

**Comprehensive Water Resources Management
Plan (CWRMP)**

APPENDIX F

**Volume 3 of 5
Acton, MA**

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December 17, 2004

Mr. Steve Hallem
DEP
One Winter Street
Boston, MA 02108

Re: Town of Acton Wastewater Effluent Disposal Sites

Dear Mr. Hallem:

As part of the Town of Acton's Comprehensive Water Resources Management Plan (CWRMP) Woodard & Curran (W&C) and the Town of Acton have identified four potential groundwater discharge sites to serve specific needs areas and provide additional discharge capacity for the existing wastewater treatment facility (WWTF). We have associated three sites with high priority needs areas, (1) on town-owned land in East Acton at the junction of Wetherbee Street and Route 2, (2) on town-owned land in South Acton adjacent to the WWTF, and (3) on Acton Water District land off High Street at the Assabet wellfield. The fourth site, on town owned land in North Acton near the North Acton Recreation Area, addresses Needs Areas land 2, which are medium priority needs areas.

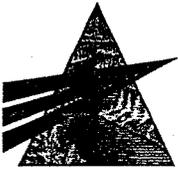
The scope for the investigation of these sites was set through discussions with DEP and approval of the CWRMP/EIR scope during the initial Plan of Study phase. The hydrogeologic investigation at these locations will be conducted in two stages. The initial evaluation of the sites, which we are beginning, includes:

- Reviewing available maps and reports regarding soils and groundwater conditions on the sites;
- Borings, wells, and test pits to classify soils and determine groundwater and bedrock depths, with appropriate percolation tests; and
- Establishing the suitability of any or all of these sites for further and more costly exploration.

Following the field visit to the four sites on November 29, 2004, W&C prepared enlarged portions of the USGS topographic maps and enlarged portions of the MassGIS aerial photograph base map for the four sites – each map to the same scale. We added the sites' parcel boundaries to the topographic maps and aerial photographs. This makes it possible to relate our field visit observations to the topographic map and in one case helps to locate a "lost feature" of importance to the project.

At the North Acton site there is historical knowledge of previous septage lagoons on the site. The topographic map indicates sewage disposal at the location and shows three square features that are taken to be the old lagoons. From the aerial photograph it can be seen that these locations have been covered and obscured by the earthworks at the site.

We selected the four potential sites for disposal of treated wastewater because they all had the common characteristics of sand and gravel soils, with groundwater generally greater than 6 feet depth based on NRCS data, and they were located on generally undeveloped parcels. Some parcels are large enough such



that the favorable soil and groundwater indication do not encompass the entire site. Therefore, W&C added a blue overlay to each map to indicate the expected areas of suitable soils.

The proposed exploration for each site is intended to establish any significant and easily found limiting features that would preclude use of the areas for disposal and expose any significant shortcomings not seen in the prescreening used to locate the four sites. Thus, we do not intend that these proposed explorations would support precise estimates of disposal capacity. Another, more extensive, phase of exploration and testing will provide final confirmation of the site(s) suitability for wastewater disposal.

We have provided a set of maps as described in the opening paragraphs for each site. Red dots note the proposed test borings and green dots indicate test pits locations.

Site #1: Wetherbee Street / Route 2

The Wetherbee site is located in the northwest quadrant of the intersection of Wetherbee Street and Route 2. The parcel is approximately 70 acres presently covered in woodlands and crop field. Approximately 29 acres are in sand and gravel soils and geology. The limits of the mapped favorable soils are shown in blue on the accompanying maps. This site is a potential disposal location for Needs Planning Areas 3 and 4 (East Acton Village and Robbins Park).

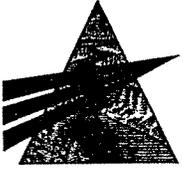
The only subsurface information available to date near the Wetherbee parcel is from an existing USGS monitoring well just south of Wetherbee Street and the proposed parcel. It is in an area mapped as the same favorable sand and gravel. A limited USGS well log for the monitoring well indicates the well was drilled to a depth of 38 feet in sand and gravel with no notation of reaching refusal. The shallowest groundwater depth recorded in the 39-year period of record is 15 feet. The reported sands and gravels and the consistent relatively deep water table indicate that the Wetherbee site has promise as a disposal site.

