

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

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

February 21, 2019

OS Golf Club LLC
Attn: Sean McCormick
41 Doublebrook Road
Plymouth, MA 02360

Town: Plymouth
WMA Permit #: Permit 9P4-4-21-239.09
Program: Water Management Act
Action: Final Permit Renewal

Dear Mr. McCormick:

Please find the following attached:

- Findings of Fact in Support of the renewal of Permit #9P4-4-21-239.09; and
- Final Water Management Act Permit #9P4-4-21-239.09 for OS Golf Club LLC.

If you have any questions concerning this letter, please contact Julie Butler at (617) 292-5552 or Julie.Butler@state.ma.us.

Sincerely,

Duane LeVangie
Water Management Program
Bureau of Water Resources

eCC: Mark Nelson and Neal Price; Horsley Witten Group, 90 Route 6A, Sandwich, MA 02563
Deborah Sedares, Pinehills LLC
Mettie Whipple, Eel River Watershed Association, 128 Sandwich Road, Plymouth, MA 02360
Julia Blatt, Massachusetts Rivers Alliance

Y:DWPArchive\SERO\2019\Plymouth-OS Golf Club-9P442123909-WMA Final Permit-2019-02-21

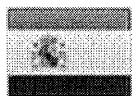


Massachusetts Department of Environmental Protection
One Winter Street, Boston MA 02108 • Phone: 617-292-5751
Communication For Non-English Speaking Parties
310 CMR 1.03(5)(a)



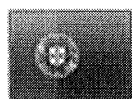
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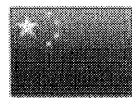
2 Español (Spanish):

Este documento es importante y debe ser traducido inmediatamente. Si necesita este documento traducido, por favor póngase en contacto con el Director de Diversidad MassDEP a los números de teléfono que aparecen más abajo.



3 Português (Portuguese):

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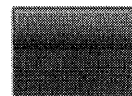
4(a) 中國 (傳統) (Chinese (Traditional)):

本文件非常重要，應立即翻譯。如果您需要翻譯這份文件，請用下面列出的電話號碼與MassDEP的多樣性總監聯繫。



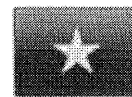
4(b) 中国 (简体中文) (Chinese (Simplified)):

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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)):

ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាមៗ ប្រសិនបើអ្នកត្រូវបានបកប្រែឯកសារនេះសូមទំនាក់ទំនងទៅនឹងទីសេវាអភិវឌ្ឍន៍ MassDEP នៅលេខទូរស័ព្ទដែលបានរាយនាមខាងក្រោម។



8 Kriolu Kabuverdianu (Cape Verdean):

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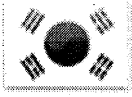


9 Русский язык (Russian):

Этот документ является важным и должно быть переведено сразу. Если вам нужен этот документ переведенный, пожалуйста, свяжитесь с директором разнообразия MassDEP по адресу телефонных номеров, указанных ниже.

**10 العربية (Arabic):**

هذه الوثيقة الهامة وينبغي أن تترجم على الفور. إذا كنت بحاجة إلى هذه الوثيقة المترجمة، يرجى الاتصال مدير التنوع في MassDEP على أرقام الهواتف المدرجة أدناه.

**11 한국어 (Korean):**

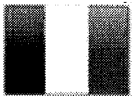
이 문서는 중요하고 즉시 번역해야 합니다. 당신이 번역이 문서가 필요하다면 아래의 전화 번호로 MassDEP의 다양성 감독에 문의하시기 바랍니다.

**12 հայերեն (Armenian):**

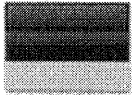
Այս փաստաթուղթը շատ կարևոր է եւ պետք է թարգմանել անմիջապես. Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանվել դիմել MassDEP բարձրագույնությունը տնօրեն է հեռախոսահամարների թվարկված են ստորև.

**13 فارسی (Farsi (Persian):**

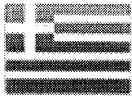
این سند مهم است و باید فوراً ترجمه شده است. اگر شما نیاز به این سند ترجمه شده، لطفاً با ما تماس تنوع مدیر MassDEP در شماره تلفن های ذکر شده در زیر.

**14 Français (French):**

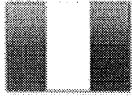
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**15 Deutsch (German):**

Dieses Dokument ist wichtig und sollte sofort übersetzt werden. Wenn Sie dieses Dokument übersetzt benötigen, wenden Sie sich bitte Diversity Director MassDEP die in den unten aufgeführten Telefonnummern.

**16 Ελληνική (Greek):**

Το έγγραφο αυτό είναι σημαντικό και θα πρέπει να μεταφραστούν αμέσως. Αν χρειάζεστε αυτό το έγγραφο μεταφράζεται, παρακαλούμε επικοινωνήστε Diversity Director MassDEP κατά τους αριθμούς τηλεφώνου που αναγράφεται πιο κάτω.

**17 Italiano (Italian):**

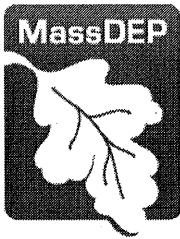
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**18 Język Polski (Polish):**

Dokument ten jest ważny i powinien być natychmiast przetłumaczony. Jeśli potrzebujesz tego dokumentu tłumaczony, prosimy o kontakt z Dyrektorem MassDEP w różnorodności na numery telefonów wymienionych poniżej.

**19 हिन्दी (Hindi):**

यह दस्तावेज़ 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.



Department of Environmental Protection

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Findings of Fact in Support of Final Water Management Permit #9P4-4-21-239.09 OS Golf Club LLC

The Department of Environmental Protection ("MassDEP" or "the Department") has completed its review of the OS Golf Club LLC Water Management Act (WMA) permit renewal application. This review was conducted in regard to the permit for OS Golf Club LLC (OS Golf) to withdraw water from the South Coastal Basin. The Department hereby **issues** Water Management Permit #9P4-4-21-239.09 (the "Permit") in accordance with the Water Management Act (M.G.L. c. 21G). The Department makes the following Findings of Fact in support of the attached Permit, and includes herewith its reasons for issuing the Permit and for the conditions of approval imposed, as required by M.G.L. c. 21G, § 11, and 310 CMR 36.00. The Permit is being issued since such action is necessary for the promotion of the purposes of M.G.L. c. 21G. The Department may modify, suspend or terminate the Permit, after notice and hearing, for violations of its conditions, of M.G.L. c. 21G, or of regulations adopted or orders issued by the Department, and when deemed necessary for the promotion of the purposes of the Water Management Act.

