Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street 9th Floor Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberly Driscoll
Lieutenant Governor

Rebecca L, Tepper
Secretary

Bonnie Heiple
Commissioner

May 9, 2024

Justin Casanova-Davis
Town Administrator
Town of Norfolk
One Liberty Lane
Norfolk, MA 02056

RE: Norfolk- 2208000
WMA Permit #: 9P-2-20-208.01
Program: Water Management Act
Action: Permit Modification

Dear Mr. Casanova-Davis:

Please find attached the following:

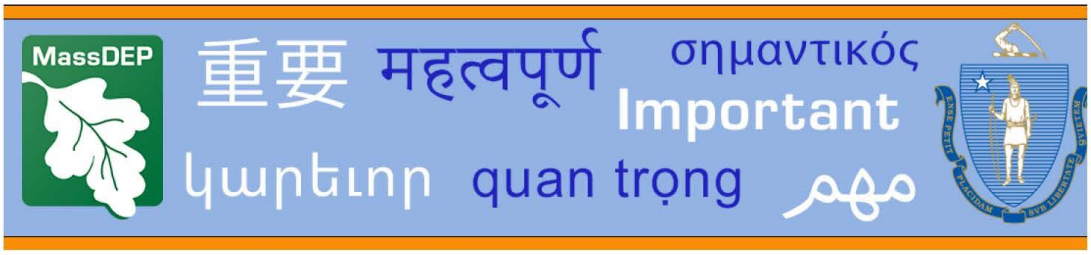
- Findings of Fact in Support of the Water Management Act Permit Decision; and
- Water Management Act Permit #9P-2-20-208.01 for the Town of Norfolk in the Charles River Basin.

The signature on this cover letter indicates formal issuance of the attached document. If you have any questions about these documents, please contact Madelyn Morris via email at madelyn.morris@mass.gov

Duane LeVangie, Chief
Water Management Act Program
Bureau of Water Resources

Enclosures
Ecc: Julia Blatt, MassRivers Alliance,
Jennifer Pederson, Massachusetts Water Works Association
Zeus Smith Charles River Watershed Association

https://massgov.sharepoint.com/:f:/r/sites/DEP-BWR/DWPArchive/CERO/Norfolk-2208000- Final Permit Review--05-9-2024



Communication for Non-English-Speaking Parties

This document is important and should be translated immediately.

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Español Spanish

Este documento es importante y debe ser traducido inmediatamente. Si necesita traducir este documento, póngase en contacto con el Director de Justicia Ambiental de MassDEP (*MassDEP's Director of Environmental Justice*) en el número de teléfono que figura más abajo.

Português Portuguese

Este documento é importante e deve ser traduzido imediatamente. Se você precisar traduzir este documento, entre em contato com o Diretor de Justiça Ambiental do MassDEP no número de telefone listado abaixo.

繁體中文 Chinese Traditional

本文檔很重要，需要即刻進行翻譯。
如需對本文檔進行翻譯，請透過如下列示電話號碼與 MassDEP 的環境司法總監聯絡。

简体中文 Chinese Simplified

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Ayisyen Kreyòl Haitian Creole

Dokiman sa a enpòtan epi yo ta dwe tradui l imedyatman. Si w bezwen tradui dokiman sa a, tanpri kontakte Direktè. Jistis Anviwònmantal MassDEP a nan nimewo telefòn ki endike anba a.

Việt Vietnamese

Tài liệu này và quan trọng và phải được dịch ngay. Nếu quý vị cần bản dịch của tài liệu này, vui lòng liên hệ với Giám Đốc Phòng Công Lý Môi Trường của MassDEP theo số điện thoại được liệt kê bên dưới.

ប្រទេសកម្ពុជា Khmer/Cambodian

ឯកសារនេះមានសារៈសំខាន់
ហើយគប្បីតួរត្រូវបានបកប្រែភ្លាមៗ។
ប្រសិនបើអ្នកត្រូវការអោយឯកសារនេះបកប្រែ
សូមទាក់ទងនាយកផ្នែកយុត្តិធម៌បរិស្ថានរបស់
MassDEPតាមរយៈលេខទូរស័ព្ទដែលបានរាយដូចខាងក្រោម។

Kriolu Kabuverdianu Cape Verdean

Es dokumentu sta important i tenki ser tradusidu immediatamenti. Se nho ta presisa ke es dokumentu sta tradisidu, por favor kontata O Diretor di Justisia di Environman di DEP ku es numero di telifoni menxionadu di baixo.

Contact Deneen Simpson 857-406-0738
Massachusetts Department of Environmental Protection
100 Cambridge Street 9th Floor Boston, MA 02114
TTY# MassRelay Service 1-800-439-2370 • https://www.mass.gov/environmental-justice
(Version revised 8.2.2023) 310 CMR 1.03(5)(a)

Русский Russian

Это чрезвычайно важный документ, и он должен быть немедленно переведен. Если вам нужен перевод этого документа, обратитесь к директору Департамента экологического правосудия MassDEP (MassDEP's Director of Environmental Justice) по телефону, указанному ниже.

العربية Arabic

هذه الوثيقة مهمة وتجب ترجمتها على الفور.

إذا كنت بحاجة إلى ترجمة هذه الوثيقة، فيرجى الاتصال بمدير العدالة البيئية فيMassDEP على رقم الهاتف المذكور أدناه.

한국어 Korean

이 문서는 중대하므로 즉시 번역되어야 합니다.
본 문서 번역이 필요하신 경우, 매사추세츠 환경보호부의 "환경정의" 담당자 분께 문의하십시오. 전화번호는 아래와 같습니다.

հայերեն Armenian

Այս փաստաթուղթը կարևոր է, և պետք է անհապաղ թարգմանել այն:
Եթե Ձեզ անհրաժեշտ է թարգմանել այս փաստաթուղթը, դիմեք Մասաչուսեթսի շրջակա միջավայրի պահպանության նախարարության (MassDEP) Բնապահպանական հարցերով արդարադատության ղեկավարին (Director of Environmental Justice)՝ ստորև նշված հեռախոսահամարով

فارسی Farsi Persian

این نوشتار بسیار مهمی است و باید فوراً ترجمه شود.
اگر نیاز به ترجمه این نوشتار دارید لطفاً با مدیر عدالت محیط زیستی MassDEP در شماره تلفن ذکر شده زیر تماس بگیرید.

Français French

Ce document est important et doit être traduit immédiatement. Si vous avez besoin d'une traduction de ce document, veuillez contacter le directeur de la justice environnementale du MassDEP au numéro de téléphone indiqué ci-dessous.

Deutsch German

Dieses Dokument ist wichtig und muss sofort übersetzt werden. Wenn Sie eine Übersetzung dieses Dokuments benötigen, wenden Sie sich bitte an MassDEP's Director of Environmental Justice *(Direktor für Umweltgerechtigkeit in Massachusetts)* unter der unten angegebenen Telefonnummer.

Ελληνική Greek

Το έγγραφο αυτό είναι πολύ σημαντικό και πρέπει να μεταφραστεί αμέσως. Αν χρειάζεστε μετάφραση του εγγράφου αυτού, παρακαλώ επικοινωνήστε με τον Διευθυντή του Τμήματος Περιβαλλοντικής Δικαιοσύνης της Μασαχουσέτης στον αριθμό τηλεφώνου που αναγράφεται παρακάτω

Italiano Italian

Questo documento è importante e deve essere tradotto immediatamente. Se hai bisogno di tradurre questo documento, contatta il Direttore della Giustizia Ambientale di MassDEP al numero di telefono sotto indicato.

Język Polski Polish

Ten dokument jest ważny i powinien zostać niezwłocznie przetłumaczony. Jeśli potrzebne jest tłumaczenie tego dokumentu, należy skontaktować się z dyrektorem ds. sprawiedliwości środowiskowej MassDEP pod numerem telefonu podanym poniżej.

हिन्दी Hindi

यह दस्तावेज महत्वपूर्ण है और इसका अनुवाद तुरंत किया जाना चाहिए। यदि आपको इस दस्तावेज का अनुवाद कराने की जरूरत है, तो कृपया नीचे दिए गए टेलीफोन नंबर पर MassDEP के पर्यावरणीय न्याय निदेशक से संपर्क करें।

Contact Deneen Simpson 857-406-0738
Massachusetts Department of Environmental Protection
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Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street 9th Floor Boston, MA 02114 • 617-292-5500

Finding of Fact in Support of Permit Issuance
Water Management Permit # 9P-2-20-208.01
TOWN OF NORFOLK

The Department makes the following Findings of Fact in support of the attached Modified WMA Permit and includes herewith its reasons for issuing the Modified WMA Permit and for conditions of approval imposed, as required by M.G.L. c. 21G, § 11, and 310 CMR 36.00. The Modified WMA Permit supersedes the 2019 Amended WMA Permit. The Modified WMA Permit is being issued since such action is necessary for the promotion of the purposes of M.G.L. c. 21G. The Department may amend, suspend, or terminate the Modified WMA Permit, after notice and hearing, in accordance with the provisions of 310 CMR 36.29(1).

