



TOWN OF MIDDLEBURY
77 MAIN STREET, MIDDLEBURY, VT 05753

Date: 10-9-2020

VT-DEC
Drinking Water and Ground Water Protection Division
1 National Life Drive, Davis 4
Montpelier, Vermont 05620-3521

Re: Updated to the Source Protection Plan.

The update of Middlebury's (WSID 5004), Source Protection Plan began with communication with Middlebury's Planning and Zoning office about projects or land use changes that occurred in the source protection area over the previous three years. There had been a few residential accessory buildings constructed (garage and/or shed), but no land use changes or new commercial buildings. The Planning and Zoning office as well as the Middlebury's Health Offices received copies of the Source Protection Plan customer letter.

The mailing list of the address in the source protection area was updated and an updated list for the Lindale Mobile Home Park was provided by the Addison County Community Trust. Customer letters were mailed in July. A visual inspection of the Source Protection area was also done.

Possible sources of contamination include the Carrara and Sons, Inc. gravel and concrete plant as well as the VT State Airport and crop land. I had a phone conversation with Paul Carrara Jr. reminding him of the Otter Creek Engineering 2014 assessment of his facility as a potential source of contamination. Paul said that they continue to use best practices and that they recently upgraded a used oil storage tank to a certified double wall container and that they have a current spill protection plan. VTRANS Aviation received a customer letter as they operate the airport on the southern end of the source protection area. I received a diagram of the fuel storage tanks at the airport to include in our Source Protection Plan. The Foster Brother's Farm owns crop land on the western edge of the source protection area and they received a customer letter as well.

There have been no changes to the Source Protection Plan.

Respectfully,

A handwritten signature in cursive script that reads "William Glen".

William Glen
Town of Middlebury Water Department
77 Main Street
Middlebury, VT 05753



**Vermont Department of Environmental Conservation
Drinking Water and Groundwater Protection Division**

One National Life Drive – Main 2 [phone] 802-828-1535
Montpelier, VT 05620-3521 [fax] 802-828-1541

www.drinkingwater.vt.gov

Agency of Natural Resources

October 26, 2017

William Glen
Town of Middlebury Water Dept.
77 Main Street
Middlebury, VT 05753

Re: Source Protection Plan Update
Middlebury Water System, WSID #5004

Dear Mr. Glen:

Thank you for submitting the Source Protection Plan Update (SPPU) for the Middlebury Water System. The plan has been reviewed and approved. And since SPPUs are due every few years, we would like to inform you that the water system's next update is due by **November 1, 2020**.

Having good forest cover in the Source Protection Area (SPA) is considered one of the best ways for maximizing or improving both the quantity and quality of groundwater and surface water. Maximizing tree coverage within the SPA increases groundwater infiltration, reduces erosion, and reduces the probability of contaminant releases into the Source Protection Area. Please consider encouraging forestry stewardship within your SPA as an excellent Best Management Practice for protecting your drinking water. The County Forester for your area can be found at http://www.vtfpr.org/resource/for_forres_countfor.cfm.

If you have any questions about this letter or would like to discuss additional ways to protect the water system's water sources, please contact me at 802-585-4907 (direct line), or ken.yelsey@state.vt.us. You may also wish to visit our website www.vermontdrinkingwater.org.

Respectfully,

A handwritten signature in black ink, appearing to read "Ken Yelsey", with a long, sweeping underline that extends to the right.

Kenneth Yelsey
Water Resources Section
Drinking Water & Groundwater Protection Division

c. WSID #5004
✓ Dan Werner, Town of Middlebury
Rodney Pingree, DWGPD



TOWN OF MIDDLEBURY
77 MAIN STREET, MIDDLEBURY, VT 05753

May 11, 2016

Mr. Larry Lackey
VT Dept. of Transportation
Aviation Program
200 Airport Road
Berlin, VT 05641

RE: Town of Middlebury Public Water Supply WSID # 5004 - Source Protection Area
Middlebury Airport Expansion

Dear Mr. Lackey,

The Middlebury State Airport is listed as a potential source of contamination (PSOC) in the Town's Public Water Source Protection Plan as approved by the State of Vermont, Department of Environmental Conservation. The airport is within Source Protection Area "A", approximately 4,200 feet south of Well #2. This well, approximately 50 feet deep, is the main water source for the Town of Middlebury Water Department.

I understand that the runway will be extended 700 feet to the north, widened to 60 feet and a new parallel taxiway will be constructed. There are no changes expected to the apron areas, hangars or fuel facilities.

While the distance from the airport to our Well #2 is considered significant, the airport property does have sandy soils which will aid infiltration of any runoff. It is therefore important the airport operation implement and maintain Best Management Practices; Spill Prevention Control and Countermeasure Plans; and Hazardous Waste/Spill Response procedures to not cause adverse effects to the groundwater.

If you need additional information or assistance, please contact me at (802) 388-4045 or by email at dwerner@townofmiddlebury.org

Sincerely,

Dan Werner
Director of Operations
Town of Middlebury

Revised/superseded 2017.



**Vermont Department of Environmental Conservation
Drinking Water and Groundwater Protection Division**

Agency of Natural Resources

One National Life Drive - Main 2 [phone] 802-241-3400
Montpelier, VT 05620-3521 [in-state] 800-823-6500
www.vermontdrinkingwater.org [fax] 802-828-1541

MIDDLEBURY TOWN
94 MAIN ST
MIDDLEBURY VT 05753

October 15, 2014

RE: Source Protection Update Approval
Town of Middlebury Water System, WSID 5004

Dear Water System,

Thank you for submitting the Source Protection Plan update for your water system, prepared by yourselves. I have reviewed the document and found that it meets the requirements of the Water Supply Rule and, therefore, the plan is approved.

The Source Protection Plan represents a valuable tool for protecting a water system's drinking water sources, and we encourage the water system to continue to follow through with the actions outlined in the plan's risk management strategy.

The water system's next Source Protection Plan Update is due on **10/15/2017**.

Having good forest cover in the Source Protection Area is considered one of the best ways for maintaining, or improving, both the quantity and the quality of groundwater and surface water. Maximizing tree coverage within the watershed increases groundwater infiltration, reduces erosion, and reduces the probability of contaminant releases into the watershed. Please consider encouraging forestry stewardship within your Source Protection Area as an excellent Best Management Practice for protecting your drinking water. The County Forester for your area can be found at http://www.vtfpr.org/resource/for_forres_countfor.cfm.

You are encouraged to contact the Water Resources Section if you have any questions about this letter or would like to discuss additional ways to protect the water system's water sources. The Water Resources Section staff member for your area is Dennis Nealon and he can be reached at 802-585-4909 (direct line). You may also wish to visit our website at www.vermontdrinkingwater.org

Sincerely,

A handwritten signature in blue ink that reads "Dennis Nealon".

Dennis Nealon
Water Resources Section
Drinking Water & Groundwater Protection Division
C WSID 5004
Heather Campbell, DWGPD
Rodney Pingree, Section Chief DWGPD

TOWN OF MIDDLEBURY

PUBLIC WATER SOURCE PROTECTION PLAN

Source Protection Area “A”
(Wells 1 and 2)

Source Protection Area “B”
(Wells 3 and 4)

October 2020

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**TOWN OF MIDDLEBURY
PUBLIC WATER SOURCE PROTECTION PLAN**

Wells 1 and 2
(Palmer Springs)
&
Wells 3 & 4
(Johnson)

I. Introduction

The Town of Middlebury has a Public Community Water System which provides water to most of the Town and some limited service to surrounding areas. The current Average Day Demand is approximately 1.2 million gallons per day. The Town receives its water supply from Palmer Springs Well 2 and Johnson Wells 3 and 4. Well 1, located approximately 250 feet to the north of Well 2, has been abandoned.

Well 2 is a 24-inch diameter gravel-packed well which was constructed to a depth of approximately 50 feet in 1965. Well 2 has a rated safe yield of 1,700 gallons per minute (GPM).

Well 3 is a 22-inch by 14-inch diameter gravel-packed well which was constructed to a depth of 156 feet by R. E. Chapman Company of Oakdale, Massachusetts in 1986. Well 3 has a rated safe yield of 400 gallons per minute (GPM).

Well 4 is a 14-inch diameter gravel well which was constructed to a depth of 186 feet. The well is approximately 568 feet north of Well 3. Well 4 has an approximate safe yield of 800 gallons per minute (GPM).

Source Protection Area "A" (SPA "A") refers to Well #1 and #2 (Palmer Springs)
Source Protection Area "B" (SPA "B") refers to Well #3 and Well #4(Johnson)

II. Delineation of Source Protection Area

A Source Protection Area (SPA) is defined as the surface and subsurface limits surrounding a groundwater source through which contaminants are likely to move to reach the source. The area is divided into three zones:

Zone 1: A 200-foot radius around the well where impacts from contaminants are likely to be "immediate and certain."

Zone 2: A larger area encompassing land on which contaminant sources will have a "probable impact." The limits of Zone 2 are based on soil types and their hydraulic conductivity. This zone is also referred to as the "2-year Time of Travel Zone."

