Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

March 18, 2021

Mr. Arthur Bendinelli, Superintendent
North Raynham Water District
80 Baker Road P.O. Box 1
Raynham MA 02767

RE: RAYNHAM-BWR\WMA
PWS Number 4245002
WMA Permit #9P4-4-25-245.02
Action: Final Renewed Permit

Dear Mr. Bendinelli:

Please find the attached documents:

- Final Findings of Fact in Support of the Renewed Permit #9P4-4-25-245.02; and
- Final Water Management Act Permit #9P4-4-25-245.02 (Taunton River Basin) for the North Raynham Water District.

The signature on this cover letter indicates formal issuance of the attached document. If you have any questions regarding this information, please contact Duane LeVangie at (617) 292-5706 or via e-mail at duane.levangie@mass.gov.

Very truly yours,

Duane LeVangie,
Water Management Program Chief
Bureau of Water Resources

Y:\DWPWMA\PermitRenewals\Taunton River\Raynham-4245002- North Raynham WMA Final Permit-9P4-4-25-245.02-3-18-2021
Ecc: Jen Pederson, MWWA
Kate Bentsen, DFW
Julia Blatt, Massachusetts Rivers Alliance
Sarah Bower, Massachusetts Rivers Alliance
Jim McLaughlin, SERO
Patti Kellogg, SERO
Sara Cohen, DCR
Taunton River Watershed Alliance

Massachusetts Department of Environmental Protection
One Winter Street, Boston MA 02108 • Phone: 617-292-5751
Communication For Non-English -Speaking Parties - 310 CMR 1.03(5)(a)

1 English:
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5 Ayisyen (franse kreyòl) (Haitian) (French Creole):
Dokiman sa-a se yon bagay enpòtan epi yo ta dwe tradui imedyatman. Si ou bezwen dokiman sa a tradui, tanpri kontakte Divèsite Direktè MassDEP a nan nimewo telefòn ki nan lis pi ba a.

6 Việt (Vietnamese):
Tài liệu này là rất quan trọng và cần được dịch ngay lập tức. Nếu bạn cần dịch tài liệu này, xin vui lòng liên hệ với Giám đốc MassDEP đa dạng tại các số điện thoại được liệt kê dưới đây.

7 ប្រទេសកម្ពុជា (Kmer (Cambodian):
ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាម។ ប្រសិនបើអ្នកត្រូវបានបកប្រែឯកសារនេះសូមទំនាក់ទំនងឆ្មោតជានាយក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយខាងក្រោម។

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Es documento é importante e deve ser traduzido imidiatamente. Se bo precisa des documento traduzido, por favor contacta Director de Diversidade na MassDEP's pa es numero indicode li d'boche.

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هذه الوثيقة الهامة وينبغي أن تترجم على الفور. اذا كنت بحاجة الى هذه الوثيقة المترجمة، يرجى الاتصال مدير التنوع في PMassDE على أرقام الهواتف المدرجة أدناه.

11 한국어 (Korean):
이 문서는 중요하고 즉시 번역해야합니다. 당신이 번역이 문서가 필요하면 아래의 전화 번호로 MassDEP 의 다양성 감독에 문의하시기 바랍니다.

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Այս փաստաթուղթը շատ կարեւոր է եւ պետք է թարգմանել անմիջապես. Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանվել դիմել MassDEP բազմազանությունը տնօրեն է հեռախոսահամարների թվարկված են ստորեւ.

13 فارسی (Farsi (Persian):
این سند مهم است و باید فورا ترجمه شده است.
اگر شما نیاز به این سند ترجمه شده، لطفا با ما تماس تنوع مدیر PMassDE در شماره تلفن های ذکر شده در زیر.

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यह दस्तावेज महत्वपूर्ण है और तुरंत अनुवाद किया जाना चाहिए. आप अनुवाद इस दस्तावेज़ की जरूरत है, नीचे सूचीबद्ध फोन नंबरों पर MassDEP की विविधता निदेशक से संपर्क करें.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

Findings of Fact in Support of
Final Water Management Permit # 9P4-4-25-245.02
North Raynham Water District

The Department of Environmental Protection (the Department or MassDEP) makes the following Findings of Fact in support of the attached Final Water Management Act (WMA) Permit Renewal #9P4-4-25-245.02, and includes herewith its reasons for issuing the Final Permit and for conditions of approval imposed, as required by M.G.L. c. 21G, § 11. The issuance of this Final WMA permit is in response to the 2009 WMA permit renewal application by the North Raynham Water District (North Raynham or the District).