The Water Management Act (M.G.L. c. 21G)

The Water Management Act (Act) requires the Department to issue permits that balance a variety of factors including without limitation:

- Impact of the withdrawal on other water sources;
- Water available within the safe yield of the water source;
- Reasonable protection of existing water uses, land values, investments and enterprises;
- Proposed use of the water and other existing or projected uses of water from the water source;
- Municipal and Massachusetts Water Resources Commission (WRC) water resource management plans;
- Reasonable conservation consistent with efficient water use;
- Reasonable protection of public drinking water supplies, water quality, wastewater; treatment capacity, waste assimilation capacity, groundwater recharge areas, navigation, hydropower resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, flood plains; and
- Reasonable economic development and job creation.

Water Management Regulation Revisions

In 2010, the Executive Office of Energy and Environmental Affairs (EEA) convened the Sustainable Water Management Initiative (SWMI) for the purpose of incorporating the best available science into the management of the Commonwealth's water resources. SWMI was a multi-year process that included a wide range of stakeholders and support from the Departments of Environmental Protection, Fish and Game, and Conservation and Recreation. In November

2012, the *Massachusetts Sustainable Water Management Initiative Framework Summary* (http://www.mass.gov/eea/docs/eea/water/swmi-framework-nov-2012.pdf) was released.

On November 7, 2014, the Department adopted revised Water Management Regulations at 310 CMR 36.00 that incorporate elements of the SWMI framework and the Water Conservation Standards adopted by the Massachusetts WRC. The regulations reflect a carefully developed balance to protect the health of Massachusetts' water bodies while meeting the needs of businesses and communities for water.

Without limitation, the Department has incorporated the following into Water Management permitting:

- Safe yield determinations for the major river basins based on a new methodology developed through SWMI (see the Safe Yield in the Charles River Basin section of this document). For more information on the Safe Yield methodology, go to the November 28, 2012 SWMI Framework Summary and Appendices;
- Water needs forecasts for public water suppliers developed by the Department of Conservation and Recreation, Office of Water Resources (DCR), using a methodology reviewed and approved by the Massachusetts WRC;
- Water supply protection measures for public water supplies including Zone II delineations for groundwater sources, and wellhead and surface water protection measures as required by Massachusetts Drinking Water Regulations (310 CMR 22.00);
- Water conservation and performance standards reviewed and approved by the WRC in July 2018 (Details on the 2018 Massachusetts Water Conservation Standards | Mass.gov); including without limitation:
    - performance standard of 65 residential gallons per capita day or less;
    - performance standard of 10% or less unaccounted-for-water;
    - seasonal limits on nonessential outdoor water use;
    - a water conservation program that includes leak detection and repair, full metering of the system and proper maintenance of the meters, periodic review of pricing, and education and outreach to residents and industrial and commercial water users; and
- Environmental protections developed through SWMI, including without limitation;
    - protection for coldwater fishery resources;
    - minimization of withdrawal impacts in areas stressed by groundwater use; and
    - mitigation of the impacts of increasing withdrawals.

Safe Yield in the Charles River Basin

This Renewed WMA Permit is being issued under the safe yield methodology adopted by the Department on November 7, 2014, and described in the regulations at 310 CMR 36.13. As of the date of issuance of this permit, the safe yield for the Charles River Basin is 65.2 MGD, and total registered and permitted withdrawals are 44.12 MGD. The maximum withdrawals authorized in this permit, and all other permits currently under review by the Department within the Charles River Basin, will be within the safe yield and may be further conditioned as outlined in the regulations.

Norfolk's Withdrawal History

Norfolk is registered for an annual average daily withdrawal volume of 0.17 million gallons per day (MGD) from Gold Street GP Well 1 (01G) in the Charles River Basin. In 1990, MassDEP issued Norfolk a Water Management Act permit (the 1990 WMA Permit) authorizing the Town to use a new source Spruce Street GP Well 2 (02G) and to increase its total authorized withdrawal.

In 2008, the Department of Conservation and Recreation's Office of Water Resources (DCR) issued a Water Needs Forecast (WNF) for Norfolk. DCR developed two sets of projections, the first (the 65/10 WNF) assumes that Norfolk would meet water the WMA performance standard of 65 residential gallons per capita day (RGPCD) and 10% unaccounted-for water (UAW), and the second (the current trends WNF) assumes that current trends for RGPCD and UAW would continue. DCR's WNF is set forth in Table 1 below.

Table 1: Norfolk 's Water Needs Forecasts (MGD)

Permit Period	65/10 WNF	The Current Trends WNF
2013-2018	0.50	0.53
2018-2023	0.53	0.56
2023-2028	0.57	0.60
After 2028	0.60	0.64
With 5 % Buffer	+ 0.03 =0.63	+ 0.03 =0.67

In 2010, Mass DEP issued Norfolk a Water Management Permit (the 2010 WMA Permit) that renewed the 1990 WMA Permit. The withdrawal limits set forth in the 2010 WMA Permit were based on the DCR WNF[1]. As a result, the 2010 WMA Permit set Norfolk's total authorized volume at 0.53 MGD for the period beginning 3/1/2014 and ending 2/28/2019, 0.57 MGD for the period beginning 3/1/2019 and ending 2/28/2024 and at 0.60 MGD for the period beginning 3/1/2024 and ending 2/28/2029, with the ability to increase that volume up to 0.63 MGD which included the 5% buffer in the 65/10 DCR WNF.

The 2010 WMA Permit listed a new source - Gold Street GP Well 1A (03G) which would supplement Gold Street GP Well 1 (01G). The 2010 WMA Permit also acknowledged that Norfolk intended to add an additional well to supplement the Spruce Street Well 2 (02G). The 2010 WMA Permit had an expiration date of February 28, 2029.

In 2019, MassDEP issued a permit amending the 2010 WMA Permit: the 2019 Amended WMA Permit. Consistent with DCR 65/10 WNF, the 2019 Amended Permit maintained the withdrawal limits set forth in the 2010 WMA Permit. Like the 2010 WMA Permit, the 2019 Amended WMA

[1] Both the 65/10 and Current Trend projections.

Permit also allowed the Town's total authorized volume to potentially be increased to 0.63 MGD to accommodate uncertainty in the DCR projections and water demand. The 2019 Amended WMA Permit added two sources not listed in the 2010 WMA Permit. Spruce Street Well 2A (04G) and the Holbrook Street Wellfield (05G).

Norfolk's Recent Water Use.

Norfolk's recent water use has been substantially below the limits set by the 2010 WMA Permit and the 2019 Amended WMA Permit. See Table 2.

Table 2: Annual Average Daily Withdrawal Volumes

Year	Annual Average Daily Withdrawal Volume
2022	0.46 MGD
2021	0.44 MGD
2020	0.45 MGD
2019	0.40 MGD
2018	0.46 MGD

The Water Management Regulations, 310 CMR 36.03, define baseline to mean the volume of water withdrawn during calendar year 2005 plus 5%, or the average annual volume withdrawn from 2003 through 2005 plus 5%, whichever is greater provided that:

1. baseline cannot be less than a permittee's registered volume;
2. baseline cannot be greater than the permittee's authorized volume for 2005; and
3. if, during the period from 2003 to 2005, the permittee's withdrawals from the water source were interrupted due to contamination of the source or construction of a treatment plant, the Department will use best available data to establish a baseline volume from the water source.

Under this definition, Norfolk's baseline is 0.52 MGD, the Town's 2003-2005 average withdrawal rate plus 5%. Norfolk's recent water use is also significantly below its baseline. See Table 2.

Expiration Date

The expiration date of the Town's 2019 Amended WMA Permit is February 28, 2033. Going forward, the expiration date of all permits in the Charles River Basin including the Modified WMA Permit is June 5, 2034 in accordance with the staggered permitting schedule set forth in the regulations.

Findings of Fact for Permit Conditions in Norfolk's Modified Water Management Act Permit

The following Findings of Fact for the special conditions included in the permit generally describe the rationale and background for each special condition in the permit. This summary of permit special conditions is not intended to, and should not be construed as, modifying any of the permit special conditions. In the event of any ambiguity between this summary and the actual permit conditions, the permit language shall control.

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volumes. Permittees whose total authorized withdrawals exceed their baseline withdrawal must prepare a mitigation plan. The Water Management Regulations set out the requirements for a mitigation plan. The Water Management Regulations, 310 CMR 26.22(6)(a) require that direct mitigation options be evaluated before indirect mitigation activities. Direct mitigation activities include surface water releases, sewer system inflow/ infiltration (I/I) improvements, stormwater recharge and the retirement of existing allocation volumes.

