

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

John J. Judge, Pinehills, LLC
Anthony D. Green, Pinehills Landowners Association
33 Summerhouse Drive
Plymouth, MA 02360

Town: Plymouth
WMA Permit #: Permit 9P4-4-21-239.11
Program: Water Management Act
Action: Final Permit Renewal

Dear Sirs:

Please find the following attached:

- Findings of Fact in Support of the renewal of Permit #9P4-4-21-239.11; and
- Final Water Management Act Permit #9P4-4-21-239.11 for the Pinehills Landowners Association.

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: Duane LeVangie, DEP
Mettie Whipple, ERWA
Neal Price, Horsley Witten Group

Mark Nelson, Horsley Witten Group
Deborah Sedares, Pinehills
Julia Blatt, MA Rivers Alliance

cc:
Hidden Bog Estates
c/o James Dargan
237 Beaver Dam Road
Plymouth, MA 02360

Eugene Lane
78 Asiaf Way
Plymouth, MA 02360

Jeanette Alsheimer
53 Jordan Road
Plymouth, MA 02360

Town of Plymouth
Department of Public Works
11 Lincoln Street
Plymouth, MA 02360

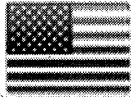
James Dargan
237 Beaver Dam Road
Plymouth, MA 02360

Town of Plymouth
Conservation Commission
11 Lincoln Street
Plymouth, MA 02360

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Permit-2019-02-21

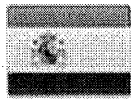


Massachusetts Department of Environmental Protection
One Winter Street, Boston MA 02108 • Phone: 617-292-5751
Communication For Non-English Speaking Parties -
 310 CMR 1.03(5)(a)



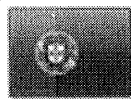
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2 Español (Spanish):

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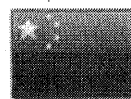
3 Português (Portuguese):

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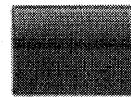
4(a) 中國 (傳統) (Chinese (Traditional)):

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。



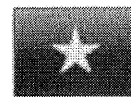
4(b) 中国 (简体中文) (Chinese (Simplified)):

本文件非常重要，应立即翻译。如果您需要翻译这份文件，请用下面列出的电话号码与MassDEP的多样性总监联系。



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។ ប្រសិនបើអ្នកត្រូវបានបកប្រែឯកសារនេះសូមទំនាក់ទំនងអគ្គនាយក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយនាងក្រោម។



8 Kriolu Kabuverdianu (Cape Verdean):

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.



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. اذا كنت بحاجة الى هذه الوثيقة المترجمة، يرجى الاتصال مدير التنوع في MassDEP على أرقام الهواتف المدرجة أدناه.

**11 한국어 (Korean):**

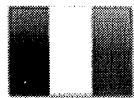
이 문서는 중요하고 즉시 번역해야 합니다. 당신이 번역이 문서가 필요하다면 아래의 전화 번호로 MassDEP의 다양성 감독에 문의하시기 바랍니다.

**12 հայերեն (Armenian):**

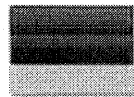
Այս փաստաթուղթը շատ կարևոր է եւ պետք է թարգմանել անմիջապես. Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանվել դիմել MassDEP բազմազանությունը տնօրեն է հեռախոսահամարների թվարկված են ստորև.

**13 فارسی (Farsi (Persian):**

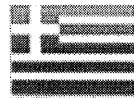
این سند مهم است و باید فوراً ترجمه شده است. اگر شما نیاز به این سند ترجمه شده، لطفاً با ما تماس تنوع مدیر MassDEP در شماره تلفن های ذکر شده در زیر.

**14 Français (French):**

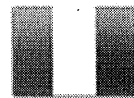
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**15 Deutsch (German):**

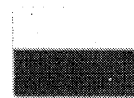
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**16 Ελληνική (Greek):**

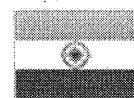
Το έγγραφο αυτό είναι σημαντικό και θα πρέπει να μεταφραστούν αμέσως. Αν χρειάζεστε αυτό το έγγραφο μεταφράζεται, παρακαλούμε επικοινωνήστε Diversity Director MassDEP κατά τους αριθμούς τηλεφώνου που αναγράφεται πιο κάτω.

