized below.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (MASSDEP)

The MassDEP noise policy[1] is based on marginal increases to the existing background sound level. A sound source or facility which causes the background sound level to increase by more than 10 dBA is in violation of the MassDEP noise policy. In addition, the MassDEP noise policy prohibits the creation of a "pure-tone condition", wherein the sound pressure level in an octave band exceeds the sound pressure level in both adjacent bands by 3 dB or more.

MassDEP has clarified the application of its noise guidelines in an update on its website[2], which includes the following statement:

> *Noise levels that exceed the criteria at the source's property line by themselves do not necessarily result in a violation or a condition of air pollution under MassDEP regulations (see 310 CMR 7.10 U). The agency also considers the effect of noise on the nearest occupied residence and/or building housing sensitive receptors.*

The background sound level has been quantified through long-term sound monitoring, as described in the following section. Sound level limits consistent with the MassDEP noise policy have been developed on the basis of these data.

For this analysis, you have asked that we compare the facility noise emissions at 100% capacity to the quietest background sound level. This is a worst-case condition, appropriate for the design of noise control measures.

TOWN OF MILLIS, MA

Section III. 1.of the Town of Millis Board of Health Rules and Regulations, Regulation of Marijuana Businesses to Prevent Nuisance states;

> "Marijuana Establishment operations shall be deemed a nuisance, namely those which create a noise when measured at the property boundary of the receiving land use in excess of 10 dBA above ambient noise level; under 310 CMR 7.00"

The provisions of the local ordinance are effectively the same as those of the MassDEP noise policy.

BASELINE SOUND STUDY

SOUND MONITORING

Locations and Equipment

In order to quantify typical background sound levels in the vicinity of the project, long-term environmental sound monitors were installed at three locations, as shown in FIGURE 1. Rion NL-52 sound level meters were used to measure ambient sound levels. Microphones were mounted at a height of 5-ft above grade on tripods.

The instruments were calibrated before and after the measurement period using a GenRad model 1987 acoustic calibrator. The microphones, sound level meters, and acoustic calibrators used in this study achieve Class 1 performance with respect to IEC 61672. The monitors were programmed to measure both A-weight and one-third octave-band sound levels in 1-hr intervals. The one-third octave-band spectral data have been converted to octave-bands for comparison to modeling results and MassDEP criteria.

[1] http://www.mass.gov/eea/docs/dep/air/community/noisepolicy.pdf
[2] http://www.mass.gov/dep/air/laws/noisepol.htm. See "Where Are MassDEP's Noise Criteria Applied?"

Sound Monitoring Results

FIGURES 2A – 2C present time histories of environmental sound measured at the three monitoring locations. Included in these plots are the following acoustic descriptors:

- Nominal maximum, $L_{A01,\ 1\text{-}hr}$ – the sound level exceeded 1% of the measurement interval, in this case 36 seconds of each hour. Typical of brief transient sound events, and often similar to the maximum sound level.
- Energy average, $L_{Aeq,\ 1\text{-}hr}$ – the equivalent sound level, which includes both steady background sounds (e.g. distant traffic) plus short-term intrusive sounds (e.g. local car passby).
- Background, $L_{A90,\ 1\text{-}hr}$ – the sound level exceeded 90% of the measurement interval, in this case 54 minutes of each hour. Typical of continuous sounds, and often similar to the minimum sound level. The background sound level is the basis of the MassDEP noise policy.

FIGURES 3A – 3C present measured background sound frequency spectra ($L_{90,\ 1\text{-}hr}$). These spectra have been added to the computer model results in order to determine compliance with the MassDEP noise policy, as discussed later in this report.

TABLE I presents a summary of the lowest background sound levels ($L_{A90,\ 1\text{-}hr}$) measured during the daytime, evening/morning, and late night periods. Given the time of year in which this survey took place and the frequency spectra we reviewed, seasonal insects are not likely to have contributed to the minimum measured overall A-weight sound levels that this report is based on (see FIGURES 3A – 3C, which do not exhibit characteristic insect frequency spectra).

TABLE I. Summary of baseline sound monitoring data (dBA)

Location	Daytime [1, 2]	Evening/Early Morning [1, 3]	Late Night [1, 4]
SM1	35	25	24
SM2	43	23	22
SM3	37	22	20

[1] Lowest measured $L_{A90,\ 1\text{-}hr}$ during hours indicated

[2] 7:00 AM to 6:00 PM

[3] 6:00 PM to 10:00 PM, 4:00 AM to 7:00 AM

[4] 10:00 PM to 4:00 AM

LATE-NIGHT SITE VISIT

In order to characterize the existing ambient sound environment, we visited the site during late-night hours (11:30 PM to 1:00 AM) on Tuesday-Wednesday, March 29-30. During this visit, we conducted attended sound measurements and listening observations at community measurement locations CM1 – CM3, which are representative of the nearest residential land uses.

The primary source of environmental sound during this visit was vehicles on local and distant roads and insects. Furthermore the commercial building adjacent to CM3 had a fan running during the measurement. The results of late-night attended measurements are shown in TABLE II below.

TABLE II. Summary of late-night attended measurements (dBA)

Location	L_{A90}	L_{Aeq}	L_{A10}
CM1	28	35	33
CM2	31	57	54
CM3	38	51	42

DESIGN GOALS FOR PROJECT SOUND

TABLE III summarizes the numeric limits of the applicable regulations. We recommend that only the daytime limits be applied to sound at the commercial use directly to the project's southwest (C01), given the daytime nature of operations.

TABLE III. Summary of MassDEP Regulatory Criteria (dBA)

Location	Daytime [1, 2]	Evening/Early Morning [1, 3]	Late Night [1, 4]
SM1	45	35	34 [5]
SM2	53	33	32 [6]
SM3	47 [8]	32	30 [7]

[1] Lowest measured $L_{A90,\ 1\text{-}hr}$ during hours indicated

[2] 7:00 AM to 6:00 PM

[3] 6:00 PM to 10:00 PM, 4:00 AM to 7:00 AM

[4] 10:00 PM to 4:00 AM

[5] Applies to receptor R10 (see FIGURE 4)

[6] Applies to receptors R1-4, R11

[7] Applies to receptors R5-9

[8] Applies to receptors C1, which is a daytime-only commercial use

We expect that meeting the noise goals set forth by MassDEP will result in compliance with the local noise ordinance, and will not introduce loud or obtrusive noise into the community.

COMPUTER MODELING

NOISE PRODUCING EQUIPMENT

The project will be built in two phases. Phase 1 equipment includes:

- (1) 10,000 CFM energy recovery unit (ERU), including control cabinet ventilation fans that were observed during our July site visit.
- (1) 150-ton air-cooled scroll chiller (Daikin Trailblazer), to be installed near the southwest corner of the building.
- (2) 3,000 CFM exhaust fans for the odor control system, to be installed near the southern edge of the roof.

Phase 2 equipment includes all of Phase 1 equipment, as well as:

- (8) additional ERUs distributed along the west side of the building, each cabinet ventilation fans
- (1) additional chiller on the north side
- (10) 3,000 CFM exhaust fans for the odor control system, to be installed generally in a line proceeding northwest from the Phase 1 odor control equipment

The Phase 2 equipment is currently specified as the same make and model as for Phase 1.

MODELING METHODS

A computer model of project sound has been developed using CadnaA (DataKustik GmbH, v. 2021 MR1, 32-bit) for both scenarios. FIGURE 4 presents the location of six community receptors considered in the computer model; sound monitor locations are also included for reference. In order to estimate sound levels at community locations, the following inputs have been included in the CadnaA model:

- Source sound power level in octave bands, L_w (see Appendix A)
- Slant distance from source to receiver, A_{div}
- Screening by earthen terrain (based on USGS digital terrain model) and by solid objects, A_{bar}

- Absorption of sound by the atmosphere, A_{atm} (10 °C, 70% humidity)
- Absorption of sound by porous ground, A_{gr} (G = 0.1 for all surfaces)
- Source and receiver height above grade (based on top-of equipment height, and height of receptor upper-story window midpoint)

Two orders of reflection have been included in the computer model in order to ensure that secondary sound paths (i.e., reflections from buildings, barriers, et cetera) are properly controlled.

TABLE A-1 in APPENDIX A contains a summary of the sound power data used to describe these sources in computer modeling. TABLE A-2 presents casing breakout data used to calculate the emissions level of the ERU from the return fan outlet. All equipment has been represented as acoustic point sources.

Not included in the computer model are the following:

- Attenuation of sound by foliage, A_{fol}
- Reduction of equipment sound power as a function of process load

ESTIMATED SOUND LEVELS

TABLE IV and V present the results of the computer model for Phases 1 and 2, respectively. The results in the table are the sum of the estimated A-weight equipment sound levels and the minimum measured background sound levels.