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

Withdrawal Description and History

OS Golf was issued WMA Permit #9P4-4-21-239.09 in July of 2003 to withdraw water from one well (Well 1) to irrigate its 18-hole golf course. The authorized annual average withdrawal volume for the majority of the permit's life cycle was 47.0 MGY over a 210 day irrigation period, for an average daily withdrawal of 0.22 million gallons per day (MGD); a higher volume (0.27 MGD) was authorized for the 2003 and 2004 grow-in seasons.

Reported withdrawal volumes show OS Golf's use to be substantially less than the authorized volume. The average use is 0.10 MGD over its 14-year permit record, with values ranging from 0.05 MGD (2009) to 0.13 MGD (2005). In its 2010 permit renewal application, OS Golf proposed lowering its authorized volume to 31.0 MGY (or 0.15 MGD), which MassDEP accepted. Therefore, this Renewed Permit authorizes a decrease in water withdrawal volume. The Permit does not add any new withdrawal sources. The course includes one lined pond that was constructed to support the irrigation system, and one natural pond that is not part of the irrigation system.

Permit Extensions

OS Golf's permit was issued on July 3, 2003 and was originally set to expire on August 31, 2010. Because the expiration dates for all Water Management permits were extended for four years by Chapter 240 of the Acts of 2010, as amended by Chapter 238 of the Acts of 2012, collectively known as the Permit Extension Act, the Department accepted a renewal application from OS Golf dated May 28, 2010. The Department published notice of the permit renewal application in the Environmental Monitor on June 23, 2010. No comments were received.

In addition, in a letter of September 25, 2015, the Department informed OS Golf that the Department would need additional time before making a determination on the application in order to ensure that all permit renewal applicants in the South Coastal Basin fully understood the new Water Management Regulations (discussed below), and to give proper consideration to all permit renewal applications within the basin. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), OS Golf's existing permit continues in force and effect until the Department issues a final decision on the permit renewal application. The expiration date for all permits going forward in the South Coastal Basin will be August 31, 2030, in order to restore the staggered permitting schedule set forth in the regulations.

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

The WMA 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 description that follows);
- Environmental protections developed through SWMI, including without limitation;
 - protection for coldwater fish resources;
 - minimization of withdrawal impacts in areas stressed by groundwater use;
 - mitigation of the impacts of increasing withdrawals; and
- The special permit conditions in each Water Management Act permit.

Safe Yield in the South Coastal Basin

This 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 calculation for the South Coastal Basin is 70.1 million gallons per day (MGD), and total registered and permitted withdrawals are 44.90 MGD. The maximum withdrawals that are authorized in this permit, and all other permits currently under review by the Department within the South Coastal Basin, will be within the Safe Yield and conditioned as outlined in the regulations. Withdrawal authorizations are further limited by other factors, such as the impact to local resources, water quality constraints, pumping rate limits placed on individual sources, and the regulatory requirement that permit holders demonstrate a need for the water, which for public water systems is done through Water Needs Forecasts prepared by the Department of Conservation and Recreation.

Findings of Fact for Special Permit Conditions

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 Findings of Fact also explain any changes to special conditions from prior permits, when applicable. 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 Volume

Special Condition 1 authorizes an annual average withdrawal volume of 31.0 million gallons per year (MGY) of water, or 0.15 million gallons per day (MGD) over 210 days annually, from OS Golf's groundwater source (Well 1) in the South Coastal Basin. As noted above, this volume marks a decrease from the previously authorized annual average withdrawal volume of 47.0 MGY.

Special Condition 2, Maximum Daily Withdrawal Volume

Special Condition 2 authorizes a maximum daily withdrawal volume from the groundwater source included in the Permit. Well 1 is authorized to withdraw a maximum daily volume of 0.49 MGD. OS Golf reported a maximum daily withdrawal volume in exceedance of the approved rate in 2009 (0.59 MGD) and 2010 (0.60 MGD). Review of the monthly withdrawals in OS Golf's WMA Annual Reports indicates that the exceedances were limited to the occasional single day and were therefore not prolonged. In its May 13, 2015 response, OS Golf stated that the permit language pertains only to the authorized average daily volume. MassDEP wishes to clarify that the permit language does in fact pertain to the maximum daily withdrawal in addition to the annual average daily withdrawal volume.

Special Condition 3, Water Conservation and Seasonal Demand Management Plan

The Water Conservation Plan (Appendix A), which was included as a condition of the existing permit and submitted as part of the permit renewal application, will continue to be a condition of the renewed permit.

Consistent with good water conservation practices, permitted golf courses are required to implement a Seasonal Demand Management Plan (SDMP) as a condition of their Water Management Permit. The SDMP, at a minimum, reduces water use between May 1st and September 30th when the Massachusetts Drought Management Task Force declares a drought level of “Advisory” or higher (“Watch, Warning or Emergency”) for the region in which the golf course is located.

The SDMP shall also be implemented at times when groundwater levels at a USGS monitoring well fall below a groundwater trigger for 60 consecutive days. The monthly trigger levels are the period of record’s monthly 25th percentile depth to water levels in a local well, as determined and published by the USGS. Reductions could start on May 1, so monitoring of the well shall begin on March 1 of each year. Once implemented, the reductions shall remain in place until the daily value of the groundwater levels at the assigned USGS monitoring well have recovered to less than the trigger for 30 consecutive days (when the water table elevation has risen above the trigger level).

OS Golf has been assigned the following USGS monitoring well: #415453070434901 - MA-PWW 22 Plymouth, MA. The monthly groundwater trigger values are shown in Table 4 of the Permit. Should the reliability of the groundwater measurements at this well be so impaired as to question its accuracy, the Permittee may request the Department’s review and approval to transfer to another well to trigger reductions. The Department reserves the right to require use of a different well.