Special Condition 1 of the 2019 Amended WMA Permit gives the Town a maximum total authorized volume of up to 0.63 MGD, 0.11 MGD above its baseline,[2] A total authorized volume of 0.63 MGD would require Norfolk to provide 16,000 gallons per day of mitigation. See Table 3.

Table 3: Norfolk 's Mitigation Volume Calculation Assuming Maximum Total Authorized Charles River Basin Volumes of 0.63 MGD
Total Maximum Authorized Charles River Basin Volume above Baseline = 0.11 MGD • Total Authorized Charles River Basin Volume above Baseline: 0.63 – 0.52 = 0.11 MGD
Adjustment for Wastewater Discharge to Local Groundwater = 0.09 MGD • 100% of increased withdrawals are delivered to areas with on-site septic systems: 0.11 MGD x 1.00 (100%) = 0.11 MGD • 85% of water delivered to areas with on-site septic systems returns to groundwater: 0.11 MGD x 0.85 (85%) = 0.09 MGD

[2] Special Condition 1 of the 2019 Amended WMA Permit gives Norfolk a permitted annual average daily withdrawal volume of 0.40 MGD and a total authorized annual average daily withdrawal volume of 0.57 MGD from March 1, 2019 - February 28, 2024, and a withdrawal volume of 0.43 MGD and a total authorized annual average daily withdrawal volume of 0.60 MGD from March 1, 2024 - February 28, 2033. Taking into consideration the 5% buffer included in the DCR WNF, the 2019 WMA Permit expressly provides that with MassDEP's specific advanced written approval Norfolk's total authorized annual average daily withdrawal volume may be increased up to 0.63 MGD prior to March 1, 2028, if Norfolk complies with the requirements set forth in the permit pertaining to residential gallons per capita day (RGPCD), Unaccounted for Water (UAW) or functional equivalence requirements, Seasonal Limits on Nonessential Outdoor Water Use, and Water Conservation.

Amount to be Mitigated after Adjustment for Wastewater Discharge to Local Groundwater 0.016 MGD • Total authorized volume above baseline (0.11 MGD) – adjustment for wastewater discharge to local groundwater (0.09 MGD) = 0.016 MGD or 16,000 gpd

Norfolk has submitted documentation that it has increased stormwater recharge by 13,306 gallons per day, (gpd) a little more than is needed to provide direct mitigation for a total authorized volume of 0.61 MGD.[3] See Table 4.

Table 4: Norfolk 's Mitigation Volume Calculation for a Maximum Total Authorized Charles River Basin Volume of 0.61 MGD
Total Maximum Authorized Charles River Basin Volume above Baseline = 0.09 MGD • Total Authorized Charles River Basin Volume above Baseline: 0.61 – 0.52 = 0.09 MGD
Adjustment for Wastewater Discharge to Local Groundwater = 0.077 MGD • 100% of increased withdrawals are delivered to areas with on-site septic systems: 0.09 MGD x 1.00 (100%) = 0.09 MGD • 85% of water delivered to areas with on-site septic systems returns to groundwater: 0.09 MGD x 0.85 (85%) = 0.077 MGD
Amount to be Mitigated after Adjustment for Wastewater Discharge to Local Groundwater 0.013 MGD • Total authorized volume above baseline (0.09 MGD) – adjustment for wastewater discharge to local groundwater (0.077 MGD) = 0.013 MGD or 13,000 gpd.

As stated earlier, Norfolk's recent water use has been substantially below the limits set forth in the 2010 WMA Permit, the 2019 Amended WMA Permit and the Town's baseline volume. In these circumstances, Special Condition 1 of the Modified WMA Permit gives Norfolk a total authorized volume of 0.61 MGD, the volume above baseline for which the Town has provided direct mitigation. Consistent with the DCR 65/10 WNF, Special Condition 1 of the Modified WMA Permit allows Norfolk to submit an application for a permit amendment increasing its total authorized volume up to 0.63 MGD provided the Town is in compliance with the requirements set forth in the permit pertaining to residential gallons per capita day (RGPCD), Unaccounted for Water (UAW) or functional equivalence requirements, Seasonal Limits on Nonessential Outdoor Water Use, Water Conservation, and minimization of impacts to groundwater depleted subbasins and provided further that Norfolk submits a plan to mitigate the additional volume requested above 0.61 MGD and a plan to implement additional conservation measures that go above the standard measures that are not being implemented as of the effective date of the Modified WMA Permit. Special Condition 1 requires Norfolk to evaluate direct mitigation measures before it relies on indirect mitigation activities in its mitigation plan and to implement the mitigation plan and the additional conservation measures approved by MassDEP before it withdraws more than 0.61 MGD. See also Special Conditions 9 and 10 of the Modified WMA Permit.

[3] This documentation is set forth in Appendix C.

Special Condition 2, Maximum Authorized Daily Withdrawal Volumes from Each Withdrawal Point.
Special Condition 2 of the 2019 Amended WMA Permit and the Modified WMA Permit sets out the maximum authorized daily withdrawal volume for each of Norfolk's wells. In its 2021 Annual Statistical Report (ASR), Norfolk reported that it exceeded the combined rate for Gold Street GP Well 1 (01G) and Gold Street GP Well 1A (03G). On April 20, 2022, MassDEP approved the activation of the Holbrook Wellfield (05G) and the Holbrook Wellfield Pump Station Treatment Plant. Norfolk believes that the addition of the Holbrook Street Wellfield will allow it to meet the Town's demand for water without exceeding the maximum approved pumping rate for any of its wells.

Special Condition 3, Groundwater Protection.
Special Condition 3 of the 2019 Amended WMA Permit requires Norfolk to comply with the groundwater protection requirements of 310 CMR 22.21(e). Norfolk has adopted groundwater supply protection measures to protect all of the Zone IIs located within the Town including the Zone II of the Holbrook Wellfield. Millis has not yet amended its groundwater protection district to include that portion of the Holbrook Wellfield Zone II that extends into Millis. Special Condition 3 of the Modified WMA Permit requires Norfolk to continue to exercise best efforts to have Millis amend its groundwater protection district map to include the portion of the Zone II of the Holbrook Wellfield that extends into Millis.

Special Condition 4, Performance Standard for Residential Gallons Per Capita Day Water Use (RGPCD).
Special Condition 4 of the Modified WMA Permit requires Norfolk to meet the performance standard of 65 residential gallons per capita day (RGPCD). Norfolk has been in compliance with the RGPCD performance standard over the last five years.

Special Condition 5, Performance Standard for Unaccounted for Water (UAW).
Special Condition 5 of the Modified WMA Permit requires Norfolk to meet the 10% performance standard for UAW two out of every three years. Special Condition 5 of the Modified WMA Permit provides that if Norfolk fails to meet this requirement, the Town shall meet the Functional Equivalence requirements based on the AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices as outlined in Appendix B. Since 2019, Norfolk has been in compliance with the 10% UAW Performance Standard.

Special Condition 6, Seasonal Limits on Nonessential Outdoor Water Use.
Special Condition 8 of the 2019 Amended WMA Permit requires Norfolk to impose seasonal limits on nonessential outdoor water use. Special Condition 6 of the Modified WMA Permit updates those restrictions. The limitations on seasonal nonessential outdoor water in Special Condition 6 are based on:

- The August net groundwater depletion (NGD)[4] where the permittee's groundwater sources are located;
- The permittee's compliance with the RGPCD performance standard during the preceding year;
- The permittee's choice to implement restrictions either continuously throughout the irrigation season, or only when streamflow falls below trigger levels at an assigned USGS local stream gage; and
- The Modified WMA Permit establishes a 7-day Low Flow value that triggers more stringent restrictions on non-essential water use.

Each year, Norfolk may choose one of two options for implementing nonessential outdoor watering restrictions:

1. Calendar triggered restrictions: Restrictions shall be implemented from May 1st through September 30th. Many public water suppliers will find this option easier to implement and enforce than the streamflow triggered approach.

2. Streamflow triggered restrictions: Restrictions shall be implemented at those times when streamflow falls below designated flow triggers measured at an assigned web-based, real-time U.S. Geologic Survey (USGS) stream gage from May 1st through September 30th. At a minimum, restrictions shall commence when streamflow falls below the trigger for three consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for seven consecutive days. The streamflow triggers are based on flow levels that are protective of habitat for fish spawning during the spring and for fish rearing and growth during the summer.

If Norfolk selects the streamflow approach, it has been assigned the USGS local stream gage of #01103500-Charles River at Dover, MA. The local gage streamflow triggers at this site are 179 cubic feet per second (cfs) for May and June and 62 cfs for July, August, and September. Should the reliability of flow measures at the Charles River gage be so impaired as to question its accuracy, Norfolk may request, subject to MassDEP's review and approval, to transfer to another gage to trigger restrictions. MassDEP reserves the right to require use of a different gage.