Sound contours showing project-only sound levels predicted in the nearby community at 5 foot elevation are given in FIGURES 5A and 5B.

TABLE IV. Phase 1 noise analysis (dB re: 20 µPa)

Receiver	Predicted L_A	Lowest ambient L_{A90}	Predicted L_A ++ ambient L_{A90}	Increase to lowest ambient L_{A90}
C01	36	37	40	3
R01	25	22	27	5
R02	22	22	25	3
R03	20	22	24	2
R04	13	22	23	1
R05	9	20	20	0
R06	12	20	21	1
R07	10	20	20	0
R08	9	20	20	0
R09	15	20	21	1
R10	27	24	29	5
R11	26	22	27	5

TABLE V. Phase 2 noise analysis (dB re: 20 µPa)

Receiver	Predicted L_A	Lowest ambient L_{A90}	Predicted L_A ++ ambient L_{A90}	Increase to lowest ambient L_{A90}
C01	37	37	40	3
R01	29	22	30	8
R02	27	22	28	6
R03	25	22	27	5
R04	18	22	23	1
R05	16	20	21	1
R06	19	20	23	3
R07	18	20	22	2
R08	18	20	22	2
R09	26	20	27	7
R10	29	24	30	6
R11	28	22	29	7

ANALYSIS

As shown, all predicted A-weight sound levels in TABLE IV and V are lower than the project design goals, by increasing the background sound level by less than 10 dBA above the lowest existing measured background sound levels. In addition, the estimated frequency spectra of the equipment and measured background sound levels have been summed, and the resulting spectra have been screened for a “pure tone condition”. None of the spectra indicate a “pure tone condition” as defined by MassDEP.

CONCLUSION

We have completed a facility sound study of the future 617 Therapeutics site in Millis, MA. This study has included baseline noise measurements, review of regulations, and estimates of project sound levels at noise sensitive locations. No mitigation measures are needed for Phase 1 or Phase 2 noise imissions to comply with stringent interpretations of the Millis Noise Ordinance and the MassDEP noise policy.

* * * * *

I trust this letter provides the information you need at this time. Please contact me with questions at (617) 499-8025 or acarballeira@acentech.com.

Sincerely,

Andy Carballeira, INCE Bd Cert
Principal Consultant

CC: Roberto Gomez (Acentech)

FIGURE 1. Aerial photo showing proposed community and long-term monitoring locations (CM1 – CM3, SM1 – SM3)