**17 Italiano (Italian):**

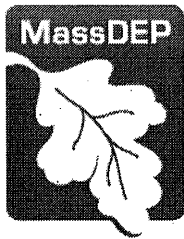
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**18 Język Polski (Polish):**

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**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 #9P4-4-21-239.11 Pinehills, LLC and Pinehills Landowners Association, Inc.

The Department of Environmental Protection ("MassDEP" or "the Department") has completed its review of the joint Pinehills LLC and Pinehills Landowners Association's (collectively "Pinehills") Water Management Act (WMA) permit renewal application. This review was conducted in regard to the permit for Pinehills to withdraw water from the South Coastal Basin. The Department hereby **issues** Water Management Permit #9P4-4-21-239.11 (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

Pinehills was issued WMA Permit #9P4-4-21-239.11 on October 3, 2007 to withdraw water from four groundwater wells to irrigate approximately 136 acres of common areas along roadsides and in neighborhood green areas. Withdrawals from the four wells were originally authorized in 2004 via an amendment to WMA Permit #9P3-4-21-239.03 (Pinehills Water Company); they were removed from that permit upon issuance of WMA Permit #9P4-4-21-239.11. Permit #9P4-4-21-239.11 also authorized an additional 25 to 35 proposed small volume wells provided that they meet the requirements of Special Condition 5. The authorized annual average withdrawal volume was 54.91 MGY over a 168-day irrigation period, for an average daily withdrawal of 0.33 million gallons per day (MGD). The Department did not allocate the entire volume requested in the Pinehills WMA permit application (68.04 MGY) based on two factors:

1. Pinehills requested a 15% reserve capacity of 5.82 MGY to accommodate potential design changes in the master plan. It is the Department's contention that the Permittee should make every effort to

reduce the proposed acreage of common area to be irrigated and to reduce water demand by planting drought resistant vegetation that does not need irrigation.

2. In calculating the irrigation volume, the Department utilized the Golf Course Water Use Policy (BRP/BWM/PeP-P00-5), which credits a drought precipitation contribution of 0.38" per acre per week. The permit application used a lower precipitation contribution of 0.17" per acre per week to calculate the requested withdrawal volume.

On February 21, 2008, the Department modified the permit to acknowledge the Department's approval of the February 18, 2008 *Pinehills Irrigation WMA Permit Monitoring and Reporting Plan* (Special Condition 4 and Appendix B) and to incorporate the conditions and requirements of the plan into the permit.

On August 29, 2008, the Department further modified the permit to authorize the use of three new wells and to allow for minimal daytime watering for system maintenance. The daytime watering allowance was made by modifying the *Irrigation Management, Water Conservation and Drought Management Plan* (Appendix A). Also, additional language was added to Special Conditions 4 and 5.

The permit was last modified on May 22, 2009 to authorize the use of two new wells and allow minimal daytime watering in order to temporarily establish plantings and prevent erosion. The daytime watering allowance was made by modifying the *Irrigation Management, Water Conservation and Drought Management Plan*.

Since the May 2009 permit amendment, Pinehills has added 13 source wells to its irrigation system and decommissioned one well, leaving 21 irrigation wells in operation. Of the 21 active wells, two are in the Eel River Watershed and were required to follow the streamflow trigger requirements outlined in a special condition that is being removed from the renewed permit (see "Eel River Streamflow Triggers" below).

The existing permit notes that, because the majority of the common area irrigation wells had not been installed and metered data for the complete system was not yet available, the Department would review metered withdrawal records over several years and might modify downward the authorized withdrawal volume as necessary. Given that the highest reported annual withdrawal volume to date was 49.16 MGY (0.29 MGD in 2015) and the Pinehills common area is continuing to expand, the Department does not intend to reduce the authorized withdrawal volume at this time.

The Permit Extension Act

Pinehills' existing permit 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 Pinehills 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 Pinehills 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), Pinehills' 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 explains 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 54.91 million gallons per year (MGY), or 0.33 million gallons per day (MGD), of water over 168 days annually from Pinehills' sources in the South Coastal Basin. Pinehills has reported withdrawals in compliance with the authorized annual average volume for the entire permit record.