MassDEP adopted revised Water Management Regulations at 310 CMR 36.00 on November 7, 2014, (described in greater detail below). Since that time, MassDEP has been working closely with each Water Management Act permittee to fully consider all aspects of their individual situations and ensure thoughtful and implementable permits.

The North Raynham Water District Withdrawal Summary

The North Raynham Water District is registered to withdraw 0.32 MGD from four groundwater sources in the Taunton River Basin: King Philip St. Station 1 (4245002-01G); King Philip St. Station 2 (4245002-03G); the First Street Replacement Well #1 (4245002-06G); and the First Street Replacement Well #2 (4245002-07G). See Registration #4-25-245.01.

On April 28, 1997, MassDEP issued a Water Management Act (WMA) Permit 9P4-4-25-245.02 authorizing the District to withdraw water from two permitted and registered sources: King Philip Well #1 (4245002-01G), King Philip Well #2 (4245002-03G); and from two permitted sources: King Philip Well #3a (4245002-04G) and King Philip Well #3b (4245002-05G). On October 3, 2003, MassDEP amended the District's WMA Permit to include another permitted source, the Noblin Wellfield, which has not yet been built. In 2003 and 2009, two replacement wells for the First Street Well (registered) were added as permitted and registered wells - the First Street Replacement Well #1 (4245002-06G); and the First Street Replacement Well #2 (4245002-07G). On February 28, 2007, MassDEP again issued an amended permit adding another permitted source, the King Philip Bedrock Well (4245002-08G). Neither the original permit, nor the two amended permits increased the District's total authorized average annual

daily withdrawal volume above the 0.32 MGD authorized by the District's WMA Registration #4-25-245.01.

The Permit Extensions

The original permit issued in 1997 had an expiration date of February 28, 2010. In 2009, the Department issued the District an interim permit which extended the expiration date until February 28, 2011. In 2010, the interim permit was extended for 2 years to February 28, 2013, by Section 173 of Chapter 240 of the Acts of 2010, the Permit Extension Act. In 2012, the Permit Extension Act was amended by chapter 238 of the Acts of 2012, and the permit was extended an additional 2 years to February 28, 2015. Pursuant to M.G.L. c. 30A, Section 13, and 310 CMR 26.18(7), the permit continued in force until the date the Department issues the 2021 WMA Permit. The expiration date for all permits going forward in the Taunton River Basin will be February 28, 2030, in accordance with the staggered permitting schedule set forth in the regulations.

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, MassDEP 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, MassDEP 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 Taunton River Basin section of this document or 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 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 standards reviewed and approved by the WRC in July 2018 (https://www.mass.gov/doc/massachusetts-water-conservation-standards-2)/ 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; and
    - 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 fish resources;
    - minimization of withdrawal impacts in areas stressed by groundwater use; and
    - mitigation of the impacts of increasing withdrawals.

Safe Yield in the Taunton River Basin

This permit is being issued under the safe yield methodology adopted by the MassDEP 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 calculation for the Taunton River Basin is 134.42 million MGD, and total registered and permitted withdrawals are 93.86 MGD. North Raynham Water District's WMA Permit does not include any additional volumes over those previously registered in the Taunton River Basin and thus will not cause an exceedance of the Basin's safe yield.

Findings of Fact for Special Permit Conditions in the North Raynham Water District's Water Management Act Permit

The Findings of Fact for the special conditions included in the permit generally describe the rationale and background for each special condition in the 2021 Final WMA 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, Authorized Annual Average Withdrawal Volume, maintains the 0.32 MGD, the District is authorized to withdraw from its groundwater sources in the Taunton River Basin by its WMA Registration #4-25-245.01. The District's Water Management Act Permit, as most recently amended on February 28, 2007 did not increase this amount. Unless and until the District applies for a new permit, MassDEP may not issue a permit increasing this amount.

