



Milford Zoning Board of Adjustment

**Staff Review**

**Date:** September 29, 2023

**To:** Zoning Board of Adjustment

**From:** Terrence S. Dolan, Director of Community Development *TSD*

**Subject:** Continuation of Case #2023-02-Variance Request, pursuant to Article VI, Section 6.01.3.B.7 to allow for the Retail Sale of Petroleum Products in the Town of Milford's Groundwater Protection Zone I, located in both the "C" (Commercial) Zoning District & Limited Commercial ("LC") Zoning District, Map 43 Lot 20-2

For the ZBA's information and continued consideration, the following provides a continuation of the Town's Staff and the review of the above referenced Case (#2023-2):

**You shall find the following information items as separate online links from the Town's ZBA Web Page:**

1. A *September 28, 2023 Memorandum* from our Town Engineer, Nicole Crawford, explaining and summarizing the need for additional site data collection and testing to ensure the accuracy of the existing site conditions, and those conditions in comparison to the adopted Town of Milford Groundwater Resource Protection Maps. Additional Groundwater Maps are also provided to assist the Board.
2. Both the *August 25, 2023 & the September 25, 2023 Milford Conservation Commission Memorandums* summarizing the Commission's position on the present Variance Request. The *Conservation Commission's (initial) June 9<sup>th</sup> Memorandum* is provided at the end of the materials contained with #3 below.
3. My *July 1, 2023 Staff Memo*, along with the full July 6, 2020 ZBA Mtg Packet of information that was ultimately continued by the ZBA.

Thank You

**ZBA Case 2023-02 Variance Request:**

**Memo Item #1**



**TOWN OF MILFORD**  
**DEPARTMENT OF PUBLIC WORKS**  
Buildings • Cemeteries • Engineering • Highway • Parks  
Recycling Center • Transfer Station

DATE: 9/28/2023

TO: Terrence Dolan, Community Development Director

FROM: Nicole Crawford, Town Engineer, DPW

RE: **Summary of Groundwater Protection District Map and Zoning Ordinance Requirements Regarding Proposed Gas Station on South Street (Case #2023-02-Variance Request)**

The proposed Variance Application for a proposed gas station at the corner of South Street & Nathaniel Drive comes with some complexities that have resulted in confusion regarding the existing Groundwater Protection District Map and Zoning Ordinance.

This memo is intended to provide a brief explanation of the existing Groundwater Protection District Map and Zoning Ordinance requirements, as well as final conclusions and recommendations for moving forward based on those requirements:

- The **Groundwater Protection District Map** shows *Level I* and *Level II Protection Districts*.
  - There is a color-coded legend that corresponds to the shading on the Map, but there is also a written description that provides a definition of the two District Levels.
    - Looking at the color-coded legend, the circular areas of the *Level I Protection District* correspond to the *Wellhead Protection Areas* for public water system wells. The *Level II Protection District* corresponds to the *Stratified Drift Aquifer*.
    - Written in words, the Map indicates that a portion of *Stratified Drift Aquifer* is also considered *Level I*. Based on the written description, the difference between *Level I and Level II* is based on the “transmissivity (hydrological)” of the aquifer (i.e. rate of groundwater flow & movement rates through an aquifer).
      - **Level I Protection District** = Transmissivity greater than 8,000 SF per day
      - **Level II Protection District** = Transmissivity less than 8,000 SF per day
- The map shows that the site is within the *Level I Protection District* based on the *Wellhead Protection Area* for the public water system (**potable**) well at the *Little Arrows Daycare Facility*, located approximately 800 linear feet to the southwest of the nearest corner of the proposed gas station parcel.
- Existing soil data from test pits already excavated on site indicate that the soils are also part of the aquifer, which would mean that **the site is also within the Level II Protection District**.
  - The existing test pit data is from soils at a depth of a maximum of 6’.