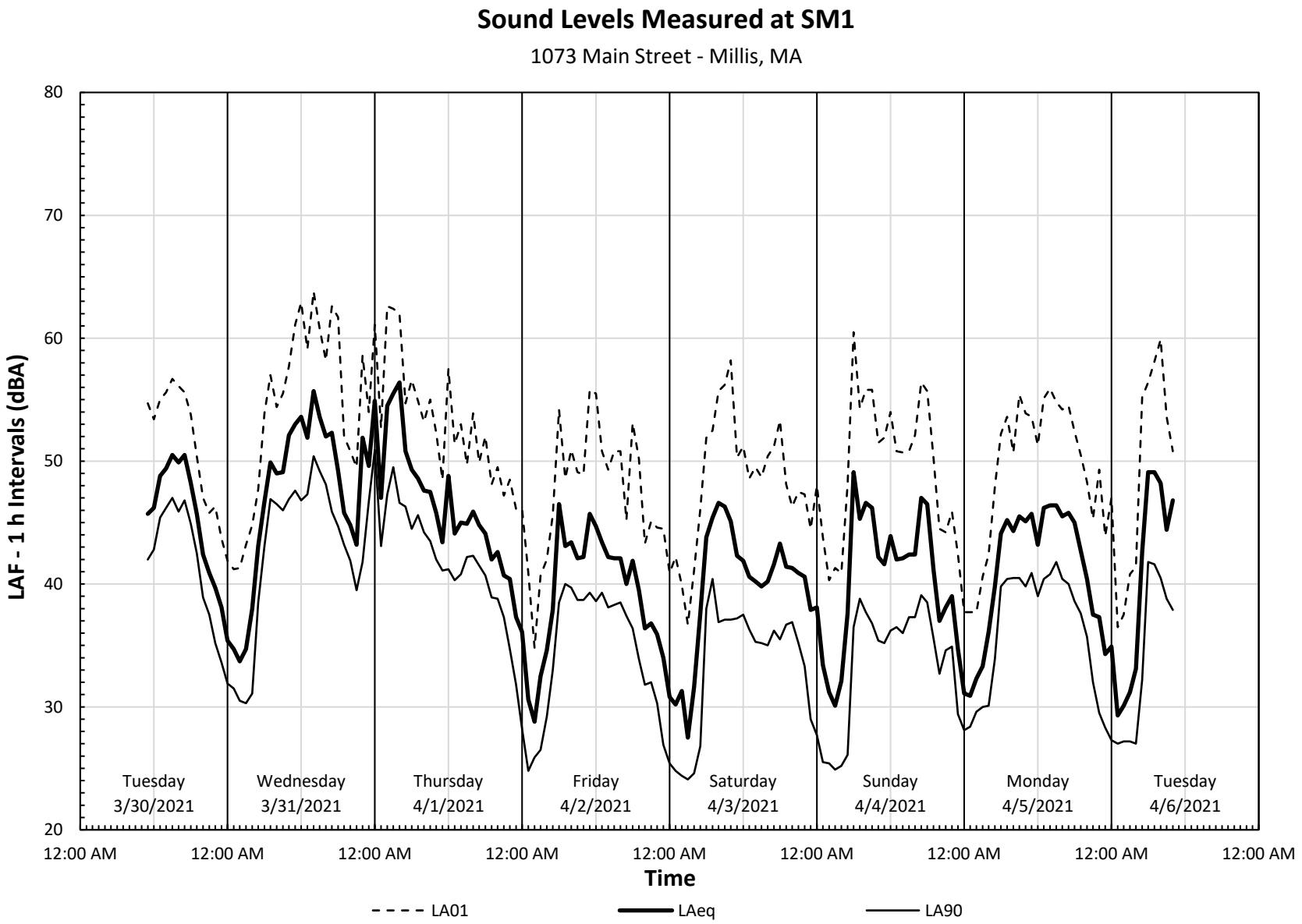


FIGURE 2A. Sound monitoring data measured at SM1

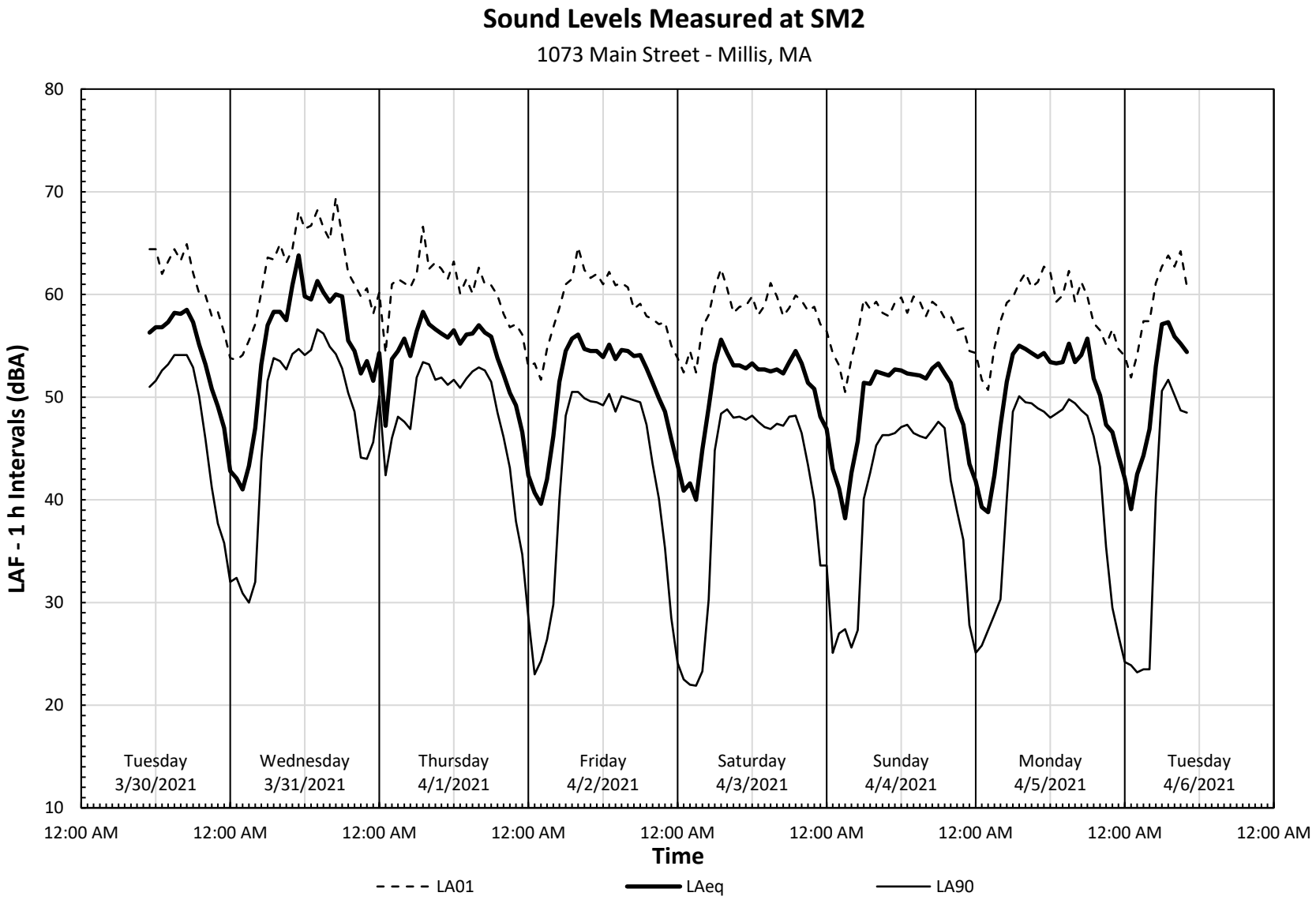


FIGURE 2B. Sound monitoring data measured at SM2

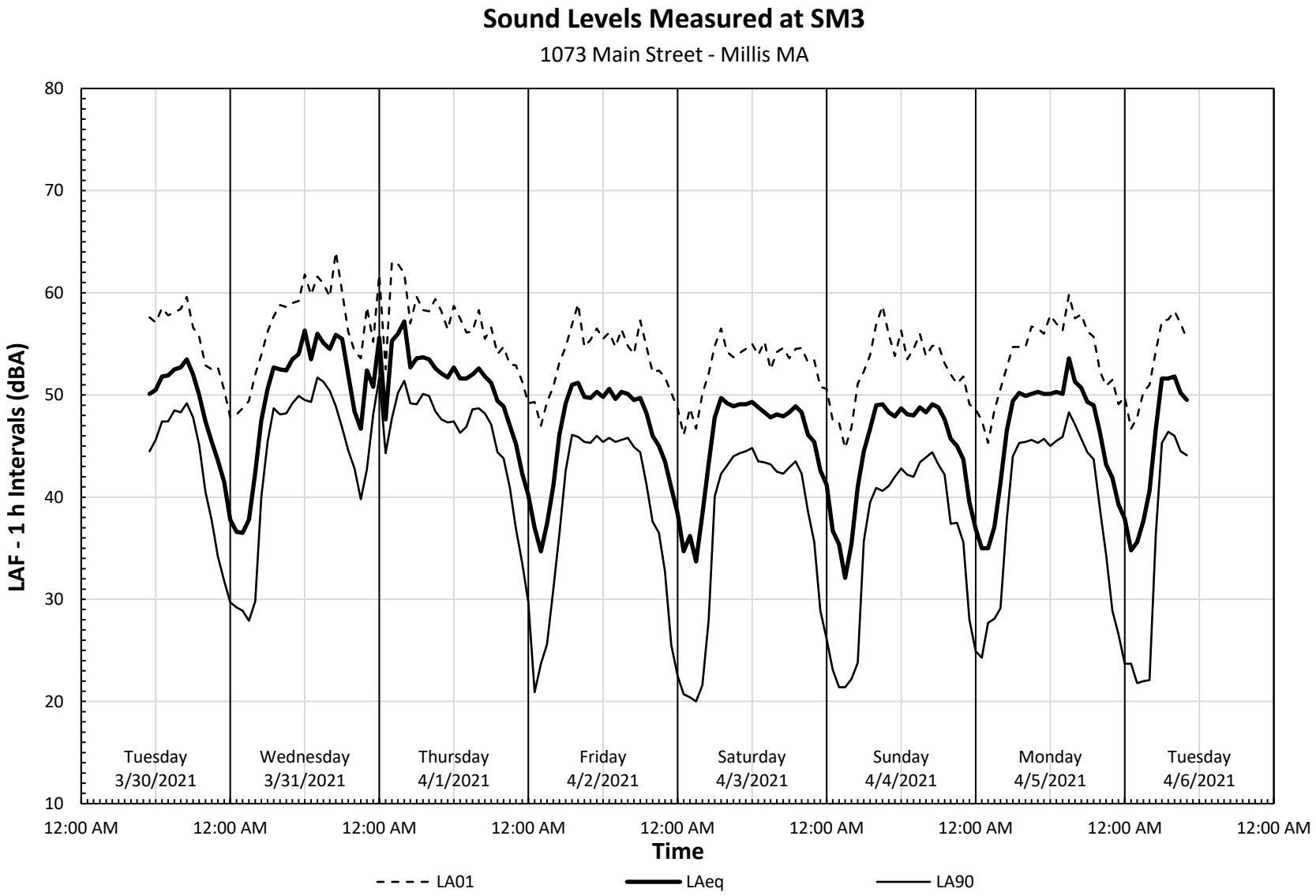


FIGURE 2C. Sound monitoring data measured at SM3

