



McSweeney Associates, Inc.

Environmental Engineering Services

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November 9, 2023

Jennifer Oram
Senior Planner, Town of Hingham
Hingham Town Hall
210 Central Street
Hingham, MA 02043

RE: 211 Hobart Street

Dear Ms. Oram,

I write to detail the results of my investigation at the subject property with respect to the potential installation of a "Title V" on-site wastewater disposal system. The investigation of this property included the following:

1. Site background information review both on-line and in the offices of the Hingham Board of Health and Conservation Commission,
2. Site survey and staking of property lines by a professional land surveyor,
3. Delineation of wetland resource areas,
4. Completion of test pits at the site to observe soil conditions, and
5. Site survey and production of Site Conditions Plan (attached).

BACKGROUND RESEARCH: DEP Wetlands are shown, both on MassMapper and the Town of Hingham GIS system, in the northwestern corner of the subject site and on adjacent properties. No FEMA flood zones, rivers or streams, estimated habitats or areas of critical environmental concern were shown on or directly abutting the site. Web Soil Survey indicates that the soils on the site are a Quonset sandy loam, which are excessively drained with a relatively deep water table. No filings specific to the subject property were located in the offices of either the Hingham Conservation Commission or the Hingham Board of Health.

The Hingham GIS system identifies three private wells in the vicinity of the property, irrigation wells at 198 and 196 Hobart Street and a private potable well at 200 Old Hobart Street. These locations and designations are inaccurate; in actuality there are irrigation wells at 198 Hobart Street and 200 Old Hobart Street and a potable well at 202 Old Hobart Street. The site is not located within a mapped Zone II for a public drinking water supply well, nor within the Zone A of a surface drinking water supply.

SITE SURVEY: Property lines were staked by Hoyt Land Surveying, allowing access to the subject property directly from the street layout without crossing any abutting properties.

WETLAND DELINEATION: Wetlands were delineated at the subject property by McSweeney Associates, Inc. in November of 2023. Wetland flags A1 – A9, shown on the accompanying site plan, define the edge of the wetland resource area (a Bordering Vegetated Wetland - BVW), which is subject to both Town and State wetland regulations; this BVW, which extends from the wetland line to the northwest, has associated 50' and 100' buffer zones. As indicated above, no perennial streams, rivers or FEMA flood zones are present at the site.

TEST PIT EXPLORATION: Four test pits were excavated at the site on October 19, 2023. As mentioned above, access to the site was gained directly from Hobart Street and the excavation machinery did not cross any abutting, privately owned properties. The results of this exploration are included on the attached site plan. In general, all test pits encountered top soil horizons (termed "A" & "B" horizons) of loamy sand possessing normal upland soil colors. In the first three test pit locations, two mineral soil layers were found ("C1" & "C2" horizons) containing very gravely loamy sand also possessing normal upland soil colors. While the C1 horizon would be considered adequate for Title V purposes, the C2 horizon is considered minimally adequate due to its very firm nature. The thickness of the C1 horizon varied from 20" to 44" across the first three test holes. A total of 88", 68" and 56" of C horizon soils (C1 plus C2 thicknesses) were found in test holes OH-1, OH-2 and OH-3, respectively.

The soils encountered in the OH-4 location were much more suitable for Title V purposes than those found in the other three test hole locations, as no firm C2 horizon was identified at that location. The C1 horizon soils at the OH-4 location were similar to the C1 horizon soils at the other test hole locations and would easily pass percolation testing. A total of 56" of C horizon soils were found at the OH-4 location, all of which were found above the water table; water table was found at the bottom of the test hole at 80". The four test holes completed at this time adequately addressed the soil conditions in the portions of the site outside of the 50' wetland buffer zone.

SITE SURVEY: On November 8, 2023 a transit and GPS survey was completed at the site to locate relevant site features including wetland flags, test pit location and surrounding wells. This information was used to prepare the attached site plan.

CONCLUSIONS: The site is a relatively small parcel comprised of 20,413 s.f. of land area. Potential development of the site is controlled by the wetland resource area in the northwest corner of the lot and the associated buffer zones, and by the presence of wells in the neighborhood.

Large portions of the site are mapped within the 250' protective radius for the private potable well at 202 Old Hobart Street. Furthermore, the owners of 200 Hobart Street have indicated that the well currently being used for irrigation purposes at that location was originally used for drinking water and they are "reserving" the right to use that well for that purpose again; the regulatory status of that well must therefore be clarified with the Hingham Board of Health. No 100' well protective radii extend onto the subject property.

Soils meeting the requirements of Title V have been found at the site, however, only a very small portion of the site exists outside of the 250' radius of the potable well at 202 Old Hobart Street and outside of the 50' wetland setback; an even smaller area of the site is outside of the 250' well radius and outside of the 100' wetland setback.