The cropped portion of the parcel will remain in active farming during our investigation, thus no permanent wells can remain in the farm field. However, we need to determine the bottom of the functioning aquifer material. Therefore, we propose drilling two test borings to refusal, with temporary wells, in a line from the Route 2 intersection northwestward toward the maximum extent of the mapped sand and gravel. In addition, to explore the "width" of favorable conditions, we propose two borings to refusal (possibly with permanent wells) just beyond the cultivated area of the field. To supplement the borings we suggest up to five test pits be taken to the water table to explore the margins of the cultivated area.

From this combination of explorations, it should be possible to determine the presence of limiting features, such as evidence of shallow water table, thinning sand and gravel or wide spread low permeability stratum in the soil profile.

Site #2: Adams Street near Maynard Line

This site is located along Adams Street west of the existing wastewater treatment plant. Site #2 and Site #3 are potential disposal locations for sewer system expansion to Needs Planning Areas 10 (Spencer, Tuttle, Flint, Dover Heights), 12 (West Acton Center), and 13 (Indian Village). Both Site #2 and Site #3 would use the existing sewer infrastructure, including the existing treatment facility.



The portion of the property with potential value for wastewater disposal is on a flat terrace of sand and gravel, well above the Assabet River water level and at a similar elevation to the existing rapid infiltration beds (RIBs). Additional information on this parcel is available from earlier explorations at the time of design for the existing wastewater treatment plant. Previous explorations include test pits, which were located during our site walk, double-ring infiltrometers, and borings.

The dominant feature on the site is a vernal pool (certified pool number 644) located about 1,000 feet west of the existing wastewater treatment plant and visible on the aerial photograph included here. The vernal pool will require setback distances and may limit the possible wastewater loading to the area depending on the pool's hydraulic connection to the local groundwater.

We propose a test boring near the pool with a groundwater observation well to determine the actual groundwater elevation relative to water in the pool. There is an existing PVC test pit well in the area that may provide the information without further exploration. We will investigate the test pit well prior to drilling. As with all sites, it will be necessary to determine in general the thickness of sands and gravels and depth to water table. Thus, we propose a test boring at the crest of the terrace near a cluster of hemlock trees. This boring should be carried to refusal (bottom of conductive sands and gravels) and completed with a groundwater observation well.

Site #3: Assabet Wells Area

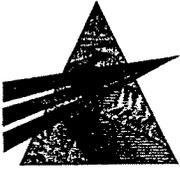
The potential wastewater disposal location at the Assabet Well Field is located in a former gravel pit where the Acton Water District has two operating public drinking water supply wells. There is significant available information to understand that the location has the physical and geological potential for wastewater disposal. The subsurface has been investigated extensively because of upgradient groundwater contamination.

The determination on wastewater disposal at this location will likely be driven by regulatory concerns regarding the recharge of highly treated wastewater into the Zone II of a public supply well(s). At this preliminary stage of investigation, there is no need for additional exploration to establish the geological potential of the site for disposal activities. If the location is viable from a regulatory point of view there will likely be need for additional testing of groundwater velocities in the field to demonstrate real field groundwater flow conditions.

Site #4: North Acton

We have attached figures showing the proposed investigation locations in relation to the parcel boundaries and defining features. The North Acton site is a long narrow parcel of about 11.5 acres oriented north to south extending over 1,650 feet. The surface of the southern three quarters of the site is extensively disturbed. Comparison of the enlarged USGS topographic map and the aerial photograph helps to locate the former septage pits on the existing site. This site is a potential disposal location for Needs Planning Areas 1 and 2.

Given the extensive disturbance at the North Acton site, there is little original surface available for exploration. We do have a map of borings conducted in the 1980's. However, it will still be important to determine the thickness of the remaining sand and gravel and depth to refusal (bottom of conductive



sand and gravel). A number of small local excavation pits and ponds give evidence of the elevation of groundwater. This will help in determining if the return of fill would be required to build up the site.

We recommend several test pits at the northeast perimeter of the parcel near the conservation trail to explore the depth of sands and gravels exposed there. We recommend drilling one test boring and monitoring well at the assumed location of the old septage pits with at least one groundwater sample analyzed for wastewater parameters and VOC's. In addition, we propose one boring with a groundwater observation well in the wooded northern portion of the parcel to explore the presence and thickness of sand and gravel and groundwater elevations relative to a small nearby pond.

We will have on site a licensed soil evaluator to examine and classify the soils from the borings and test pits. We invite DEP to attend and we will work with you to schedule to work. At each site, we will perform an elevation survey of the test pit locations and well casings to better determine elevations of subsurface features. We will also survey and locate the wells and test pits for future reference.