Zone 3: Includes the remainder of the recharge area, defined by the topographic divides which determine the up-gradient drainage area. Refer to Exhibit 1 for boundaries of Zones 1, 2, and 3 for SPA "A" and "B".

III. Inventory of Land Uses and Potential Sources of Contamination

The Town of Middlebury has addressed land use within the SPAs in its Town Plan and closely monitors development within the areas. Excerpts from the Town Plan which address the SPA are shown in Appendix 1.

A. SPA "A"

The major land use within the area is forest. Other uses include: industrial, residential, agriculture, and transportation. A Potential Source of Contamination (PSOC) is any activity which might generate, use, or discharge materials which threaten the health of water consumers and is located within a SPA. On-site septic disposal systems are located in Zones 2 and 3.

1. Carrara and Sons, Inc. Gravel Pit and Precast Concrete Plant

Joseph P. Carrara and Sons, Inc. own and operate a gravel pit and concrete forming plant adjacent to the Palmer Springs site. Equipment on the site consists predominately of heavy machinery, including concrete trucks, dump trucks, bucket loaders, and the concrete forming equipment. There are several waste pits that are noted in correspondence concerning the plant. The use of such heavy equipment necessitates using gasoline, diesel fuel, and various oils and hydraulic fluids. The potential always exists for these fluids to leak onto the ground or parking areas and leach into the aquifer. In addition, the pre-cast concrete plant utilizes curing compounds and form release agents which may become toxic. This area is a medium-risk PSOC due to the volume of truck traffic, the amount of contaminate stored on-site, and the close proximity to Palmer Springs. Another potential hazard is the extraction of gravel that may reduce the depth to groundwater table from finished grade.

In 1985, Carrara and Sons, Inc. applied for a Land Use Permit to enlarge the pre-cast plant. As a result of that application, the Town of Middlebury reviewed the project, as well as the Department of Health and Agency of Natural Resources. Documentation concerning that application and

applications to the Town of Middlebury Planning Commission is attached as Appendix 3. As a condition of approval, the Town of Middlebury found that Carrara and Sons, Inc. was responsible for “implementing and maintaining prudent procedures and practices to prevent pollution of water supplies.” (Planning Commission Minutes, May 7, 1986)

2. Former State of Vermont Agency of Transportation Dump Site

This area is located immediately northwest of Palmer Springs. If any contamination were to infiltrate the aquifer from this area, it would very difficult to intercept and prohibit from leaching into the well system. This site is now owned by the Town of Middlebury. The dump consists primarily of scrap steel, tires, lumber wood.

This area is a high-risk PSOC due to the proximity to Palmer Springs.

3. Agriculture

South of the Palmer Springs site, along Route 116, there are cow pastures and other agricultural development. Currently, the pastures do not pose a substantial risk to SPA “A”. The possibility of contamination of the well due to the use of this land is remote due to the isolation distance. However, should the use of the land change, the possibility of contamination must be evaluated.

4. Individual On-site Septic Systems

Within the SPA “A”, there exist several on-site septic systems for single-family homes. The residential development of the area is sparse, and development with SPA “A” is limited by zoning regulations. Of the on-site systems in the area, only those located on Route 116 near Palmer Springs would be considered a risk, as well as those located adjacent to Henshaw Brook. Based on a conversation with Fred Dunnington, the Henshaw Brook flows overland and then seeps back into the ground and flows toward Palmer Springs. Based on past test results, there does not appear to be bacterial contamination from *e-coli* or total coli form counts. Therefore, it appears that the existing homes do not affect the water quality at Well #2.

The threat these systems pose to the water system is subject to the extent and continuity of a clay or other highly impermeable layer that overlays the gravel deposits from which the well draws its water. In the years the water system has been in operation, Well #2 has not tested positive for bacteria.

Although these systems pose little threat, the septic system owners should be contacted to remind them of the importance of proper maintenance of the systems to eliminate risk to the water supply.

5. Middlebury State Airport

The Middlebury State Airport, with associated flight paths, is located to the west of the Palmer Springs Well. Because of the isolation distance from the well and large quantities of fuel stored on-site, this is a medium-risk PSOC. In the past, crop dusting operations were based at the airport, but those operations had been discontinued at the time of the writing of this Plan, except for emergency conditions which dictate that the crop dusters must land at the Middlebury Airport.

No pesticides are stored at the airport any longer. Test results from samples taken at the time of spraying operations did not demonstrate contamination. Based on a conversation with Dr. Phil Benedict of the Department of Agriculture, the department did, for many years, monitor test wells at the Middlebury Airport. Some of the wells were destroyed and testing was eventually abandoned. During the testing period, no toxins were reported at any of the sites.

Refueling facilities at the airport have been completely refurbished in 1993, including a containment area in the event a spill takes place. This, and the curtailment of crop dusting, minimizes the potential for contamination from chemical sources at the airport.

As with Route 116 and automobile traffic, there exists the possibility of aircraft accidents at the airport. In the event of a plane crash, the Town should be notified so it can determine if any steps should be taken to protect the well

B. SPA "B"

The majority of current land uses within this WHPA is forest. However, there is a concentration of single family residential in the northern part of the Area.

1. Individual On-Site Septic Systems

On-site septic disposal systems are located in Zone 3. The threat these systems pose to the water system is subject to the extent and continuity of a clay or other highly impermeable layer that overlays the gravel deposits from which the well draws its water. In the years the water system has been in

operation, Well 3 has not tested positive for bacteria, giving support to the theory that the gravel is isolated from the shallow water table into which the septic systems discharge.

2. Earth Waste Systems

This business recycles vehicles and machinery. Fluids are removed and recycled. Other materials are then separated, sorted and sent to other recycling entities.

3. Agriculture

Historically, there has been some farming within Zone 3 of the SPA. Little information is available about past farming practices, and the current use is very limited. The threat these properties pose to the water supply is considered to be low. The Town plans to monitor activities on the farms and contact the owners if they start farming again. This is especially important for corn production or other crops which have high chemical usage.

SPA "A" and SPA "B": A list of land uses which have the potential of generating contaminants is included in Appendix 2. This list was compiled by the State of Vermont Agency of Natural Resources as a part of the Vermont Wellhead Protection Program. Town officials have become familiar with this list and plan to monitor for future contamination.

IV. Management of Risk

A. Public Awareness

Making the public aware of the limits of the SPA and the threats certain activities may pose is an important factor in protecting a water supply. Frequently, ignorance is the real cause of source contamination. The best approach to public education is multi-directional, targeting as many individuals and groups as possible. The Town plans to undertake the following activities:

1. Informational Mailings

The Town has prepared and mailed to all property owners within the SPAs utilizing the sample letter in Appendix 4. Flyers can be very effective tools

in educating the public about the SPA. Numerous organizations and agencies have published sampler flyers. A sample from the Vermont

Department of Environmental Conservation is included in Appendix 5. A complete list of current landowners, with tax map parcel numbers, is included in Appendix 6.

2. Information to Local/Regional Boards

Town Planning and Zoning Boards and Regional Planning Commissions can be of great help in protecting water sources from inappropriate development and land uses; indeed, the SPA is addressed in the Town of Middlebury Comprehensive Plan. The Town Plan was updated in 2014. A copy of this Source Protection Plan, including the SPA map and the list of Potential Sources of Contamination, has been sent to the Town and Regional Planning Commissions. The information will also be supplied to the Select Board and Health Officer.

B. Management of Existing Risks

The Town plans to take steps toward minimizing the threat of PSOCs. Ideally, this will be achieved through a dialog with the property owner and their voluntary measures to avoid contamination. The following steps are recommended:

1. PSOC Letter

The first step in managing existing risks will be a letter to each PSOC, notifying the landowner(s) that they are within the Town's SPA, and explaining the threat their activities pose to the water source. A follow-up call or meeting with the property owner(s) is important to discuss ways of protecting the aquifer and to foster cooperation.

2. Notifications of Middlebury Health Officer

The Town Health Officer has the statutory authority to take measures necessary to ensure public health. The officer will be provided a copy of this document for informational purposes. If the Town is denied access to the property, or if the landowner is unwilling to correct threatening conditions, the Town will review with the Health Officer what enforcement assistance can be provided.

3. Inspections

Annual field inspections of the SPA will be performed by the Town to review the PSOCs identified in the Report and to identify and map any new ones. The Town plans to arrange with the owners of each of the PSOCs for annual inspections of their property to determine the level of

threat. More frequent “windshield” inspections of the gravel pits, storage yards and forest areas will also be done. If the landowners are unwilling to allow inspections, the Town will work with the Health Officer to require them. Inspection should include review of land use, review of stored materials (such as oil, pesticides, etc.), evidences of spills and other activities which may adversely affect the aquifer. If threats are identified, the Town will begin negotiations with the landowner(s) to correct the problem. A report of the inspections will be made and kept on file for review by the Water Supply Division upon request.

C. Planning and Managing to Minimize Future Risks

1. Local Ordinances

Sound planning by the Town, in coordination with the local Planning and Zoning Boards, can help reduce the potential for new threats to the water supply. An overlay wellhead district to the current zoning is a typical method of governing land use. The proposed overlay district could restrict those uses listed in the State’s “Partial List of Potential Sources of Contamination” within the SPA. It could also require review of projects based upon criteria intended to protect the water supply.