Special Condition 2, Maximum Daily Withdrawal Volume

Special Condition 2 authorizes a maximum daily withdrawal volume from each groundwater source included in the Permit. Withdrawals from authorized sources are not to exceed the approved maximum rates listed in Table 3 without specific advance written approval from the Department.

Special Condition 3, Conservation and Drought Management Requirements

Appendix A of the Permit is the *Irrigation Management, Water Conservation and Drought Management Plan for Pinehills Common Areas*. In accordance with Special Condition 3, Appendix A is incorporated into the Permit and made enforceable hereunder. This plan was provided by Pinehills and modified by the Department. It meets the appropriate standards and recommendations of the Commonwealth's Water Conservation Standards (July 2006), Section 9 – Lawn and Landscape.

The outdoor water use restrictions in the plan have been updated in this permit renewal. The plan restricts common area irrigation between May 1st and September 30th when either of two conditions is in effect: 1) when the Massachusetts Drought Management Task Force declares a drought level of "Advisory" or higher (Watch, Warning or Emergency) for the Southeast Region; or 2) when groundwater levels at an assigned USGS monitoring well fall below the groundwater trigger for 60 consecutive days.

Pinehills has been assigned the following USGS monitoring well: #415453070434901 - MA-PWW 22 Plymouth, MA. The monthly groundwater trigger values are shown in Table A-1 of Appendix A. Pinehills shall be responsible for tracking the Massachusetts Drought Management Task Force drought declarations and recording when drought-triggered restrictions are implemented. Pinehills shall also be responsible for tracking groundwater levels and recording when groundwater-triggered restrictions are implemented. See the groundwater- and drought-tracking instructions (Table A-2) for guidance.

To date, annual reports have been submitted in accordance with the *Irrigation Management, Water Conservation and Drought Management Plan for Pinehills Common Areas* with the exception of one component: the reporting requirements include a log of the nonessential outdoor water use restrictions that were implemented. Following the 2016 irrigation season, the only time since permit issuance in which the Southeast Region drought status triggered restrictions, Pinehills' annual report included

emails from Horsley Witten Group to individual well operators stating that restrictions should be implemented. In contrast, the plan requires written confirmation that restrictions were in fact implemented. The documentation was insufficient also because the notification was for September 26th and the restrictions were triggered on August 1st, 2016.

In the event of future drought-triggered or groundwater-triggered restrictions, Pinehills shall provide written confirmation that restrictions were in fact implemented on dates that are consistent with the trigger period(s).

Special Condition 4 - Monitoring and Reporting Plan

As noted above, the Department has approved the *Pinehills Irrigation WMA Permit Monitoring and Reporting Plan* and has incorporated the plan as a condition of this permit. To date, annual irrigation reports have been submitted in accordance with the permit. However, two of the required components have been missing: a summary of precipitation data in the Eel River watershed, and a summary of maintenance to the automated rain gage in the Eel River watershed. Pinehills shall include these two components in its annual reports moving forward.

Special Condition 5 - Requirements for Proposed Wells

This condition outlines the pumping test requirements for any proposed new wells. In accordance with this requirement, no small volume well shall be operated until such time as metering for the withdrawal is operational.

The Permittee shall submit annually a report on the number of small volume wells installed in the previous year. The Department will not require an amendment application to add the additional wells to the permit but will modify as the permit is reviewed and revised in the future. As required by this Condition, General Condition 6, and General Condition 8, all sources shall be metered, and reports of metered withdrawal volumes shall be submitted annually. Table 1 of the Permit provides an updated list of Pinehills' irrigation wells. Well construction and pumping test data have been submitted for all new wells to date.

In an August 8, 2018 memo to the Department, Pinehills requested that the step drawdown test requirement be removed from this condition. The Department approves the request provided that the constant-rate test be completely redone (i.e., for a full 8 hours) if an adjustment is made to the pumping rate at any point during the original constant-rate test, and provided that such an adjustment and redo of the test is reported in the Permittee's annual withdrawal report.

Special Condition 6, Chapter 30, Section 61 Permit Findings

Special Condition 6 acknowledges the preparation and review of an Environmental Impact Report for the Pinehills (EOEA #11519) in accordance with MEPA.

