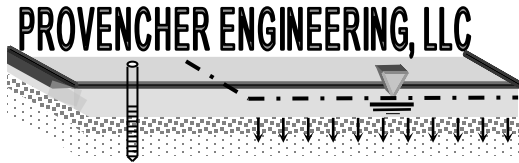


MEMORANDUM



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TO: Ms. Shelley Gorman, Wilkinsonville Water District (WWD)
FROM: Donald A. Provencher, P.E.
DATE: April 25, 2022 (Revision #1)
REFERENCE: Revised Review Comments - Planning Board Site Plan Approval Application
And Application for Special Permit for Groundwater Protection District
UGPG RE Sutton LLC – Unified Parkway Buildings #2 & #3
Hatchery Road Public Water Supply Well – Sutton, Massachusetts
Project No. PE195.11

Purpose:

The purpose of this memorandum is to provide review comments and recommendations for conditions of approval by the Sutton Planning Board regarding the above proposed site plan application for Unified Parkway Buildings #2 & #3, related to the protection of, and potential environmental impacts to the WWD's existing Hatchery Road Public Water Supply Well.

This revised memo adds comment #12 at the end of the memo, regarding the Application for Special Permit for the Groundwater Protection District pursuant to section "V.B.6.c.6.", of the Sutton Zoning By-Law, amended though May 13, 2019.

1. Zone II Groundwater Recharge

A review of the 3/28/2022 stormwater report indicates that hydrologic design point DP-4 is located at the Hatchery Road well. The existing conditions modelled in this report represents the Unified Parkway roadway having been constructed. It is critical to maximize water quality and artificial recharge within all stormwater basins within the Zone II boundary of the Hatchery Road well, in order to ensure that groundwater available to the well is maximized.

The initial HydroCAD results from the 12/16/2021 existing conditions analysis indicated 9.32 acres of tributary area to DP-4, all of which is 100% pervious, and generates 0.74 acre-feet of runoff volume at DP-4 in the 100 year storm. Using the 7.92-inch rainfall from the 100-year storm over that 9.32 acres implies that 6.18 acre-feet of rainfall is generated, and if 0.74 acre-feet runs off, then the difference of 5.44 acre-feet recharges groundwater at DP-4 in the 100-year storm under existing pre-construction conditions.

For comparison, we obtained the artificial recharge volumes for the 100-year storm under proposed conditions from the 3/28/2022 HydroCAD analysis for those basins located within the Zone II, which include basins B2c, B3a, B2b, and basin #3. The 100-year recharge volumes, which are indicated as discarded hydrographs, are 2.81, 0.00, 1.50, and 2.38 acre-feet, respectively from each of the above basins, which totals to 6.69 acre-feet of artificial recharge within the Zone II. So, comparing the 6.69 acre-feet of proposed artificial recharge

within the Zone II against the 5.44 acre-feet of natural recharge occurring prior to any construction, it appears that the Zone II will experience a net increase of 1.25 acre-feet in total groundwater recharge, in the 100-year storm, based on both stormwater reports from 12/16/2021 and 3/28/2022. This is considered a benefit to the groundwater available to the Hatchery Road well.

The 3/28/2022 report indicates that 27.74 acres of tributary area (of which 35.90% or 9.96 acres is impervious), drains to DP-4 under existing conditions (i.e. Unified Parkway constructed); and 60.84 acres (of which 35.90% or 21.84 acres is impervious), will drain to DP-4 in proposed conditions. This is an increase of twice the amount of tributary land area, and over 3.5 times the impervious area directed to DP-4. This increase in tributary land area translates into more runoff directed toward DP-4, which is available to be recharged in the stormwater basins, within and outside of the Zone II prior to reaching DP-4, as reflected above. Consequently, it appears that the prior direction provided to UGPG RE Sutton LLC to maximize artificial recharge within the Zone II has been successfully accommodated.

2. Potential for Additional Groundwater Recharge in Zone II

Upon further review of the 3/28/2022 stormwater report, we identified the potential to further increase the groundwater recharge potential in the Zone II as follows, should the applicant choose to make some or all of the following modifications.

It may be possible to expand basin B2c further towards test pit TP-SH-2-108, which would provide additional bottom surface area to increase artificial recharge. The outlet control structure (OCS) could be modified to further restrict outflow to allow more water to be stored for infiltration. A log for the above test pit was not provided in the 3/28/2022 stormwater report, therefore, it is not clear if subsurface conditions might limit this expansion potential.

Infiltration was not modelled for basin B3a. It is not clear why infiltration was not modelled, however, any artificial recharge that does occur at basin B3a will further add to available groundwater in the Zone II. Perhaps infiltration could be modelled for basin B3a to quantify the amount of artificial recharge anticipated.

Basin #3 includes a 100-year ponding elevation of 374.73 versus a spillway elevation of 377.00. This affords an opportunity of more than two feet of additional storage that could be achieved by modifying the OCS to further restrict outflow to allow more water to be stored for additional artificial recharge within that basin.