The Town of Middlebury does not have a Hazardous Waste Ordinance and has historically relied on the ANR to provide enforcement of hazardous waste incidents.

2. Emergency Contingency Plan

In the event that the existing source becomes contaminated, the Town shall take the following steps:

- a.** Follow the guidelines outlined in the Emergency Response Plan located at the Public Works Department and the Town Manager’s office. This plan is very comprehensive, containing emergency contacts and notification procedures. Although notification of authorities and the public are listed in (b) and (c) below, the Emergency Response Plan should be followed.

- b.** Notify regulatory authorities (subject to the nature of the contamination):

Water Supply Division	(802) 241-3400 (800) 823-6500
HAZMAT Response Team	(800) 641-5005
Middlebury Health Officer Middlebury Deputy Health Officer Tom Scanlon	(802) 388-8100 (802) 388-8100 x-209
Middlebury Fire Department	911 or (802) 388-4462
Middlebury Police Department	911 or (802) 388-3191

Notify all utility customers of the nature of the problem. Instructions on water use will be provided subject to the nature of the contamination (i.e. boil water or do not drink orders) and expected duration. Notifications shall be mailed or hand delivered to each customer.

- c.** System Operation – Operator should refer to shut-down, start-up, and flushing/disinfection procedures outlined in the Water System’s Operation and Maintenance Manual.
- d.** Alternative Sources – Subject to the nature of the contamination, if temporary abandonment of Well 2 is required, the Town plans to utilize Well 3 and Well 4, with yields of 400 gpm and 800 gpm respectively. If temporary abandonment of Well 3 or 4 is required, Well 2 will be used. If short-term potable water is needed, bulk water from a potable water hauler is a possibility. Due to the volume needed, hauled water should not be used to fill the Town’s reservoir, but for special users in need of potable water.

In the event of long-term contamination, the Town will evaluate options available including, but not limited to:

- Treatment (groundwater remediation and/or system water)
- Locating and drilling of new well

Final determination on a long-term course of action is subject to the type of contamination present and the results of an engineering and hydro geologic evaluation.

APPENDIX 1

Ground Water and Aquifers

The amount and quality of ground water is of great importance because it is the sole source of water for drinking and fire protection. Private wells vary as to quantity and quality in much of Middlebury, but the thick deposit of sand and gravel along the east side of town provides a very reliable source for our municipal and fire district water systems. This area absorbs rainfall and snowmelt at its surface and collects runoff from the Green Mountains. Middlebury pumps water out of this aquifer from two properties, Palmer Springs and a site northeast of Dow Pond. Fire District #1, East Middlebury has a separate water system managed by its Prudential Committee. This water system is served by two separate sand and gravel wells. The primary well (Well #2) is located behind the Middlebury Beef Supply and the reserve well (Well #1) is located near the Methodist Church in the center of East Middlebury.

The aquifer recharge area (map in Section 3) is mostly in a Forest zoning district that is designed to protect the fragile soils and the aquifer recharge functions of this area. About 75% of the aquifer recharge area is in Federal ownership as part of the Green Mountain National Forest. The remainder is made up of private commercial timber lands and the local sand/gravel/concrete operations of J.P. Carrara & Sons. The capacity of the aquifer to supply drinking water poses no limit to the development of the town in the foreseeable future.

There are a few portions of the aquifer recharge area that are outside the Forest zone and on which limited development has taken place. The densities of such development are at or below that recommended in the aquifer study. The Town must maintain regulations over activities that could potentially affect the water supply and monitor the developed areas as well as forest land uses and sand and gravel and concrete operations within the recharge area.

A 1980 aquifer study and subsequent wellhead protection studies determined that the most significant threat to the aquifer was the agricultural pesticide and herbicide spraying operations that were formerly based at the Middlebury Airport. Monitoring wells have been established around the airport to detect any effect on the wells at Palmer Springs. The Town wells north of Dow Pond are a greater distance from the airport and are less at risk.

The Fire District #1, East Middlebury system draws water from a semi-confined aquifer with its recharge area located along the western slopes of the mountains. A majority of this recharge area is elevated woodlands and relatively remote National Forest. The Well-Head Protection (WHP) area that delineates the Fire District #1, East Middlebury's Source Protection Area is current. Potential sources of contamination range from onsite septic, agricultural practices, previous petroleum fuel releases, and other hazardous material leaks.

APPENDIX 2

APPENDIX 2

A Partial List of Potential Sources of Contamination in Vermont.

The following list is not inclusive, but is provided as a guide for Public Water Systems in developing Source Protection Plans. It is not intended to be adopted as a list of prohibitions in a wellhead protection area, but if a listed land use exists or is proposed in a PWS, the activity should be reviewed for any potential impact. By using best management practices and conservative design standards, the risk of contamination can be reduced. There is some overlap among the categories. Some activities are regulated by the State (Appendix C); others are not.

I. Commercial Activities

- 1) Laundromats
- 2) Drycleaners
- 3) Carpet and Upholstery Cleaners
- 4) Printing and Publishing
- 5) Photography and X-ray Labs
- 6) Furniture Stripping/Painting
- 7) Beauty Salons
- 8) Funeral Homes
- 9) Pest Control
- 10) Boat Building & Repairing
- 11) Automotive Service Industry
 - a) gasoline stations
 - b) car wash
 - c) service station
 - d) service (full repair)
 - e) service (minor repair)
 - f) body work
 - g) junk yards
 - h) auto/truck sales
- 12) Cemeteries
- 13) Taxidermists
- 14) Oil Distributors
- 15) Wood Preserving
- 16) Machine Shops/Metal Working

II. Manufacturing

- 1) Soft drink bottlers
- 2) Textiles (dying & finishing of fiber, yarn, or fabric)

- 3) Paper and allied products
 - a) pulp mills
 - b) paper coating & glazing
- 4) Tanneries
- 5) Paving and Roofing (asphalt plants)
- 6) Rubber and Miscellaneous Plastic Products
- 7) Stone, Glass, Clay & Concrete Products
- 8) Canneries
- 9) Meat Packing, Rendering & Poultry Plants
- 10) Electrical Component Industry
- 11) Industrial Lagoon and Pits
- 12) Chemicals and Allied Products
 - a) fertilizers
 - b) pesticides and agricultural chemicals
 - c) industrial organic chemicals
 - d) synthetic organic fibers, except cellulosic
 - e) biological products
 - f) medicinal chemicals & botanical products
 - g) pharmaceutical preparations
 - h) soap and other detergents
 - i) specialty cleaning, polishing and sanitation preparations
 - j) perfumes, cosmetics, and other toilet preparations
 - k) paints, varnishes, lacquers, enamels and allied products
 - l) gum and wood chemicals
 - m) adhesives and sealants
 - n) warehouses retail/wholesale
- 13) Furniture Manufacturers

III. Agricultural

- 1) Animal Feedlots, Barns, Stables, and Kennels
- 2) Manure Pits
 - a) lined pits
 - b) unlined pits
- 3) Fertilizers and Pesticides (usage and storage)
- 4) Animal Burial
- 5) Dairy Waste
- 6) Poultry and Egg Processing
- 7) Creameries and Dairies

IV. Municipal

- 1) Dust Inhibitors
- 2) Landfills
 - a) with or without leachate collection system
 - b) lined or unlined
 - c) solid waste, hazardous waste, demolition
- 3) Storm Water Drains and Retention Basins
- 4) Sludge and Septage Land Application or Landfilling
- 5) Wastewater and Sewer Lines
- 6) Railroad Tracks and Yards Maintenance Stations
- 7) Highway de-icing salts
 - a) application
 - b) storage
- 8) Airports
 - a) maintenance/repair aircrafts
 - b) runway maintenance
 - c) storage areas
- 9) Electric Power Generation Plants and Powerline Corridors
- 10) Rights of Way and Highway Maintenance
- 11) Solid waste storage facilities and transfer stations

V. Residential

- 1) Septic Systems, Cesspools & Privies
 - a) septic tank cleaners
 - b) septage
- 2) Household Hazardous Waste
 - a) cleaning supplies
 - b) paint products
 - c) automotive products
 - d) lawn care (pesticide spraying and storage)

VI. Other Land Uses

- 1) Mining and Mine Drainage
- 2) Development (ski resorts, hotels, etc.)
 - a) community size septic systems
 - b) community size fuel storage tanks
- 3) Landscape Work
 - a) turfgrass care - athletic fields

- b) commercial landscape work - grounds keeping
- c) tree service
- d) forestry
- 4) Radioactive Wastes
 - a) medical
 - b) energy related
- 5) Class V Underground Injection Wells
 - a) automobile service station floor drains
 - b) industrial process water and waste disposal wells
 - c) agricultural drainage wells
 - d) storm water and industrial drainage wells
 - e) cesspools
 - f) aquifer remediation related wells
 - g) abandoned drinking wells
 - h) groundwater heat pump return wells
- 6) Underground storage tanks
- 7) Above Ground Storage Tanks
 - a) manure tanks
 - b) chemical tanks
 - c) fuel tank (farms)
- 8) Clandestine Dumping
- 9) Stump Dumps
- 10) Hazardous Waste Disposal, Storage and Transfer
- 11) Stockpiles
 - a) chemicals
 - b) salt
- 12) Open burning and Detonation Sites
- 13) Parking Lot Runoff
- 14) Construction
- 15) Waste oil storage facilities, above and below ground

APPENDIX 3



September 29, 2014

Mr. Dan Werner
Town of Middlebury
94 Main St.
Middlebury, VT 05753

Subject: Town of Middlebury Public Community Water System (WSID #5004)
Potential Sources of Contamination on the J.P. Carrara & Sons Property -
Identification, Characterization, and Risk Assessment

Dear Dan:

To secure continued protection of the Well 2, Well 3, and Well 4 water sources that provide the Town of Middlebury Water System with clean, potable water, the Vermont Drinking Water and Groundwater Protection Division (DWGPD) requested that the Town of Middlebury contract with a Hydrogeologist to evaluate the possible impact of the Carrara gravel pit and concrete facility on the source water supplies.