The 7-Day Low-flow Trigger, at which restrictions increase is incorporated into both Calendar and Streamflow Triggered restrictions in order to provide additional protection.

[4] The Water Management Regulations, 310 CMR 36.03, define August net groundwater depletion to mean the unimpeded median flow for August minus 2000-2004 groundwater withdrawals plus 2000-2004 groundwater returns described by U.S. Geological Survey in *Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover and Water Quality for Massachusetts Stream Basins.*

to streamflows when flows are very low. The 7-day low-flow trigger is based on the median value of the annual 7-day low flows for the period of record. The 7-day low-flow trigger for the Charles River at Dover, MA gage is 30 cfs.

Norfolk may choose to implement limits on nonessential outdoor water use that are stricter than those required by the Modified WMA Permit. This permit condition does not confer enforcement authority on the permittee.

Special Condition 6 of the Modified WMA Permit requires Norfolk to update its water restriction bylaw to align with the seasonal restrictions on nonessential outdoor water use required herein as soon as possible but no later than May 1, 2024.[5]

Special Condition 7, General Water Conservation Requirements.
Special Condition 7 of the Modified WMA Permit incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the Water Resources Commission (WRC) in July 2018. (Details on the 2018 Massachusetts Water Conservation Standards | Mass.gov).

Special Condition 8, Requirement to Report Raw and Finished Water Volumes.
Special Condition 8 of the Modified WMA Permit ensures that the information necessary to evaluate compliance with the conditions in this permit is accurately reported.

Special Condition 9, Minimization of Impacts to Groundwater Depleted Subbasins.
Water Management Act Permittees with groundwater sources in subbasins having a net groundwater depletion (August NGD) of 25% or greater are required to develop a plan to minimize the impact of their withdrawals. All of Norfolk's groundwater sources are located in subbasins with an August NGD greater than 25%. The Gold Street GP Well 1 (01G), Gold Street GP Well 1A (03G), and the Holbrook Wellfield (05G) are located in Subbasin 21133, a subbasin with an August NGD of 46.1%. Spruce Street GP Well 1 (02G) and Spruce Street GP Well 1A (04G) are located in Subbasin 21166, a subbasin with an August NGD of 112.3%. Special Condition 9 of the Modified WMA Permit requires Norfolk to minimize the impact of its withdrawals on groundwater depleted subbasins.

MassDEP and Norfolk have determined that Town has few minimization options. Norfolk has no surface water impoundments. MassDEP and Norfolk have also determined that use of its interconnections with Franklin and Wrentham are not a feasible minimization option at this time. Franklin's sources are located in subbasins with a Groundwater Category (GWC) and Biological Category (BC) of 5 and that have an August NGD greater than 25%. Wrentham's sources are located in subbasins that are GWC and BC 4 or 5. Norfolk is currently implementing water conservation measures that go beyond the standard measures. These measures include use of advanced metering infrastructure that allows the Town to read meters remotely, a ban on the use

[5] Over the last few years Norfolk has imposed a total ban on outdoor watering. Norfolk has informed the Department that it will continue to impose this total ban until it adopts a bylaw to align with the restrictions required by Special Condition 6.

of automatic sprinklers that are connected to the Norfolk public water system, increasing block rates, annual reports to customers on the history of their water use, and a stormwater bylaw that requires infiltration of stormwater. Special Condition 9 of the Modified WMA Permit requires Norfolk to continue to implement these measures.

Special Condition 10, Mitigation.

Water Management Act Permittees whose total authorized volume exceeds their baseline volume are required to develop and implement a plan to mitigate the impact of their withdrawals above the baseline volume, As stated earlier, Norfolk's baseline is 0.52 MGD, the Town's 2003-2005 average withdrawal rate plus 5%. Special Condition 1 of the Modified WMA Permit limits the volume that Norfolk is permitted to withdraw in excess of its baseline to the volume that the Town has already mitigated through stormwater recharge projects 0.61 MGD.[6] No further mitigation work is required at this time.

Coldwater Fishery Resources (CFRs).

Permittees with withdrawals that impact streamflow at a CFR (identified on basin maps[7]) must evaluate reducing impacts to CFRs through feasible optimization. Norfolk's existing wells do not appear to impact any streams identified as a CFR at this time. Norfolk's Modified WMA Permit does not require the Town to perform a Coldwater Fishery Desktop Optimization evaluation.

Response to Comments

The Draft Modified WMA Permit was posted in the Massachusetts Environmental Monitor for public comment from November 22, 2023 to December 22, 2023. During the public comment period, MassDEP received comments from the Massachusetts Rivers Alliance (MassRivers) and the Charles River Watershed Association (CRWA), MassDEP responds to those comments as follows.

Minimization.

Water Management Act Permittees with groundwater sources in subbasins having a net groundwater depletion (August NGD) of 25% or greater are required to minimize the impact of their withdrawals. Because all of Norfolk's groundwater sources are in subbasins with an August NGD greater than 25%, the Modified WMA Permit requires that Norfolk satisfy this requirement. More specifically, the Modified WMA Permit requires Norfolk to continue to

[6] See discussion of Special Condition 1 in this Findings of Fact and Appendix C.

[7] Subbasins used for WMA permitting are the 1,395 subbasins delineated by the U.S. Geological Survey in *Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover, and Water Quality for Massachusetts Stream Basins* (Weiskel *et al.*, 2010, USGS SIR 2009-5272).

implement water conservation measures that go beyond the standard measures including advanced metering infrastructure that allows the Town to read meters remotely, a ban on the use of automatic sprinklers that are connected to the Norfolk public water system, increasing block rates, annual reports to customers on the history of their water use, and a stormwater bylaw that requires infiltration of stormwater.

In their comments, MassRivers and CWRA stated their position that the minimization requirements set forth in the Modified WMA Permit were insufficient. As noted in the Findings of Fact in support of the Modified WMA Permit, MassDEP did a thorough evaluation before it determined what minimization requirements to include in the Modified WMA Permit. MassDEP determined that use of the Town's interconnections with Franklin and Wrentham would not be an environmentally beneficial option at this time. MassDEP recognized that the Town had no surface water impoundments from which it could release water into the groundwater depleted subbasins. In these circumstances, MassDEP concluded that the Town lacked feasible minimization options other than the aforementioned additional water conservation measure that go beyond the standard measures. In reaching this conclusion, MassDEP was aware that stormwater recharge has been increased by 13,306 gallons per day, (gpd) since 2005 and that similar increases in stormwater recharge may occur in the future, since the Town is required to continue implementation of the stormwater infiltration provisions of its local stormwater bylaw.

Total Authorized Volume

Norfolk's total authorized annual average daily withdrawal volume under the Modified WMA Permit and its Registration is 0.57 Million Gallons Per Day (MGD) until June 5, 2029 and 0.61 MGD until June 5, 2034.

In its comments, MassRivers expresses its position that this total authorized volume is too high and should be reduced. MassRivers advocates that position although the Modified WMA Permit:

> (1) reduces the total authorized from the 0.63 MGD resulting from the 2019 Amended WMA Permit and the Town's Registration; and
> (2) is below the 0.63 MGD Water Needs Forecast volume prepared by the Department of Conservation and Recreations.[8]

MassRivers wants the total authorized volume to be reduced, because it fears that Norfolk's "**water use will become more inefficient over time**."

MassDEP has determined that excessive water use is particularly unlikely in Norfolk since as stated earlier, the Town is required to implement additional water conservation measures that go beyond the standard measures. Moreover, recent history suggests that there is little reason to

[8] In its comments, CRWA express support for MassDEP's approach, i.e. its effort "to – wherever possible – limit the permittee's authorized withdrawals to their baseline allocations except where mitigation has already been accomplished or there is a well-established need for additional water "

believe that the residents of Norfolk will suddenly begin to use excessive amounts of water unless the total authorized volume is reduced. As MassRivers correctly points out, residential water use in Norfolk has been reduced substantially more than required to meet the Performance Standard for Residential Gallons Per Calendar Day (RGPCD) of 65 gallon. MassRivers also notes that Norfolk has been in compliance with the 10% Performance Standard for UAW since 2019.

Given Norfolk's exemplary record, it appears MassRivers is attempting to use the Modified WMA Permit as a backdoor way to hold "**permittees to the highest efficiency measures possible.**"[9] Such a general policy change goes beyond the scope of the individual permit at issue here. Indeed, there are good reason reasons to reject MassRivers' suggestion in this case. It is possible that reducing Norfolk's total authorized volume as advocated by MassRivers may have the unintended consequence of deterring other permittees from emulating Norfolk's excellent water conservation record.

Safe Yield

In its comments, CRWA also raises a general policy issue that goes beyond the individual permitting decision for Norfolk, the methodology for calculating safe yield set forth in the Water Management Regulations. It is not appropriate for MassDEP to address CRWA's general critique of this methodology in the context of a response to comments on an individual permit.