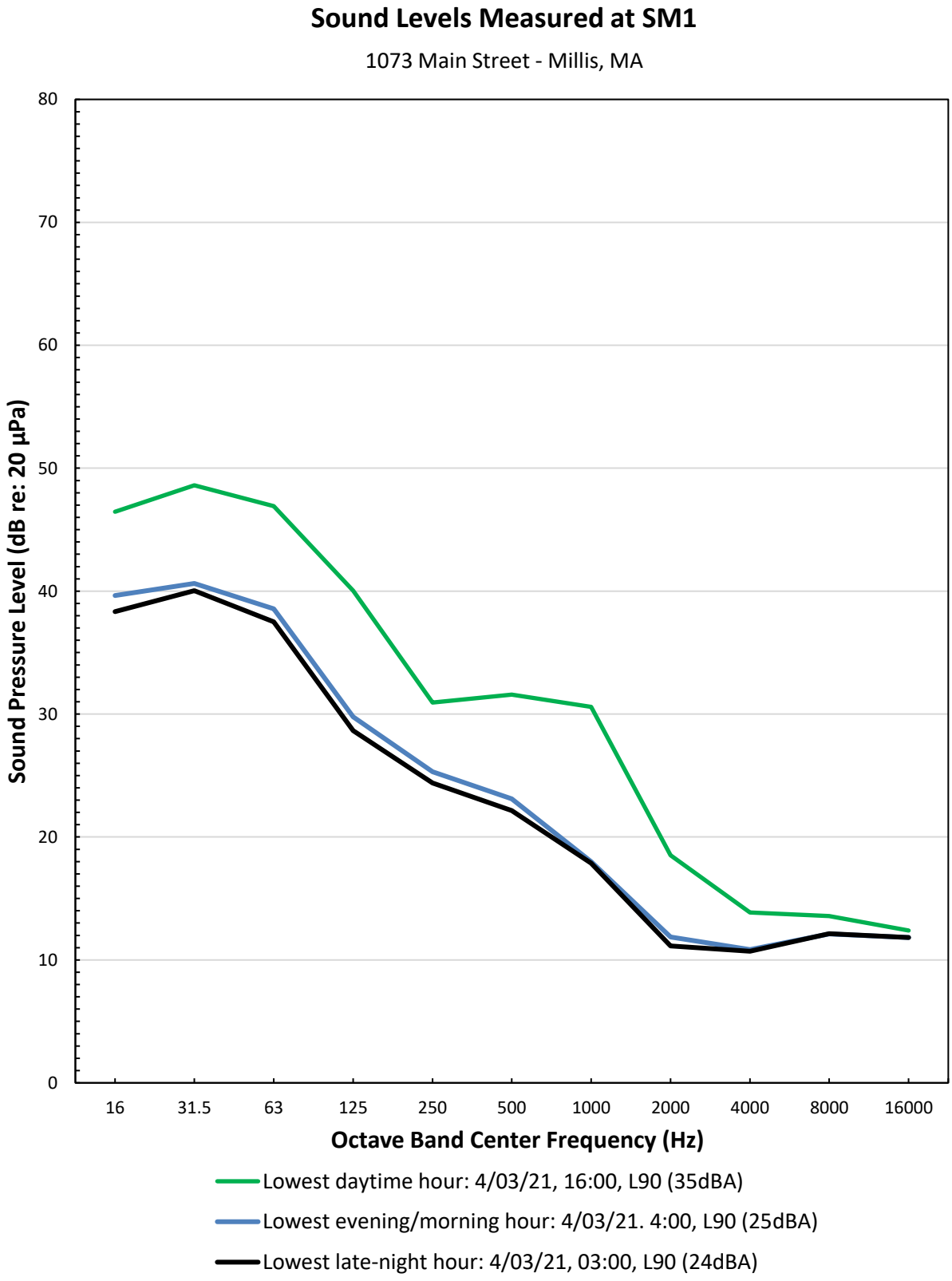


FIGURE 3A. Spectra of minimum sound levels measured at SM1

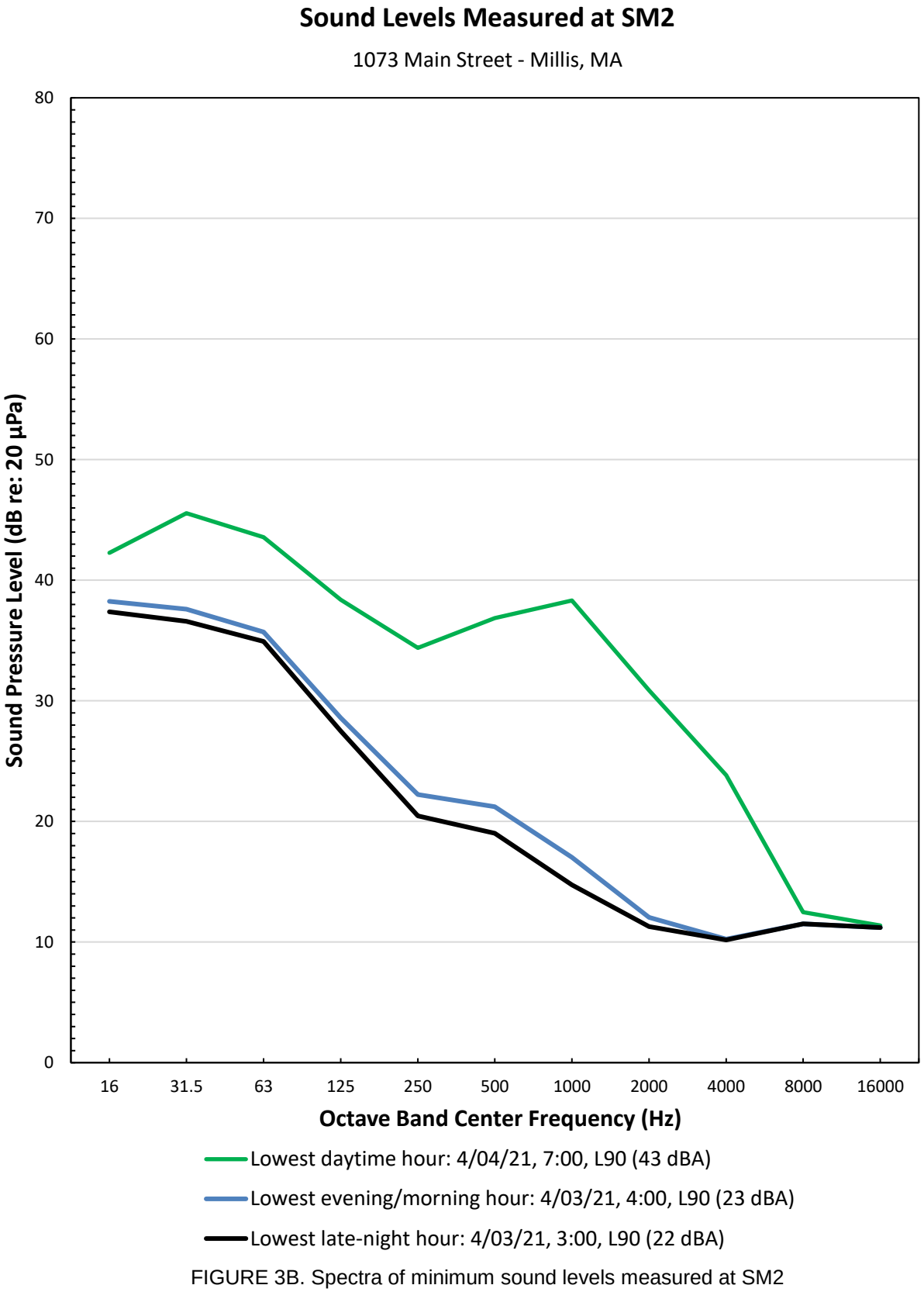


FIGURE 3B. Spectra of minimum sound levels measured at SM2

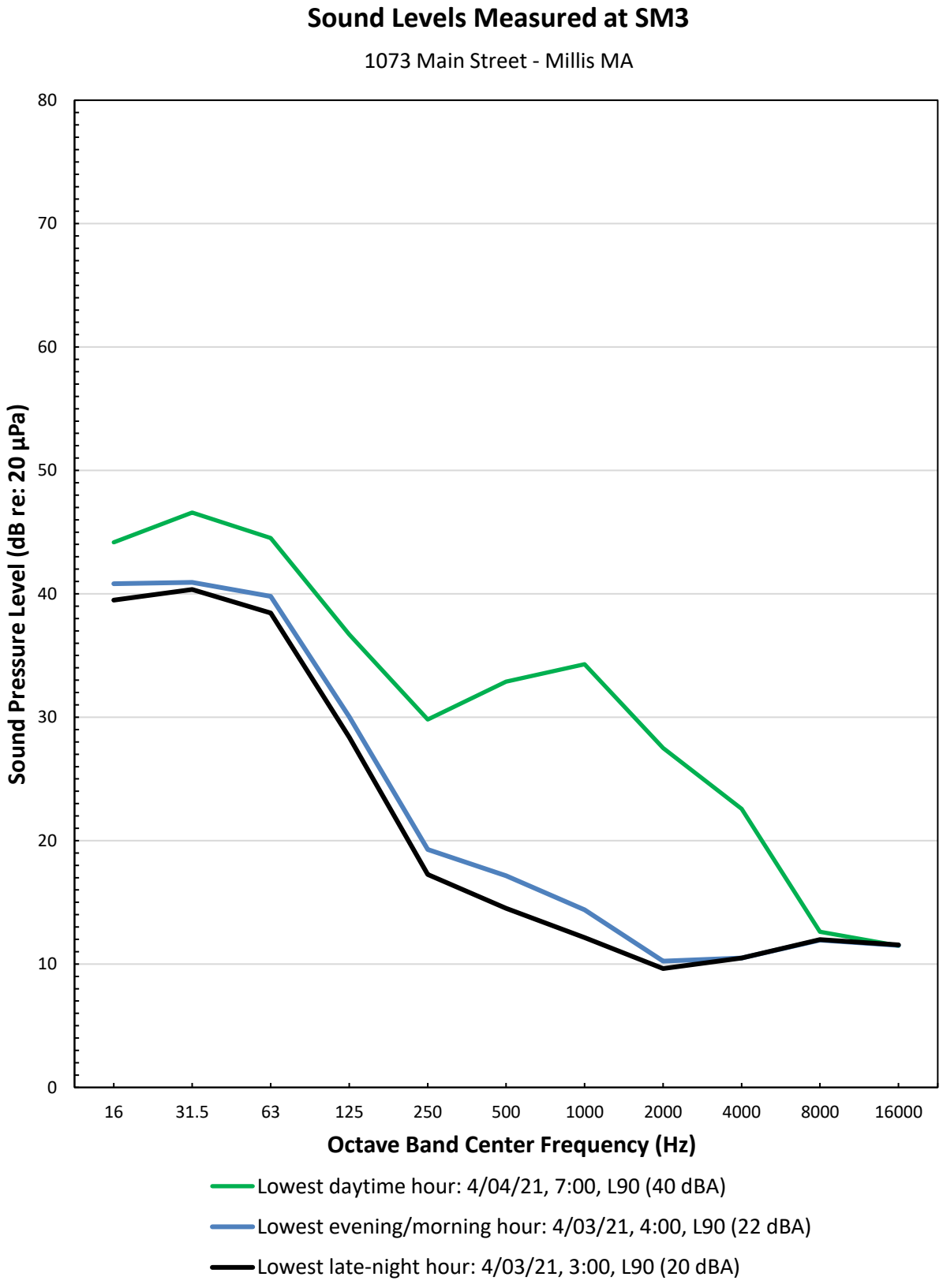


FIGURE 3C. Spectra of minimum sound levels measured at SM3