On August 12, 2014 Otter Creek Engineering, Inc. completed a site visit to the J.P. Carrara Property (Carrara) located at 2464 Case Street (Route 116). Willy Glen of the Town of Middlebury Department of Public Works attended the site visit, which was hosted by Paul Carrara, Jr. The site visit was conducted to evaluate the potential sources of contamination (PSOCs) on the Carrara Redi-Mix Concrete plant, gravel pit, and Pre-Cast concrete facility property that could negatively impact the Town of Middlebury's source water supplies (Well 2 - a.k.a. Palmer Springs Well 2, Well 3- a.k.a. Johnson Well 3, and Well 4 - a.k.a. Johnson Well 4). The Carrara property and the three water supply wells are shown on **Drawing No. 1**.

The Town of Middlebury source wells are gravel wells that provide potable groundwater from a prolific highly permeable sand and gravel aquifer. In 1955 a test well was drilled in the area of Palmer Springs (prior to construction of Well 2). The driller's log indicates that a low permeability "hard clay" unit 13-feet thick was present from a depth of 2-feet to 15-feet below grade, and a 5-feet thick "gravel and clay" unit lay below to a depth of 20-feet. Beneath the low permeability gravel and clay unit to a depth of 61-feet were layers of sand and gravel, which serve as the groundwater aquifer. Reportedly the clay unit is of variable thickness, and is overlain by the permeable sands and gravels that are quarried for aggregate and manufacturing concrete at the Carrara facility. The low permeability clay unit serves as a confining layer by limiting the downward migration of shallow contaminants into the deeper sand and gravel aquifer.

Well 2 was constructed in 1965 and is a 24-inch diameter, gravel-packed well that is 50-foot deep and has a rated safe yield of 1,700 gallons per minute (gpm). Well 3 was constructed in

PO Box 712 404 East Main Street East Middlebury, Vermont 05740 802.382.8522
110 Merchants Row 4th Floor, Suite 15 Rutland, Vermont 05701 802.747.3080

www.OtterCrk.com



1986 and is a 22-inch diameter gravel-packed well that is 156-feet deep and has a rated safe yield of 400 gpm. Well 4 was constructed in 1999 and is a 14-inch diameter gravel-packed well that is 186-feet deep and has a rated safe yield of 800 gpm. The average daily demand (ADD) of the Town of Middlebury's water system is 1.1 to 1.2 million gallons per day (gpd), and Well 2 provides approximately 90% of the ADD. There is a separate Source Protection Area (SPA) for Well 2, and a combined SPA for Well 3 and Well 4.

The SPA for Well 2 and the SPA for Well 3 and Well 4, have been previously delineated by others in accordance with the Vermont Water Supply Division, Water Supply Rule. Each SPA delineation includes the three specific zones: Zone 1, Zone 2 and Zone 3.

- Zone 1 consists of the water system controlled 200-foot radius isolation zone around Well 2, Well 3 and Well 4, where groundwater impacts from PSOCs are likely to be immediate and certain.
- Zone 2 consists of the groundwater contributions from the monitoring radius outside Zone 1 where groundwater impacts from PSOCs to Well 2, and Well 3 and Well 4, are probable.
- Zone 3 consists of remaining groundwater recharge areas or areas of contribution to Well 2, and Well 3 and Well 4, that are not delineated as Zone 2, where there may be possible impacts from PSOCs.

The Carrara gravel pit, Redi-Mix and pre-cast concrete facilities are located within the Well 2 SPA. Facilities operations were toured during the site visit on August 12, 2014. Locations of the following were identified on the Carrara property, and include:

- Water Supplies (Pre-Cast Facility Well and the Offices Well);
- Fuels (gasoline, diesel, and No. 2 fuel oil in aboveground storage tanks [ASTs] and dispensers);
- Oils & Chemicals (motor oil, hydraulic oil, gear oil, machinery oil, concrete form release oil, and miscellaneous chemicals);
- Electric Oils (transformer oil);
- Concrete (waste concrete), and;
- Wastewater Disposal (septic systems and leachfields for the Pre-Cast Building, Offices Building, and Welding Shop).

General locations of the PSOCs are shown by the map identification numbers on **Drawing No. 2**. A list of the identified water supply wells and PSOCs on the Carrara property are included on **Drawing No. 2** and in Table 1 in **Appendix A**.

Based on the site visit findings, identified PSOCs, and chemical inventory list provided by Carrara (**Appendix B**), the relative risk that the PSOCs present to water supply source Well 2, Well 3 and Well 4, has been assessed and ranked into three risk categories: high, medium and low. Their ranking allows a prioritized approach to managing the PSOCs. The ranking of each PSOC is based primarily on consideration of the following:

1. Type and volume of contaminant.



OTTER CREEK
ENGINEERING

2. Distance from the source (Zone).
3. Sedimentary materials present.

All PSOCs identified on the Carrara property are located outside the boundaries of Zones 1, 2, and 3 of the SPA for Well 3 and Well 4, therefore, the PSOCs identified on the Carrara property present an extremely minimal risk of contamination to these two water supplies. All PSOCs identified on the Carrara property are however located only within Zone 2 of the SPA for Well 2. None of the identified PSOCs are located within the Well 2 Zone 1 or Zone 3. The PSOCs identified during the site visit are summarized in the following table:

Map I.D.	Description	PSOCs in Zones 1, 2 and 3 [closest distance (x 1,000-feet) to Source Well 2]						Risk Evaluation of PSOCs		
		Zone 1		Zone 2		Zone 3		High	Med	Low
		Yes	No	Yes	No	Yes	No			
Water Supply Well										
1	Pre-Cast Well	Water Supply Well is not a PSOC								
2	Offices Well	Water Supply Well is not a PSOC								
Fuels										
3	Diesel - 10,000 gal. AST		X	1.7			X		X	
3	No. 2 Fuel Oil - 4,000 gal. AST		X	1.7			X		X	
3	Gasoline - 1,000 gal. AST		X	1.7			X		X	
3	2 Diesel & 1 Gasoline Dispensers		X	1.7			X		X	
4	No. 2 Fuel Oil - 1,000 gal. AST		X	2.3			X		X	
5	Diesel - 2,000 gal. AST		X	2.1			X		X	
6	No. 2 Fuel Oil - 2,000 gal. AST		X	1.9			X		X	
7	No. 2 Fuel Oil - 275 gal. AST		X	1.6			X		X	
8	Gasoline - 300 gal. AST		X	2.0			X		X	
Oils & Chemicals										
9	Recycled Oil - 2,000 gal. AST		X	1.8			X		X	
10	Hydraulic Oil - 275 gal. AST		X	1.7			X			X
10	Motor Oil - 275 gal. AST		X	1.7			X			X
11	Conc. Chems. - 300 - 2,000 gal. ASTs		X	1.6			X		X	
12	Gear Oil - 2-55 gal. drums		X	1.7			X			X
13	F.R. Chems. - 275 gal. AST		X	1.1			X			X
14	F.R. Chems. - 275 gal. ASTs & drum		X	1.9			X			X
15	Machinery Oils - 5 gal. to 55-gal. drums		X	1.9			X			X
16	F.R. Chems. - 275 gal. AST & drum		X	2.3			X			X
17	F.R. Chems. - 275 gal. ASTs & drums		X	1.9			X			X
18	Miscellaneous Chemicals		X	2.0			X			X
Electric Oils										
19	Transformer Oil - 222 gal. on pad		X	1.6			X			X
20	Transformer Oil - 222 gal. on pad		X	1.9			X			X



Map I.D.	Description	PSOCs in Zones 1, 2 and 3 [closest distance (x 1,000-feet) to Source Well 2]						Risk Evaluation of PSOCs		
		Zone 1		Zone 2		Zone 3		High	Med	Low
		Yes	No	Yes	No	Yes	No			
Concrete										
21	Waste Concrete - poured in block forms		X	1.1			X			X
22	Waste Concrete - chunks & blocks		X	1.2			X			X
23	Waste Concrete & Large Rock Boulders		X	3.0			X			X
24	Waste Concrete from testing - in pit		X	2.1			X			X
Wastewater Disposal										
25	Pre-Cast Building - septic leachfield		X	1.8			X			X
26	Offices Building - septic leachfield		X	1.5			X			X
27	Welding Shop - septic leachfield		X	1.8			X			X

All identified PSOCs are located at minimum distances ranging from 1,100-feet to 3,000-feet from Well 2. Fuels, consisting of diesel, gasoline, and No. 2 fuel oil in ASTs and dispensers, are located at distances of 1,600-feet to 2,300-feet from Well 2. These distances from Well 2 are considerable. Fuel PSOCs (diesel, gasoline, and No. 2 fuel oil) are in ASTs ranging in size from 275-gallons to 10,000-gallons, and two of the identified identified PSOCs (Recycled Oil and Concrete Chemicals) are stored in ASTs with volumes ranging from 300-gallons to 2,000-gallons. Although they are all at considerable distance from Well 2, are stored in double-walled containers and/or are located atop concrete pads or floors, due to their large volumes they are classified as a Medium Risk to groundwater from Well 2.