As shown in Table 1, the District's recent water use has not exceeded its registered volume by more than 100,000 gallons per day (gpd). Thus, a new WMA permit has not yet been required. Based on this experience, the District has chosen not to apply for a new permit at this time. If at any time during the term of this WMA Permit, the District expects to exceed its total authorized annual average daily withdrawal volume of 0.32 MGD by more than 100,000 gallons per day, the District shall apply and obtain a new permit increasing its total authorized withdrawal volume.[1]

Table 1: North Raynham Water District
Reported System-Wide Water Withdrawals 2014-2019

Year	2014	2015	2016	2017	2018	2019
North Raynham Water District Reported System-wide Reported Withdrawals (MGD)	0.40	0.37	0.37	0.37	0.30	0.35
Finished Water Purchased from Raynham Center (MGD)	0	0	0	0	0.03	0
Total Water Use (MGD)	0.40	0.37	0.37	0.37	0.33	0.35

Special Condition 2, Maximum Daily Withdrawals from Groundwater Withdrawal Points, The District currently has seven permitted groundwater sources: King Philip Well #1(4245002-01G), King Philip Well #2 (4245002-03G), King Philip Well #3a (4245002-04G), King Philip Well #3b (4245002-05G), First St. Replacement Well #1 (4245002-06G), First St. Replacement Well #2 (4245002-07G), and King Philip Bedrock Well (4245002-08G). Special Condition 2 specifies a maximum approved daily pumping rate for these permitted sources.

[1] MassDEP may issue a new permit to allow the District to withdraw more than 0.32 MGD from its sources in the Taunton River Basin provided the amount requested does not exceed the Water Needs Forecast (WNF) prepared by the Department of Conservation and Recreation's Office of Water Resources (DCR) assuming that the District meets the performance standard of 65 gallons per capita day (RGPCD) and 10% unaccounted for water (UAW) In a November 16, 2009 letter, the DCR issued a 65/10 WNF that predicted that the volume of water needed by the District in 2030 including a 5% buffer would be 0.44 MGD. In light of this WNF, MassDEP may issue a new permit authorizing the District to withdraw up to 0.44 MGD provided the District complies with certain additional conditions including mitigation. See section on Cold Water Fish Resources and Mitigation at the end of these Findings of Fact.

Special Condition 3, Zone II Delineations, The District's permitted groundwater sources have approved Zone IIs. No further Zone II work is required as a condition of the District's WMA Permit.

Special Condition 4, Wellhead Protection, requirements have not been met. Special Condition 4 provides that the District shall continue to exercise best efforts to have the Town of Raynham pass an Earth Removal Bylaw that satisfies the requirements of 310 CMR 22.21(2)(b)(6) and to have the City of Taunton enact Wellhead Protection measures that protect the District's wells that have Zone IIs that extend into the City of Taunton.

Special Condition 5, Wetlands Monitoring, Monitoring of the wetlands adjacent to the Noblin Wellfield is required before, during, and after construction on the wellfield, as well as during the Wellfield use. The District shall submit a monitoring plan for the Noblin Wellfield to MassDEP for approval a minimum of one year prior to the start of construction.

Special Condition 6, Performance Standard for Residential Gallons Per Capita Day (RGPCD) Water Use, for all public water suppliers (PWSs) is 65. As shown in Table 2, the District has met this Performance Standard for the years 2014 thru 2018.

Table 2: Residential Gallons Per Capita Day Water Use

Year	2019	2018	2017	2016	2015	2014
RGPCD	59	61	58	64	64	63

Special Condition 7, Performance Standard for Unaccounted for Water (UAW), for all PWSs is 10%. The District is required to meet 10% or less UAW for 2 of the 3 most recent years throughout the permit period. The District's UAW exceeded 10% in 2014, 2015 and 2017. See Table 3. Permittees that cannot comply with the UAW Performance Standard are required to develop and implement a water loss control program as set forth in Appendix B Functional Equivalence with the 10% UAW Performance Standard.

Table 3: Unaccounted for Water

Year	2019	2018	2017	2016	2015	2014
UAW	7%	3%	14%	10%	14%	11%

Special Condition 8, Water Conservation Requirements, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the Water Resources Commission in July 2018 (https://www.mass.gov/doc/massachusetts-water-conservation-standards-2/).

Special Condition 7 requires the District to come into compliance with these standards by developing a plan and schedule for designing and implementing a water conservation education and outreach plan and establishing full cost pricing of its public water system by December 31, 2022.