**TOWN OF MILFORD**  
**DEPARTMENT OF PUBLIC WORKS**  
Buildings • Cemeteries • Engineering • Highway • Parks  
Recycling Center • Transfer Station

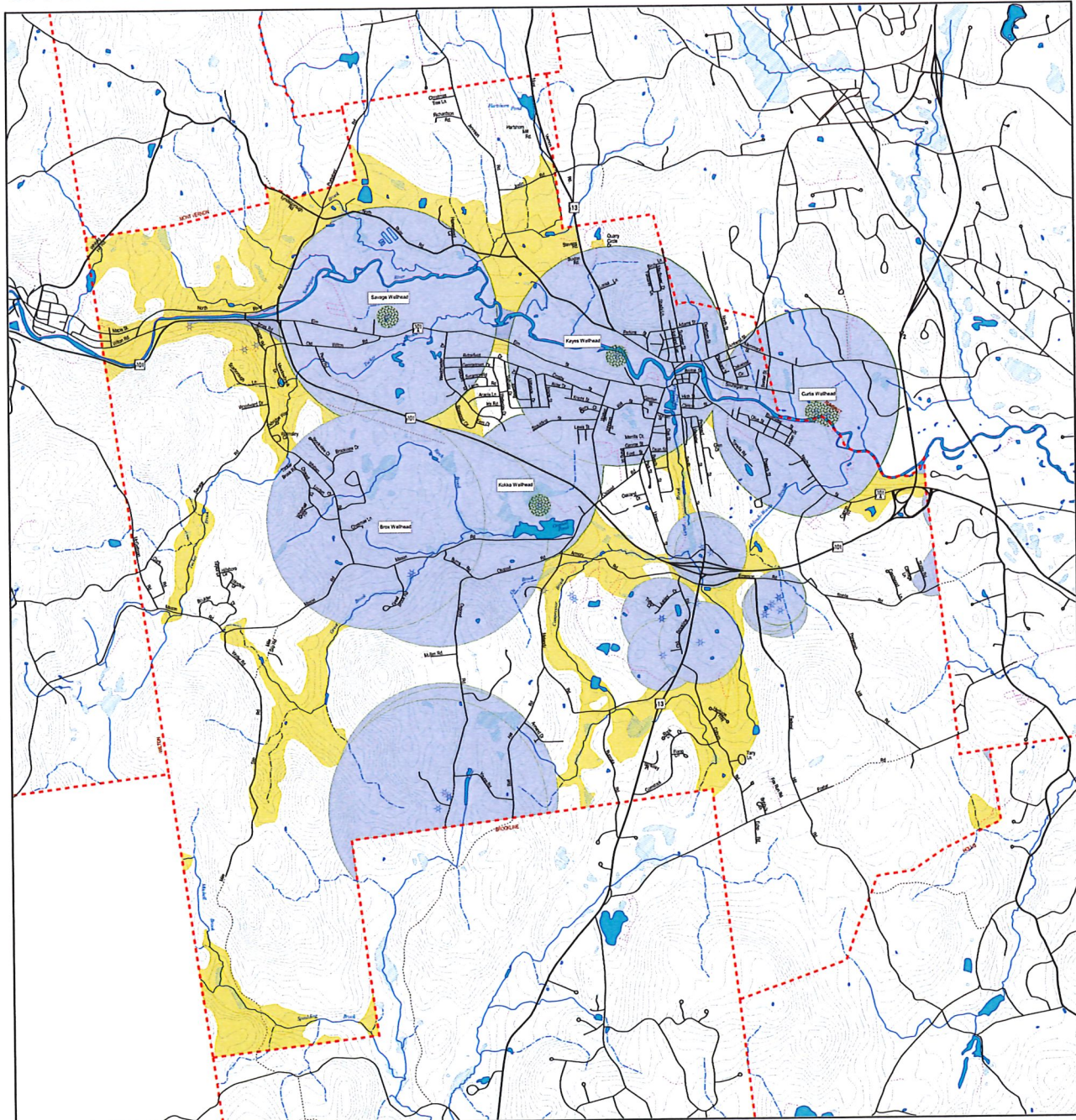
- The proposed underground tanks will be excavated to a depth of 8'-12'.
- It should also be noted that the *Seasonal High-Water Table* (SHWT) on the site is higher than the depths of the proposed tanks.
  
- Given the proposed use of the proposed site, and potential risk for contamination at any time during the life of the use (as a gas station), it would be prudent to conduct additional investigations at the depth of the *proposed* petroleum storage tanks' bottom elevations to determine the transmissivity of the soils at that depth.