Spills or releases from the ASTs would be a contaminant threat to the gravel aquifer serving Well 2, however any releases of PSOCs are required by the Vermont Waste Management & Prevention Division(WMD), Spills Management Program to be immediately reported (802-828-1138) and promptly cleaned up. This is essential in order to prevent contaminant impacts and migration down through the sand and gravel sediments, through the clay confining layer, and into the gravel aquifer that provides groundwater to Well 2.

With the exception of two PSOCs in the Oils & Chemicals (Recycled Oil - 2,000 gal. AST and Concrete Chemicals - 300 to 2,000 gal. ASTs) the remaining Oils & Chemicals PSOCs are in smaller volumes ranging from 5-gallons to 275-gallons. The two electric transformers containing Electric Oils PSOCs are located atop concrete pads. Most of the Oils and Chemicals are stored indoors on concrete floors. The concrete chemicals used are mixed with concrete and/or are applied to concrete forms to aid with removal of the forms (Form Release Chemicals) following manufacture of the various concrete elements. Other chemicals are used to clean equipment and machinery used in the concrete manufacturing process. The miscellaneous chemicals identified are stored in a concrete bunker on a concrete floor and include paints, thinners, solvents, retarding agents, acids, and epoxies. They are generally stored in 1-gallon to 5-gallon containers. Due to their considerable distance from Well 2, and the smaller quantities stored and used at the Carrara facility, all but two PSOCs are classified as a Low Risk to groundwater pumped from Well 2. The two PSOCs including Recycled Oil - 2,000 gal. AST and Concrete Chemicals - 300 to 2,000 gal.



ASTs are classified as Medium Risk due to the larger volumes stored.

The Concrete PSOCs (waste concrete) are also classified as a Low Risk to groundwater from Well 2 due to their location at considerable distance from Well 2, and the presence of the clay confining layer atop the gravel aquifer.

The Wastewater Disposal PSOCs include sanitary wastewater disposed in on-site septic systems, and are classified as a Low risk to groundwater from Well 2 due to their considerable distance, the presence of the clay confining layer, and the natural filtering capacity of the unsaturated sand and gravel to treat many wastewater contaminants.

Included as **Appendix C** is a material excavation letter prepared by Paul Carrara, Jr. Mr. Carrara states that aggregate material (i.e. sand and gravel) is not being extracted from within the groundwater table at their property. Maintaining unsaturated soils above the shallow groundwater table (aquifer) allows filtering and treatment of many contaminants, thereby limiting or preventing groundwater contamination of the underlying aquifer.

Although the Carrara facility contains a large volume of fuels, oils and chemicals, electric oils, waste concrete, and three on-site sanitary wastewater disposal systems, observations made during the site visit reveals that their storage, use, and management appears to be conducted in a relatively safe and responsible manner. Were there to be any release, large or small, of the identified PSOCs on the Carrara property, the release is required to be reported immediately to the Vermont WMD, Spills Management Program. The necessary and prudent actions should be immediately taken to stop and contain the release, and to fully remediate the impacts of the contaminant release. Only through contaminant prevention and timely and progressive remedial actions can the long-term purity of the gravel aquifer from which Well 2, Well 3 and Well 4, obtain groundwater be ensured for the water system users in the Town of Middlebury.

If you have any questions or would like additional information, please call me.

Sincerely,

William D. Norland, C.P.G.
Hydrogeologist



Enclosures /5/

APPENDIX A - TABLE 1 - WATER SUPPLY WELLS & PSOCs



OTTER CREEK
ENGINEERING

Table 1: J.P. Carrara & Sons Property - Water Supply Wells and Potential Sources of Contamination (PSOCs)

Map I.D.	Category	Description
1	Water Supply	Carrara Pre-Cast Facility Well
2	Water Supply	Carrara Offices Well
3	Fuels	Diesel - 10,000-gallon AST (in concrete bunker)
3	Fuels	No. 2 Fuel Oil - 4,000-gallon AST (in concrete bunker)
3	Fuels	Gasoline - 1,000-gallon AST (in concrete bunker)
3	Fuels	Diesel (2) and Gasoline (1) pump dispensers (to west of concrete bunker containing ASTs)
4	Fuels	No. 2 Fuel Oil - 1,000-gallon AST
5	Fuels	Diesel - 2,000-gallon AST
6	Fuels	No. 2 Fuel Oil - 2,000-gallon AST
7	Fuels	No. 2 Fuel Oil - 275-gallon AST
8	Fuels	Gasoline - 300-gallon AST
9	Oils & Chemicals	Recycled Motor Oil - 2,000-gallon AST
10	Oils & Chemicals	Hydraulic Oil - 275-gallon AST
10	Oils & Chemicals	Motor Oil - 275-gallon AST
11	Oils & Chemicals	Concrete admixture chemicals - several 300-gallon to 2,000-gallon ASTs
12	Oils & Chemicals	Gear oil - two 55-gallon drums (for rock crusher)
13	Oils & Chemicals	Concrete form release agent - 275-gallon AST
14	Oils & Chemicals	Concrete form release agents - two 275-gallon ASTs and one 55-gallon drum
15	Oils & Chemicals	Machinery Oils - several 5-gallon to 55-gallon drums
16	Oils & Chemicals	Concrete form release agents - one 275-gallon AST and one 55-gallon drum
17	Oils & Chemicals	Concrete form release agents - several 55-gallon drums and 275-gallon ASTs (in three buildings)
18	Oils & Chemicals	Miscellaneous chemicals (paints, thinners, solvents, retarding agents, acids, epoxies - in bunker)
19	Electric Oils	Transformer oil - 222-gallon AST (in electric pad transformer)
20	Electric Oils	Transformer oil - 222-gallon AST (in electric pad transformer)
21	Concrete	Waste concrete poured in forms to make blocks for sale
22	Concrete	Waste concrete chunks and blocks
23	Concrete	Waste concrete and large rock boulders (storage area)
24	Concrete	Waste concrete from testing - dumped in pit
25	Wastewater Disposal	Pre-Cast Building septic system & leachfield
26	Wastewater Disposal	Offices Building septic system & leachfield
27	Wastewater Disposal	Welding Shop septic system & leachfield

APPENDIX B - CHEMICAL INVENTORY



Chemical Inventory

Joseph P. Carrara and Sons

Main Plant & Precast Plant-Middlebury, VT

August 13, 2014

Concrete Admixtures/Ingredients

- Sika Plastiment retarder
- Sika AEA air entraining agent
- Sika 6100 superplasticizer
- Sika Intraplast no-shrink agent
- WR Grace Daratard 17 retarder
- WR Grace Darex air entraining agent
- WR Grace Darcel accelerator
- WR Grace ADVA 405 superplasticizer
- WR Grace ADVA 140 superplasticizer
- WR Grace Polaset accelerator
- WR Grace DCI corrosion inhibitor
- WR Grace 4500 shrinkage reducer
- Barrier One moisture reducer
- Davis Colors Iron Oxide color dyes
- Cement
- Microsilica
- Fly Ash

Diesel Fuel

Gasoline

#2 Heating Oil

Propane

Miscellaneous machinery maintenance Petroleum products including hydraulic, motor, gear, machinery oils and lubricants

Truck Washing products including Drum Doctor, Zep o shine, and Back Set

Crystal Clean truck part solvent

Antifreeze

Windshield Washer fluid

Vehicle Batteries

WD-40

Hydrozo Silane Sealer

Muriatic Acid

RUTLAND, VT
Administrative Offices
Ready Mix and Aggregates
P.O. Box 60, Route 7
North Clarendon, VT 05759
TEL 802-775-2301
FAX 802-775-1048

MIDDLEBURY, VT
Precast/Prestrassad Concrete
Ready Mix and Aggregates
2464 Case St.
Middlebury, VT 05753
TEL 802-388-6363
FAX 802-388-9010