Special Condition 9, Reporting Requirements, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

NEW PERMIT CONDITIONS

Special Condition 10, Seasonal Limits on Nonessential Outdoor Water Use, reflects the restrictions on nonessential outdoor water use from May through September. The options outlined in Special Condition 9 are based on whether reported RGPCD for the previous year was in compliance with the RGPCD Performance Standard (see Special Condition 5, Performance Standard for RGPCD). In addition, outdoor water use by suppliers, like the District, with wells in August net groundwater depleted subbasins[2] is limited to 1or 2 days per week to minimize withdrawals from depleted subbasins.

Each year the District may choose one of two options for implementing nonessential outdoor watering restrictions.

- **Calendar triggered restrictions** are in place from May 1st through September 30th. Many public water suppliers find this option easier to implement and enforce than the streamflow triggered approach
- **Streamflow triggered restrictions** are 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 commence when streamflow falls below the trigger for three consecutive days. Once implemented, the restrictions remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for seven consecutive days.

If the District selects the streamflow trigger approach, it has been assigned USGS stream gage 01108000 Taunton River near Bridgewater, MA. The May-June streamflow trigger is 265 cubic feet per second (cfs), and the July-September streamflow trigger is 119 cfs. Should the reliability of flow measurement at the Taunton River gage be so impaired as to question its accuracy, the District may request that MassDEP review and approve the transfer to another gage that will 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 to streamflows when flows are very low. The 7-day low flow trigger for the District is 47 cfs.

[2] 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). The Water Management Regulations, 310 CMR 36.03, define August net groundwater depletion (NGD) 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.* A subbasin is groundwater, depleted if it has an August NGD of greater than 25%. All of the District's Taunton River Basin groundwater sources are in subbasin 24070, a subbasin with an August NGD of 43%, a groundwater depleted subbasin.

The District may choose to implement limits on nonessential outdoor water use that are stricter than those required by the permit.

Special Condition 11, Minimization
Permittees with groundwater sources in subbasins having an August NGD of 25% or greater are required to develop a plan to minimize the impacts of their withdrawals. All of the District's sources are in Subbasin 24070, a subbasin with an August NGD of 43%. Special Condition 10 therefore requires the District to implement a Minimization Plan.

Minimization Plans typically include:

1. a Desktop Optimization analysis of shifting withdrawals to other available sources outside the August net groundwater depleted subbasin(s);
2. an evaluation of options for water releases and returns to minimize streamflow impacts; and
3. an evaluation of implementing conservation measure that go beyond the standard WMA permit requirements to minimize the withdrawals and discharges needed to meet demand.

As stated earlier, all the District's wells are located in Subbasin 24070, a subbasin that has an August NGD that is greater than 25%. In this circumstance, the Minimization Plan is not required to include an evaluation of the impact of shifting withdrawals between subbasins. Likewise, the Minimization Plan does not need to address surface water releases, because the District has no surface water supply impoundments. The Minimization Plan is, however, required to identify additional cost-effective conservation measures adopted since 2005 that go beyond the standard WMA conservation requirements. To fulfill the minimization requirement, Special Condition 10 requires the District to implement the following measures:

- Perform an evaluation of its rate structure every two years;
- Complete its ongoing program to implement an automated radio remote metering reading system by December 31, 2021;
- Conduct a comprehensive water audit of the water system by December 31, 2021 and whenever required by Special Condition 6 and Appendix B; and
- Include a comparison of the previous year's water usage in all water bills.

Cold Water Fish Resources and Mitigation

The Water Management Regulations revised and promulgated in November 2014 also require WMA permits to address protection of Coldwater Fishery Resources (CFR) and mitigation of withdrawals above the baseline withdrawal volume.

Coldwater Fish Resource protection is not a condition of the WMA Permit because the District's s groundwater withdrawals do not impact any waters that the Massachusetts Division of Fisheries and Wildlife has identified as supporting coldwater fish at this time. Similarly, mitigation requirements are not included in this permit. Mitigation is required only for permittees whose authorized withdrawal volume exceeds their baseline volume. As stated earlier, Special Condition 1 limits the District's total authorized withdrawal volume to

its registered volume, 0.32 MGD, a volume that is also its baseline volume.[3] Unless and until the MassDEP issues a new permit that authorizes the District to withdraw more than its baseline volume, the District's WMA Permit will not require the development and implementation of a mitigation plan.[4]

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[3] 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:

(a) baseline cannot be less than a permittee's registered volume;
(b) baseline cannot be greater than the permittee's authorized volume for 2005; and
(c) 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 plan, the Department will use best available data to establish a baseline volume from the water source.

Under this definition, the District's baseline is 0.32 MGD, its registered volume.

