



July 30, 2007
Proposal for a Groundwater Protection Study and Plan
Town of Ancram, New York

Introduction

The Town of Ancram has several sand and gravel aquifers located within its boundaries. The approximate position of these aquifers is indicated by the stippled pattern on Figure 1 below. Ancram's two major hamlet areas (Ancram and Ancramdale) are located on or very near unconsolidated aquifers (Figure 1). Although the extent of sand and gravel aquifers is fairly extensive in Ancram, most of the Town's residents likely rely upon bedrock wells. Unfortunately, bedrock groundwater resources are not well documented.

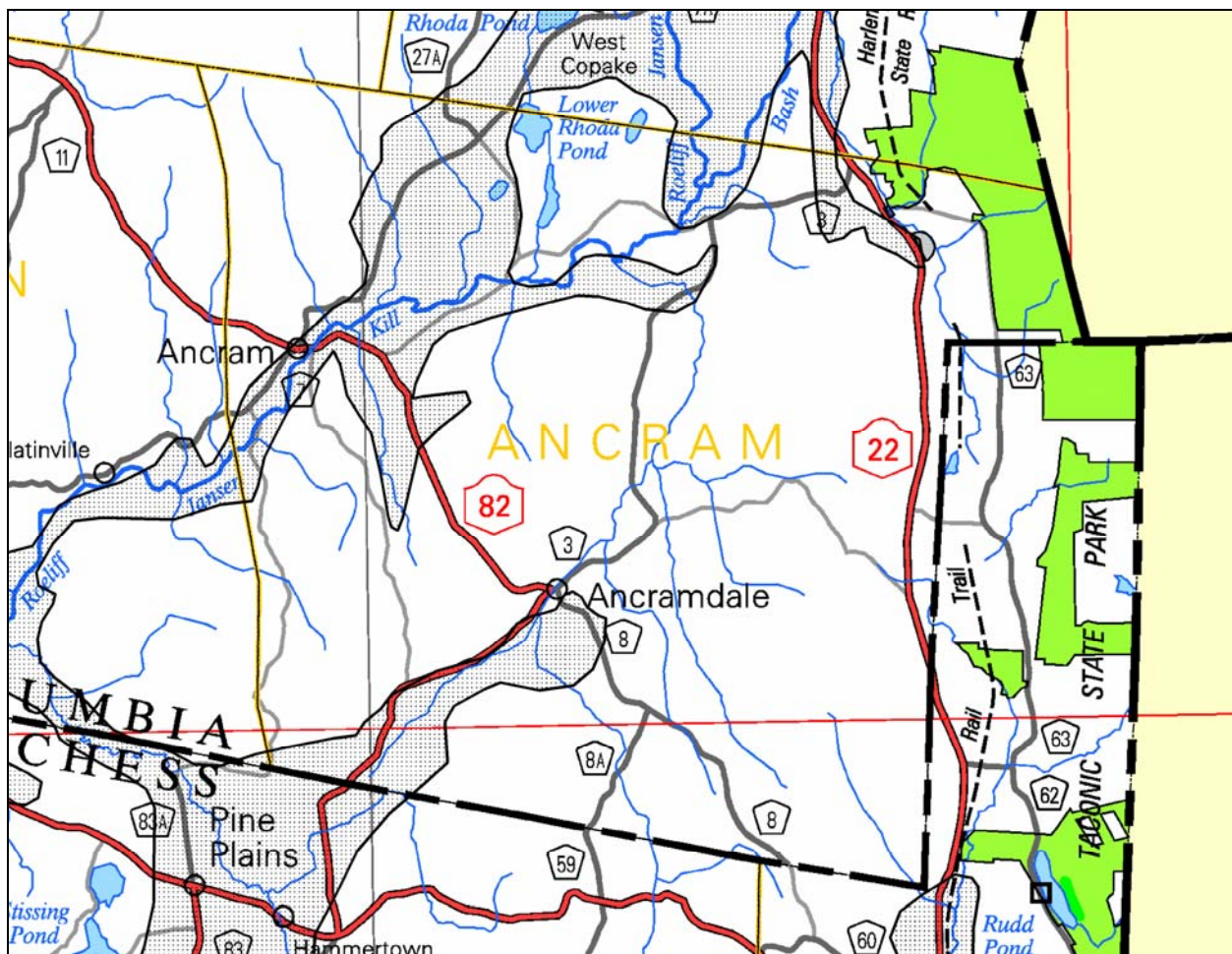


Figure 1. Unconsolidated Aquifers in Ancram.



Proposed Scope of Services

Understanding the nature and occurrence of groundwater resources is fundamental for rural communities like Ancram to better plan for the future. Unfortunately, existing aquifer mapping exists only on a 1:250,000 scale. This scale is not adequate for local planning and land use regulations. No bedrock aquifer maps exist at all.

New York Rural Water Association (NYRWA) has assisted many communities across New York State to map and better understand the nature of their local groundwater resources. In Ancram, NYRWA proposes to develop a groundwater protection report and plan that includes the following work items:

- 1) Compile and map available digital water well/subsurface data;
- 2) Map sand and gravel aquifers and bedrock geology at a detailed 1:24000 scale;
- 3) Identify and map public water supply sources;
- 4) Inventory potential contaminant sources and higher risk land uses;
- 5) Determine the sensitivity of local site conditions to potential contamination;
- 6) Define sensitive areas that are developable;
- 7) Compute recharge rates and minimum lot sizes;
- 8) Prepare a plan/report; and
- 9) Present the plan/report.