Special Condition 7, Mitigation Plan

The renewed permit includes a condition that requires mitigation of withdrawals over a baseline volume. Baseline withdrawals are based on withdrawals made between 2003 and 2005. The baseline withdrawal volume for Pinehills Landowners Association is 0.0 MGD because none of the irrigation wells were in operation during the baseline period. Therefore, a mitigation plan is required for the entire permitted volume (0.33 MGD). Pursuant to 310 CMR 36.22(6), mitigation plans must first include any feasible direct mitigation activities. However, Pinehills was unable to identify direct mitigation opportunities because all stormwater and wastewater are currently infiltrated locally, and there are no surface water release options. Therefore, in consultation with the Department, Pinehills selected indirect mitigation activities to fulfill its mitigation requirements.

While this permit includes an evaluation of the request over baseline specific to this permit for the Pinehills Landowners Association common-area irrigation, the Department and Pinehills also evaluated the baselines and mitigation options available for the OS Golf Club permit (9P4-4-21-239.09) and the Pinehills Water Company permit (9P3-4-21-239.03).

Pinehills shall mitigate the impacts of its withdrawals above baseline through the five indirect mitigation activities summarized in Appendix C; they include land protection, stormwater standards, low-impact development (LID) practices, private well restrictions, and participation in the Audubon Cooperative Sanctuary Program (ACSP). Appendix C summarizes not only the mitigation credits needed for the Landowners permit but also for the OS Golf Club and Pinehills Water Company permits. Pinehills identified 43.33 credits through its various mitigation activities for the entire property, and 33.0 of those credits are being applied to this permit. The credit values are based on the WMA Permit Guidance Document of November 2014.

Special conditions 8, 9, 10, 11, 12, and 13 detail the standards and practices that must remain in place in order for Pinehills to maintain credit for four of the five mitigation activities, namely land protection, stormwater standards, LID practices, and private well restrictions. In addition, appendices D and E contain certification forms pertaining to these four mitigation activities. Pinehills certified that the Department's mitigation criteria have been and will continue to be met throughout the permit period. These conditions and certification forms are included in this permit because the permit holder (collectively Pinehills LLC and Pinehills Landowners Association) is responsible for the implementation of these four mitigation activities. Requirements specific to the fifth mitigation activity, ACSP participation, are included in the OS Golf permit, because OS Golf is responsible for implementation of that particular activity.

Special Condition 8, Land Protection and Certification for Land Protected for Mitigation Credit

Special Condition 8 requires Pinehills to preserve and maintain open space along its northern property boundary with the Eel River watershed through the WMA permit period. Special Condition 8 also requires Pinehills to complete the Department's Applicant Certification for Land Protected for Mitigation Credit, which is attached as Appendix D.

Special Condition 9, Stormwater Management

Special Condition 9 requires that the stormwater standards for which Pinehills received mitigation credit remain in place through the WMA permit period.

Special Condition 10, LID Practices

Special Condition 10 requires that the LID requirements for which Pinehills received mitigation credit remain in place through the WMA permit period.

Special Condition 11, Private Well Restrictions

Special Condition 11 requires that the private well restrictions for which Pinehills received mitigation credit remain in place through the WMA permit period.

Special Condition 12, Certification for Stormwater Management, LID Practices, and Private Well Mitigation Credit

Special Condition 12 requires Pinehills to complete the Department's Applicant Certification for Stormwater Management, LID Practices, and Private Well Mitigation Credit, which is attached as Appendix E.

Special Condition 13, CCR Amendments

Special Condition 13 requires Pinehills to amend the Declaration of Covenants, Conditions and Restrictions (CCR) to clarify that its standards must comply with all WMA permits and permit renewals.