OS Golf shall be responsible for tracking the Massachusetts Drought Management Task Force drought declarations and recording when drought-triggered reductions are implemented. OS Golf shall also be responsible for tracking groundwater levels and recording when groundwater-triggered reductions are implemented. See the groundwater- and drought-tracking instructions (Appendix C) for guidance. Within 14 days of implementing water use reductions, golf course facility managers shall notify MassDEP of implementing reductions by submitting the MassDEP Notification of Water Use Reductions Form for Golf Courses (<https://www.mass.gov/service-details/outdoor-water-use-restrictions-for-cities-and-towns>).

The SDMP is intended to address the necessary minimums of acceptable demand management required as dry conditions begin to impact our environment from May through September. Of particular importance in developing the SDMP and in evaluating its effect on the golf course’s irrigation, is the recognition of nonessential outdoor water uses. The Department considers the irrigation of tees and greens as essential uses, but fairways and roughs less so.

Section C of the SDMP provides two options for water use reduction in table format. The Acres Table requires the identification of the number of acres of irrigated tees and greens, fairways, roughs, landscaping and ornamentals, along with a percent reduction per unit area with worsening drought. The Time Table requires the identification of irrigation reductions based on changes to the timing of irrigation cycles.

OS Golf submitted a SDMP (Appendix B) with its permit renewal application that included the Time Table reduction approach. This approach is incorporated into the renewed permit and is shown in Table 3. OS Golf shall continue to implement the Best Management Practices (BMPs) that are included in its SDMP and Water Conservation Plan.

Special Condition 4, Chapter 30, Section 61 Permit Findings

Special Condition 4 acknowledges the preparation and review of an Environmental Impact Report for The Pinehills LLC (EOEA #11519), including the Phase IV Review Document for the OS Golf Club LLC, in accordance with MEPA.

Special Condition 5, Mitigation Plan

The renewed permit includes a condition that requires mitigation of withdrawals over a baseline volume. Mitigation of withdrawals over a baseline volume are required, if feasible, if future withdrawals exceed the assigned baseline volume. Baseline withdrawal means 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 plant, the Department will use best available data to establish a baseline volume from the water source.

The calculated baseline withdrawal volume for OS Golf is 27.77 MGY, or 0.13 MGD, which was the 2005 withdrawal volume plus 5%. Because OS Golf's authorized volume exceeds its baseline volume, a mitigation plan is required. Mitigating the impacts of increasing withdrawals can be through direct or indirect mitigation activities. Direct mitigation activities can be volumetrically quantified and compared to the permittee's mitigation volume, whereas indirect mitigation activities will improve streamflow and/or fluvial habitat but cannot be volumetrically quantified. Pursuant to 310 CMR 36.22(6), permittees shall first evaluate direct mitigation activities, which include, but are not limited to: surface water releases, stormwater recharge, or infiltration and inflow removal from sewer systems.

OS Golf, which is partially owned and operated by Pinehills LLC (via an entity known as Pinehills OSGC LLC), was unable to identify any direct mitigation options at this time. In addition to evaluating the request over baseline specific to the OS Golf permit, the Department and Pinehills LLC (Pinehills) also evaluated the baselines and mitigation options available to the Pinehills Water Company permit (9P3-4-21-239.03) and the Pinehills Landowners Association Common Area Irrigation permit (9P4-4-21-239.11). All stormwater and wastewater infiltrate locally on the Pinehills property, and Pinehills does not have a reservoir from which to release surface water. Therefore, in consultation with the Department, Pinehills selected indirect mitigation activities to fulfill its mitigation requirements, which are summarized in Appendix D. They include land protection, stormwater standards, low-impact development (LID) practices, private well restrictions, and participation in the Audubon Cooperative Sanctuary Program (ACSP). Appendix D summarizes not only the mitigation credits needed for OS Golf but also for the Pinehills Water Company and Pinehills Landowners Association Common Area Irrigation permits. Pinehills identified 43.33 credits through its various mitigation activities for the entire property, and 1.5 of those credits are being applied to this permit.

OS Golf is responsible for implementing one of the above-listed mitigation activities, namely ACSP participation. OS Golf is required to obtain recognition in the following five ACSP components: Environmental Planning, Water Conservation, Wildlife and Habitat Management, Chemical Use Reduction and Safety, and Water Quality Management.

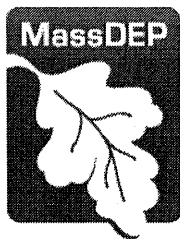
OS Golf shall obtain the ACSP component recognitions within three years. Once the ACSP recognitions are obtained, OS Golf shall renew the recognitions every three years through the life of the permit. OS Golf will submit proof of 1) its Audubon International membership payment with its Annual Report Form each year; 2) recognition in the five components within three years of permit issuance; and 3) the recognitions every three years thereafter.

Minimization of Groundwater Withdrawal Impacts in Stressed Subbasins requires permittees with permitted groundwater sources in subbasins¹ with net groundwater depletion of 25% or more during August to minimize their withdrawal impacts on those subbasins to the greatest extent feasible.

Because the OS Golf's permitted source is located where August net depletion has not been established, minimization measures are not required.

Coldwater Fish Resource Protection was incorporated into the Water Management Regulations in November 2014. Coldwater Fish Resource Protection is not a condition of this permit because the OS Golf's withdrawals do not impact any waters that MA Division of Fisheries and Wildlife has identified as supporting coldwater fish at this time.

¹ 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).



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Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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WATER WITHDRAWAL PERMIT M.G.L. c. 21G

This issuance of Permit #9P4-4-21-239.09 is approved 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.

PERMIT NUMBER: 9P4-4-21-239.09

RIVER BASIN: South Coastal

PERMITTEE: OS Golf Club LLC
41 Doublebrook Road
Plymouth, MA 02360

ISSUANCE DATE: February 21, 2019

EXPIRATION DATE: August 31, 2030

TYPE AND NUMBER OF WITHDRAWAL POINTS:

Groundwater: 1
Surface Water: 0

USE: Golf course irrigation – OS Golf Club

DAYS OF OPERATION: 210

LOCATION:

Table 1. Withdrawal Point Identification

Source	Latitude	Longitude	Location
Well 1	41°53'56"	70°36'40.7"	Valley Road, Plymouth

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This Permit authorizes OS Golf Club LLC (OS Golf) to withdraw an annual average volume of 31.00 million gallons per year (MGY) of water, or 0.15 million gallons per day (MGD) over 210 days annually, from its groundwater source (Well 1) in the South Coastal Basin. OS Golf will continue to report its withdrawals from all four sources in the WMA Annual Report Form.