CROWN POINT, NY
Ready Mix and Aggregates
TEL 518-597-3680

Chemical Inventory

Joseph P. Carrara and Sons

Main Plant & Precast Plant-Middlebury, VT

August 13, 2014

- Sikadur epoxies
- Hilti HY150 epoxy
- Bayoil 105 petroleum form release
- Arcal Tuff form release agent
- Arcal 245 formseal
- Noxcrete #80 form release
- Fister Expose It Retarding Agent
- Fister 50/50 form release agent
- Epoxy/enamel paint
- Paint Thinner
- Wood glue
- Bagged Grouts
- Oxygen/Acetylene/Argon Bottles
- Ensio Sandblast slag
- Silicone Caulking
- BASF Confilm finishing aid
- Smithbond Crusher epoxy crusher backing

RUTLAND, VT
Administrative Offices
Ready Mix and Aggregates
P.O. Box 60, Route 7
North Clarendon, VT 05769
TEL 802-775-2301
FAX 802-775-1048

MIDDLEBURY, VT
Precast/Prestressed Concrete
Ready Mix and Aggregates
2464 Case St.
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TEL 802-388-6363
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APPENDIX C - CARRARA MATERIAL EXCAVATION LETTER

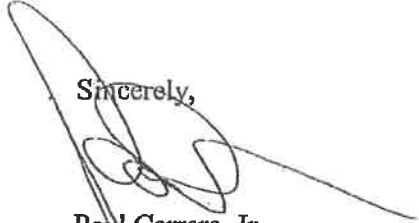


August 13, 2014
To: Otter Creek Engineering
Attn: Bill Norland C.P.G
From: Paul Carrara, Jr.
Re: Material Excavation

This letter is to confirm that Joseph P. Carrara and Sons is not extracting aggregate material from within the groundwater table that is part of the Town of Middlebury's Groundwater Source Protection Area.

Should you need anything further please feel free to contact our office.

Sincerely,



Paul Carrara, Jr.

RUTLAND, VT
Administrative Offices
Ready Mix and Aggregates
P.O. Box 60, Route 7
North Clarendon, VT 05759
TEL 802-775-2301
FAX 802-775-1048

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Ready Mix and Aggregates
TEL 518-597-3680

APPENDIX 4



TOWN OF MIDDLEBURY
77 MAIN STREET, MIDDLEBURY, VT 05753

July 7, 2020

RE: Middlebury's Water Source Protection Plan

Dear Middlebury water customer,

In an effort to protect the Town of Middlebury's water supply from accidental contamination, we are reviewing the Town's Source Protection Plan.

Periodic review of our Source Protection Plan is mandated by the Water Supply Division of the Vermont Department of Environmental Conservation (VT DEC). In the Source Protection Plan, a wellhead protection area is created around the Town's wells and designates land that if contaminated would have a high probability of contaminating the water. It is important that landowners and residents within the Wellhead Protection Area use extra precautions in regards to preventing surface water and ground water contamination that could threaten the Town's water sources.

The Town's wells are vulnerable to contamination from many types of land uses including septic systems, improper disposal of hazardous material, road salt, and agricultural and industrial activities. If the groundwater supplying the Town's wells becomes contaminated, it may be impossible to eliminate the contamination so that the water can continue to be used for drinking. We are contacting you to request your assistance in protecting our wells. There are a number of ways in which you can reduce the possibility of surface water and ground water contamination. For example:

- 1) Septic system maintenance; In cases where a house or businesses is served by a septic system, it is important to maintain the system properly, to pump the tank every two to three years and to not use commercial septic tank cleaners which contain hazardous materials that may contaminate ground water.
- 2) Lawn and landscape maintenance; Avoid applying hazardous or toxic products to lawns or other areas of your property. Many of these products migrate through the soil and contaminate surface water and groundwater.
- 3) Never dispose of used oil or other hazardous waste on your property or in the storm gutters or storm sewers as these may pass into surface water and groundwater.

To provide you with some more information about Source Protection Plans, we have included on the reverse of this letter a fact sheet provided by the VT DEC Water Supply Division. The fact sheet describes how the protection area is zoned, what can be done to protect our ground water and what activities the Department of Environmental Conservation may limit or prohibit within the protection area. You can find more information at their website: www.vermontdrinkingwater.org

Thanks in advance for helping to protect the Town's water sources from contamination and please feel free to contact the Water Department at 388-4045 with any questions or concerns that you may have. With your help, Middlebury will continue to have safe and reliable water for generations to come.

Sincerely,
Town of Middlebury
Water Department

APPENDIX 5

APPENDIX 5



FACT SHEET

Drinking Water and Groundwater Protection Division
GROUNDWATER SOURCE PROTECTION AREAS

Community Water Systems

Public water systems are required to develop Source Protection Areas (SPAs) and plans to protect their drinking water sources. A **Groundwater SPA** is the land area beneath which groundwater flows to a well, spring, or infiltration gallery. A contaminant released to the land surface or subsurface in a Groundwater SPA would be reasonably likely to move toward, and reach, the drinking water source.

Included in most SPAs are Zones 1, 2, and 3 and a Two-Year Travel Time (2YTT) Zone. These zones are developed to help water systems prioritize source protection efforts. The following is a description of those zones:

Zone 1 is the area immediately around the water source. This is the area where impacts from contamination are likely to be immediate and certain. For public community water systems, this area is generally 200' around the well, spring, or infiltration gallery.

Zone 2 includes the area where groundwater flows to the source from outside Zone 1 and where there would be probable impacts to the water supply if contamination were to occur.

Zone 3 consists of the remaining area that recharges Zone 2 and where impacts from potential sources of contamination are possible. This is usually, but not always, the area upslope from Zone 2 to the watershed boundary.

The **Two Year Travel Time Zone** is identified as an area where bacteria and virus threats (such as those from onsite disposal of sewage) would reach the drinking water source in less than two years by traveling through the soils. Two years is the time it takes most viruses to die off or become non-infectious in a groundwater environment.

The public water system develops a Source Protection Plan based on the approved SPA. Implementing the plan generally involves cooperation with landowners within the SPA to help protect groundwater from contamination. The water system does not have authority to control land uses on any land within the SPA unless they own the land or have specific legal agreements with the landowner. Some towns have local ordinances with overlay districts that correspond with the SPAs for public water supply sources.

If you own land or live within a SPA, protecting groundwater takes on extra importance. This is because everything you spill on the land or dump down your septic system may ultimately come out of someone's drinking water tap. Examples of things you can do to protect groundwater are not disposing of hazardous wastes, such as oil, pesticides, and fertilizers, on your property and routinely pumping out your septic tank. Care of your septic system is especially important if you live within a 2YTT Zone.

Some state rules, such as those administered by the DEC Wastewater and Drinking Water Groundwater Protection Divisions, may restrict activities within SPAs. Specifically, new landfills and sludge disposal sites are prohibited within Groundwater SPAs. In addition, proposed new septic systems within some SPAs require an extra level of permit review to ensure they will not adversely impact the public drinking water source. The Agency of Agriculture considers public drinking water source protection in its pesticide application permits. Public drinking water source protection is also factored into Act 250 decisions.

This (fact sheet/form/application) and related environmental information are available electronically via the internet. For information visit us through the Vermont Homepage at <http://www.vermont.gov> or visit DWGWPD directly at <http://www.drinkingwater.vt.us>

Drinking Water and Groundwater Protection Division, 1 National Life Drive, Main 2, Montpelier, VT 05620-3521
Toll free 1-800-823-6500 Out of State 1-802-241-3400 Fax 1-802-828-1541



ENVIRONMENTAL CONSERVATION

FACT SHEET

Drinking Water and Groundwater Protection Division

GROUNDWATER SOURCE PROTECTION AREAS

Community Water Systems

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Drinking Water and Groundwater Protection Division, 1 National Life Drive, Main 2, Montpelier, VT 05620-3521
Toll free 1-800-823-6500 Out of State 1-802-241-3400 Fax 1-802-828-1541

APPENDIX 6

**TOWN OF MIDDLEBURY
PUBLIC WATER SOURCE PROTECTION PLAN - WHPA - B**

	OWNER	LOCATION	MAILING ADDRESS
1	Middlebury Airport	Airport Rd	c/o Vtrans Aviation, 1 Nat'l Life Dr, 05633
2	Hoffman, Mark	Birch Dr 100	
3	Mankey, Harry	Birch Dr 122	
4	Cluss, Robert	Birch Dr 138	
5	Hageman, William	Birch Dr 143	
6	Schaffer, Scott	Birch Dr 181	
7	Weiss, Gary	Birch Dr 48	
8	Farnum, James	Birch Dr 89	
9	Hallman, Ronald	Birch Dr 9	
10	Current Resident (?)	Burnham Dr 212	
11	Gurland, Suzanne	Burnham Dr 235	
12	Pietraho, Alicia	Burnham Dr 267	
13	Laliberte, Bernard	Burnham Dr 283	
14	West, David Jr	Burnham Dr 294	
15	Hoverman, James	Burnham Dr 337	
16	Webb, Stephen	Burnham Dr 352	
17	Darrow, Linda	Burnham Dr 383	
18	Herrmann, Andrew	Burnham Dr 390	
19	MacKenzie, Catrina	Burnham Dr 413	
20	Cobb, C Wade	Burnham Dr 487	
21	Coon, Steven	Burnham Dr 523	
22	Fenn, David	Case St 1117	
23	Cormier, Michael	Case St 1267	
24	Foster Bros Farm	Case St 2066	297 Lower Foote St
25	Dow, Stephen	Case St 2602	
26	Case St Holdings, LLC	Case St 3046	49 Wales St, Rutland 05701
27	Whitney, Jason	Case St 3210	PO Box 457, E Middlebury 05740
28	Bagley, Roger	Case St 3214	PO Box 8, E Middlebury 05740
29	Marshall, Malissa	Case St 3320	
30	Warner, Joan	Case St 3402	
31	Caul, Kenneth Jr	Case St 3440	
32	McQuade, Thomas	Case St 3614	
33	Wood, Carol	Case St 3625	
34	Clark, Patricia	Case St 3680	
35	Manning, Judith	Case St 3708	
36	Kimball, Margaret	Case St 3852	
37	Perkett, Christopher	Case St 3869	PO Box 346, Middlebury