Eel River Streamflow Triggers were included as a special condition of the expiring permit but are not included in the renewed permit. The condition required the reduction or cessation of use of the Eel River Watershed irrigation wells authorized by this permit when specific streamflow levels were reached. These streamflow triggers were developed by Horsley Witten Group, consultants for Pinehills, and were based on streamflow and stage measurements collected by Horsley Witten at monitoring station within the Eel River. In an August 8, 2018 memo to the Department, Pinehills requested that the condition be removed. Given that the conditions at another local monitoring site are being introduced as a watering-restrictions trigger in the renewed permit (namely the groundwater level trigger in Special Condition 3), Pinehills preferred that only one be used for consistency with Pinehills other three permits (as well as other renewed permits in the South Coastal Basin) and to avoid confusion in managing water use during a drought. On August 29, 2018 Pinehills discussed the proposed change with Mettie Whipple of the Eel River Watershed Association (ERWA), and both parties informed the Department that ERWA does not oppose the removal of this special condition. However, at the request of ERWA, Pinehills intends to continue its monitoring efforts in the Eel River Watershed. The proposed Eel River monitoring program would be in place from June through October during peak outdoor watering and the drier summer season, as follows:

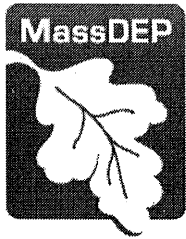
- Monthly measurements of the water level in the river at the existing HW staff gauge (which has been in use). This would run from May through October.
- Flow measurements taken in June, August and October to confirm the accuracy of the staff gauge readings.
- An additional flow measurement will be taken if low flow conditions are experienced, based on the water level readings in the USGS index well used as the drought trigger in the permit.
- Each year's flow measurements will be used to update the most recent rating curve for the measurement site (using data from 2011 forward) to use in evaluating river stage versus river flow conditions.
- Monthly water level readings from an existing monitoring well (Well HW-50) located on the northern boundary of the property from May through October. This is a well that used to be tested quarterly for nitrogen under the groundwater discharge permit so we have historical water level data.
- Annual survey of the staff gauge to insure the data is correct.
- Submission of a brief report to the Eel River Watershed Association annually summarizing the data

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 Pinehills' permitted sources are located where August net depletion has not been established, minimization measures are not required.

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).

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 Pinehills withdrawals do not impact any waters that MA Division of Fisheries and Wildlife has identified as supporting coldwater fish at this time.



Department of Environmental Protection

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Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

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

This issuance of Permit #9P4-4-21-239.11 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: 9P4-4-21-239.11 **RIVER BASIN:** South Coastal

PERMITTEE: Pinehills, LLC and Pinehills Landowners Association, Inc.
Common Area Irrigation
33 Summerhouse Drive
Plymouth, Massachusetts 02360

ISSUANCE DATE: February 21, 2019

EXPIRATION DATE: August 31, 2030

TYPE AND NUMBER OF WITHDRAWAL POINTS:
Groundwater: See Table 1 below
Surface Water: 0

USE: Irrigation

DAYS OF OPERATION: 168 (May 1 – October 15)

LOCATIONS:

Table 1. Withdrawal Point Identification

Source Well Name	Latitude	Longitude	Owner
Summerhouse	41.8823	-70.6018	Pinehills
Forest Edge	41.8881	-70.6010	Forest Edge Landowners Association
Winslowe’s View	41.8922	-70.6024	Winslowe’s View Condo Association
Stonebridge	41.8942	-70.5971	Pinehills
Long Ridge	41.8887	-70.5852	Pinehills
Sedgewood	41.8934	-70.5866	Pinehills
Doublebrook	41.9074	-70.5998	Pinehills
Village Green	41.8811	-70.5997	Pinehills
Great Island Road	41.8846	-70.5892	Pinehills
Rebecca’s Landing	41.8827	-70.5865	G.P. Pines
Five Lanterns (aka The Greens)	41.8957	-70.5888	G.P. Pines
Cottage Cove	41.8773	-70.5758	Great Island Irrigation Committee
Shutter Latch Well	41.881	-70.602	Pinehills
Pine Cobble	41.884	-70.602	Pinehills
Boulder Ridge	41.889	-70.605	Pinehills
Greengate	41.8794	-70.5975	G.P. Pines
Sacrifice Rock Road	41.9042	-70.5944	Pinehills
Mainstone	41.8795	-70.5956	Pinehills
Chadwick Corner	41.8772	-70.5948	G.P. Pines
Great Island Road/Southward Trail	41.8836	-70.5797	Great Island Irrigation Committee
Hatherly Rise	41.9028	-70.5891	G.P. Pines
7 to 17 proposed small volume wells*			

*See Special Condition 5 regarding requirements for proposed wells.