Sincerely,
WOODARD & CURRAN INC.

Robert J. Rafferty, P.E.
Project Manager

RJR/rjr
212605

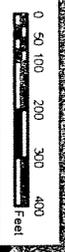
Enclosure(s)

cc: Doug Halley, Town of Acton
Brent Reagor, Town of Acton
Ron Lyberger, DEP – Boston
Helen Gordon, Woodard & Curran
Dan Garson, Woodard & Curran
Cary Parsons, Woodard & Curran

Weatherbee Street

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G4 209000



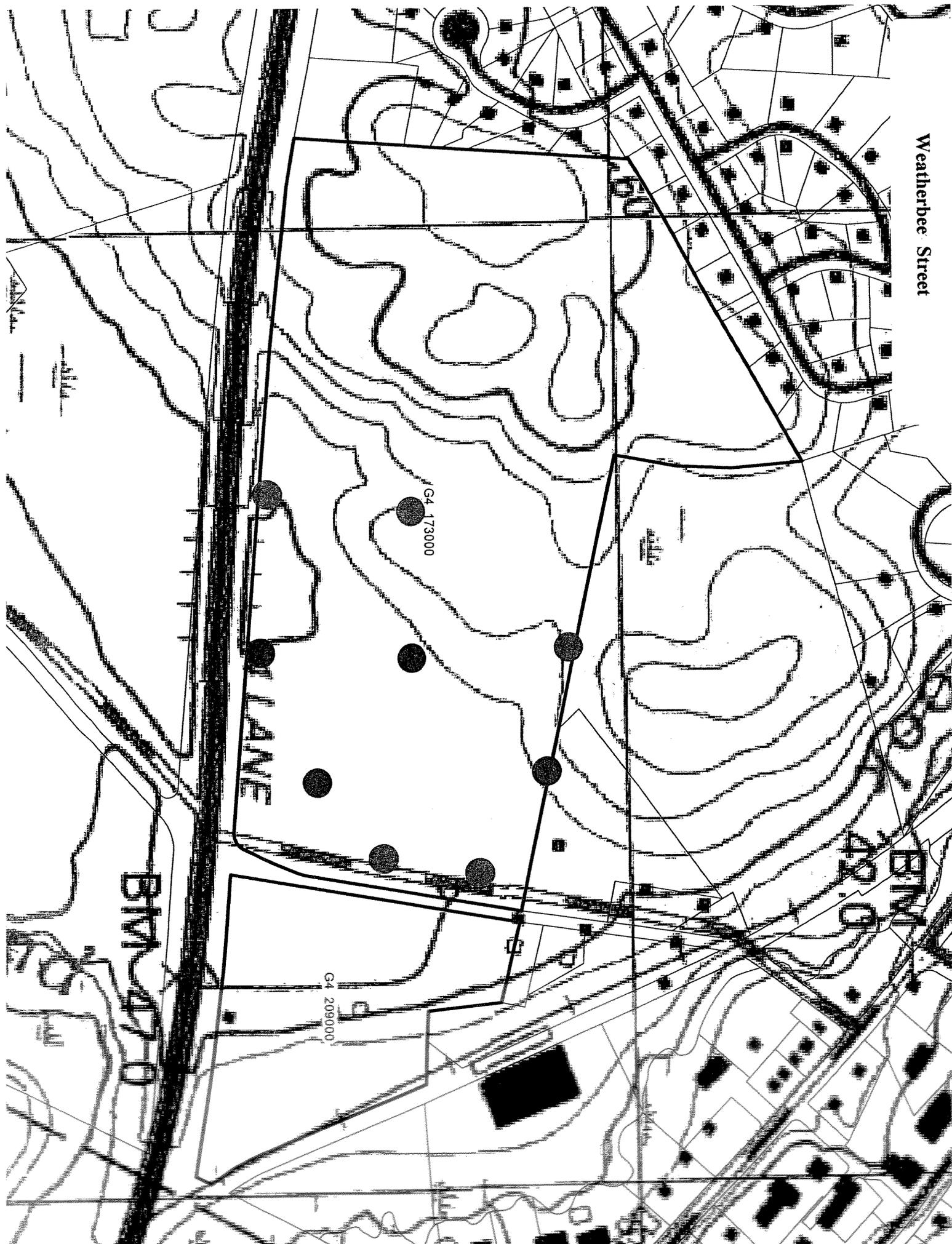
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Weatherbee Street