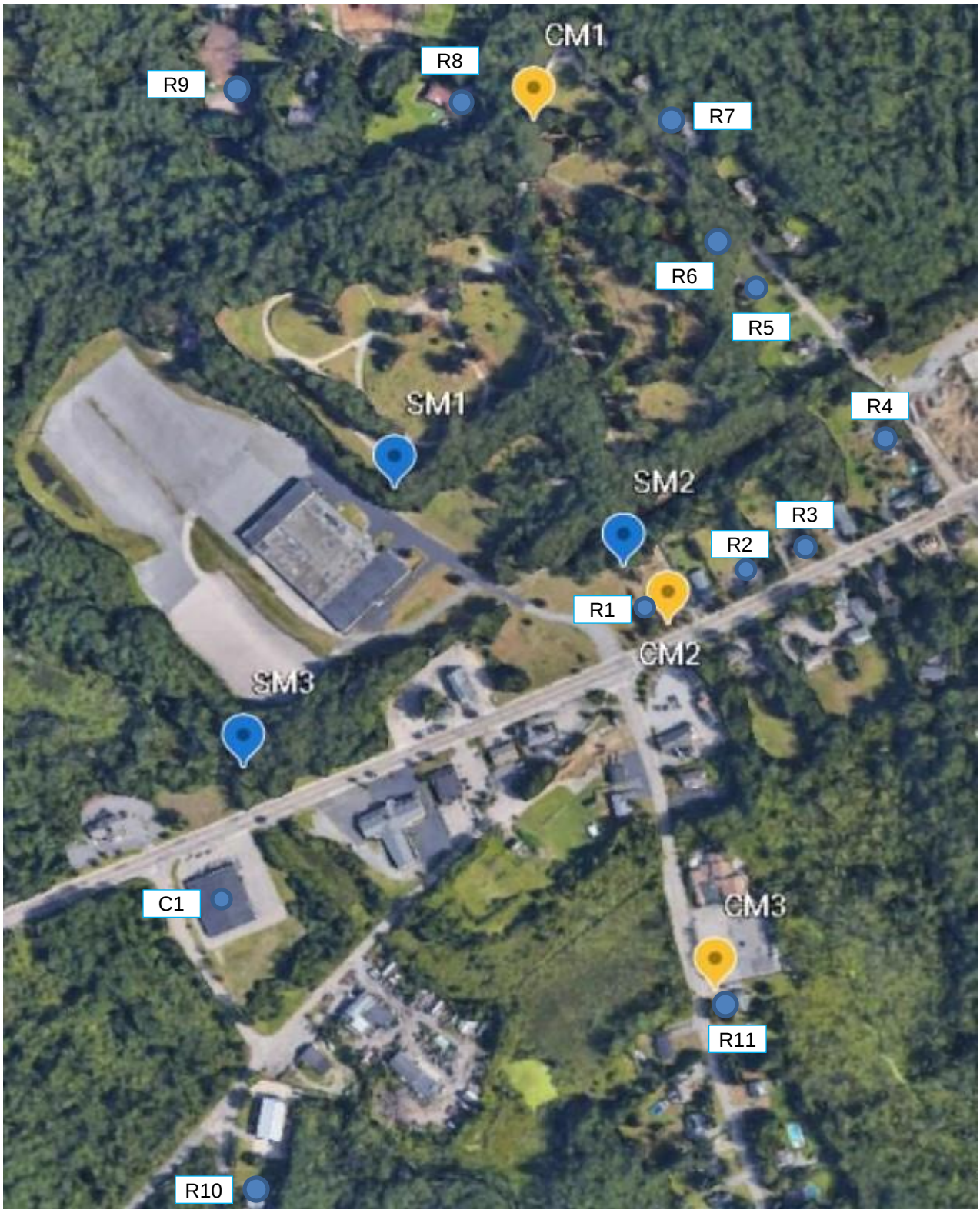


FIGURE 4. Commercial and residential receptor locations considered in computer modeling (C1, R1– R11)

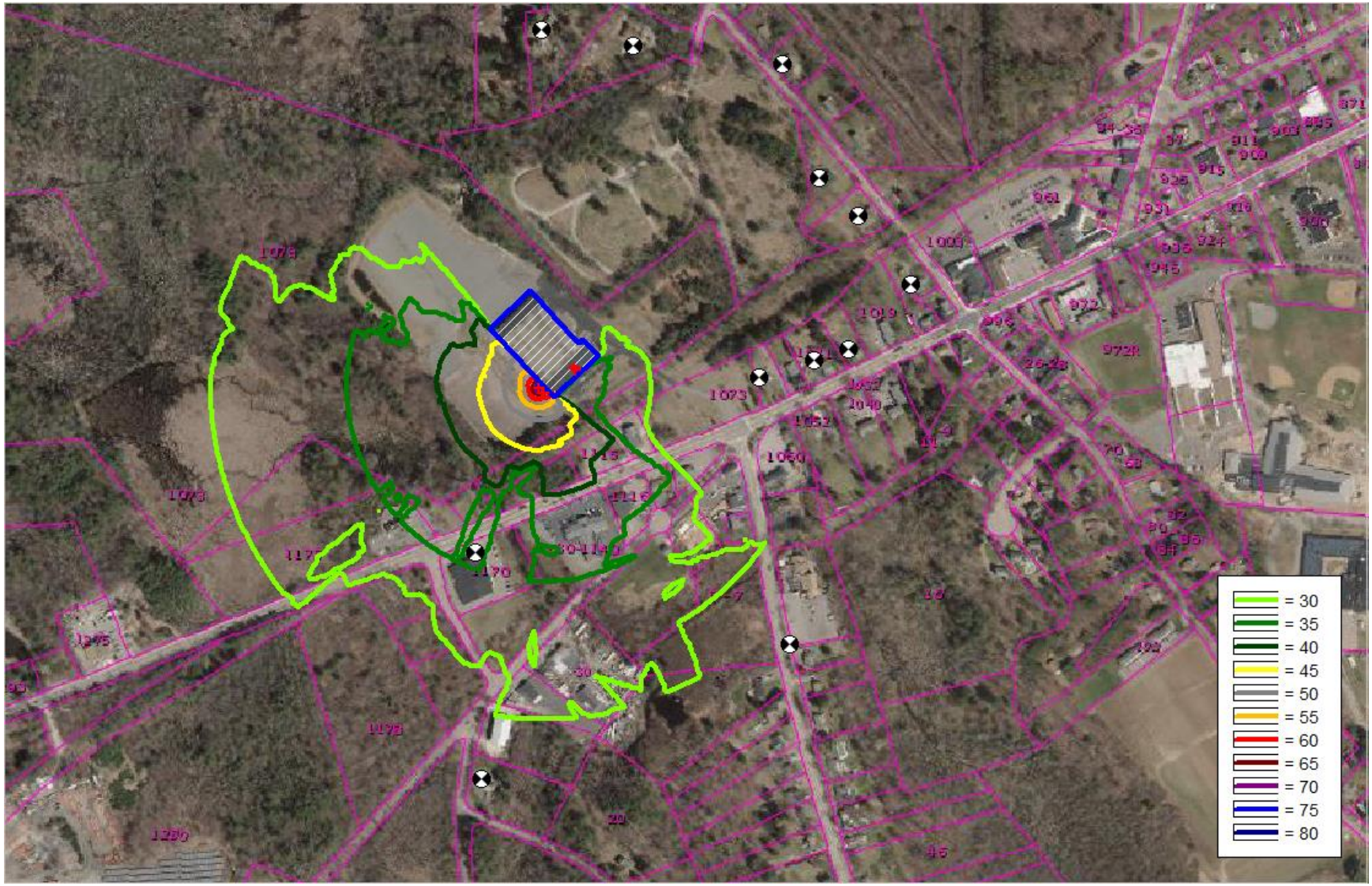


FIGURE 5A. Isopleths of predicted A-weighted sound levels, Phase 1 (Base Image Source: MassGIS OLIVER)