Maximum Authorized Daily Withdrawal Volumes

In their comments, both CWRA and MassRivers noted that Norfolk has exceeded the combined rate for Gold Street GP Well 1 (01G) and Gold Street GP Well 1A (03G) and requested that MassDEP address this exceedance. As stated in the Findings of Fact, it is expected that problem may be alleviated by the addition of the Holbrook Street Wellfield. MassDEP will review the Town's Annual Statistical Reports to determine whether these exceedances continue to be problem and if so, will require the Town to implement corrective action.

[9] In its comments, CRWA suggests that Norfolk be required to implement other water conservation measures that go beyond the standard measures such as the use of rain barrels, cisterns, and moisture sensors.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street 9th Floor Boston, MA 02114 • 617-292-5500

WATER WITHDRAWAL PERMIT
MGL c 21G

This permit is issued pursuant to the Massachusetts Water Management Act for the sole purpose of authorizing the withdrawal of a volume of water as stated below and subject to the following special and general conditions. This permit conveys no right in or to any property beyond the right to withdraw the volume of water for which it is issued.

PERMIT NUMBER: 9P-2-20-208.01 **RIVER BASIN**: Charles

PERMITTEE: Town of Norfolk
One Liberty Lane
Norfolk, MA 020566

EFFECTIVE DATE: May 9, 2024

PERMIT EXPIRATION DATE: June 5, 2034

NUMBER OF WITHDRAWAL POINTS:

Groundwater: 5

USE: Public Water Supply

DAYS OF OPERATION: 365

SOURCES

Table 1: Withdrawal Point Identification

Source Name	PWS Source ID Code
Gold Street GP Well 1	2208000-01G
Spruce Street GP Well 2	2208000-02G
Gold Street GP Well 1A	2208000-3G
Spruce Street GP Well 2A	2208000-4G
Holbrook Wellfield	2208000-5G

SPECIAL PERMIT CONDITIONS

Special Condition 1: Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Town of Norfolk to withdraw water from the Charles River Basin at the rate described below in Table 2. This permitted volume is in addition to the 0.17 MGD that the Town is authorized to withdraw from its registered sources in the Charles River Basin under WMA Registration #2-20-208.01. The permitted volume is expressed both as an annual average daily withdrawal rate, MGD, and as a total annual withdrawal volume, million gallons per year (MGY), for each permit period over the term of this permit.

Table 2: Maximum Authorized Annual Withdrawal Volumes

Permit Periods	Total Raw Water Withdrawal Volumes*			
	Permit*		Permit + Registration*	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
5/9/2024 to 6/5/2029	0.40	146.00	0.40+0.17=0.57	208.05
6/6/2029 to 6/5/2034	0.44*	160.60	0.438+0.17=0.61*	222.65

*Norfolk's withdrawals are limited to 0.61 MGD until such time as Norfolk reevaluates its direct mitigation options as outlined in this Special Condition and receives Department approval on a permit amendment to increase its withdrawals up to 0.63 MGD based on additional approval of direct mitigation volumes or approval to increase based on indirect mitigation credits.

Norfolk may with a permit amendment increase its permitted volume to no more than 0.46 MGD and its total authorized volume to no more than 0.63 MGD, provided Norfolk is in compliance with the provisions of this permit pertaining to: the performance standards for residential gallons per capita day (RGPCD) and Unaccounted for Water (UAW) or functional equivalence requirements, water conservation, seasonal restrictions on non-essential outdoor water use and minimization of impacts to groundwater depleted subbasins. Any such permit amendment must include a plan that revaluates direct mitigation options before considering indirect mitigation activities and that mitigates the additional volume requested and a proposal to implement additional water conservation measures that go beyond the standard measures and that are not being implemented as of the effective date of the Modified WMA Permit. Norfolk must implement the mitigation plan and additional conservation measures approved by MassDEP before it withdraws more than 0.61 MGD.

Special Condition 2: Maximum Authorized Daily Withdrawals from Each Withdrawal Point

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volumes listed below in Table without specific advance written approval from MassDEP. The authorized maximum daily volume is the approved rate of each source based on DEP-approved Zone II delineations.

Table 3: Maximum Authorized Daily Withdrawal Volume

Source and (source code)	Maximum Approved Withdrawal
Gold Street GP Well 1 (2208000-01G)	0.432 MGD (300 gpm)*
Spruce Street GP Well 2 (2208000-02G)	0.720 MGD (500 gpm)**
Gold Street GP Well 1A(2208000-03G)	0.432 MGD (300 gpm) *
Spruce Street GP Well 2A (2208000-04G)	0.327 MGD (227 gpm)**
Holbrook Wellfield (2208000-05G)	0.400 MGD

***** The combined maximum daily rate for Gold Street GP Well 1 and Gold Street GP Well 1A is 0.432 MGD.

** The Spruce Street Wells have a combined maximum daily rate of 0.720 MGD. Spruce Street GP Well 2A is further limited to a maximum authorized daily rate of 0.327 MGD based on the pumping test performance.

Special Condition 3: Groundwater Protection

The Gold Street Wells and the Spruce Street Wells meet the requirements of 310 CMR 22.21(2). Norfolk shall continue to exercise best efforts to have the Town of Millis amend its groundwater protection district map to include the portion of the Zone II of the Holbrook Wellfield that extends into Millis.

Special Condition 4: Performance Standard for Residential Gallons Per Capita Day Water Use

The Town's performance standard for residential gallons per capita day (RGPCD) is 65 gallons. The Town is required to report its RGPCD water use annually in its Annual Statistical Report (ASR) and document compliance with this performance standard in its ASR. The Town shall report its RGPCD and the calculations to derive that figure as part of its ASR including without limitation the source of the data used to establish the service population and the year in which the data was developed. See Appendix A for additional information on the requirements if the performance standard for RGPCD is not met.

Special Condition 5: Performance Standard for Unaccounted for Water

The Town's Performance Standard for Unaccounted for Water (UAW) is 10% or less of overall water withdrawal for two of the most recent three years throughout the permit period. If the Town does not meet this standard, it shall be in compliance with the Functional Equivalence Requirements based on the AWWA IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices as outlined in Appendix B.

The Town is required to report its UAW in its ASR so as to document compliance with this performance standard. The Town's ASR shall include the calculation to derive that figure including without limitation the source of data used, the methodology for calculating UAW and any assumptions used in making the calculation.

Nothing in this permit shall prevent a Permittee who meets the 10% performance standard from developing and implementing a water loss control program following the AWWA M36 Water Audit and Loss Control Programs. Permittees implementing a water loss control program based on AWWA M36 annual water audits and guidance shall continue to report UAW annually as required in the ASRs for public water suppliers.

Special Condition 6: Seasonal Limits on Nonessential Outdoor Water Use

The Town shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in Table 4 below. The Town shall be responsible for tracking steamflow gages and drought advisories and recording and reporting when restrictions are implemented if triggered restrictions are implemented. See *Instructions for Accessing U.S. Geologic Survey Groundwater Level and Massachusetts Drought Advisory Website Information.* The Town shall also document compliance with the seasonal limits on nonessential outdoor water use annually in its ASR and indicate whether it anticipates implementing calendar triggered restrictions or USGS monitoring well triggered restrictions during the next year.

Restricted Nonessential Outdoor Water Uses

Nonessential outdoor water uses that are subject to mandatory restrictions include**:**

- irrigation of lawns via sprinklers or automatic irrigation systems;
- filling swimming pools;
- washing of vehicles, except in a commercial car wash or as necessary for operator safety; and
- washing exterior building surfaces, parking lots, driveways, or sidewalks, except as necessary to apply surface treatments such as paint, preservatives, stucco, pavement, or cement.

The following uses may be allowed, before 9 am and after 5 pm, when mandatory restrictions are in place:

- irrigation to establish a new lawn and new plantings during the months of May and September;
- irrigation of public parks and recreational fields by means of automatic sprinklers outside the hours of 9 am to 5 pm;
- irrigation of gardens, flowers, and ornamental plants by means of a hand-held hose or drip irrigation systems; and
- irrigation of lawns by means of a hand-held hose.

Water uses NOT subject to mandatory restrictions are those required:

- for health or safety reasons;

- by regulation;
- for the production of food and fiber;
- for the maintenance of livestock; or
- to meet the core functions of a business (for example, irrigation by golf courses as necessary to maintain tees, greens, and limited fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

Public Notice of Seasonal Nonessential Outdoor Water Use Restrictions

The Town shall notify its customers of the restrictions, including a detailed description of the restrictions and penalties for violating the restrictions. Notice that restrictions have been put in place shall be filed each year with the Department within 14 days of the restriction's effective date. Filing shall be in writing on the form "Notification of Water Use Restrictions" available on MassDEP website.