[4] See footnote 2.

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Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

FINAL WATER WITHDRAWAL PERMIT
#9P4-4-25-245-02
North Raynham Water District

This permit is issued pursuant to the Massachusetts Water Management Act (WMA) 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: 9P4-4-25-245.02 **RIVER BASIN:** Taunton River

PERMITTEE: North Raynham Water District

EFFECTIVE DATE: March 18, 2021
EXPIRATION DATE: February 28, 2030

NUMBER OF WITHDRAWAL POINTS: 8
Groundwater: 8

USE: Public Water Supply
DAYS OF OPERATION: 365
WITHDRAWAL POINT IDENTIFICATION

Source Name	Source Code
King Philip Well #1	(4245002-01G)
King Philip Well #2	(4245002-03G)
King Philip Well #3a	(4245002-04G)
King Philip Well #3b	(4245002-05G)
First St. Replacement Well #1	(4245002-06G)
First St. Replacement Well #2	(4245002-07G)
King Philip Bedrock Well	(4245002-08G)
Noblin Wellfield	(4245002-0AG)*

*PWS source codes will be assigned by DEP Drinking Water Program when the wells go on-line.

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

The North Raynham Water District (North Raynham or the District) is registered under the Water Management Act for 0.32 million gallons per day (MGD) for system-wide withdrawals on average over a calendar year. To date, the District has not applied for a new permit increasing its system-wide withdrawal volume above its registered volume. This renewed permit does not increase the District's system-wide withdrawal volume.

If, at any time during this permit term, the District expects to withdraw more than 100,000 gallons per day in excess of its registered volume, the District is required to apply and obtain a new Water Management Act Permit prior to their withdrawal.

2. Maximum Authorized Daily Withdrawals from Groundwater Withdrawal Points

Withdrawals from permitted withdrawal points are not to exceed the approved maximum daily volumes listed below without specific advance written approval from MassDEP (Table 1).

Table 1: Maximum Authorized Daily Withdrawal Rates

Well Name	PWS Source ID Code	Maximum Daily Rate (MGD)
King Philip Well #1	4245002-01G	0.317
King Philip Well #2	4245002-03G	0.288
King Philip Well #3a and #3b	4245002-04G 4245002-05G	Combined 0.47
First St. Replacement Well #1 and #2	4245002-06G 4245002-07G	Combined 0.288
King Philip Bedrock Well	4245002-08G	0.60
Noblin Wellfield	4245002-0AG*	0.68

*PWS source codes will be assigned by DEP Drinking Water Program when the wells go on-line.

3. Zone II Delineation

MassDEP records show that the District has approved Zone II delineations for its groundwater sources. Therefore, no further Zone II delineation work is required.

4. Wellhead Protection

The District shall continue to exercise best efforts to have the Town of Raynham pass an Earth Removal Bylaw that satisfies the requirements of 310 CMR 22.21(2)(b)(6) and to have the City of Taunton enact Wellhead Protection measures that are consistent with the requirements of 310 CMR 22.21(2) and that protect the District 's wells with Zone IIs that extend into the City of Taunton. Best effort criteria in accordance with 310 CMR 22.21(1)(e)

must be met prior to either source, Noblin Wellfield or the King Philip Bedrock Well, coming on-line.

5. Wetlands Monitoring

Monitoring of the wetlands adjacent to the Noblin Wellfield is required before, during, and after construction on the wellfield, as well as during the Wellfield use. The District shall submit a monitoring plan for the Noblin Wellfield to MassDEP for approval a minimum of one year prior to the start of construction.

6. Performance Standard for Residential Gallons Per Capita Day Water Use

The District's Performance Standard for residential gallons per capita day (RGPCD) is 65 gallons or less. The District has been in compliance with this Performance Standard since 2014. If, at any time during the term of this Permit the District does not meet the RGPCD Performance Standard, the District shall comply with the functional equivalence requirements set forth in Appendix A.

7. Performance Standard for Unaccounted for Water

The District's Performance Standard for Unaccounted for Water (UAW) is 10% or less of overall water withdrawal for 2 of the most recent years 3 throughout the permit period. If the District does not meet the standard by December 31, 2021, 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 M36,* as outlined in Appendix B.

The District shall report its UAW annually in its Annual Statistical Report (ASR).

