

July 21, 2008

To: Nolan Glantz (Landlocked Parcel Use Committee)

From: Larry Cohen (Conservation Commission)

Subject: **Description of Landlocked Parcel  
and Water Resources in the Area**

At the July 7, 2008 meeting of the Landlocked Parcel Use Committee, the Committee requested an overview description of the Landlocked Parcel and some detailed information on our nearby water supply. The following text is a description of the physical characteristics, natural resources and water resources on and near the Landlocked Parcel.

### ***Physical Characteristics***

The Parcel consists of approximately 250 acres. The site is bounded by Route 3, Interstate 95/128, the Town of Lexington, and the Town of Bedford. Numerous trails cross the parcel with a pipeline easement bisecting the parcel in the middle from east to west and a power line easement bisecting the parcel in the south again running from east to west.

Much of the Landlocked Parcel is currently wooded. The topography is varied with some gradual, rolling elevation changes, steep slopes and one area of open meadow. The slopes range from a high of 50 percent to a low of 1 to 3 percent. Following is a description of the topography dividing the Parcel into thirds:

- The northern most third of the parcel has four (4) high spots rising from 60 ft elevation to about 85 ft. These high spots are located at approximately the four corners of this portion of the parcel. The surface water drains in all directions off these high areas from this portion of the land.
- The middle third of the parcel with the pipeline easement bisecting it, has a stream in the middle running from west to east and a small pond nearby. This stream runs under Route 3 and into Northwest Park and eventually drains into our well field. This stream appears to be fed from numerous smaller streams (some intermittent) running throughout this portion of the land. The topography on both sides of the main stream slopes downward running toward the stream. It is estimated that 60 to 65 percent of the Parcel drains toward this stream and then flows eastward towards Burlington into Northwest Park.
- The southern most third of the parcel has the power line easement. The most prominent feature is Bannon Hill rising to the 87 foot elevation. The slopes off of this hill to the east and south overlooking Route 3 and Route 128 respectively are steep. Since Bannon Hill is located in the southern most sector of this portion, the majority of topography slopes north and east toward Burlington. Surface water flows follows this topography toward the stream mentioned above and into Burlington.

There are paths crossing the property which are being used by runners, walkers and trail bikers. It is in pristine condition with little to no erosion, litter, etc. The only litter appears close to Route 3.

## ***Natural Resources***

On recent walks, deer, turkey, hawks, coyote scat, and interesting vegetation were spotted. As one passes over various stone walls, there are markedly different vegetation visible. In one area are young trees (perhaps the age of Rte 3) with blueberry bush ground cover. Going over another stone wall are much older trees with more bare ground.

Much of the middle of the Parcel is characterized by wet areas with ferns, cat tails, etc. Due to the extensive wetlands on the site, there are many swamp-like areas scattered throughout the site. Deer tracks are visible in this area.

## ***Water and Wetland Resources***

The 1996 Massachusetts Natural Heritage Atlas shows that there are 4 Certified Vernal Pools on the parcel. No estimated habitat of rare wetlands or wildlife is shown. Three of these vernal pools are in the north end of the parcel (close to one another). The fourth vernal pool is in the south end of the parcel, south of power line easement.

Most of the wetland areas appear from the topography to be hydrologically connected to small streams discharging toward Burlington. These wetlands would qualify as Bordering Vegetated Wetlands under the State's Wetlands Protection Act.

To the east lies Burlington's drinking water supply wells. Seven wells provide 3.3 MM gallons per day, mostly limited by the water treatment plant capacity. These wells are protected by water protection zones. These are defined as follows:

Zone II – is the area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation), and

Zone III – is the land area beyond the area of Zone II from which surface water and groundwater drain into Zone II. The surface drainage area as determined by topography is commonly coincident with the groundwater drainage area and is used to delineate Zone III.  
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The Zone II was established by two engineering activities: 1) a 1992 extended pumping test of the two wells behind the old Knights of Columbus, and 2) a 1996 conceptual (modeling study) Zone II delineation where all wells were assumed to be pumping giving a total of 3.9 MM gallons per day.

In 1996, the Massachusetts Division of Water Supply approved the Zones II and III for these water supply wells. Burlington's Zone II has a western edge that follows Middlesex Turnpike. In the northern section, the Zone II extends partially into Northwest Park in the area of Terrace Hall Ave. The Zone II extends deeply into the southern portion of Northwest Park in two places: from Middlesex Turnpike through South Ave and through the old Burlington Dodge property and areas south. The majority of Northwest Park and almost all of the Landlocked Parcel has been approved by the Division of Water Supply as a Zone III.

Currently, Burlington has numerous potential sources of contamination located within our Zone II. Burlington has 7 hazardous waste sites located within our Zone II protection zone. In a 2003 DEP report (Source Water Assessment Report), it is stated that Burlington has 32 commercial facilities that could pose a threat to our drinking water supply if these sources of

hazardous materials were managed improperly. The same report also states that Burlington has 9 potential industrial sources. In addition, this report mentions that our Zone II has over 100 storm drains that contribute debris and chemicals off of roadways and parking lots.

The Zone II delineation area around our drinking water wells may need to be revisited. When the 1996 modeling study was done, few or no boring / monitoring wells measurements were collected from the central or southern portions of Northwest Park. No measurements were available from the Landlocked Parcel. The Consultant used extrapolations and assumptions where no well information existed.

One starting point for additional soil and groundwater subsurface data may be the 5 hazardous waste sites located in Northwest Park. The subsurface investigations at these hazardous waste sites could provide some additional information.

Given that the Landlocked Parcel is completely in our Zone III water protection area, the substantial runoff from the Parcel crosses Route 3 by way of a network of culverts under the road. For example, 5 culverts under Route 3 exist behind the facilities of 43 and 63 South Ave. It is believed that numerous other culverts exist to allow this drainage to enter Northwest Park and our drinking water zone.