It is possible to locate a 2 bedroom primary disposal area outside of the 250' well setback and outside of the 50' wetland setback, but not possible to also locate a Title V reserve area in this space. There is insufficient area outside of the 250' well setback and outside of the 100' wetland setback for even a primary disposal area.

INTERPRETATIONS:

1. Soil Conditions – The firm to very firm nature of the soils in the C2 horizon found in test holes OH-1 to OH-3 render these soils moderately suitable for Title V purposes at best. The soils found in OH-4 are ideal for wastewater disposal and any additional Title V assessment activities should focus in this area. As shown on the accompanying plan, a two bedroom disposal area (approximately 300 s.f.) can easily fit into the OH-4 area, outside of the 10' Title V property line setback, the 250' town of Hingham potable well setback and the 50' wetland setback. There is not sufficient space for a reserve area also meeting these requirements, however.

Title V requires the presence of a 48" thick layer of "naturally occurring, permeable soils" for the placement of a Soil Absorption System (SAS); this thickness requirement does not consider the elevation of groundwater and these soils can therefore be above the water table, below the water table, or across the water table. This requirement is met at the OH-4 location.

Hingham Board of Health regulations require a 72" thick layer of naturally occurring soils (for soils with a percolation rate of less than two minutes per inch), and all must be located above the water table. This condition is not met at

the OH-4 location, or any of the other test pit locations, as only 56" of C horizon soils were found above the water table in test hole #4. The soil conditions found at the site therefore meet Title V requirements but not Hingham Board of Health requirements.

2. Wetlands – Title V requires a 50' SAS to wetland horizontal setback. The two bedroom disposal area shown on the attached site Conditions Plan meets this requirement.

The Town of Hingham, through its Board of Health, does not regulate the SAS individually, but does stipulate a Sewage Disposal System (SDS) to wetland setback of 100'. The SDS includes not only the SAS, but also the septic tank and all piping connecting the dwelling to the tank and leaching field. It is not possible to install an SDS at the subject property meeting the Town of Hingham wetland setback requirement.

3. Wells – Most problematic with respect to potential development of the site, is the presence of a potable well at 202 Old Hobart Street, and a well of uncertain regulatory status at 200 Old Hobart Street.

The Title V requirement for a well to SAS setback is 50' and 100' for irrigation and potable wells, respectively. As stated above, none of the surrounding wells have a 100' protective radius which extend onto the subject property and the State required 100' SAS to well setback would therefore be met under any development scenario.

The Hingham Board of Health Supplementary Rules and Regulations once again reference the SDS, not individual septic system components, and require a 100' and 250' setback for irrigation and potable wells, respectively. While it would be possible to install a 2 bedroom SAS outside of the 250' protective radii for the potable well at 202 Old Hobart Street, it would not be possible to locate a matching reserve area also outside this setback and outside the State mandated 50' wetland setback.

Furthermore, since the Town regulates the SDS and not the individual system components, the Hingham setback applies to where the building sewer line leaves the foundation wall leading to the septic tank. As shown on the attached site plan the foundation wall for a hypothetical structure at the site, furthest from the potable well at 202 Old Hobart Street, would be approximately 228' from the well, not meeting the 250' setback requirement.

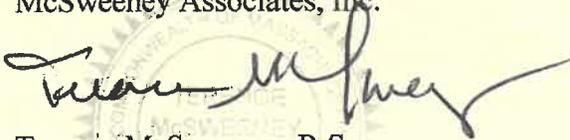
If the irrigation well at 200 Old Hobart Street is still considered to be, and regulated as, a potable well, the two bedroom disposal area shown on the attached plan would no longer meet the 250' setback requirement from that well.

4. Additional Regulatory Issues – Even though the site is not mapped within a Zone II, it is still considered to be in a nitrogen sensitive area due to the presence of a private drinking water well on an abutting property. As such, the bedroom density limit under State standard is 1 bedroom per 10,000 s.f. of land area, and as such the site could support a two bedroom dwelling. Hingham Board of Health regulations set a town wide standard of 12,500 s.f. per bedroom for new construction, and as such the site could only support a one bedroom dwelling by Hingham code.

Summary: The site cannot be developed without variances from numerous Hingham Board of Health Rules and Regulations pertaining to wetland and well setback, and thicknesses of unsaturated, naturally occurring soils. The site could be potentially developed under state standards without the need for variances.

Thank you for the opportunity to provide this assessment of the subject property, we look forward to working with you as we move through the regulatory process.

Sincerely,
McSweeney Associates, Inc.



Terence McSweeney, R.S.
President