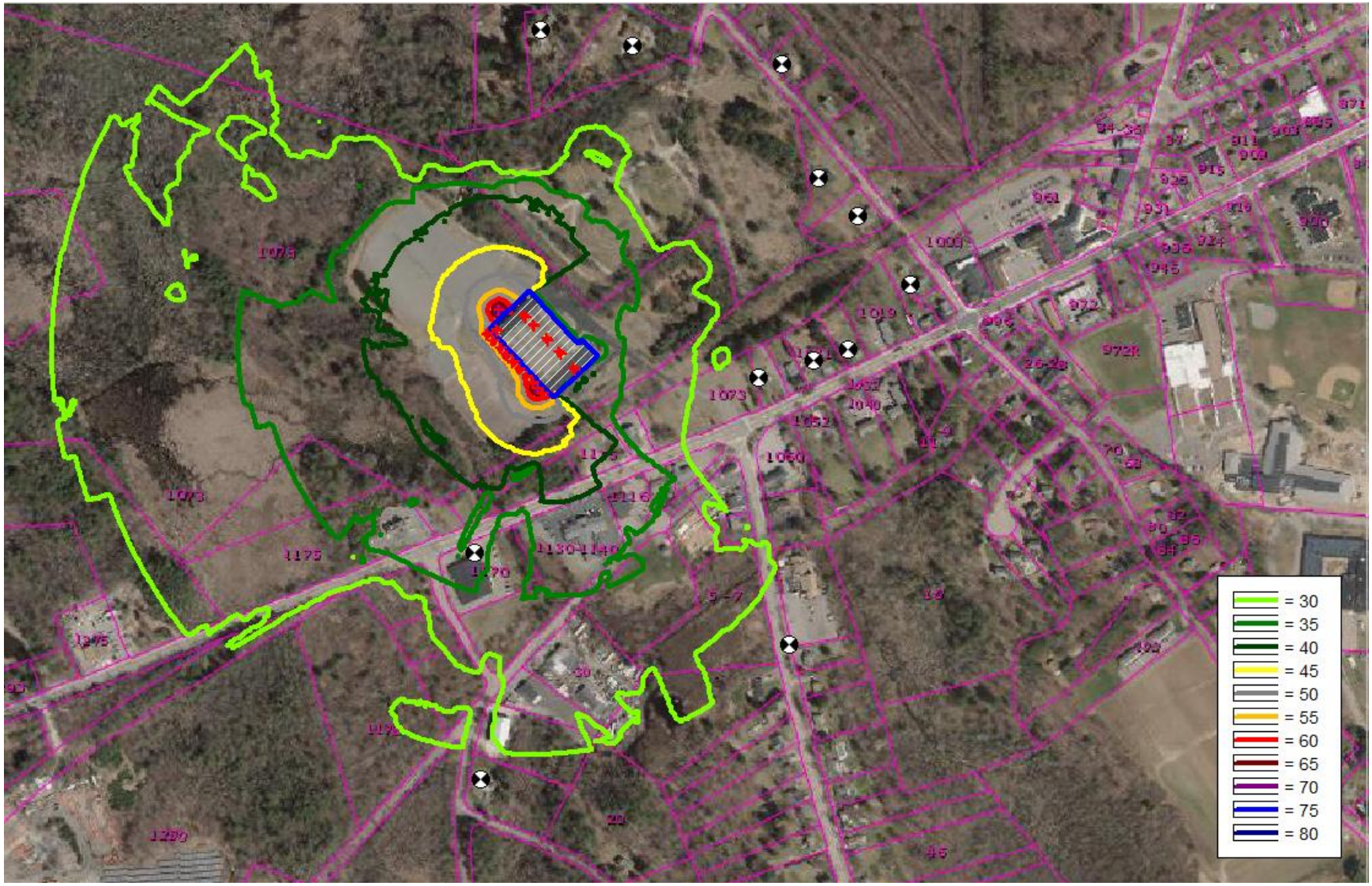


FIGURE 5B. Isopleths of predicted A-weighted sound levels, Phase 2 (Base Image Source: MassGIS OLIVER)

APPENDIX A
Computer Model Inputs

TABLE A-1. Sound power levels used in computer modeling

Description	Make	Model	Sound power level (dB re: 1 pW)									
			31.5	63	125	250	500	1000	2000	4000	8000	LA
150 Ton Chiller	Dakin	Trailblazer	91	92	88	89	89	86	82	80	74	91
10,000 CFM ERU [1]	Innovent	Custom	97	97	100	101	102	99	93	88	85	103
ERU control cabinet vent fan [2]	Innovent	Custom	65	67	65	67	64	64	63	59	59	72
3,000 CFM odor exhaust fan	Greenheck	USF-18	94	94	84	81	75	70	67	62	60	78

[1] This unit is a self-contained ERU, with no outside air inlet or exhaust discharge. These L_w data are for the return fan outlet, and this source has been modeled with the casing reduction provided by the vendor, shown in TABLE A-2 below.

[2] Sound power level based on nearfield site measurements 7/22/2022 at 1 m, with 3 dB correction factor.

TABLE A-2. Insertion loss values used in computer modeling

Description	Insertion loss (dB)								
	31.5	63	125	250	500	1000	2000	4000	8000
Innovent ERU casing breakout	12	18	24	30	32	33	34	63	60

APPENDIX B
Peer Review Comments and Responses

Written comments received on 11/18/2021 from Town's noise peer reviewer (Mike Lannan) appear *in italics*; Acentech responses follow. We have also responded to verbal discussion with the peer reviewer from our site meeting on 7/22/2022.

1 Acentech Sound Study:

A. Table 1- Summary of "Baseline Sound Monitoring. Late night reading at station #SM-33 was 20 dBA. Mike would like that figure used in Table IV (Project noise + Ambient noise-Phase 1) to be ultra conservative. The far right column showing "Background Increase" will need to be adjusted, accordingly.

> **Acentech response 12/14/2021.** We agree this is the most conservative approach. All tables, figures, and text updated as requested.
>
> **Discussion on 7/22/2022.** Acentech and the peer reviewer agreed that this approach may not be representative, and the report has been reverted to the original assignments of sound monitoring location to computer model receptor.

B. The Acentech sound study did not include any "odor" equipment, such as the rooftop exhaust, etc., because the odor design was not complete, at the time. BLW should provide Acentech the latest MEP designs for rooftop and ground MEP equipment, so Acentech can re-run their computer models/report.

> **Acentech response 12/14/2021.** Model and report updated to include this equipment. Minor changes to figures and tables, no changes to fundamental conclusions.
>
> **Discussion on 7/22/2022.** The peer reviewer suggested that all future Phase 2 equipment be included in an updated study, including the 10 new odor control fans described in the body of this revision.

C. Mike asked that Acentech include a site plan showing the entire 1073 Main St property outline, and thus the "property lines" in all directions. (He wants to show how far away any receptors are from 1073 "operations", to some of the property lines. He also wanted Acentech to show another site plan and for them to create lines "beyond the property line limits", indicating the limits of noise, and distance that contour would be towards a potential receptor,, off property. Example; SM-1 is at the property line, is at the cemetery fence line. During day operations, that might be the best measurement location, but at night, when no one is at the cemetery: then the 20 dBA contour limit could extend well beyond the 1073 main property line itself, and still be short of the closest receptor. (If Acentech has questions about this, they should call Mike Lannan and review with him.)

> **Acentech response 12/14/2021.** We have included property line locations from MassGIS, and increased the geographic area shown in our noise contour maps (FIGURES 5A and 5B). Please advise if this satisfies the peer reviewer's comment. Alternately, the design team might provide the requested site plan under separate cover.

617 THC -1073 Main Street, Millis - Project Description:

The site location is approximately 71 acres with an existing 72,000 SF single story block and metal panel warehouse building and associated paved parking and storage area. The driveway entrance to the facility is off of Main Street at a signalized intersection with Pleasant Street. In front of the facility is the railroad track, which is no longer in use, and the abutting property to the east is the Prospect Hill Cemetery. The remainder of the property to the north and west consists primarily of woods and wetland resource areas of the Great Black Swamp.

There are existing stormwater infiltration basins on site, for the existing parking area outside the limits of this proposal.

The project includes the interior renovation of the existing industrial building to support a marijuana cultivation facility. Improvements proposed include interior modifications to the building and site improvements of parking lot striping, security fencing, placement of mechanical equipment within the existing rear railroad car loading area. The proposal uses existing driveways, parking areas, stormwater management systems and utility connections.

MassDEP Priority Resource Map indicates the project is not located within a MassDEP Approved Zone II and is not within NHESP estimated habitats of rare wildlife or rare species. A portion of the site is located within the 100-year FEMA mapped flood zone (Zone A), however all proposed work is outside of this area. NRCS maps indicate soils consist mainly of Urban land with no hydrological soil group (HSG)

rating. Adjacent areas indicate Udorthents, sandy glaciofluvial deposits HSG A rating.

Zoning

Use Regulations §V

The parcel is located within the Industrial Park Two (I-P-2) Zoning District and abuts the Commercial District to the south along Main Street and Residential District to the east. The proposed use may be considered recreational marijuana establishment which requires a special permit from the Planning Board

within the I-P-2 district, which was granted by the Millis Planning Board.

Prohibition against Nuisance:

No Marijuana Establishment shall be permitted to create a nuisance to abutters or to the surrounding areas, or create any hazard, including but not limited to, fire, explosion, fumes, gas, smoke, odors, obnoxious dust, vapors, offensive noise, or vibration, flashes, glare, objectionable effluent or electrical interference, which may impair the normal use and peaceful enjoyment of any property, structure or dwelling in the area. Any Marijuana Establishment that the Zoning Enforcement Officer or Planning Board finds has become a nuisance for any reason may be found in violation of the special permit.