Nothing in the permit shall prevent a permittee who meets the 10% performance standard from demonstrating compliance with the UAW performance standard by developing and implementing a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs*.

Permittees meeting the Performance Standard for Unaccounted for Water through implementation of a water loss control program based on AWWA M36 annual water audits and guidance shall continue to report UAW annually as required in the Annual Statistical Report for public water suppliers.

8. Water Conservation Requirements

At a minimum, the District shall implement the following conservation measures forthwith. Compliance with the water conservation requirements shall be reported to MassDEP upon request, unless otherwise noted in Table 2.

Table 2: Minimum Water Conservation Requirements
System Water Audits and Leak Detection
1. At a minimum, conduct a full leak detection survey every three years. The first full leak detection survey shall be completed no later than 3 years from the date of the last documented leak detection survey.
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 District shall have repair reports available for inspection by MassDEP. The District shall establish a schedule for repairing leaks that is at least as stringent as the following: • Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection. • Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible. • 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 the District's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. The District shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.
Metering
1. The District shall continue to calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2. The District shall maintain its system as 100% metered.
Pricing
1. Within thirty days of the effective date of this permit, the District shall submit to MassDEP for its review and approval a plan and schedule for establishing and maintaining a water pricing structure that includes the full cost of operating the water supply system. Thereafter, the District shall implement the plan and schedule as approved by MassDEP. Full cost pricing factors all costs - operations, maintenance, capital, and indirect costs (environmental impacts, watershed protection) - into prices.
2. Evaluate rates at a minimum every three to five years and adjust costs as needed.
3. The District will continue to implement an increasing block rate structure.

4. If billing frequency is less than quarterly (i.e. annual or biannual), implement quarterly or more frequent meter reading and billing as soon as practicable.
Residential and Public Sector Conservation
1. The District shall work with the Town of Raynham to ensure that the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code are met when buildings are constructed or renovated.
2. The District reports metering water used by contractors using fire hydrants for pipe flushing and construction and shall continue to do so.
Industrial and Commercial Water Conservation
1. The District shall continue to inspect industrial facilities and recommend the use of separate meters for process water where appropriate.
Public Education and Outreach
1. Within thirty days of the effective date of this permit, the District shall submit to MassDEP a plan and schedule for the development and implementation of a water conservation education and outreach plan designed to educate customers on ways to conserve water. Without limitation, the plan may include the following actions: • 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; • Public space advertising/media stories on successes (and failures); • Conservation information centers perhaps run jointly with electric or gas company; • Speakers for community organizations; • Public service announcements; radio/T.V./audio-visual presentations; • Joint advertising with hardware stores to promote conservation devices; • Use of civic and professional organization resources; • Special events such as Conservation Fairs; • Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and • Provide multilingual materials as needed.
2. Thereafter, the District shall develop and implement the water conservation education and outreach plan and schedule as approved by MassDEP. Upon request of MassDEP, The District shall report on its public education and outreach efforts.

9. Reporting Requirements

The District shall report annually as required by completing the electronic Annual Statistical Report (eASR) for public water suppliers and shall provide other reporting as specified in the Special Conditions above.

10. Seasonal Limits on Nonessential Outdoor Water Use

The District shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in Table 3. To the extent feasible all summer outdoor water use should take place before 9 am and after 5 pm when evaporation and evapotranspiration rates are lower.

TABLE 3:
North Raynham Water District Seasonal Limits on Nonessential Outdoor Water Use
May 1 to September 30

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	Nonessential outdoor water use is allowed: 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 01108000 – Taunton River at Bridgewater, MA falls below **47 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 47 cfs for seven (7) consecutive days.
Streamflow Triggered Restrictions	Nonessential outdoor water use is allowed: a) **Two (2) days per week** before 9 am and after 5 pm when USGS stream gage 01108000 – Taunton River at Bridgewater, MA falls below: • May 1 – June 30: **265 cfs** for three (3) consecutive days • July 1 – September 30: **119 cfs** for three (3) consecutive day**s** b) **one (1) day per week** before 9 am and after 5 pm when USGS stream gage 01108000 – Taunton River at Bridgewater, MA falls below **47 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.
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	Nonessential outdoor water use is allowed **one (1) day per week** before 9 am and after 5pm;
Streamflow Triggered Restrictions	Nonessential outdoor water use is allowed one **(1) day per week** before 9 am and after 5 pm when USGS stream gage 01108000 – Taunton River at Bridgewater, MA falls below: • May 1 – June 30: **265 cfs** for three (3) consecutive days • July 1 – September 30: **119 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 Website Information
If the District chooses Streamflow Triggered Restrictions, the District 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 System (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 preceding day when tracking streamflows. **Mean daily streamflow gage** readings are available at the USGS NWIS Web Interface at http://waterdata.usgs.gov/ma/nwis/current/?type=flow. • Scroll down to 01108000 – Taunton River near Bridgewater, MA. • Click on the gage number. • Scroll down to "Provisional Date 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.
The District 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 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 of exterior building surfaces, parking lots, driveways or sidewalks, except as necessary to apply surface treatments such as paint, preservatives, pavement or cement.