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes Pinehills, LLC and Pinehills Landowners Association, Inc. to withdraw water over 168 days annually from the South Coastal Basin at the rate described in Table 2 below. The permitted volume is expressed both as an average daily withdrawal rate (million gallons per day or MGD), and as a total annual withdrawal volume (million gallons per year or MGY) for each period of the permit term. Pinehills will continue to report its withdrawals from all permitted 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	0.33	54.91
9/1/2020 to 8/31/2025	0.33	54.91
9/1/2025 to 8/31/2030	0.33	54.91

2. Maximum Authorized Daily Withdrawal Volume

Withdrawals from permitted South Coastal Basin common area irrigation sources are not to exceed the approved maximum rates listed below without specific advance written approval from the Department.

Table 3. Maximum Daily Withdrawal Rates (gallons per minute)

Summerhouse	40	Shutter Latch Well	50
Forest Edge	60	Pine Cobble	25
Winslowe's View	400	Boulder Ridge	50
Stonebridge	400	Greengate	50
Long Ridge	50	Sacrifice Rock Road	25
Sedgewood	50	Mainstone	80
Doublebrook	50	Chadwick Corner	70
Village Green	70	Great Island Road/Southward Trail	80
Great Island Road	50	Hatherly Rise	80
Rebecca's Landing	30	7 to 17 proposed small volume wells	*
Five Lanterns (aka The Greens)	25		
Cottage Cove	300		

*Maximum withdrawal rates for the proposed wells will be assigned following review of the data required by Special Condition 5.

3. Conservation and Drought Management Requirements

The Permittee shall be responsible for implementing the Irrigation Management, Water Conservation and Drought Management Plan for Pinehills Common Areas, attached as Appendix A of this Permit. The conditions and requirements of the Irrigation Management, Water Conservation and Drought Management Plan for Pinehills Common Areas are incorporated into this permit and made enforceable hereunder. Nothing in the permit shall prevent the Permittee from implementing water use restrictions that are more stringent than those set forth in this permit.

The Permittee shall submit an annual report documenting conservation efforts for the previous irrigation season in accordance with the requirements outlined in Item 13 of Appendix A. This conservation report shall be submitted with the Permittee's annual withdrawal report.

4. Monitoring and Reporting Plan

The Department approved the February 18, 2008 *Pinehills Irrigation Water Management Act (WMA) Permit Monitoring and Reporting Plan* submitted by Horsley Witten Group on behalf of Pinehills. As necessary, and upon request of the Department, the Permittee shall update/modify the monitoring and reporting plan.

This plan is attached as Appendix B, and the conditions and requirements of the monitoring and reporting plan are incorporated into this permit and made enforceable hereunder.

5. Requirements for Proposed Wells

No small volume well shall be operated until such time as metering for the withdrawal is operational. Pinehills shall, to the extent feasible, locate the small volume wells outside of the 1000-foot buffer of wetlands, surface waters and vernal pools, and outside of the half-mile buffer of any private wells and WMA authorized withdrawals (other than the Pinehills authorized withdrawal points). The Department reserves the right to require the relocation of any well that may impact any of these resources.

An eight (8) hour pumping test shall be conducted at the proposed maximum pumping rate for each proposed irrigation well. If an adjustment is made to the pumping rate at any time during the test, another 8-hour test shall be conducted after water levels have recovered to within at least 95% of pre-test levels.

Drawdown and recovery readings shall be taken at the frequency described in Table 4 below. Recovery shall be 95% drawdown, or for as long as eight (8) hours.

Table 4 – Drawdown & Recovery Readings Frequency	
Time After Pumping Started (minutes)	Measurement Frequency
0-10	1 minute
10-120	10 minutes
120-480	30 minutes

The pumping test report shall include the well log (boring log with well construction details). A report of the number of small volume wells installed in each year shall be submitted with the Permittee's annual withdrawal report. The report shall include:

- The results of the pumping test conducted for each well;
- A description of any adjustments to the pumping rate that prompted a second 8-hour test, if applicable;
- The coordinates (latitude and longitude) of each well as confirmed by GPS;
- An updated map of the small well locations;
- The distance of each well from any vernal pool, surface water, wetland, private well, or WMA authorized withdrawal;
- Status of metering of each well; and
- Any changes made to the control system.