The Applicant proposes to install state-of-the-art odor control technology not only to prevent odors, but also to prevent pathogens and disease exposure (cross contamination) to the crops. These odor control technologies use a single scrubbing point to create a minimal amount of exhaust from the building and ultimately exhaust odor-free air from the building at a single point away from any receptors, along the property line. Besides the filtered exhaust, the proposed Marijuana Establishment and the cultivation associated with it will be contained within the warehouse and/or mechanical rooms and will not create a nuisance to abutters or surrounding areas, or create any hazard. Phase 1 and Phase 2 do not include any processing of the marijuana or manufacturing processes into other related products, such as oils and consumables, which tend to generate more odors. The facility will have no on-site retail operations.

PHASE 1

PHASE 2

PHASE 3

FUTURE ERU

FUTURE ERU

FUTURE ERU

FUTURE ERU

FUTURE ERU

FUTURE ERU

FUTURE ERU

FUTURE ERU

FUTURE CHILLER
NOT IN SCOPE

FUTURE CHILLER
NOT IN SCOPE

FUTURE EXHAUST SYSTEM

PROVIDE EXHAUST DISCHARGE EXTENSION WITH REDUCER TO 14"X14"
CAM FILTER BOX
2 BOXES WIDE

PROVIDE EXHAUST DISCHARGE WITH REDUCER TO 14"X14"

MANUAL DAMPERS

24"OA/EA
ALL BYPASS

48"x24"EA FULL SIZE
PLENUM BOX BEFORE &
AFTER FILTER BOXES

MANUAL DAMPERS

24"x24"EA OA

A

B

C

D

E

F

G

H

I

J

K

L

M

N

CO2 TANK
CONCRETE PAD

PROVIDE EXHAUST DISCHARGE EXTENSION WITH REDUCER TO 14"X14"
CAM FILTER BOX
2 BOXES WIDE

PROVIDE EXHAUST DISCHARGE WITH REDUCER TO 14"X14"

MANUAL DAMPERS

OZONE MAINTENANCE
SHUTOFF SWITCH

24"OA/EA
ALL BYPASS

48"x24"EA FULL SIZE
PLENUM BOX BEFORE &
AFTER FILTER BOXES

MANUAL DAMPERS

24"x24"EA OA

FUTURE EXHAUST SYSTEM

FUTURE EXHAUST SYSTEM

FUTURE EXHAUST SYSTEM

FUTURE EXHAUST SYSTEM

VENT TO REMAIN & CAP
DUCT BELOW CEILING IF
ALREADY INSTALLED

CAVENEY
architectural collaborative, inc.
128 WARREN ST ■ LOWELL, MA 01852
info@caveneyarch.com
978 - 770 - 0518

OWNER:
617 THERAPEUTIC
HEALTH CENTER
1073 MAIN STREET
MILLIS MA 02054

MEP, FP, FA:
BLW ENGINEERS, INC.
311 GREAT ROAD
LITTLETON MA 01460

CIVIL:
BEALS AND THOMAS, INC.
144 TURNPIKE ROAD
SOUTHBOROUGH MA 01772

617 THC CULTIVATION
1073 MAIN STREET, MILLIS, MA 02054

CONCEPTUAL

PROJ. NO.	2006-02
DATE:	AUGUST 2, 2022
DRAWN BY:	BS

REVISIONS

NO.	DATE	NOTES

EXTERIOR
MECHANICAL

H3.1

TECH environmental
FOCUSED KNOWLEDGE. REAL SOLUTIONS.

September 19, 2022

John McVeigh
Town of Millis
Health Director
900 Main Street
Millis, MA 02054

Re: Odor and Noise - Marijuana Growing Facility ***Ref 4499***

Dear Mr. McVeigh:

This letter is to update you and the Town on our review to date, and specifically since our letter from June 23, 2022. On July 21, 2022, I met on-site with you and the development team. The owners were on-site that day as well. After our discussions, and some last-minute requests for more information, it was clear that the facility was being installed as discussed and proper considerations for sound and odor are being included. I'd like to remind the Board that, the goal for this review and odor and noise minimization effort is not for there to be "no odor" and "no noise", since mathematically and realistically, there is no such thing as "no odor" and "no noise". If there was, we would all be living a a complete vacuum. In reality, there is ambient sound and background odor everywhere, so what people really mean when they desire ""no odor" and "no noise", they are really stressing that they want minimal odor or noise nuisance potential. Nuisance potential is directly related to the concentration of a noisome facility as compared to background. This comparison is the incremental change. The potential for adverse odor and noise incremental increases are discussed below.

Odor Control System Review

For odor nuisance there is no set regulatory limit, so it is typically addressed by making sure the facility has the proper tools in place to lower the potential incremental increase. In some cases, such as landfills or large wastewater plants a formal odor survey is completed with an agreed upon numerical limit prior to construction. This is often necessary, so that the facility can make sure that it installs the proper tools for odor control, but not too many. For a large facility, installing too many tools, is often cost prohibitive, so the minimum necessary must be determined. For smaller facilities such as this one(from an air emissions perspective), it is often more desired to approve more layers of odor control (i.e. more tools) in lieu of any sort of compliance demonstration at the permitting stage. Think of it as a person with a belt, we do not need to know exactly how, or what degree of certainty a belt will hold up one's pants, if we include a belt that we know will work, a rope that we know will work, and we include suspenders. Exactly how effective each technology will be is not that important to understanding that the pants will not fall down.

After review, discussion, and incorporation of our comments, the final odor control design system consists of:

1. Multiple containment and ventilation modifications to insure adequate capture. Including the shipping and receiving area. The air curtail and air lock was described on-site and will be adequate for Phase 1. The same commitment will be made for Phase 2, but it should be noted that the shipping and receiving will be relocated during Phase 2, and since that is being designed later, it should be a focus of the Phase 2 design review. The decision to replace the roof with a new one prior to our involvement was also a key tool provided to capture odor properly.

2. A recirculation air system with a disinfection and particulate removal system. Although many of the odorants are volatile, they will gently bond to solid particles or "dust" and then be removed via the filtration system. Since more than 90 percent of the air is recirculated, it gets treated many times by the particulate and disinfection system prior to discharge. Obviously, it is also continuously exposed each time to the product again, so new odor is added as well. But the point here is that overall, odor is not building and building within this recirculating. It is reaching an equilibrium. Given the proximity to neighbors, some marijuana facilities may elect to argue that this odor equilibrium along with the natural dispersion is sufficient for the exhaust.

3. There are many cleaning and disinfecting steps that must be followed to prevent disease within their process. And while these are not being done specifically to reduce odor, they can be considered part of the odor control system with respect to maintaining average loading conditions.

4. A good segregation plan to ensure that fugitive odors do not migrate from areas of stage 1 internally to the undeveloped are of stage 2 where the building is somewhat "porous" from its aged condition in the interim.

5. Lastly there is also a two-stage carbon system located on the outlet of the odor control system. So lang as the cartridges are rotated properly, they should be able to maintain 90% removal on average from each stage and a minimum of 95% removal overall from the exhaust. Some facilities may propose a single stage here with a promise of more frequent changeouts, but the two stages, operated in a lead-lag rotation, will ensure that there is both a removal and polish stage.

6. A spatial distribution of odor control systems across the rooftop, and a minimum exhaust discharge height of 10 feet above the rooftop.

In this case the facility has done a wonderful job tightening up the building and proposing balancing that will ensure that they can "push-pull" air as desired for operations and odor control. This design meets or exceeds typical ventilation installations that I review prior to recommendation for approval.

For this design, there are adequate odor control systems in place to ensure that the facility will operate as required to minimize odor for neighbors that would be located adjacent to the facility. Given that these technologies are in place and the nearest residents have more than the typical buffer distance, the odor control design meets or exceeds typical odor control system installations that I review prior to recommendation for approval.

Noise Mitigation Review

When Tech was initially involved, there were minimum noise control considerations other than the building was going to be fully contained. We discussed the general area and the primary direction of the sensitive receptors. We agreed that to demonstrate compliance for sound a numerical sound study was necessary to show compliance with the MassDEP Noise Policy as well as the Section III(1) of the Town of Millis Board of Health Rules and Regulations, Regulation of Marijuana Businesses to Prevent Nuisance. The Town ordinance was essentially the same, but there was some extra emphasis placed upon the fenceline that is typically not stressed as much in the MassDEP Noise Policy. Tech anticipates that this is related to a concern that if a future development was to occur on undeveloped land, and the sound study only explored existing sensitive receptors, then there could be a future concern created that does exist today. Tech did not require the sound consultant to stress fenceline compliance for sound at all costs, specifically because this site includes abutting land that is cemetery and wetland or flooded land, which in both cases are not developable.

There were no less than three interations of the noise modeling work and assumption review. Initially there was some missing ventilation considerations for phase 2 and the odor control system for Phase 1. At the last meeting, Tech made it quite clear that they could estimate the minimum required for Phase 2 as they had been doing, but if they needed more equipment during the actual design, they would need to repermit. As a result, Tech recommended that if the modeling results allow, they should examine the "unlikely maximum" scenario instead of the average or typical one. Therefore, if they use less (ERUs or odor control systems, then they would not need to repermit because the assessment dated August 2022 would result in sound that is "equal to or less".