	OWNER	LOCATION	MAILING ADDRESS
38	Cousino, Anna	Case St 3871	PO Box 281, Middlebury
39	Wilhelm, Brett	Case St 3873	
40	Hunt, Julia	Dow Farm Ln 180	
41	Middlebury Cong of Jehovah's Witnesses	Dow Farm Ln 28	PO Box 71, Ripton 05766
42	Orvis, Larry	Mead Ln 128	
43	Hill, Cindy Ellen	Mead Ln 144	
44	Wade, William Scott	Mead Ln 160	
45	LeBlanc, Douglas	Mead Ln 74	
46	Lacey, Heidi	Mead Ln 98	
47	Ryan, Heather	Munson Rd 173	
48	Rheaume, Richard	Munson Rd 215	
49	Leggett, David	Munson Rd 630	
50	Bodurtha, Elaine	Munson Rd 814	
51	Harrison, James	Munson Rd 815	
52	Munson, Gerald	Munson Rd 856	
53	Garner, Jeffery	Oak Dr 111	
54	Kneuer, Paul	Oak Dr 127	
55	Crapo, Peter	Oak Dr 140	
56	Yarbrough, Oliver	Oak Dr 24	
57	Byers, Jeffrey	Oak Dr 43	
58	Levesque, Mark	Oak Dr 50	
59	Munteanu, Peter	Oak Dr 67	
60	Martin, George	Oak Dr 74	

LINDALE MOBILE HOME PARK

as of 5/22/2020

	LOT	OWNER	LOCATION	MAILING ADDRESS
1	60	Buzzell, Roy	Commodore Way 13	
2	67	Specialized Care Agency	Commodore Way 32	PO Box 578, East Middlebury 05740
3	66	Charbonneau, Charles	Commodore Way 44	
4	65	Bougor, Larry	Commodore Way 48	
5	62	Bettencourt, Erin	Commodore Way 55	
6	61	Bascom, Lynn	Commodore Way 17	
7	64	Charon, Ashley	Commodore Way 64	PO Box 238, E Middlebury 05740
8	63	Cram, Randall	Commodore Way 75	
9	1	Baker, Erin	Lindale Cir 10	
10	29	Ballantine, Dan	Lindale Cir 101	
11	39	Sayles, Laurel	Lindale Cir 108	
12	38	Schropp, Steven	Lindale Cir 117	
13	2	Swan, Dale	Lindale Cir 12	
14	28	Maheu, Vivian	Lindale Cir 129	
15	27	Grace, Kathy	Lindale Cir 131	
16	26	Terrier, Wade	Lindale Cir 133	
17	25	Drouin, Donna	Lindale Cir 145	
18	24	Gill, Michael	Lindale Cir 157	
19	23	LaRose, Shannon	Lindale Cir 171	
20	22	Coburn, Alice	Lindale Cir 185	
21	37	Pelkey, Rita	Lindale Cir 186	PO Box 463
22	21	Bougor, Roger	Lindale Cir 193	
23	20	Volkert, Larry	Lindale Cir 197	PO Box 188
24	19	Gennarelli, Kara	Lindale Cir 205	
25	18	Bushey, Bruce	Lindale Cir 209	
26	17	Fitzsimmons, Patricia	Lindale Cir 221	
27	36	Shores, Marilyn	Lindale Cir 228	
28	16	Strong, Melody	Lindale Cir 241	PO Box 323, E Middlebury 05740
29	35	Shackett, Ed	Lindale Cir 244	
30	15	Valley, Jeff	Lindale Cir 259	
31	34	Waldrip, Leonard	Lindale Cir 262	PO Box 467, E Middlebury 05740
32	14	Moulton, Leo	Lindale Cir 269	
33	33	Tetreault, Kyle	Lindale Cir 274	
34	13	Thompson, Penny	Lindale Cir 277	
35	32	Lathrop, Elaine	Lindale Cir 290	
36	12	Lathrop, Fred	Lindale Cir 291	

37	11	Dragon, Mike	Lindale Cir 305
38	10	Hamblin, Kelley	Lindale Cir 319
39	31	DeGray, Michael	Lindale Cir 330
40	6	Duclos, Lois	Lindale Cir 351
41	5	Whipple, Jack	Lindale Cir 360
42	4	Reynolds, Carl	Lindale Cir 382
43	43	Washburn, Gary	Lindale Cir 50
44	42	Vinci, Isabella	Lindale Cir 62
45	41	Noyes, Cecilia	Lindale Cir 76
46	30	Sprague, Sonya	Lindale Cir 87
47	40	Sargent, Alberta	Lindale Cir 90
48	52	Mesick, Marilyn	Monarch Ct 13
49	58	Mitchell, June	Monarch Ct 22
50	57	Ralph, George	Monarch Ct 42
51	56	Skogstrom, Paul	Monarch Ct 46
52	55	Brown, Scott	Monarch Ct 50
53	54	Charlebois, Luc	Monarch Ct 54
54	53	Babcock, Henry	Monarch Ct 56
55	9	Sabillon, Crystal	Nashua Ln 17
56	7	Blanch, Joan	Nashua Ln 20
57	8	Comes, Carol	Nashua Ln 26
58	3	Cousino, Travys	Parkline Dr 70
59	45	Bennett, David	Parkline Pl 47
60	44	Hobbs, Albert	Parkline Pl 31
61	48	Deppman, Thomas	Skyline Ln 110
62	50	Malloy, Arnold	Skyline Ln 111
63	51	Stark, Michael	Skyline Ln 131
64	59	Boyer, Harold	Skyline Ln 186
65	46	Ash, Michael	Skyline Ln 80
66	49	Laframboise, Tim	Skyline Ln 81
67	47	Denis, Jason	Skyline Ln 94

PO Box 455

PO Box 337

APPENDIX 7

William Glen

From: David Shaw <dwshaw@myfairpoint.net>
Sent: Thursday, October 01, 2020 3:18 PM
To: William Glen
Subject: Fwd: Fuel on Airport property

I hope this helps you

Sent from my iPhone

Begin forwarded message:

From: "Herrera, Cisco" <Cisco.Herrera@vermont.gov>
Date: October 1, 2020 at 12:05:00 PM EDT
To: "dshaw@townofmiddlebury.org" <dshaw@townofmiddlebury.org>
Cc: "Beitzel, Christopher" <Christopher.Beitzel@vermont.gov>, "Tebbetts, Rollin" <Rollin.Tebbetts@vermont.gov>, "Pinsonault, Brian" <Brian.Pinsonault@vermont.gov>
Subject: Fuel on Airport property

Hi Dave,

Here is what we have in the property at the airport. Please call me next week and we can check the yelps to make sure they are operational. We might want to update

1. **BLUE** = 100LL aviation Fuel tank 1 Each w/100,000 gal capacity.
2. **YELLOW** = Propane tank in ground 2/each w/1,000 gal capacity... will get back to you
3. **YELLOW** = Propane tank above ground 2/each one 500 gal and one 1,000 gal.
4. **Red** = Diesel/heating tanks above ground 2/each w/275 capacity
5. **Yelp map gates in red.**

Thank you
Cisco

Cisco Herrera, Airport Manager
Vermont Agency of Transportation
Middlebury State Airport
467 Airport Rd. Middlebury, VT 05753
Office: 388-1800 Cell: 505-8479
cisco.herrera@vermont.gov