Table 2. Maximum Authorized Annual Average Withdrawal Volume per Permit Period

Permit Periods	Permit	
	Daily Average (MGD)	Total Annual (MGY)
2/21/2019 to 8/31/2020	0.15	31.00
9/1/2020 to 8/31/2025	0.15	31.00
9/1/2025 to 8/31/2030	0.15	31.00

2. Maximum Authorized Daily Withdrawal Volume

Withdrawals from OS Golf's permitted well (Well 1) are not to exceed the approved maximum daily rate of 0.49 MGD without advance written approval from the Department. OS Golf shall continue to report its maximum daily withdrawal volume in the WMA Annual Report Form.

3. Water Conservation and Seasonal Demand Management Plan

OS Golf's Water Conservation Plan (Appendix A) and Seasonal Demand Management Plan (Appendix B) are included as a condition of the renewed permit. OS Golf shall continue to implement the BMPs indicated in each plan.

OS Golf shall limit nonessential outdoor water use from May 1st through September 30th as outlined in Table 3 and in the instructions for tracking groundwater levels and drought declarations (Appendix C). At a minimum, reductions shall commence when the Massachusetts Drought Management Task Force declares a drought level of "Advisory" or higher ("Watch, Warning or Emergency") for the Southeast Region, or when groundwater levels fall below the groundwater triggers for 60 consecutive days. The groundwater-triggered response actions shall follow the drought-triggered response actions at the Advisory level.

Once implemented, the groundwater-triggered reductions shall remain in place until the daily value of the groundwater levels at the assigned USGS monitoring well have recovered to less than the trigger for 30 consecutive days (when the water table elevation has risen above the trigger level). OS Golf has been assigned the following USGS monitoring well: #415453070434901 - MA-PWW 22 Plymouth, MA. The groundwater trigger values are provided in Table 4. Should the reliability of the groundwater measurements at this well be so impaired as to question their accuracy, the Permittee may request the Department's review and approval to transfer to another well to trigger reductions. The Department reserves the right to require use of a different well.

OS Golf shall be responsible for tracking the Massachusetts Drought Management Task Force drought declarations and recording when drought-triggered reductions are implemented. OS Golf shall also be responsible for tracking groundwater levels and recording when groundwater-triggered reductions are implemented. See the attached groundwater- and drought-tracking instructions for guidance. Within 14 days of implementing water use reductions, golf course facility managers shall notify MassDEP of implementing reductions by submitting the MassDEP Notification of Water Use Reductions Form for Golf Courses (<https://www.mass.gov/service-details/outdoor-water-use-restrictions-for-cities-and-towns>).

Nothing in this permit shall prevent the Permittee from implementing water use reductions that are more restrictive than those set forth in this permit.

Table 3. Irrigation Time Reduction in the OS Golf SDMP

Massachusetts Drought Levels	Irrigating for Shorter Durations as Drought Severity Increases						
	Reduced Minutes in Irrigation Cycles						
	Irrigated Tees & Greens	Irrigated Fairways		Irrigated Roughs		Irrigated Landscape & Ornamentals	
Action Levels	Percent	Percent	Time (min)	Percent	Time (min)	Percent	Time (min)
Normal	100% (Full Cycle)	100%	15	100%	15	100%	8
Advisory †^	100%	80%	12	50%	7.5	0%	0
Watch †	100%	60%	9	0%	0	0%	0
Warning †	100%	40%	6	0%	0	0%	0
Emergency **	TBD	0%	0	0%	0	0%	0

† Nonessential outdoor irrigation use shall not occur between the hours of 9 am and 5 pm, except that hand-watering of hot spots may occur at any time.

^Advisory-level reductions should be implemented when the assigned groundwater trigger is hit.

** Mitigation actions to be determined by the Governor's Emergency Proclamation.

Table 4. Groundwater Level Triggers for MA-PWW 22 Plymouth, MA

Groundwater-Level Triggers (feet below ground surface)						
March	April	May	June	July	August	Sept
24.56	24.13	24.03	24.00	24.49	25.00	25.29

4. Chapter 30, Section 61 Permit Findings

The Pinehills LLC submittals under the Massachusetts Environmental Policy Act (EOEA #11519), including the OS Golf Club LLC Phased Review Document: Phase IV published in the July 10, 2006 Environmental Monitor, were carefully considered prior to taking action on the permit request. The Department, in issuing this permit, required that the applicant has used or will use all feasible means or measures to avoid or minimize adverse environmental impacts. Measures the Department deems necessary to mitigate or prevent harm to the environment are included in the conditions of this approval. The Department made its permitting decision under applicable law based on a balancing, where appropriate, of environmental and socioeconomic objectives, as mandated by 301 CMR 11.01(4).

5. **Mitigation Plan**

OS Golf is required to mitigate 0.015 MGD for its renewed permitted withdrawals over its baseline volume. As outlined in Appendix D, OS Golf shall meet this mitigation requirement by obtaining recognition in the following five components of the Audubon Cooperative Sanctuary Program (ACSP): Environmental Planning, Water Conservation, Wildlife and Habitat Management, Chemical Use Reduction and Safety, and Water Quality Management.

OS Golf shall obtain the ACSP component recognitions within three years of permit issuance. Once the ACSP recognitions are obtained, OS Golf shall renew the recognitions every three years through the life of the permit. OS Golf will submit proof of 1) its Audubon International membership payment with its Annual Report Form each year; 2) recognition in the five ACSP components within three years of permit issuance; and 3) the recognitions every three years thereafter.

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 and in compliance with 310 CMR 36.00.