Basin B2b includes a 100-year ponding elevation of 370.90 versus a spillway elevation of 372.00. This afford an opportunity of approximately one foot of additional storage that could be achieved by modifying the OCS to further restrict outflow to allow more water to be stored for additional artificial recharge within that basin.

3. Clarification on the 3/28/2022 Stormwater Report

The proposed conditions HydroCAD analysis in the 3/28/2022 stormwater report indicates the modeling of two distinct stormwater basins, Basin #3 and B3a. However, plan sheet C-405 indicates a 12-inch HDPE pipe with zero slope between flared end sections FES-601 and FES-602 at invert elevation 373.00, coincident with the bottom elevations of those basins. This interconnecting pipe implies that both basins are interconnected. However, this pipe does not appear to be modelled in the HydroCAD analysis. We request that the applicant clarify this apparent inconsistency, or explain our misunderstanding of the situation.

The proposed conditions HydroCAD analysis in the 3/28/2022 stormwater report indicates the modeling of a 20-foot long x 10-foot wide broad crested weir at proposed stormwater basin B3b, presumed to represent an emergency overflow spillway. However, plan sheet C-404 does not depict any such broad crested weir spillway. We request that the applicant clarify this inconsistency, or explain our misunderstanding of the situation.

4. Deicing Practices to be Limited Within Drainage Areas Tributary to Zone II

The Long-Term Pollution Prevention Plan (LTPPP) calls for the minimization of the amount of sand and deicing chemicals to be applied on the sites; recommends deicing chemicals as a pretreatment to snow / ice storm events; recommends limiting the use of deicing materials to calcium chloride within Zone II areas and next to jurisdictional wetlands; recommends that sand and deicing chemicals should be stockpiled under covered storage facilities that prevent precipitation and adjacent runoff from coming in contact with the deicing materials; and recommends that sand and deicing chemical stockpile areas shall be located outside resource areas. We recommend that the planning board condition any future approval such that no crystalized sodium chloride, crystalized calcium chloride, or other crystalized salt be allowed to be applied on any paved surfaces within drainage areas tributary to or through stormwater basins located within the Zone II of the Hatchery Road Well, and that deicing practices inside these drainage areas be limited to pre-treatment with a liquid salt brine, and / or sanding of the paved surfaces within these drainage areas. These drainage areas are specifically all paved surfaces that are included within proposed conditions HydroCAD drainage areas P4d1, P4a, P2b, P2c, P3a, P2, P3b, and P4x. We recommend that the planning board require the applicant to generate a plan entitled "Alternative Deicing Restriction Areas", delineating a boundary over paved surfaces comprising the above drainage areas, and that that plan become a record of the site plan approval.

5. Restriction of Fertilizer Application

We recommend that the planning board condition any future approval to ban the application of fertilizer within drainage areas tributary to or through stormwater basins located within the Zone II of the Hatchery Road Well, with the exception that that the applicant be allowed to fertilize any proposed trees and planting beds to help ensure successful growth limited to the first two years only, following their planting. These drainage areas are specifically all land surfaces that are included within proposed conditions HydroCAD drainage areas P4d1, P4a, P2b, P2c, P3a, P2, P3b, and P4x. We recommend that the planning board require the applicant to generate a plan entitled "Fertilizer Use Restriction Areas", delineating a

boundary over land surfaces comprising the above drainage areas, and that that plan become a record of the site plan approval.

6. Catch Basin Grate Inscriptions to Protect Water Supply

We recommend that the planning board condition any future approval to require the applicant to provide catch basins with grates inscribed with the words “Do Not Dump – Drains to Waterway”, consistent with the unified Parkway subdivision approval, for all catch basins included within proposed conditions HydroCAD drainage areas P4d1, P4a, P2b, P2c, P3a, P2, P3b, and P4x. We recommend that the planning board require the applicant to modify the plans to indicate a list of all catch basins requiring such inscribed grates.

7. Additional Total Suspended Solids Mitigation for Direct Zone 1 Discharges

Because proposed stormwater basins B2b and B2c discharge directly at the Zone 1 boundary of the Hatchery Road well, we recommend that the planning board condition any future approval to require the applicant to provide catch basins constructed with superior total suspended solids removal equipment using techniques from proprietary catch basin vendors, such as Vortech or other equivalent manufacturers, for catch basins that are tributary to basins B2b and B2c. Specifically, these are catch basins CB-200, CB-200A, DCB-303, CB-304, and DCB-305.

8. Clarify Contents to be Stored Within 1,000-Gallon Holding Tank

Plan sheet C-402 indicates a proposed 1,000-gallon holding tank at the back of proposed building #2, which is located within the Zone II boundary and approximately 100 feet from the Zone 1 of the Hatchery Road well. We request that the applicant clarify the contents to be stored within that holding tank, whether the holding tank will be equipped with a liquid level sensor and high water warning alarm, and to potentially relocate that tank if its contents are determined to be potentially detrimental to the Hatchery Road well water quality.