TABLE 4: Restrictions for Permittees meeting the 65 RGPCD Standard for the preceding year
RGPCD ≤ 65 as reported in the ASR and accepted by MassDEP

Calendar triggered restrictions

May 1 through September 30

Nonessential outdoor water use is restricted to:

a) **two (2) days per week** before 9 am and after 5 pm; and
b) **one (1) day per week** before 9 am and after 5 pm
when USGS stream gage 01103500 Charles River at Dover, MA falls below 7-day the low-flow statistic **30 cfs** for three (3) consecutive days.

Once streamflow triggered restrictions are implemented, they shall remain in place until streamflow at the gage meets or exceeds 30 **cfs** for seven (7) consecutive days.

Streamflow triggered restrictions

Nonessential outdoor water use is restricted to:

a) **two (2) days per week** before 9 am and after 5 pm
when USGS stream gage 01103500–Charles River at Dover, MA falls below:
- May 1 – June 30: **170 cfs** for three (3) consecutive days
- July 1 – September 30: **62 cfs** for three (3) consecutive day**s**

b) **one (1) day per week** before 9 am and after 5 pm
when USGS stream gage 01103500 –Charles River at Dover, MA falls below the 7-day low-flow statistic **30 cfs** for three (3) consecutive days.

Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.

Restrictions for Permittees NOT meeting the 65 RGPCD standard for the preceding year
RGPCD > 65 as reported in the ASR and accepted by MassDEP

Calendar triggered restrictions

May 1 through September 30

Nonessential outdoor water use is restricted to **one (1) day per week** before 9 am and after 5 pm.

Streamflow triggered restrictions

Nonessential outdoor water use is restricted to **one (1) day per week** before 9 am and after 5 pm when USGS stream gage 01103500 –Charles River at Dover, MA falls below:

- May 1 – June 30: **170 cfs** for three (3) consecutive days
- July 1 – September 30: **62 cfs** for three (3) consecutive days

Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.

Instructions for Accessing Streamflow Information

If Millis chooses Streamflow Triggered Restrictions, Norfolk shall be responsible for tracking streamflows and recording and reporting to MassDEP when restrictions are implemented

Streamflow Information is available at the USGS National Water Information (NWIS) Web Interface. The USGS NWIS default shows Massachusetts streamflows in real time i.e. the most recent usually quarterly hourly, reading made at each USGS stream gage.

Seasonal Limits on Nonessential Outdoor Water Use are implemented when the mean daily streamflow falls below the designated trigger. The mean daily flow is not calculated until after midnight each day when the USGS computes the hourly data into a mean daily streamflow. As a result, permittees must use the mean daily streamflow from the proceeding day when tracking streamflows.

Mean daily streamflow gage readings are available at the USGS NWIS Web Interface at http://waterdata.jsgs.gov/ma/nwis/current/?type=flow

- Scroll down to #01103500 Charles River at Dover, MA.
- Click on the gage number.
- Scroll down to "Provisional Data Subject to Revision-Available data for this site" and click on the drop-down menu.
- Click on "Time-series Daily data" and hit GO.
- Scroll down to the "Available Parameters" box. Within the box, be sure "00060 discharge (Mean) is checked, then under "Output Format" click "Table" and hit GO.
- Scroll down to "Daily Mean Discharge, cubic feet per second" table and find the current date on the table.
- Compare the cubic feet per second (cfs) measurement shown on the table to the cfs shown under Streamflow Triggered Restrictions above.

Norfolk shall document compliance with the Seasonal Nonessential Outdoor Water Use Restrictions annually in its Annual Statistical Report (ASR) and indicate whether it anticipates implementing calendar triggered restrictions or streamflow triggered restrictions during the next calendar year.

The Town shall update its Water Restriction Bylaw to include the restrictions on seasonal outdoor water use required by Special Condition 6 and to align the bylaw with the Model Bylaw and submit a copy of that Bylaw to MassDEP as soon as possible and no later than May 1, 2024. Beginning May 1, 2024, or the date that the Town updates its Water Restriction Bylaw to include the restriction required by Special Condition 6, whichever first occurs, the Town shall commence implementation of the seasonal restrictions on outdoor water use required by Special Condition 6.

Special Condition 7: Water Conservation Requirements.

At a minimum, the Town shall implement the following conservation measures in Table 5. Compliance with the water conservation requirements shall be reported to the Department upon request, unless otherwise noted below.

Table 5: Minimum Water Conservation Requirements
Leak Detection
1. At a minimum, conduct a full leak detection survey every three years.
2. Conduct leak detection of the entire distribution system within one year whenever the percentage of UAW increases by 5% or more (for example an increase from 3% to 8%) over the percentage reported on the ASR for the prior calendar year. Within 60 days of completing the leak detection survey, submit to the Department a report detailing the survey, any leaks uncovered as a result of the survey or otherwise, dates of repair and the estimated water savings as a result of the repairs.
3. Conduct field surveys for leaks and repair programs in accordance with the AWWA Manual 36.
4. The Town shall have repair reports available for inspection by the Department. The Town shall establish a schedule for repairing leaks that is at least as stringent as the following: o Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection. o Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible. o Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway. Leaks shall be repaired in accordance with Norfolk's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. The Town shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.
Metering
1. Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2. The Town reports its system is 94.8% metered. All water distribution system users shall have properly sized service lines and meters that meet AWWA calibration and accuracy performance standards as set forth in AWWA Manual M6 – Water Meters.
3. The Town shall have an ongoing program to inspect individual service meters to ensure that all service meters accurately measure the volume of water used by its customers. The metering program shall include regular meter maintenance, including testing, calibration, repair, replacement and checks for tampering to identify and correct illegal connections. The

Table 5: Minimum Water Conservation Requirements
plan shall continue to include placement of sufficient funds in the annual budget to calibrate, repair, or replace meters as necessary.
Pricing
1. The Town shall maintain a water pricing structure that includes the full cost of operating the water supply system. The Town shall evaluate rates at a minimum every three to five years and adjust costs as needed. Full cost pricing factors all costs - operations, maintenance, capital, and indirect costs (environmental impacts, watershed protection) - into prices.
The Town shall not use decreasing block rates. Decreasing block rates which charge lower prices as water use increases during the billing period, are not allowed by M.G.L. Chapter 40 Section 39L.
Residential and Public Sector Conservation
1. The Town shall meet the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code.
2. Meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.
3. The Town shall ensure water conserving fixtures and landscaping practices are incorporated into the design of new municipal capital projects.
Industrial and Commercial Water Conservation
The Town shall ensure water conservation practices are considered in all development proposals, particularly low flow devices and water-wise landscaping practice.
Public Education and Outreach
1. The Town shall implement water conservation and education efforts designed to educate the Town's water customers on ways to conserve water. Without limitation, Norfolk's plan may include the following actions: o Include in bill stuffers and/or bills, a work sheet to enable customers to track water use and conservation efforts and estimate the dollar savings; o Public space advertising/media stories on successes (and failures); o Conservation information centers perhaps run jointly with electric or gas company; o Speakers for community organizations; o Public service announcements; radio/T.V./audio-visual presentations; o Joint advertising with hardware stores to promote conservation devices; o Use of civic and professional organization resources; o Special events such as Conservation Fairs; o Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and

Table 5: Minimum Water Conservation Requirements
○ Provide multilingual materials as needed.
2. Upon request of the Department, the Town of Norfolk shall report on its public education and outreach effort, including a summary of activities developed for specific target audiences, any events or activities sponsored to promote water conservation and copies of written materials.

Special Condition 8: Requirement to Report Raw and Finished Water Volumes

Norfolk shall report annually on its ASR the raw water volumes and finished water volumes for the entire water system. Monthly raw water volumes for individual withdrawal points shall be reported annually in the ASR.

Special Condition 9: Minimization of Impacts to Groundwater Depleted Subbasins

While the Modified WMA Permit is in effect, Norfolk shall continue to implement water conservation measures that go beyond the standard measures. At a minimum, these measures shall include use of advanced metering infrastructure that allows the Town to read meters remotely, a ban on the use of automatic sprinklers that are connected to the Norfolk public water system, increasing block rates, annual reports to customers on the history of their water use, and implementation of a stormwater bylaw that requires infiltration of stormwater. In the event that Norfolk files a request for a permit amendment increasing its permitted volume as set forth in Special Condition 1, the Town shall propose additional water conservation measures that go beyond the standard measures and that are not being implemented as of the effective date of the Modified WMA Permit. Norfolk shall implement the additional conservation measures approved by MassDEP before it withdraws more than 0.61 MGD.