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

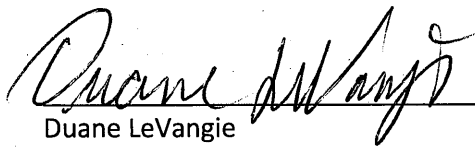
The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

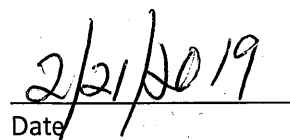
EXEMPTIONS

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
Water Management Program
Bureau of Water Resources


Date

APPENDIX A:
OS GOLF CLUB LLC
WATER CONSERVATION PLAN

WATER CONSERVATION PLAN OS GOLF CLUB

OS Golf Club LLC will manage an 18-hole private golf course in Plymouth, Massachusetts. The OS Golf Club (OSGC) irrigation system will be managed by a "state of the art" irrigation/pump station. This system incorporates new technology in water conservation and irrigation efficiency. The irrigation system will be operated automatically by computerized controllers. These controllers can be programmed with a variety of start times, run times, active days and syringe cycles (a syringe cycle is an override that allows water to be applied to the entire golf course for a few minutes on hot days in order to lower the surface temperature of the grass). OSGC will follow the philosophy of deep and infrequent use of irrigation. This encourages a deeper, stronger root system, and therefore the turfgrass will be stronger. Turfgrass will be irrigated in one to three short cycles during an irrigation event to promote percolation and reduce runoff ("cycle and soak" method); the goal is to replace moisture in the soil profile and encourage deeper root growth.

As much as possible, irrigation will occur overnight during the hours of 12:00 AM and 5:00 AM and under conditions of low wind. The actual sprinkler heads to be used at OSGC are the high-efficiency, gear driven type. In addition, the pump station will have a high and low pressure shutdown which, if the pump drops above or below operating pressure due to a leak in the system, will shut down the system automatically. Furthermore, rain sensors will automatically shut off the irrigation system when precipitation threshold levels are met.

Visual inspection of the system and golf course conditions will also be a main focus of water conservation and management. All employees will be trained to notify a supervisor of any leaks (large or small), breaks in the system, mis-aligned sprinkler heads that may be watering paved areas, or any other potential problems such as a high sprinkler head. Employees will also be trained to report field conditions to a supervisor. These reports will be followed up with an examination of the area(s) and a troubleshooting sequence to find the cause of the problem. Once the cause has been determined, proper adjustments will be made to correct the situation.

Weekly maintenance will include irrigation system maintenance. Time will be spent in leak detection, replacing or cleaning clogged nozzles, checking rotation and additional repairs. Sprinkler head efficiency evaluation will continue on an on-going basis and modifications made as necessary. The actual scheduling of irrigation will be the responsibility of the golf course superintendent. The programming of the controllers will be done on a daily basis and will incorporate current weather conditions, weather forecast, previous programs, and input on present field conditions.

OSGC will also promote Best Management Practices (BMPs) in a deep-cultivation program to improve deep rooting, enhance root viability, and allow for better water infiltration. One of these BMPs will be "aerification." Aerification of greens and tees will occur three times per year and aerification of fairways twice a year. Aerating these areas will permit better water infiltration to the root zone and more efficient use of water. Sand topdressing of turfgrass areas will also take place regularly to manage thatch and organic buildup, which may inhibit water movement through the soil profile.

Hand watering will be practiced on a regular basis during the months of July and August. Employees will be trained in placing water only on those turfgrass areas that require it, and, more importantly, to avoid putting water where it is not needed. A consistent application of wetting agents will be used on greens, tees, fairways, and the practice range to help aid water penetration and to reduce localized dry spots.

The OSGC will allow some areas surrounding tees and fairways to return to natural conditions. In doing this, these areas will be shut off from the irrigation system. From the standpoint of growing turf, there are more problems associated with too much water than not enough. The policy of OSGC will be to maintain things on the "dry side" and conserve as much water as possible. The water to be used will be managed as efficiently as possible and the withdrawal volume will be minimized accordingly.

To further minimize the use of water on the golf course, the OSGC also proposes to:

- Design the irrigation pond to catch excess runoff, preventing loss of rainwater from the site;
- Use native, drought-resistant plants and mulch in landscaped areas; and
- Create screens and windbreaks in exposed places to reduce evaporation losses

APPENDIX B:

**OS GOLF CLUB LLC
SEASONAL DEMAND MANAGEMENT PLAN**



Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Water Management Act
Program
Seasonal Demand Management Plan
For Permitted Water Management Golf Courses

OS Golf Club LLC

Facility Name

#9P4-4-21-239.09

Permit #

Plymouth

City or Town

Plan Requirements

Important: When filling out forms on the computer, use only the tab key to move your cursor – do not use the return key.



Permitted golf courses with irrigation sources under the Water Management Act (WMA) are required to implement a Seasonal Demand Management Plan (SDMP) at permit renewal that, at a minimum, reduces nonessential outdoor water use¹ based on the criteria below.

The SDMP must be consistent with the following when a "Drought Advisory" or greater level (i.e., Watch, Warning or Emergency) is declared by the Massachusetts Drought Management Task Force² (MDMTF) from May 1st to September 30th.

During a Drought Advisory or greater level, nonessential outdoor water use shall not occur between the hours of 9 am to 5 pm when evapotranspiration rates are highest. Hand-watering of hot spots may occur at anytime as necessary.

During a Drought Advisory or greater level, reductions are required in the irrigation (as applicable) of fairways and roughs consistent with those percentages outlined in Section C of this document.

During a Drought Emergency, should the Governor proclaim a state of Emergency, more stringent water use reductions may be required. At a minimum, all non-essential water use (including fairways and roughs) must cease.

Restrictions shall be based on the drought level for the MDMTF region where the golf course is located. Drought levels may be monitored at:
<http://www.mass.gov/dcr/watersupply/rainfall/drought.htm>.

Golf course facility managers shall be responsible for tracking drought declarations and recording when restrictions are implemented.

Complete and return this document to your MassDEP Regional Office.

Should you have any questions, contact Duane LeVangie at 617-292-5706, or Tom LaMonte at 617-292-5532.

A. Golf Facility Information

OS Golf Club LLC

Facility Name

Plymouth

City/Town

Sean McCormack

Course Manager

(508) 209-2200

Phone Number

4/16/10

Date

osgolfclub@verizon.net

¹ "Nonessential outside water use" means uses that are not required: (a) for health or safety reasons; (b) by regulation; (c) for the production of food and fiber; (d) for the maintenance of livestock; or (e) to meet the core functions of a business. Examples of nonessential outdoor water use includes: the irrigation of lawns or landscaping, washing vehicles, parking lots, driveways and/or sidewalks, etc.

Examples of essential water use not subject to restrictions are: irrigation to establish a new lawn during the months of May and September; irrigation for the production of food and fiber or the maintenance of livestock; irrigation by plant nurseries as necessary to maintain stock; irrigation by golf courses as necessary to maintain greens and tees, and limited fairway watering; and irrigation of public parks and recreational fields.