Weatherbee Street

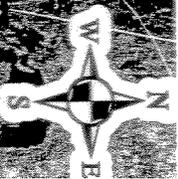
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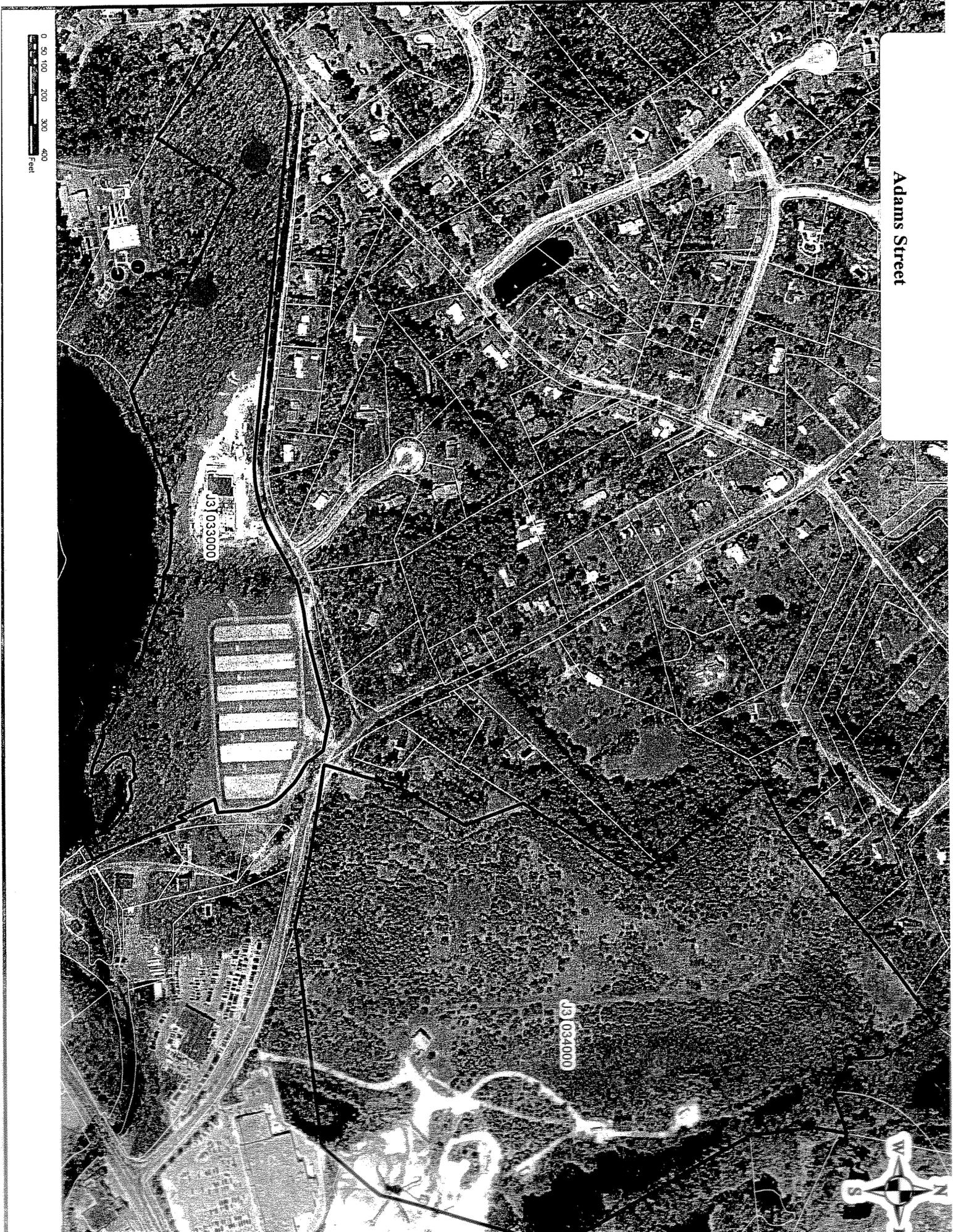
Adams Street



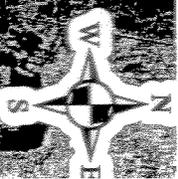
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Adams Street



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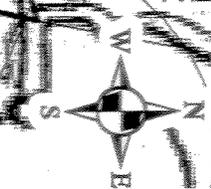
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Adams Street

WATER



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WATER

43.0

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