This will assist in determining if the parcel is in fact considered to be in the Level II Groundwater Protection District. Soil tests/classification can determine if the soils meet the definition of an aquifer and the transmissivity can be determined based on soil type and layer depth.

- If the parcel is within the *Level II District* based on the transmissivity of the soils (less than 8,000 SF per day), the proposed Gas Station land use may be allowed, but would be subject to a Permit issued by the Code Administrator. The Permit would be dependent on the submission of a written *Containment Plan*.
  - There are no guidelines in the Zoning Ordinance regarding what should be in a *Containment Plan*.
  - In consultation with a Professor at Northeastern who specializes in geotechnical subsurface technologies, it was suggested that there are technologies available to construct an impermeable layer around the location of the tanks (or possibly between the site and the aquifer); as well as install groundwater monitoring wells within these areas to minimize the risk of contaminating the aquifer should there be petroleum products in the soils surrounding the tanks. Exact details of the containment and monitoring would need to be discussed with the applicant.
  
- If the parcel is found to be within the *Level I District*, based on the transmissivity of the soils (greater than 8,000 SF per day), the proposed use (i.e. the selling of petroleum products on site) would be considered a Prohibited Use, based on the Zoning Ordinance.

Additional Site Testing and Containment requirements are not intended to be, (nor are they considered), to be unreasonable requests when weighed against the proposed development costs, the expected long-term use of the site as a gas station, and the potential risk of contamination of the groundwater.

# Groundwater Protection Area: Milford, NH



- \* Registered Water Users  
(Greater than 20,000 gallons per day)
- Level I Protection Area
- Level II Protection Area
- Wellhead Sanitary Radius (400')

- Local or State Roads**
- State Roads
  - Local Roads
  - Class VI
  - Private

- Water Features**
- Rivers or Streams
  - Intermittent Streams
  - Lakes or Ponds
  - Wetlands

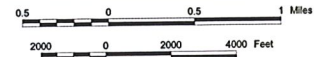
- Land Features**
- 20' Elevation Contours

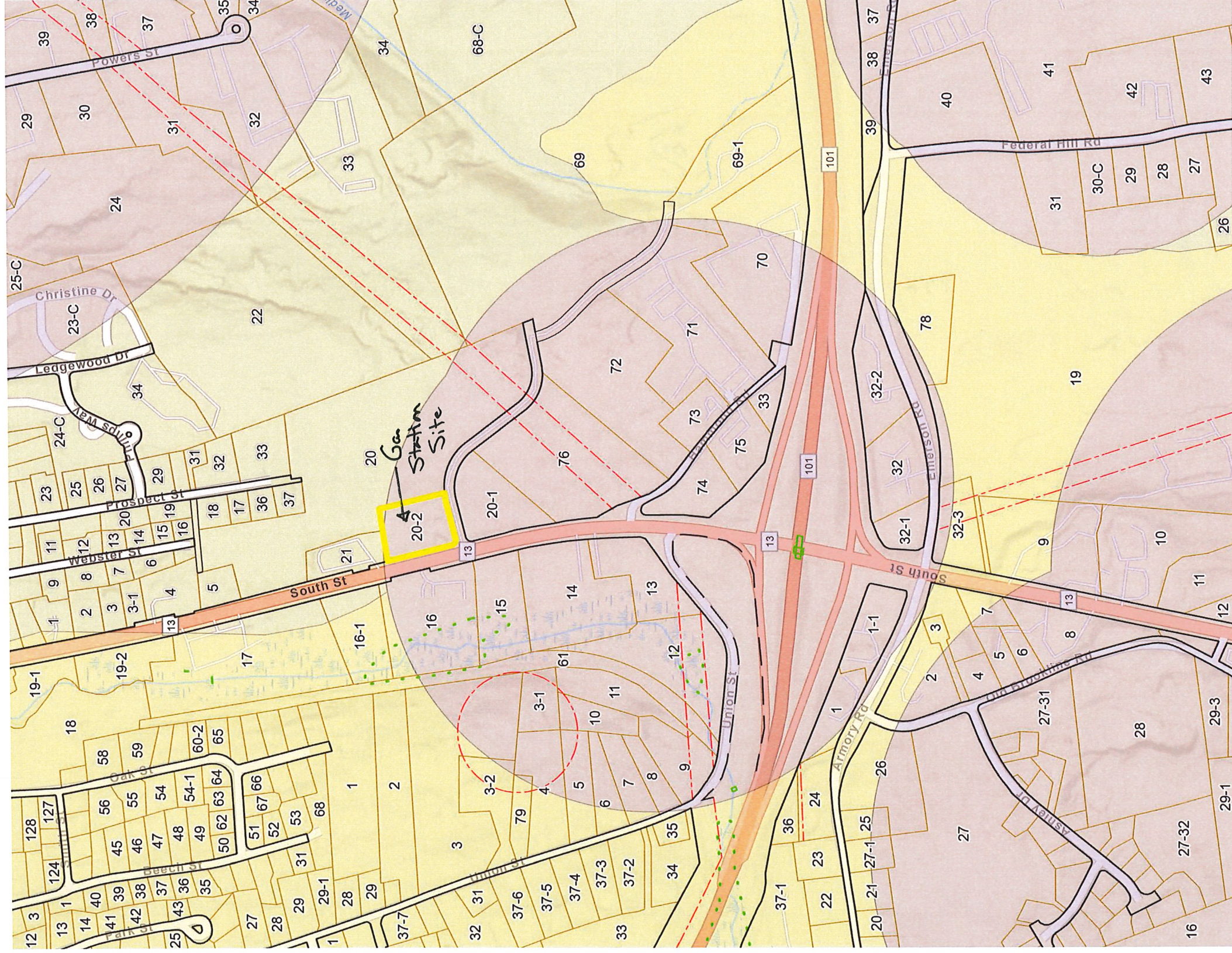
Level I is defined by the USGS Stratified Drift Aquifer map and is the area identified as transmissivity greater than 8,000 square feet per day.