² See Massachusetts Drought Management Task Force at <http://www.mass.gov/dcr/watersupply/rainfall/drought.htm>.
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Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Water Management Act
Program
Seasonal Demand Management Plan
For Permitted Water Management Golf Courses

OS Golf Club LLC
Facility Name
#9P4-4-21-239.09
Permit #
Plymouth
City or Town

B. Best Management Practices (BMPs)

Check the following BMPs for water conservation and management that you implement.

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 1. Water use is 100% metered. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 2. Source meters are regularly calibrated. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 3. New and existing irrigation ponds are lined with impervious material. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 4. Implementation of an irrigation system inspection and maintenance program that includes leak detection and repair, sprinkler head maintenance and replacement. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 5. Regular inspection of course to determine irrigation needs. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 6. Implementation of a Turf Management Plan. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 7. Use of soil sensors and/or soil samples to monitor soil moisture. |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 8. Use of weather stations to generate irrigation cycles. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 9. Use of computer control irrigation system. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 10. Use of low trajectory sprinkler heads. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 11. Use of wetting agents. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 12. Use of drought tolerant grasses and shrubs. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 13. Regular aerating of turf to increase the percolation of water into the soil. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 14. Use of mulch materials in planting beds to improve water-holding capacity. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 15. Elimination of irrigation whenever possible, such as in rough areas. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 16. Limited ornamental watering. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 17. Employee training in water conservation and management. |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 18. Raising turf height during dry weather and drought conditions. |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 19. Reuse of wastewater and/or stormwater for irrigation. |

Comment:

No. 12: Turf types on green and tees are creeping bent; fairways are fine fescue and colonia/bent; both are drought tolerant. The roughs are fine fescue.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Water Management Act
Program
Seasonal Demand Management Plan
For Permitted Water Management Golf Courses

OS Golf Club LLC
 Facility Name
 #9P4-4-21-239.09
 Permit #
 Plymouth
 City or Town

C. Seasonal Demand Management Approach for Water Use Reductions

Demand management protocols frequently require more stringent water use reductions as the water supply availability worsens and triggers dictate when different responses are needed.

The two tables below reflect two approaches to indicate water use reductions. You may choose to complete (fill in the appropriate table) the Acres Table or the Time Table to reflect your water use reduction approach, or otherwise describe your specific water use reduction plan (Option 3). The Acres Table reduces water use by limiting the number of irrigated acres for fairways, roughs, and ornamentals. Notice the water use acreage percent reduction per unit area. The Time Table reduces irrigation by limiting the length of irrigation cycles.

Check and complete Option 1, 2 or 3.

☐ Check box if choosing Option 1.

1. ACRES TABLE (Fill in number of acres in all blank cells)

Massachusetts Drought Levels	Watering Less Irrigated Acreage as Drought Severity Increases							
	Watering allowed up to designated percent							
	Irrigated Tees & Greens		Irrigated Fairways		Irrigated Roughs		Irrigated Landscape & Ornamentals	
Action Levels	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres
Normal	100%		100%		100%		100%	
Advisory †	100%	XXX	80%		50%		*	XXX
Watch †	100%	XXX	60%		*	XXX	*	XXX
Warning †	100%	XXX	40%		*	XXX	*	XXX
Emergency **	TBD	TBD	TBD	TBD	*	XXX	*	XXX

† Nonessential outdoor irrigation use shall not occur between the hours of 9 am and 5 pm, except that hand-watering of hot spots may occur at any time

* No irrigation allowed.

** Mitigation actions to be determined by the Governor's Emergency Proclamation.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Water Management Act
Program

Seasonal Demand Management Plan
For Permitted Water Management Golf Courses

OS Golf Club LLC

Facility Name

#9P4-4-21-239.09

Permit #

Plymouth

City or Town

C. Seasonal Demand Management Approach for Water Use Reductions

☒ Check box if choosing Option 2.

2. TIME TABLE (Fill in time in minutes in all blank cells)

Massachusetts Drought Levels	Irrigating Less Volume as Drought Severity Increases Reduced Minutes in Irrigation Cycles						
	Irrigated Tees & Greens	Irrigated Fairways		Irrigated Roughs		Irrigated Landscape & Ornamentals	
		Percent	Time (min.)	Percent	Time (min.)	Percent	Time (min.)
Normal	Full cycle (100%)	Full cycle	15	Full Cycle	15	100%	8
Advisory †	Full cycle	80%	12	50%	7.5	*	
Watch †	Full cycle	60%	9	*	XXX	*	
Warning †	Full cycle	40%	6	*	XXX	*	
Emergency **	TBD	TBD	TBD	*	XXX	*	

† Nonessential outdoor irrigation use shall not occur between the hours of 9 am and 5 pm, except that hand-watering of hot spots may occur at any time

* No irrigation allowed.

** Mitigation actions to be determined by the Governor's Emergency Proclamation.

Along with completing one of the tables, provide any additional description or narrative explanation as warranted on how your golf course plans to implement required irrigation reductions as drought conditions worsen. This could be through such practices as: limited rotation of sprinkler heads, limits on water pressure, limiting irrigation to hot spots, eliminate non-target watering, etc. (Attach additional pages as necessary.)

☐ Check box if choosing Option 3.

3. Alternative Approach

The Department offers flexibility for equivalent irrigation use reductions. Golf courses that have developed an equivalent plan that quantifies real water use reductions by other means that can relate to the Massachusetts Drought Management Task Force action levels, may submit their plan for the Department's review and approval.

(Attach additional pages as necessary.)

APPENDIX C

Instructions for Accessing U.S. Geologic Survey Groundwater Level and Massachusetts Drought Advisory Information

Groundwater level information is available at the USGS National Water Information System (NWIS): Web Interface. The USGS NWIS default shows Massachusetts groundwater levels in real time, *i.e.*, the most recent, usually hourly, water level measured and recorded at each USGS monitoring well.