The following uses may be allowed 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 before 9 am and after 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 minimal fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

Public Notice of Seasonal Nonessential Outdoor Water Use Restrictions

The District shall notify its customers of the restrictions and the consequences of failing to adhere to the restrictions.

- For calendar-triggered restrictions, customers shall be notified by April 15th each year.
- For streamflow-triggered restrictions, when streamflow at the assigned USGS local stream gage falls below a streamflow trigger for three consecutive days, customers shall be notified as soon as possible, but within three days of implementing the restrictions.

Notice that restrictions have been put in place shall be filed each year with MassDEP 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's website.

Nothing in the permit shall prevent the District from implementing water use restrictions that are more stringent than those set forth in this permit.

11. Minimization of Groundwater Withdrawal Impacts in Stressed Subbasins

The District shall minimize the impacts of its groundwater withdrawals from sources in Subbasin 24070, by implementing the following water conservation measures:

- Performing an evaluation of its rate structure every two years;
- Completing its ongoing program of updating its meter reading system to include remote radio reading by December 31, 2021;
- Conducting a comprehensive water audit of the water system in 2021 and every year thereafter whenever required by Special Condition 6 and Appendix B and
- Including a comparison of the previous year's water usage in all water bills.

General Permit Conditions (applicable to all Permittees)

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 up to the authorized volume 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 MassDEP to enter and examine any property, inspect and monitor the withdrawal, and inspect and copy any relevant records, 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 MassDEP pursuant to M.G.L. c. 21G, §§ 15-17, M.G.L. c. 111, § 160, or any other enabling authority.
5. **Transfer of Permits** This permit shall not be transferred in whole or in part unless and until MassDEP approves such transfer in writing, pursuant to a transfer application on forms provided by MassDEP requesting such approval and received by MassDEP 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 submit annually, on a form provided by MassDEP, a certified statement of the withdrawal. Such report is to be received by MassDEP by the date specified by MassDEP. Such report must be mailed or hand delivered to the address specified on the report form.
7. **Duty to Maintain Records** The Permittee shall be responsible for maintaining withdrawal records as specified by this permit.
8. **Metering** Withdrawal points shall be metered. Meters shall be calibrated annually. Meter shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.
9. **Amendment, Suspension or Termination** The Department may amend, suspend or terminate this permit in accordance with M.G.L. c. 21G or 310 CMR 36.29.

APPEAL RIGHTS AND TIME LIMITS

This permit is a decision of MassDEP. Any person aggrieved by this decision may request an adjudicatory hearing. Any such request must be made in writing, by certified mail and received by MassDEP within twenty-one (21) days of the date of receipt of this permit.

No request for an appeal of this permit shall be validly filed unless a copy of the request is sent 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 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 MassDEP.

CONTENTS OF HEARING REQUEST

310 CMR 1.01(6)(b) requires the request to include a clear and concise statement of the facts which are the grounds for the request and the relief sought. In addition, the request must include a statement of the reasons why the decision of MassDEP is not consistent with applicable rules and regulations, and for any person appealing this decision who is not the applicant, a clear and concise statement of how that person is aggrieved by the issuance of his permit.

FILING FEE AND ADDRESS

The hearing request, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of $100 must be mailed to:

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

The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

EXEMPTIONS

The filing fee is not required if the appellant is a municipality (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

WAIVER

MassDEP may waive the adjudicatory hearing filing fee for any person who demonstrates to the satisfaction of MassDEP that the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request, an affidavit setting forth the facts which support the claim of undue hardship.

Duane LeVangie

_____ 3/18/2021

Duane LeVangie
Water Management Program Chief
Bureau of Water Resources

Date

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

MassDEP will consider PWS 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.