9. New Gravel Access Drive to Hatchery Road Well:

On Grading and Drainage Plan A, sheet number C-402, dated March 28, 2021 (note: date presumably meaning March 28, 2022), the applicant proposes a 20-foot wide gravel access drive off of the proposed parking lot behind proposed building #2, near CB-304 to access the existing Hatchery Road well. This new access drive is intended to replace the existing access drive to the Hatchery Road well currently accessed off of Providence Road. I had discussed with Matt Piekarski in a phone call on April 5, 2022 to provide proposed grading for that access drive, as the current proposed grading reflects a 3:1 slope, which is obviously incompatible with the proposed access drive. I advised Matt that WWD requires no steeper than a 6-8 percent grade, and that grading into the zone 1 is actually allowed, since that driveway is exclusively related to the water supply, and therefore allowed by DEP. We recommend that the planning board condition the above in any future approval, if the current plans are not revised to accommodate that change before the future approval is granted.

10. Cross-Country Water & Utility Corridor:

On Grading and Drainage Plan D, sheet number C-405, presumed date March 28, 2022, the applicant proposes a cross-country easement for a new water line connection, as well as underground power and communications utilities to the Hatchery Road well off of the proposed Unified Parkway, adjacent to proposed stormwater management area B3a. WWD requires vehicular access over the cross-country water line and utilities to accommodate future inspection, maintenance, and repairs. To that end, I advised Matt on our April 5, 2022 call that WWD will require a sand & gravel surface, or other firm stable surface to facilitate vehicular access over the cross-country main. Furthermore, I advised Matt that since a firm stable surface is required, that WWD would accept using that cross-country route as the permanent Hatchery Road well access drive in lieu of the proposed access drive off of the back parking lot of building #2 referenced above. In either option, WWD will also request a swing gate to be installed at the WWD property boundary on whichever access drive is proposed, or on both drives, if both continue to be proposed by the applicant. We recommend that the planning board condition the above in any future approval, if the current plans are not revised to accommodate that change before the future approval is granted.

11. Proposed Groundwater Monitoring Wells:

We recommend that the planning board condition any future approval to require the applicant to provide the installation of two additional monitoring wells (MWs) to facilitate the future collection of groundwater samples to determine any water quality impacts in the future. We recommend to install one MW between outfall headwall HW-301 and the bottom of the outfall at the emergency spillway at stormwater basin B2c on plan sheet C-405; and the other MW between outfall headwall HW-201 and the bottom of the outfall at the emergency spillway at stormwater basin B2b on plan sheet C-402. The purpose is to monitor any potential groundwater quality impacts from those two basins which discharge directly at the Zone 1 boundary. We recommend that the planning board condition the above in any future approval, if the current plans are not revised to accommodate that change before the future approval is granted.

12. Application for Special Permit for Groundwater Protection District (GPD):

Section "V.B.6.c.6." of the Sutton Zoning By-Law (Groundwater Protection District - GPD) requires any applicant who proposes more than 15% impervious area inside the GPD to precede stormwater infiltration basins with "*oil, grease, and sediment traps to facilitate removal of contamination.*" The applicant proposes deep sump hooded catch basins, scour holes, and forebays ahead of infiltration basins. I left a message with Jeff Walsh at Graves Engineering this morning for his opinion on whether Graves concurs that deep sump hooded catch basins, scour holes, and forebays are adequate to meet the by-law. We also request consideration of whether superior stormwater treatment of total suspended solids, oil, and grease removal equipment using techniques from proprietary catch basin vendors, such as Vortech or other equivalent manufacturers, as described in #7 above, should be required at every catch basin that discharges to all stormwater basins inside the Zone II area.

We note the applicant's attorney, Michael E. Scott, of Nutter, McClennen & Fish, LLP's own statement, where it is essentially guaranteed, in the second paragraph on page 5 of their March 30, 2022 submission letter that:

"in no way, during construction or thereafter, will the project's drainage improvements adversely affect the existing or potential quality or quantity of water that is available in the Groundwater Protection District..."

WWD request that the planning board condition in any future approval, that: (1) Graves Engineering renders their opinion on whether the proposed deep sump hooded catch basins, scour holes, and forebays will achieve the applicant's guaranty; (2) that the applicant commit that the drinking water quality at the Hatchery Road well will be maintained in its current condition during and following project construction (as stated); and (3) that the applicant be required to guaranty future restitution, if necessary, to provide the future design, installation, operation, and maintenance of any drinking water treatment improvements at the Hatchery Road well, to correct any potential future water quality or quantity degradation at the Hatchery Road well, in the event that the applicant's above guaranty proves not to be factual. If the applicant is willing to make such a powerful *"in no way"* statement, they should be required to back it up pursuant to a permit condition imposed by the planning board.

Please feel free to respond with any questions or comments. We recommend that we be provided with future opportunities to review and comment on future site plan design submissions as the individual lots are proposed to be developed.

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