Seasonal Limits on Nonessential Outdoor Water Use are implemented when the daily mean depth to water level exceeds the designated trigger for 60 consecutive days (*i.e.*, when the depth to water becomes larger than the trigger value as the water table elevation declines). The daily water level is compared to the trigger for that month. **To determine if restrictions must be implemented on May 1 it is necessary to monitor the daily water level in March and April.**

Mean daily groundwater level readings are available at the USGS NWIS Web Interface at http://waterdata.usgs.gov/ma/nwis/current/?type=gw&group_key=county_cd

- Scroll down to 415453070434901 MA-PWW 22, Plymouth, MA.
- Click on the station number.
- On the pull-down menu "Available data for this site" choose "Daily data".
- Under "Available Parameters" click on "72019 Water level, depth L".
- Under "Output format" click on "Table" and enter the number of days of records (the default is 7 days; entering 60 will give you the past 60 days of data) and hit "GO".
- The table provides the "Daily Mean Depth to water level, feet below land surface" for the most recent number of days chosen.
- Compare each day's value to its month's trigger value (25th percentile) in your permit. Outdoor water use restrictions must be implemented when the daily depth to water has been at or below (*i.e.*, a greater value than) the trigger values for 60 consecutive days.

Drought Advisory information is available at the Massachusetts Department of Conservation and Recreation (DCR) Drought Status Website at

<http://www.mass.gov/eea/agencies/dcr/water-res-protection/water-data-tracking/drought-status.html>

- The color coded map displays the six drought regions in Massachusetts. Restrictions are implemented when a Drought Advisory, Watch, Warning or Emergency is announced in your region through the DCR website.

Appendix D – Pinehills Indirect Mitigation Credit Summary

A mitigation plan is required for three of Pinehills LLC's (Pinehills) permits, as shown in Table D-1. Mitigating the impacts of increasing withdrawals can be through direct or indirect mitigation activities. Direct mitigation activities can be volumetrically quantified and compared to the permittee's mitigation volume, whereas indirect mitigation activities will improve streamflow and/or fluvial habitat but cannot be volumetrically quantified. Pursuant to 310 CMR 36.22(6), permittees shall first evaluate direct mitigation activities, which include, but are not limited to: surface water releases, stormwater recharge, or infiltration and inflow removal from sewer systems.

Pinehills was unable to identify any direct mitigation options at this time. All stormwater and wastewater infiltrate locally, and it does not have a reservoir from which to release surface water. Therefore, in consultation with the Department, Pinehills selected indirect mitigation activities to fulfill its mitigation requirements. As outlined in the 2014 Water Management Act Permit Guidance, one indirect mitigation credit translates into 0.01 MGD of mitigation.

Table D-1. Mitigation required per Pinehills Permit

WMA PERMIT NUMBER	PERMITTEE	REQUIRED CREDIT
9P3-4-21-239.03	Pinehills Water Company	3.5
9P4-4-21-239.04	Pinehills Golf Club	0.0
9P4-4-21-239.09	OS Golf Club LLC	1.5
9P4-4-21-239.11	Pinehills Landowners Association	33.0
TOTAL CREDIT REQUIRED:		38.0

Pinehills has received indirect mitigation credit for the following mitigation activities:

- o land protection;
- o stormwater standards;
- o LID practices;
- o private well restrictions; and
- o participation in the Audubon Cooperative Sanctuary Program.

The basis for the credit value per activity is detailed below, and the credits are summarized in Table D-3.

Land protection: Pinehills is receiving mitigation credit for the preservation of open space along its northern property boundary within the Eel River watershed, referred to in Pinehills' Development Plan as the "western portion of the Northerly Nature Preserve". In January 2005, Pinehills recorded an Open Space Covenant delineating 136 acres to be included in the western portion of the Northerly Nature Preserve, recorded in the Plymouth County Registry of Deeds on January 12, 2005, Book 29833, Page 203.

The Department awarded 15 credits for these efforts, which is the maximum allowable credit for land protection. Specifically, 0.2 credits per acre were awarded for the 46 acres meeting the Department's definition of Priority Conservation Land, and 0.1 credits per acre were awarded for the remaining acreage until the 15-credit limit was reached. Priority Conservation Land is land classified as one or more of the following:

- o Core Habitat and Critical Natural Landscapes as mapped by the Natural Heritage and Endangered Species Program (NHESP) and The Nature Conservancy (TNC) as part of BioMap²;
- o Certified Vernal Pools and abutting land as designated by the NHESP;

² <https://www.mass.gov/service-details/massgis-data-layers>

- NHESP Priority Habitats of Rare and Endangered Species;
- Areas of Critical Environmental Concern (ACECs) as designated by the Secretary of Energy and Environmental Affairs; or
- aquatic buffers including buffer zones of Coldwater Fishery Resources (CFRs) and Outstanding Resource Waters (ORWs) as designated by the Massachusetts Department of Fish and Game.

The parcel includes approximately 46 acres of BioMap2 Core Habitat and Critical Natural Landscapes as show in Figure 1 of an April 26, 2017 memo provided by Pinehills to the Department (attached). Table D-2 shows the credit assignments by acreage. Special condition 8 of WMA Permit 9P4-4-21-239.11 details the documentation and certification of the land protection.

Table D-2. Summary of credit for Pinehills land protection

Western portion of Northerly Nature Preserve	Map Parcel ID	Acres	Credits per acre	Total Credits
Priority Conservation Land	077B-000-000S-158	46	0.2	9.2
Other Conservation Land	077B-000-000S-158 079A-000-001A-017 079A-000-001A-018	58	0.1	5.8

Stormwater standards: The Department awarded 7 credits for Pinehills' stormwater standards. Specifically, 2 credits were awarded for the standards applying to the entire Pinehills property, and 5 credits were awarded for the standards' minimum regulated project size of 5,000 square feet. Special conditions 9 and 12 of WMA Permit 9P4-4-21-239.11 detail the documentation and certification of these standards.

LID practices: The Department awarded 2.33 credits for Pinehills' LID practices. Specifically, 1 credit was awarded for the clearly defined and enforceable LID requirements included in Pinehills' governing documents; and 1.33 credits were assigned for performance standards including a large percentage of open space (70%) and direct infiltration of rooftop runoff in the Eel River Watershed. Special conditions 10 and 12 of WMA Permit 9P4-4-21-239.11 detail the documentation and certification of these requirements.