Special Condition 10: Mitigation

Norfolk's baseline is 0.52 MGD, the Town's 2003-2005 average withdrawal rate plus 5%. Norfolk identified 0.0132 MGD (13,200 gpd) in direct mitigation credits by completing the stormwater recharge projects set forth in Appendix C. This allows Norfolk to potentially withdraw up to 0.61 MGD as outlined in Special Condition #1. Norfolk may with a permit amendment that includes the necessary mitigation, increase withdrawals up to 0.63 MGD[10]. Norfolk may not withdraw more than 0.61 MGD before it implements the mitigation plan approved by MassDEP.

GENERAL PERMIT CONDITIONS (applicable to all permittees)

No withdrawal in excess of 100,000 gallons per day over the registered volume (if any) shall be made following the expiration of this permit, unless before that date the Department has received a renewal permit application pursuant to 310 CMR 36.00.

[10] See Special Condition 1 for the full list the requirements for filing a permit amendment application requesting an increase in the Town's total authorized volume.

1. **Duty to Comply** The permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.

2. **Operation and Maintenance** The permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw water so as not to impair the purposes and interests of the Act.

3. **Entry and Inspections** The permittee or the permittee's agent shall allow personnel or authorized agents or employees of the Department to enter and examine any property for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.

4. **Water Emergency** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by the Department pursuant to MGL c 21G ss 15-17, MGL c 111 ss 160, or any other enabling authority.

5. **Transfer of Permits** This permit shall not be transferred in whole or in part unless and until the Department approves such transfer in writing, pursuant to a transfer application on forms provided by the Department requesting such approval and received by the Department at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.

6. **Duty to Report** The permittee shall complete and submit annually, on a form provided by the Department, all of the information required by said form including, without limitation, a certified statement of the withdrawal. Such report shall be received by the Department by the date specified on the form each year. Such report must be mailed or hand delivered to:

   Department of Environmental Protection
   Water Management Act Program
   100 Cambridge Street 9th Floor
   Boston, MA 02114

7. **Duty to Maintain Records** The permittee shall maintain withdrawal records and other information in sufficient detail to demonstrate compliance with this permit.

8. **Metering** If the withdrawal point included within the permit is not yet metered, it shall be metered within one year of the date of issuance of the permit. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.

APPEAL RIGHTS AND TIME LIMITS

Any person aggrieved by this decision may request an adjudicatory hearing by timely filing a Notice of Claim for an Adjudicatory Appeal ("Notice of Claim") in accordance with 310 CMR

36.37 and 310 CMR 1.00 within twenty-one (21) days of receipt of this Permit. The Notice of Claim shall state specifically, clearly, and concisely the facts that are grounds for the appeal, the relief sought, and any additional information required by applicable law or regulation. A copy of this Permit shall be included with a Notice of Claim. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent at the same time by certified mail, or delivered by hand, to the local water resources management official in the community in which the withdrawal point is located; and for any person appealing this decision, who is not the permit applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

The Notice of Claim and supporting documentation must be sent to:

Case Administrator
Office of Appeals and Dispute Resolution
Department of Environmental Protection
100 Cambridge Street, 9th Floor
Boston, MA 02114

In addition, the Department's fee transmittal form, together with a valid check made payable to the Commonwealth of Massachusetts in the amount of $100 for the appeal filing fee, if required, must be mailed to:

Commonwealth of Massachusetts Lock Box
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The Notice of Claim may be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Duane LeVangie

5/9/2024

Duane LeVangie, Chief
Water Management Act Program
Bureau of Water Resources

Date

Appendix A – Functional Equivalence with the 65 Residential Gallons Per Capita Day Performance Standard

MassDEP will consider public water supply permittees who cannot meet the 65 RGPCD performance standard to be functionally equivalent, and in compliance with their permit, if they have an on-going program in place that ensures "best practices" for controlling residential water use as described below.

If the permittee fails to document compliance with the RGPCD performance standard in its Annual Statistical Report (ASR), or in any ASR thereafter, then the permittee must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall include, at a minimum:

1. A description of the actions taken during the prior calendar year to meet the performance standard;
2. An analysis of the cause of the failure to meet the performance standard;
3. A description of the actions that will be taken to meet the performance standard which must include, at a minimum, at least one of the following:
    a) a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
    b) a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets), or
    c) the adoption and enforcement of an ordinance, by-law or regulation to require the installation of moisture sensors or similar climate related control technology on all automatic irrigation systems;

    and may include, without limitation, the following:
    d) the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
    e) a program that provides rebates or other incentives for the installation of moisture sensors or similar climate related control technology on automatic irrigation systems;
    f) the adoption and enforcement of an ordinance, by-law or regulation to require that all new construction include water saving devices and low water use appliances;
    g) the adoption and enforcement of an ordinance, by-law or regulation to require that all new construction minimize lawn area and/or irrigated lawn area, maximize the use of drought resistant landscaping, and maximize the use of topsoil with a high water- retention rate;
    h) the implementation of a program to encourage the use of cisterns or rain barrels for outside watering;
    i) the implementation of monthly or quarterly billing.
4. A schedule for implementation; and
5. An analysis of how the planned actions will address the specific circumstances that resulted in the failure to meet the performance standard.

If the permittee is already implementing one or more of these programs, it must include in its RGPCD plan the continued implementation of such program(s), as well as implementation of at least one additional program. All programs must include a public information component designed to inform customers of the program and to encourage participation in the program.

RGPCD plans may be amended to revise the actions that will be taken to meet the performance standard. Amended RGPCD plans must include the information set forth above.

If a RGPCD plan is required, the permittee must:

1. submit information and supporting documentation sufficient to demonstrate compliance with its RGPCD plan annually at the time it files its ASR, and
2. continue to implement the RGPCD plan until it complies with the performance standard and such compliance is documented in the permittee's ASR for the calendar year in which the standard is met.

Appendix B – Functional Equivalence: 10% Unaccounted for Water Performance Standard

MassDEP will consider PWS permittees who cannot meet the 10% UAW performance standard to be functionally equivalent, and in compliance with their permit, if they have an on-going program in place that ensures "best practices" for controlling water loss. The water loss control program will be based on annual water audits and guidance as described in the AWWA/IWA *Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs* (AWWA M36).

If the permittee fails to document compliance with the Unaccounted for Water performance standard (UAW of 10% or less for 2 of the 3 most recent years throughout the permit period), then the permittee shall develop and implement a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs* within 5 full calendar years of failing to meet the standard as follows:

1. **Conduct an annual "top down" water audit, calculate the data validity level/score using AWWA Water Loss Control Committee's Free Water Audit Software, and submit the AWWA WLCC Free Water Audit Software: Reporting Worksheet and data validity score annually with its Annual Statistical Report (ASR).**
    - **If a PWS's data validity level/score is less than Level III (51-70), steps recommended through the audit(s) shall be taken to improve the reliability of the data prior to developing a long-term program to reduce real and apparent water losses.**
    - **Data with a validity score of 50 or less are considered too weak to be used to develop a component analysis or for infrastructure planning and maintenance.**
    - **Developing data with an acceptably strong validity score can be a multi-year process.**
2. **When the data validity score meets the Level III (51-70) requirement, conduct a component analysis to identify causes of real and apparent water loss and develop a program to control losses based on the results of the component analysis.**
3. **Within 5 full calendar years of failing to meet the standard, submit the component analysis and water loss control program with a proposed implementation schedule to the Department.**
4. **Continued implementation will be a condition of the permit in place of meeting the 10% UAW performance standard.**
5. **Upon request of the Department, the permittee shall report on its implementation of the water loss control program.**

A PWS permittee may choose to discontinue the water loss program implementation if UAW, as reported on the ASR and approved by the Department, is below 10% for four consecutive years, and the water audit data validity scores are at least Level III (51-70) for the same four years.

NOTE FOR SMALL SYSTEMS: For small systems with less than 3,000 service connections or a service connection density of less than 16 connections per mile of pipeline, the Unavoidable Annual Real Loss (UARL) calculation and the Infrastructure Leak Index (ILI) developed as the final steps of the top down water audit may not result in valid performance indicators, and may not be comparable to the UARL and ILI calculations for larger systems.

However, these small systems can benefit from developing reliable data and conducting an annual top down water audit. Small systems can rely on the real losses (gallons per mile of main per day) performance indicator developed in the water audit as a measure of real water loss when developing a water loss control program. The M36 Manual discusses the audit process for small systems, and includes a chapter to guide small systems in understanding the results of their audits and in developing a water loss control program (*Manual of Water Supply Practices – M36, Fourth Edition, Chapter 9: Considerations for Small Systems*, pp. 293-305).