Level II is defined by the USGS Stratified Drift Aquifer map and is the area identified as transmissivity less than 8,000 square feet per day. This map represents the best available digital data from local or state sources as of 2002.

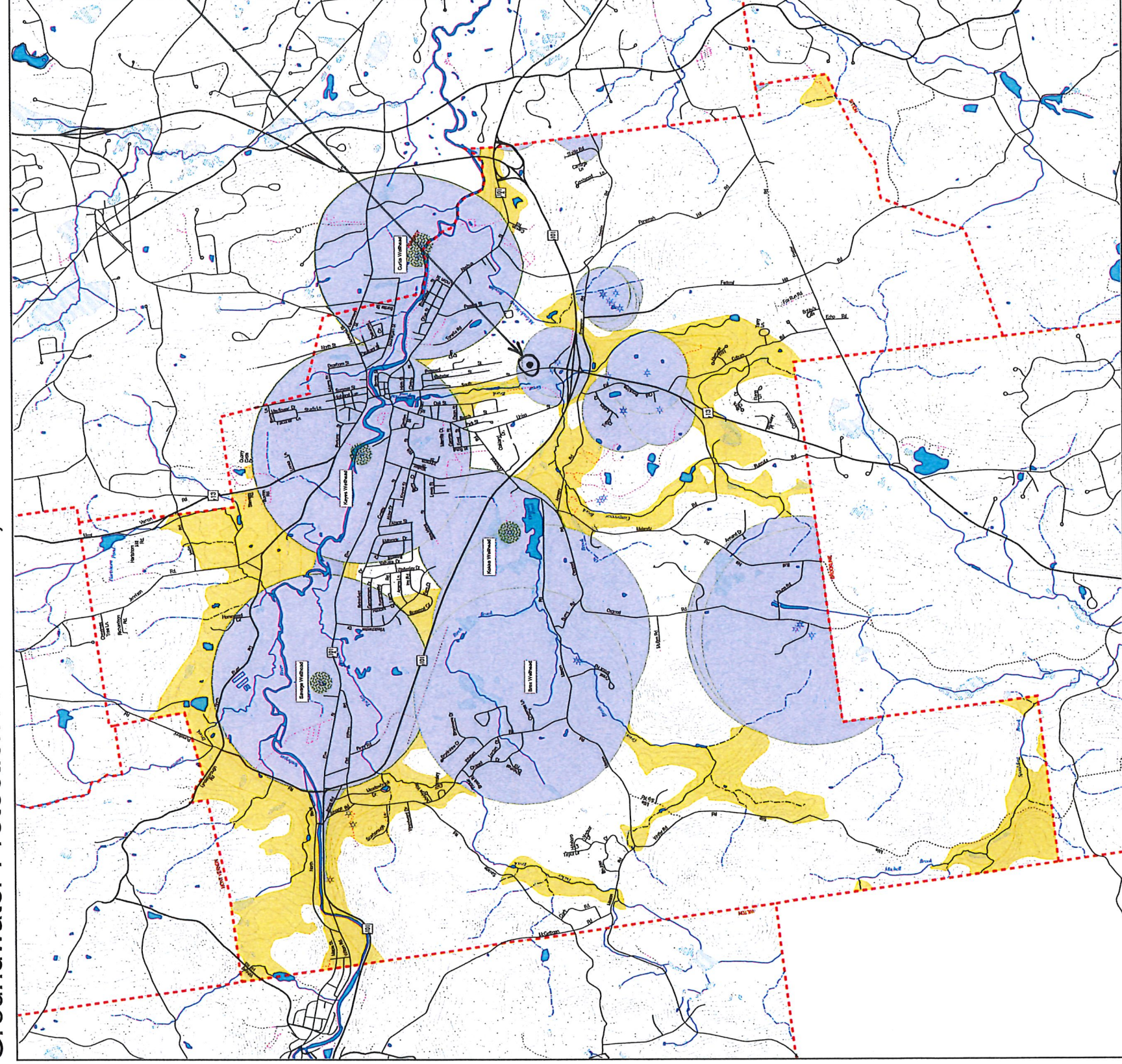
Wellhead Protection Areas were defined by NH DES Water Resources Bureau, and digitized in the Drinking Water Source Water Protection Areas database, current October, 2002. Protection area for the Bron Wellhead was defined by NRPC as a 4,000' buffer around the wellhead. Municipal Water Users and Registered Water Users data is managed by NH DES in the Public Water Supply Sources and Registered Water Users GIS databases, both current October, 2002.