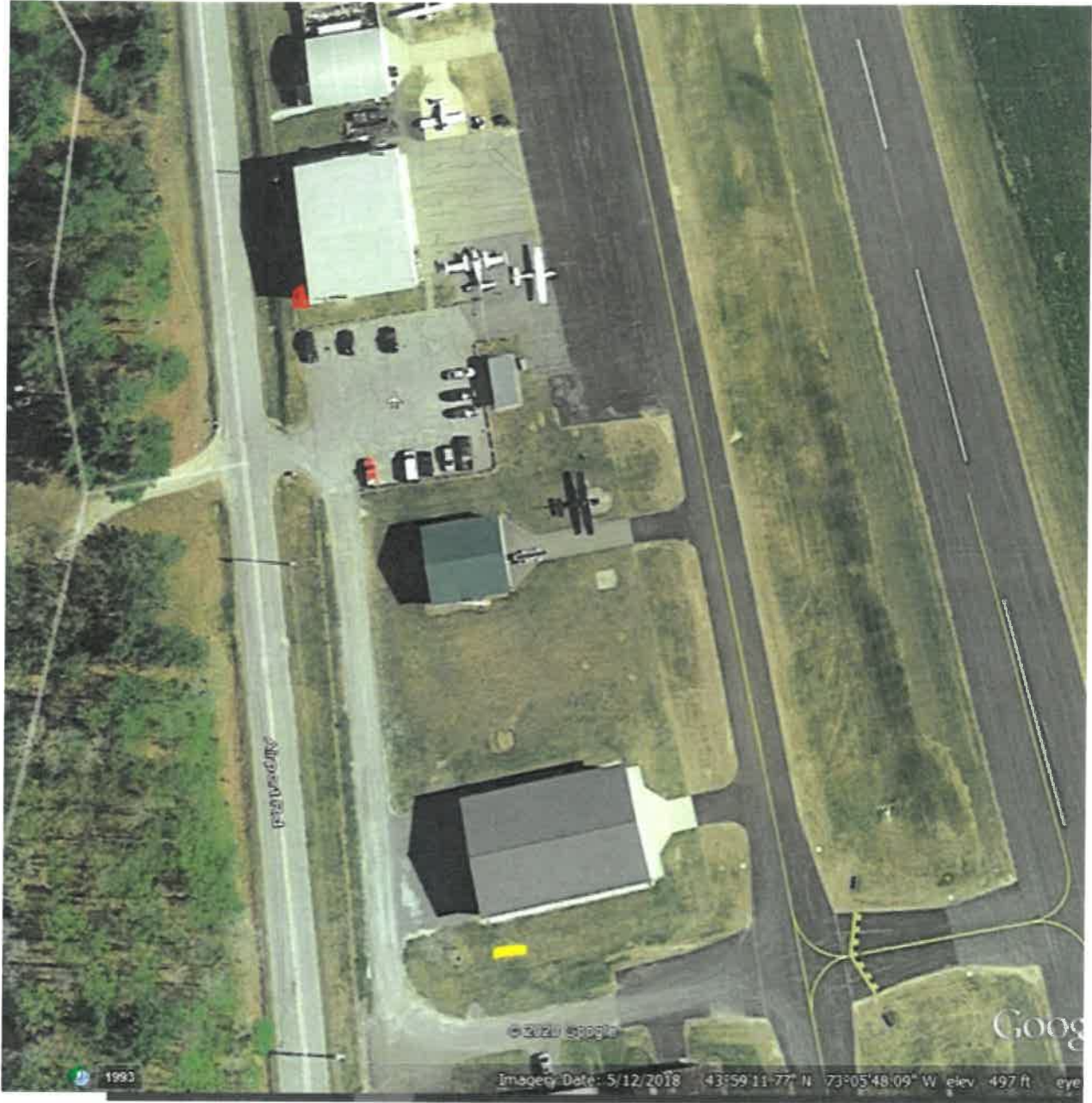


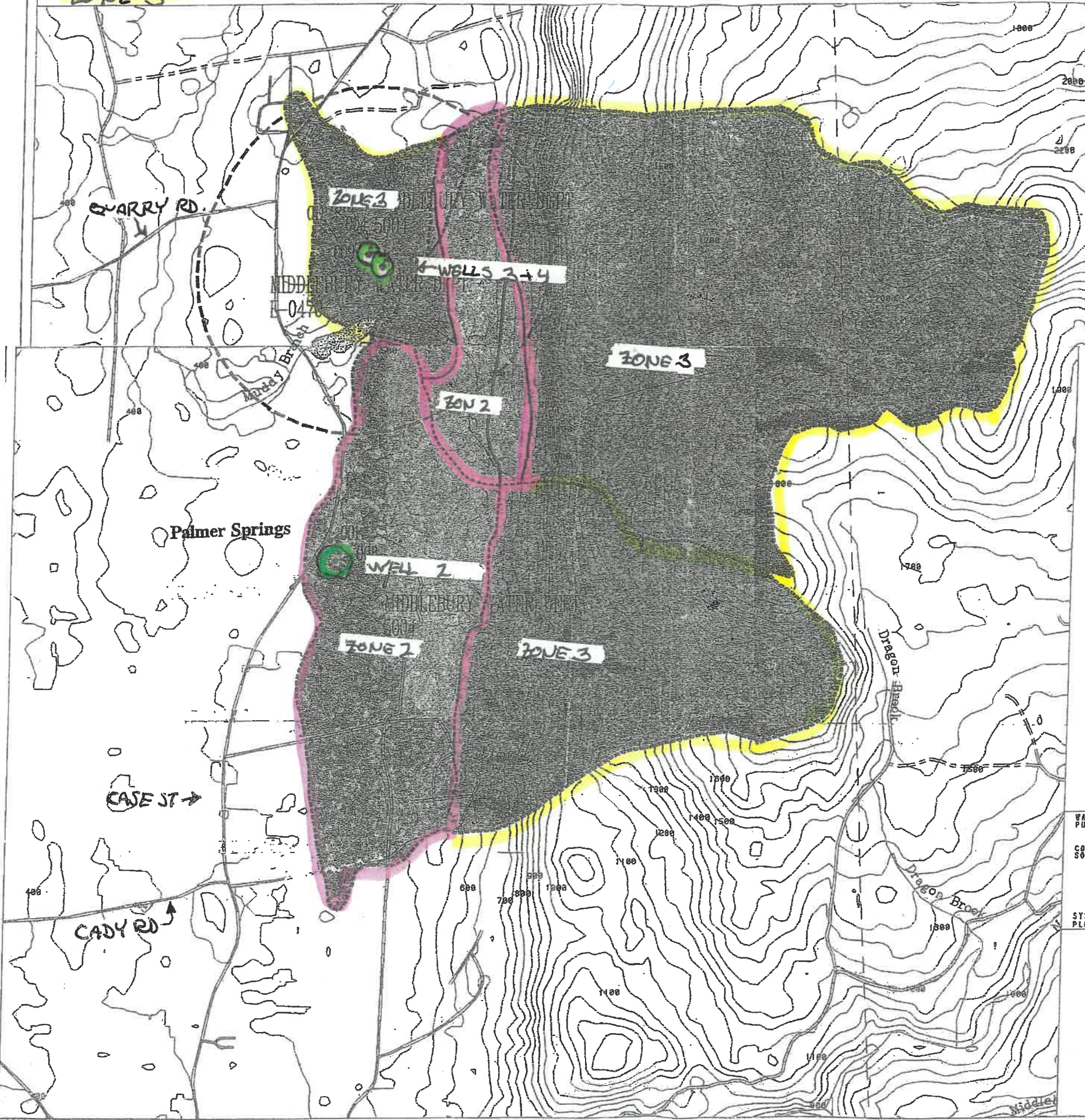


EXHIBIT 1

ZONE 1
 ZONE 2
 ZONE 3

SOURCE PROTECTION AREAS

MIDDLEBURY WATER DEPT: 5004 - TOPO 14D15C



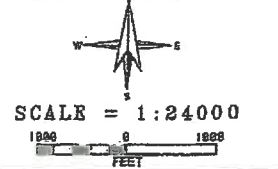
- Surface Water
- Wetlands
- Heavy Duty
- Medium Duty
- Light Duty
- Unimproved/Unknown
- Source Well
- Source Spring
- Surface Source
- Proposed Source
- Zone 2
- Zone 3
- WHPAs & SPAs
- 50 Foot Contours
- Streams
- Town Boundary
- Heavy Duty
- Medium Duty
- Light Duty
- Unimproved/Unknown
- Source Well
- Source Spring
- Surface Source
- Proposed Source
- Zone 2
- Zone 3
- WHPAs & SPAs
- 50 Foot Contours
- Streams
- Town Boundary



WATER SUPPLY GEOGRAPHIC INFORMATION SYSTEM
 PUBLISHER: DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 WATER SUPPLY DIVISION

COORD SYSTEM: STATE PLANE COORDINATE SYSTEM (NAD83)
 SOURCES: ROADS = 1:25000 AIRPHOTOS 1974-80
 CONTOURS = 7:5000 DIG DATA
 STREAMS = 1:100000 DIG DATA
 LAKES & PONDS = 1:100000 BLG DATA
 WHPAs & SPAs = 1:25000 USGS BASE 1995
 TOWN BOUND = 1:25000 USGS BASE 1995
 WATER SOURCES = 1:25000 USGS & GPS 1996

SYSTEM: IVSD-MAPPER
 PLOT PATH: -WSD2-WSDSHR2-SPAREAS-PLTS-SPI-WS004SLC



THIS MAP IS BASED ON THE ABOVE SOURCES OF DATA FROM VCGI. REFERENCE SHOULD BE MADE TO THE VCGI DATA CATALOG FOR INFORMATION ON THE LIMITATIONS OF THE MAP DATA.