Task 1: Map Available Digital Water Well and other Subsurface Data

Since January of 2000, the New York State Department of Environmental Conservation (NYSDEC) collects and maintains water well completion reports pursuant to Environmental Conservation Law § 15-1525. Through a FOIL request, NYRWA will collect a GIS dataset that NYSDEC develops from well completion reports compiled from Ancram. In addition, NYRWA will download water well data for Ancram that the United States Geological Survey (USGS) maintains on its Site Inventory System. Any data on public water supply wells in Ancram that the NYS Department of Health has on file will be compiled as well. Finally, NYRWA will attempt to collect subsurface data from road and bridge borings that the New York State Department of Transportation (NYSDOT) has completed for NYS Route 22 and NYS Route 82. All well and boring data from the NYSDEC, USGS, NYSDOH, and NYSDOT will be plotted by NYRWA using GIS.

Task 2: Aquifer and Resource Mapping

Sand and gravel aquifers and bedrock geology will be mapped at a detailed 1:24000 scale in Ancram using GIS. Sand and gravel aquifer boundaries will be mapped using digital soil survey data, topographic expression, field reconnaissance, and available subsurface data. Bedrock geology contacts will be mapped based upon available state mapping and other published and unpublished studies.



Task 3: Document Public Water Supply Sources

Although the Town of Ancram does not presently have municipal water systems, there are at least ten public water supply systems in Ancram. These systems include restaurants, larger businesses, camps, homeowner's associations, and recreational facilities. All use ground water for supply purposes. NYRWA will map the locations of these public well sources and identify a minimum protection area around each.

Task 4: Inventory Potential Contaminant Sources and Higher Risk Land Uses

Understanding the threats to groundwater supplies is crucial in order to help protect them in the future. NYRWA will inventory and map facilities that are presently regulated by the NYSDEC and/or USEPA that have the potential to contaminate groundwater. NYRWA will also document petroleum/chemical spills that have occurred in Town. Finally, we will use property classification codes from real property data to identify land uses that are higher risk of causing groundwater contamination.

Task 5: Determine Hydrogeologic Sensitivity

The hydrogeologic sensitivity of a location is a relative measure of the ease and speed with which a contaminant could migrate into and within the upper-most water-bearing unit. The two factors controlling the hydrogeologic sensitivity are the site's geologic materials and the site's topographic position. NYRWA will compute and map the hydrogeologic sensitivity for conditions within the Town of Ancram.

Task 6: Define Developable Sensitive Areas

It is important to predict where future growth is most likely to occur and determine where this growth has the potential to impact groundwater. To do this, NYRWA will map site development constraints such as steep slopes, hydric soils, wetlands, etc. Areas without such constraints are more likely to be developed. The hydrogeologic sensitivity of such areas (see above) will then be compared.

Task 7: Compute Recharge Rates and Minimum Lot Sizes

Concerns are often raised over how much development can local groundwater resources sustain. In order to answer such questions, local rates of groundwater recharge must be calculated. This will be done by NYRWA by using stream baseflow statistics and runoff rates compiled by the USGS together with local surficial geologic and soils mapping. NYRWA then uses calculated recharge rates to determine the minimum lot size necessary to prevent excess nitrate loading from septic systems as well as depletion of available groundwater resources by local wells.



Task 8: Preparation of Maps, Plan and Report

NYRWA will summarize all work completed and results in a report. 24x36-inch maps will be prepared showing aquifer boundaries, surficial geology, bedrock formations, and water well data. In addition, 11x17-inch maps will be produced showing public water wells and protection areas, potential contaminant sources, site development constraints, hydrogeologic sensitivity, and recharge rates/minimum lot sizes. NYRWA will also outline potential groundwater protection strategies. These would include both regulatory and non-regulatory approaches.

All data will be available digitally in GIS shapefile format. The report will be available digitally in *.pdf and *.doc formats as well.

Task 9: Presentation of Maps, Plan and Report

Upon completion, NYRWA will present the report and protection plan at a public meeting in Ancram and answer any questions on the completed work.

Project Costs

Estimated NYRWA expenses and labor costs for completion of the above mentioned scope of services total \$6,480. These costs are detailed by work task below:

Work Task	Cost
Task 1: Compile and Map Available Digital Water Well/Subsurface Data	\$ 900
Task 2: Aquifer and Resource Mapping	\$ 1,100
Task 3: Document Public Water Supply Sources	\$ 460
Task 4: Inventory Potential Contaminant Sources/ Land Uses	\$ 850
Task 5: Determine Hydrogeologic Sensitivity	\$ 260
Task 6: Define Developable Sensitive Areas	\$ 260
Task 7: Compute Recharge Rates and Minimum Lot Sizes	\$ 390
Task 8: Preparation and Presentation of Maps, Plan and Report	\$ 1,800
Task 9: Presentation	\$ 460
TOTAL	\$ 6,480

Project Time Frame

The report could be completed within 4 months of the receipt of a signed letter agreement between NYRWA and Community Planning & Environmental Associates. This timeframe assumes that all necessary data supplied by the Town, Community Planning & Environmental Associates, Columbia County, NYSDEC, NYSDOH, and NYSDOT are received by NYRWA in a timely fashion.