MassDEP UAW Water Loss Control Measures: If the permittee is required to develop a Functional Equivalence Plan for the 10% Unaccounted for Water Performance Standard, and the permittee does not have a MassDEP-approved Water Loss Control Program in place within 5 full calendar years of failing to meet the standard, the permittee will be required to implement the MassDEP UAW Water Loss Control Measures outlined below:

- An annual water audit and leak detection survey, as described in the AWWA M36 Manual, of the entire system.
  - Within one year, repair 75% (by water volume) of all leaks detected in the survey that are under the control of the public water system;
  - Thereafter, repair leaks as necessary to reduce permittee's UAW to 10% or the minimum level possible.
- Meter inspection and, as appropriate, repair, replace and calibrate water meters:
  - Large Meters (2" or greater) – within one year
  - Medium Meters (1" or greater and less than 2") – within 2 years
  - Small Meters (less than 1") - within three years
  - Thereafter, calibrate and or replace all meters according to type and specification.
- Bill at least quarterly within three years.
- Water pricing structure sufficient to pay the full cost of operating the system.

Hardship - A permittee may present an analysis of the cost-effectiveness of implementing certain conservation measures included in the MassDEP UAW Water Loss Control Measures and offer alternative measures. Any analysis must explicitly consider environmental impacts and must produce equal or greater environmental benefits.

A permittee's hardship analysis shall:

- Document economic hardship and present an analysis demonstrating that implementation of specific measures will cause or exacerbate significant economic hardship;
- Present reasons why specific measures are not cost-effective because the cost would exceed the costs of alternative methods of achieving the appropriate standard; and
- Propose specific conservation measures that would result in equal or greater system-wide water savings or equal or greater environmental benefits than the conservation measures included in the MassDEP UAW Water Loss Control Measures.

MassDEP will review a permittee's detailed, written analysis to determine whether unique circumstances make specific Best Management Practices (BMPs) less cost-effective than alternatives, or infeasible for the permittee.

Appendix C

TOWN OF NORFOLK
Richard J. McCarthy, Jr.
TOWN PLANNER
ONE LIBERTY LANE
NORFOLK, MASSACHUSETTS 02056
Phone: 508-440-2807
Email: rmccarthy@norfolk.ma.us

January 25, 2023

Re: Redevelopment Sites

Location	Use pre-development	Development Plan
240 Dedham Street	Commercial Building	Commercial Building and Self Storage Units 2008
242 Dedham Street	Single family home	Gas Station/Convenient Store 2013
18 Union Street	Single family home	Mixed Use Building 2017
2 Liberty Lane	Library	Major Library Expansion 2004
70 Boardman Street	Elementary School	Elementary School Expansion 2010
25 Rockwood Road	Single Family	

STORMWATER BMP DIRECT MITIGATION CALCULATOR

Only green cells can be edited. Gray cells are automatically populated or calculated.

ENTER the name of the WMA permit holder:		**Norfolk Water Division**				
STEP 1: ENTER Recharging BMP Name or Other Identifier	NORFOLK	**STEP 3: ENTER the** design infiltration depth (inches of runoff per 24-hour storm) the BMP infiltrates in 72 hours.	**STEP 4: ENTER** the acres of pre-2005 directly connected impervious surface connected to an infiltration BMP since January 1, 2005.	Percent of Annual Precipitation Infiltrated	Infiltration Credit (cubic feet/year)	Infiltration Credit (million gallons per day)
Freeman Kennedy School	49.43	0.6	5.5	0.528	521,368	0.010684
240 Dedham Street	49.43	0.6	0.8	0.528	75,835	0.001554
242 Dedham Street	49.43	0.6	0.2	0.528	18,959	0.000389
25 Rockwood	49.43	0.4	0.4	0.369	26,502	0.000543
18 Union Street	49.43	0.4	0.1	0.369	6,626	0.000136
	49.43			0.000	0	0.000000
	49.43			0.000	0	0.000000
	49.43			0.000	0	0.000000
	49.43			0.000	0	0.000000
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	49.43			0.000	0	0.000000
	49.43			0.000	0	0.000000
	49.43			0.000	0	0.000000
	49.43			0.000	0	0.000000
						0.013306

Applicant Certification for
Stormwater BMP Direct Mitigation Credit

I hereby certify that:

1. I have compiled, evaluated and/or established all pertinent documents, instruments, records and information necessary to provide this certification, including without limitation, the **Stormwater BMP Direct Mitigation Calculator** Excel workbook provided by MassDEP to calculate the volumetric mitigation credit for each stormwater infiltration Best Management Practice (BMP) for which credit is sought, using the following data:
   Provided by applicant:
   a) Area of existing directly connected impervious surface[1] re-directed to the BMP;
   b) Infiltration BMP's design infiltration depth (maximum inches of runoff per 24-hour storm infiltrated in 72 hours)
   Provided by DEP in **Stormwater BMP Direct Mitigation Credit Calculator** Excel form:
   c) Percent of annual precipitation infiltrated, based on the BMP design infiltration depth;
   d) Annual average precipitation for the town or city where the project is located.
2. I have consulted with legal, technical and other qualified professionals, as necessary for me to make this certification.
3. The following is true:
   a. All stormwater infiltration BMPs for which mitigation credit is sought were built on or after January 1, 2005, and receive runoff from directly connected impervious surface[1] constructed prior to 2005. All stormwater BMPs for which mitigation credit is sought have been designed and built in accordance with the Massachusetts Stormwater Handbook, whether inside or outside of a wetlands resource area;
   b. All stormwater for which volumetric credit is claimed is recharged to groundwater;
   c. The entire stormwater system for projects that include BMPs for which direct mitigation credit is sought conforms to the Massachusetts Stormwater Handbook, including an operation and maintenance (O&M) plan. The local Conservation Commission must approve O&M plans for projects in their jurisdiction. Projects outside of Conservation Commission jurisdiction must be reviewed and approved by a local Planning Board or other local board of official with authority to approve or deny stormwater projects, including O&M plans.
   d. There shall be procedures to ensure adequate long-term operation and maintenance are put in place after the completion of a stormwater project. These procedures may include the use of dedicated funds or escrow accounts for stormwater projects O&M. Alternatively, these procedures may include the submission of an annual certification documenting the O&M work that has been done over the last 12 months to properly operate and maintain the stormwater projects.
4. For stormwater projects located in wetlands or within MS4 jurisdictional areas that include BMPs for which credit is sought, the appropriate municipal authority has reviewed and approved the stormwater plans and specifications, including operation and maintenance plans.

[1] Directly connected impervious surfaces are those whose runoff discharges to a surface water body.
04/23/2021

5. I shall maintain a copy of all records, regardless of form (e.g., both printed and electronic) upon which I rely in making this certification until a final decision on this application has been issued by the Department and, if this application is approved, will do so thereafter in accordance with the permit conditions. Such records shall include without limitation all documents described in paragraph 1, above, and any supporting documents provided to me by, or relied upon by, such qualified professionals as I may consult in certifying as to the information set forth in paragraph 2, above.

6. Upon request of MassDEP, I shall report on operation and maintenance status of stormwater projects, including all maintenance reports and an assessment of the operation effectiveness.

7. I attest under the pains and penalties of perjury that the information contained in this certification and its attachments is, to the best of my knowledge and belief, true, accurate and complete. I am authorized to make this attestation on behalf of the permit applicant. I am aware that there are significant penalties for submitting false, inaccurate or incomplete information, including, but not limited to, the possibility of fine and imprisonment for knowing violations.

8. I am aware that submitting a false and misleading certification could lead to modification, suspension or revocation of any permit granted pursuant to this certification, as set forth in 310 CMR 36.29 and 36.43.

Note Stormwater BMPs have a limited useful life, therefore Stormwater BMP direct mitigation credits will not automatically carry over beyond the current permit term. Any direct stormwater mitigation credits will need to be reviewed during the permit renewal process.

Attachments:

A. Stormwater BMP Direct Mitigation Credit Calculator Excel spreadsheet

Signature of Applicant: _____ Date: 8/9/23

Printed Name of Applicant: Barry A. Lawrence

04/23/2021

Norfolk, MA
WMA OTC August 2023
Direct Mitigation Credit Project Summary

Project / Location	Use Pre-Redevelopment	Redevelopment Use	Redevelopment Year	Additional Comments
70 Boardman Street	Elementary School	Elementary School Expansion	2010	Pre-Redevelopment Impervious Surface Area measured from MassGIS 2005 Impervious Surface Data
240 Dedham Street	Commercial Building	Commercial Building and Self Storage Units	2008	Pre-Redevelopment Impervious Surface Area measured from MassGIS 2005 Impervious Surface Data
242 Dedham Street	Single family home	Gas Station/Convenient Store	2013	Pre-Redevelopment Impervious Surface Area measured from MassGIS 2005 Impervious Surface Data
18 Union Street	Single family home	Mixed Use Building	2017	Pre-Redevelopment Impervious Surface Area measured from MassGIS 2005 Impervious Surface Data
25 Rockwood Road	Norfolk Housing Authority	40B Condomuniums	Current	Pre-Redevelopment Impervious Surface Area measured from MassGIS 2005 Impervious Surface Data

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