Base roadway inventory data was digitized by the NH DOT, updated by NRPC 2002. Hydrologic data was assembled by the UNH Complex Systems Research Center. Digital location of water supply sources and protection areas was developed and is maintained by the NH DES, Water Division, with monthly updates. Stratified drift aquifer data was developed by the USGS in association with the NHDES Water Division. Municipal Water Users and Registered Water Users data is managed by NH DES in the Registered Water Users GIS database, current October, 2002.





# Groundwater Protection Area: Milford, NH



Proposed  
Gas Station  
Site

- ★ Registered Water Users  
(Greater than 20,000 gallons per day)
- Level I Protection Area
- Level II Protection Area
- Wellhead Sanitary  
Radius (400')

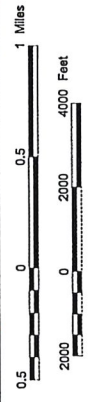
- Local or State Roads
- State Roads
- Local Roads
- Class VI
- Private
- Water Features
- Rivers or Streams
- Intermittent Streams
- Lakes or Ponds
- Wetlands
- Land Features
- 20' Elevation Contours

Level I is defined by the USGS Stratified Drift Aquifer map and is the area identified as transmissivity greater than 8,000 square feet per day.

Level II is defined by the USGS Stratified Drift Aquifer map and is the area identified as transmissivity less than 8,000 square feet per day. This map represents the best available digital data from local or state sources as of 2002.

Wellhead Protection Areas were defined by NH DES in association with the NHDES Wellhead Protection Areas database, current October, 2002. Protection area for the Brook Wellhead was defined by NHDES as a 4,000' buffer around the wellhead. Municipal Water Users and Registered Water Users data is managed by the NHDES in association with the NHDES Wellhead Protection Areas database, current October, 2002.

These roadway inventory data was digitized by the NH DOT, updated by NHDES 2002. Hydrologic data was assembled by the NHDES in association with the NHDES Wellhead Protection Areas database, current October, 2002. Protection area sources and protection areas was developed and is maintained by the NHDES, Water Division, with monthly updates. Stratified drift aquifer data was developed by the USGS in association with the NHDES Wellhead Protection Areas database, current October, 2002.



Map prepared by Nashua Regional Planning Commission,  
Printed 10/24/02