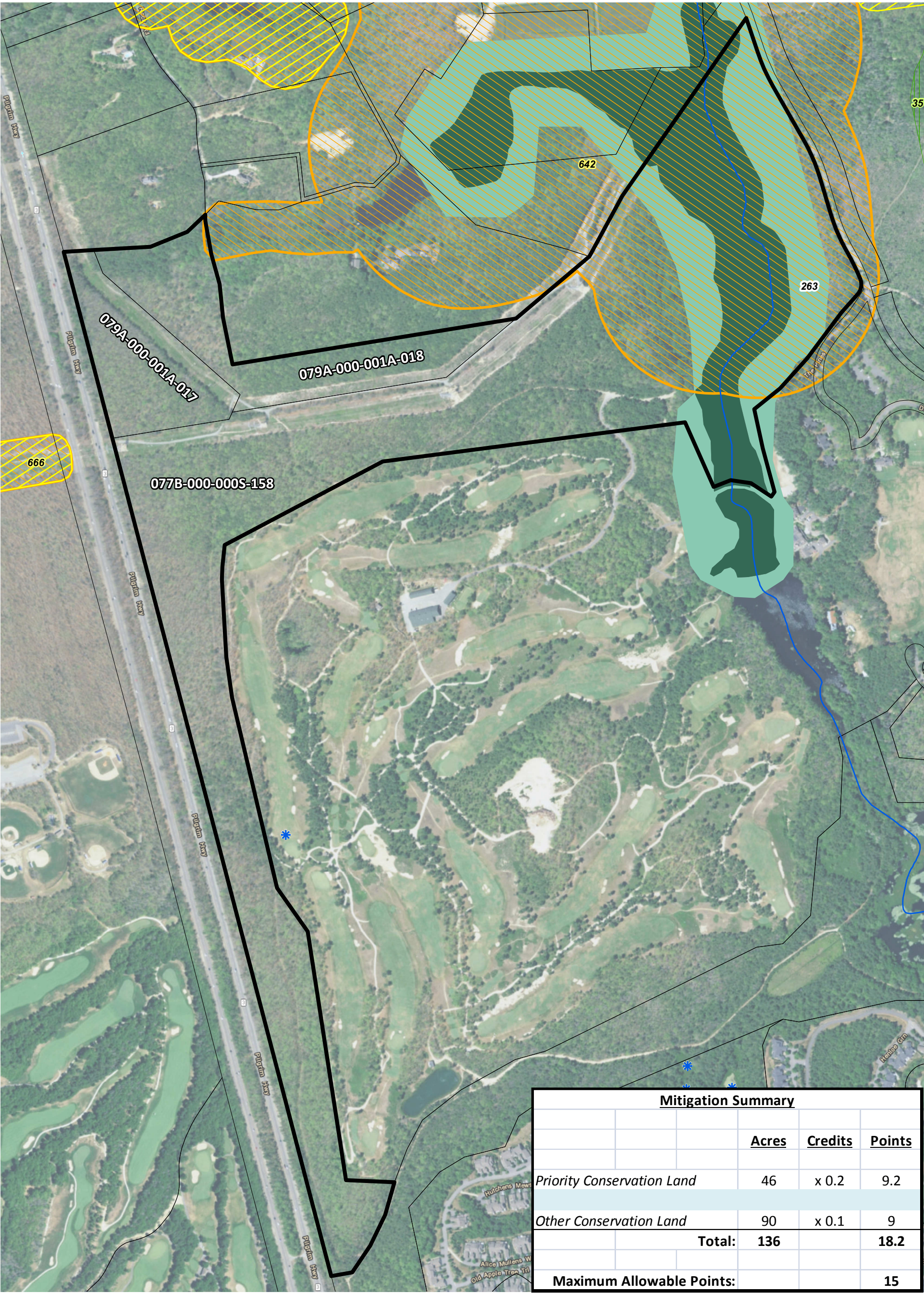
Private well restrictions: The Department awarded 10 credits for Pinehills' private well restrictions. Specifically, the Pinehills governing documents prohibit the installation of private wells (*i.e.*, water-supply wells that are not regulated by WMA). Pinehills has certified that no unregulated wells will be installed during the permit period except for a well previously authorized in 2006. Special conditions 11 and 12 of WMA Permit 9P4-4-21-239.11 detail the documentation and certification of these standards.

Audubon Cooperative Sanctuary Program participation: The Department will award 9 credits for Pinehills obtaining recognition in the Audubon Cooperative Sanctuary Program (ACSP) for Golf. Note that this activity pertains specifically to OS Golf Club LLC (OS Golf). As specified in WMA Permit 9P4-4-21-239.09, OS Golf is required to obtain recognition in the following five ACSP components: Environmental Planning, Water Conservation, Wildlife and Habitat Management, Chemical Use Reduction and Safety, and Water Quality Management.

OS Golf shall obtain the ACSP component recognitions within three years. Once the ACSP recognitions are obtained, OS Golf shall renew the recognitions every three years through the life of the Permit. OS Golf will submit proof of 1) its Audubon International membership payment with its Annual Report Form each year; 2) recognition in the five components within three years of permit issuance; and 3) the recognitions every three years thereafter.

Table D-3. Indirect credits per Pinehills mitigation activity



MITIGATION ACTIVITY	CREDITS
ACSP Participation	9.00
Land Protection	15.00
Stormwater Standards	7.00
LID Practices	2.33
Private Well Restrictions	10.00
TOTAL CREDITS:	43.33







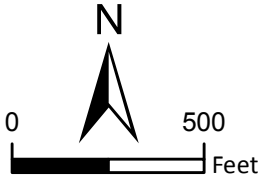
Mitigation Summary					
			Acres	Credits	Points
Priority Conservation Land			46	x 0.2	9.2
Other Conservation Land			90	x 0.1	9
Total:			136		18.2
Maximum Allowable Points:					15

Path: H:\Projects\Pinehills\Master_GIS\Maps\170419_PreserveCalcs.mxd

Legend

-  Western Portion of Northerly Nature Preserve
-  Parcels
-  MA DFW Coldwater Fisheries Resources
-  NHESP Certified Vernal Pools
-  NHESP Priority Habitats of Rare Species

-  BioMap2 CH Forest Core
-  BioMap2 CH Species of Conservation Concern
- BioMap2 CNL Aquatic Buffer**
-  Aquatic Core
-  Upland Buffer of Aquatic Core



Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Unit 1 • Sandwich, MA 02563
508-833-6600 • horsleywitten.com

Open Space Mitigation
The Pinehills
Plymouth, MA