It is still expected that Tech, or another consultant would review the actual design of Phase 2 for compliance with this approval, but the key here will be that no addition assessment would be necessary so long as the final design is considered "equal or less" with respect to sound (and odor as well).

In July, we went over a few of the remaining noise items directly with the sound consultant. The temperature and humidity control unit referred to as "ERUs" are located outdoors, but inside a sound enclosure. Since a sound enclosure is only as good as the weakest link, we questioned whether they were ventilated. Typically, ventilation is required in an enclosure to keep the temperature of the electronic and computer systems controls functioning. Upon inspection, the ERUs are fully enclosed with the electronics located outside in a separate weather tight cabinet with a separate dedicated fan system.

The sound consultant measured these small, dedicated fans, that upon inspection did not appear significant enough to change the total sound profile, but since the permitting was to explore both Phase 1, and Phase 1 and 2 scenarios together, the sound for one ERU fan was measured and added into the sound model for their Phase 1 assessment by the sound consultant. In addition, 8 more of these small exterior cooling fans were added to the 8 ERUs assumed for Phase 2 permitting. Again, for the record, it is not clear that 8 additional ERUs will be needed for Phase 2, but the owner wanted to include permitting for "up to 8" additional ERUs as discussed above.

Given that the ERUs are on the property line that abuts the wetlands and a commercial area, this will not be a direct sound concern at the fenceline. And although, the commercial area should not be considered

a nighttime receptor, the sound consultant was instructed to add a commercial building C01 for daytime sound. They did and it did not result in a significant increase in sound, even with the directing of sound in that direction, away from any residential neighbors on the facility side of the main street.

In closing, Tech concludes that the proponent more than adequately represented their future odor and noise sound potential, their potential to handle normal and upset conditions with more than one layer of protection for both odor and noise. Tech recommends that the Board of Health accept their approach as sufficient to protect the area with the design as installed, and possibly with special conditions such as:

1. **Applicable Regulations and Conditions.** The Facility shall be constructed and operated in accordance with and pursuant to (i) all applicable state and local laws and regulations, including, but not limited to G.L. c.94G, 105 CMR 750.00, 310 CMR 7.0 and/or 935 CMR 500.00, and the Town of Millis Marijuana By-Law and other applicable local regulations, (ii) the Decision, and (iii) all General and Special Conditions attached to the Decision.

2. **Operations**. All handling of marijuana shall take place entirely within the enclosed and secured building. The Facility will be designed and operated so that there will be no visual proof of marijuana grow activities or products occurring within or on the building from the exterior of the Facility. All phases of the cultivation, processing, and packaging of marijuana shall take place indoors, in a designated area.

3. **Noise and Odor Controls**. The Facility shall incorporate layered and redundant engineering controls to minimize noise and odor generated by the Facility to avoid causing a nuisance to the public and the neighborhood. At this juncture there are sufficient design plans and installation for Phase 1 to approve both Phase 1 and Phase so long as like equipment for Phase 2 ventilation, enclosures and odor control systems are incorporated.

4. **Noise and Odor Control Strategies**. The Facility shall implement the following odor and noise control strategies: (A) containment, (B) head space/localized treatment; (C) filtration and recirculation (D) redundant air scrubbing; and (E) rooftop exhaust fans.

    A. Containment. The Facility shall be constructed as a sealed structure and shall conform to all applicable building and energy consumption standards to increase energy efficiencies and enhance noise and odor containment. The seal created will limit fugitive emissions and prevent odors or noise from creating nuisances.

        (i) Sealed Structure. The building shell shall be encapsulated by spray foam insulation. The interior rooms used for the cultivation and processing of marijuana will be sealed pod-style rooms with a contained HVAC system. The Facility shall have limited egress points and no windows into the grow areas.

        (ii) Closed-cell spray foam. Spray foam insulation shall be used to "encapsulate" or provide an additional barrier between the inside of the Facility and any routes for fugitive emissions. The closed-cell foam creates a true-conditioned space and “seals" the interior "envelope" of the structure. Spray foam is inert and not subject to decay and is mold and bacteria resistant.

(iii) Airlocks and Pressure Adjusted Spaces. The Facility shall incorporate air locks at appropriate locations to allow a balancing of the air pressure throughout the Facility.

a. Rooms with odor producing materials shall be maintained at a minimum positive pressure and rooms and all hallways that have access to the outside shall be maintained at a minimum positive pressure as per the design drawings.

b. An air curtain or additional airlock shall remain in place for the loading dock area to minimize the potential for fugitive odors from sealed product being off-loaded from the facility and to isolate the future Phase 2 area today, and to develop a new loading dock plan prior to occupancy of Phase 2.

B. Localized Treatment; Internal Odor Mitigation. To maintain the typical odor baseline within the facility, the Facility shall institute "clean room" procedures. The Facility will maintain a storage tank with no less than a two-week supply of solution and will be refilled on a fixed schedule to maintain this supply. During design adequate level and fill controls shall be included so that this supply can be easily monitored and maintained.

C. Specialty Air Filtration & Recirculation. The Facility shall be designed with a specialty filtration system that will have multiple series of air circulation and stages of treatments prior to being exhausted to the outside environment. The air filtration units provide the following redundant odor control strategies:

I. Physical removal of odor causing agents. (The filtering of the air eliminates both particle and gaseous pollutants.)
II. Oxidation of Odor.

D. Automated, Air Scrubbing. Air scrubbing units shall be installed as the final step in the redundant process to control and minimize odor and to prevent nuisances from any exterior discharges. Prior to the recirculated and filtered air being exhausted, it will pass through a final air scrubber that will contain two chemical media beds. The process shall not mask odor but shall remove odorant through absorption before it is exhausted from the Facility.

E. Adequate Dispersion. The odor exhaust, like the ventilation exhaust in the proposed mezzanine level, should be in the vertical direction (with no rainhats). The effective stack heights must be a minimum of 10 feet above the roofline and a stack optimization study should be included to determine if they should be higher. The Facility will incorporate two (2) exhaust fans, one will act as the primary exhaust point and the second will be used as a backup.

The Facility shall maintain on hand at least one uninstalled spare fan or motor for each different type of ventilation fan to ensure the Facility can maintain operations in the event of a fan failure.

Changes in the manufacturer, type of fan and controls shall be allowed. Provided that the efficacy of such alternate equipment shall control foul odors and noise in a manner that will avoid nuisance. A new mathematical sound model or a new odor dispersion model may be required, depending on the degree of changes proposed.

5. **Peer Review**. Although this approval is for Phase1 and Phase 2, to ensure compliance during Phase 2 upgrades, the Company shall finance a peer review of the Phase 2 design. Again, so long as the equipment is the same or less, then there will need to be no numerical odor or noise study. There will need to be an odor capture and ventilation assessment done however, to the extent that the Phase 2 is set up somewhat differently, there will likely be some changes to Phase 1 to optimize the combined, added space, and the loading dock will be relocated.

6. **Operations and Management Plans for the Odor Control Systems.** The Facility will adopt operations and maintenance plans that will include monitoring and inspection of the Facility and all mechanical systems and a detailed "nuisance response" plan for any identified noise or foul odor release beyond the confines of the Facility that have been confirmed as creating a nuisance. All maintenance and inspections required pursuant to the Operations and Maintenance Plans for the HVAC/Air Filtration Systems, and Air Scrubbing Equipment. Maintenance of the systems shall be routine and scheduled in accordance with manufacturers' recommendations, regulatory requirements, or performed periodically by third-party partners and technicians. All maintenance performed shall be documented in detail and retained in a centralized repository or "Maintenance Log."

7. **Detected Odor and Noise "Nuisance Response" Plan.** The Company shall maintain a "Nuisance Response" plan that outlines the chain of custody for verified and confirmed complaints in the event of a concern about odor or noise escaping the Facility and constituting a nuisance. Pursuant to the Nuisance Response plan, the Company shall establish a website or telephone "hotline" to receive any inquiries or complaints. All complaints received, whether through the hotline, letter, or local authorities will be immediately investigated to determine: (1) if further action is not required because the issue was temporary or was due to a mechanical system failure and the situation that has been corrected; or (2) that such allegations are not supported by credible evidence; or (3) that a verifiable, legitimate and uncorrected odor or noise nuisance exists in which case the Facility shall prepare a response action plan that will address and resolve the complaint. The cost of all remediation and mitigation shall be the sole responsibility of the operator.

If you have any questions about this update, please call me on my cell 781-718-9305 to discuss.

Sincerely,

TECH ENVIRONMENTAL, INC.

Michael T. Lannan, P.E.
President