In the case of any irrigation well proposed to be constructed within 200' of a vernal pool, surface water, wetland, private well, or WMA authorized withdrawal, the Permittee shall notify the Department prior to construction to discuss any additional pumping test and/or monitoring requirements that may be required for such well.

6. Chapter 30, Section 61 Permit Findings

The Pinehills LLC submittals under the Massachusetts Environmental Policy Act (EOEA #11519), including the Notice of Project Change 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).

7. Mitigation Plan

The Permittee's baseline volume is 0.0 MGY. Therefore, Pinehills shall mitigate its full permitted volume (54.91 MGY or 0.33 MGD over a 168-day season). Pinehills shall mitigate the impacts of its withdrawals above baseline through the indirect mitigation activities summarized in Appendix C. Pinehills identified 43.33 credits through its mitigation activities, and 33.0 of those credits are being applied to this permit.

Special conditions 8, 9, 10, 11, 12, and 13 detail the standards and practices that must remain in place in order for Pinehills to maintain its various mitigation credits. In addition, appendices D and E contain certification forms pertaining to the mitigation activities. Pinehills certified that the Department's mitigation criteria have been and will continue to be met throughout the permit period.

8. Land Protection and Certification for Land Protected for Mitigation Credit

Pinehills shall protect and preserve the land for which they received mitigation credit (described in Appendix C) by deed restrictions, covenants and zoning bylaws as priority conservation land and other conservation land for the duration of the permit period. Pinehills provided certification that the land has been and will remain protected in this manner (Appendix D). Pinehills also submitted the documentation required to receive mitigation credit, including a colored map of the parcel, a copy of the deed, a copy of the Open Space Covenant, and a copy of all other restrictions, easements or instruments necessary to protect the land, which Pinehills has certified as serving the purpose of a conservation restriction.

9. Stormwater Management

The Declaration of Covenants, Conditions and Restrictions (CCR) for The Pinehills (October 11, 2000, and as subsequently amended), the Master Plan for the Pinehills (July 2000, and as subsequently amended), the Use Restrictions and Rules set forth in Exhibit C of the CCR, and the Stormwater Design Guidelines adopted pursuant to Article V of the CCR (Section 2 of the Information Package for Developers, Builders and Contractors) shall not be amended in such a way as to remove or reduce stormwater management requirements for which the permittee received mitigation credit, including but not limited to:

- a. setting a minimum regulated project size greater than 5,000 square feet (currently all Pinehills construction projects are subject to the stormwater management standards);
- b. limiting the jurisdictional area subject to the stormwater management standards (currently the entire property subject to the Master Plan for the Pinehills (July 2000, and as subsequently amended) ("the Pinehills property"); or
- c. removing or reducing the enforcement authority of Pinehills LLC or the Pinehills Landowners Association to enforce the stormwater management standards.

10. LID Practices

The Declaration of Covenants, Conditions and Restrictions (CCR) for The Pinehills (October 11, 2000, and as subsequently amended), the Master Plan for the Pinehills (July 2000, and as subsequently amended), the Use Restrictions and Rules set forth in Exhibit C of the CCR, and the Stormwater Design Guidelines adopted pursuant to Article V of the CCR (Section 2 of the Information Package for Developers, Builders and Contractors) shall not be amended in such a way as to remove or reduce low impact development (LID) requirements for which the permittee received mitigation credit, including but not limited to:

- a. removing or reducing the requirement that a minimum of 3000 acres of land be under common ownership and control, and that 70% of the land be placed into common open space and common facilities;
- b. removing or reducing the requirement that all roof runoff from structures anywhere on the Pinehills property be directly infiltrated within the Pinehills property;

- c. removing or reducing the requirement that a 200-foot vegetated road buffer be maintained along the entirety of Old Sandwich Road; or
- d. removing or reducing the enforcement authority of Pinehills LLC or the Pinehills Landowners Association to enforce the LID requirements.

11. Private Well Restrictions

The Declaration of Covenants, Conditions and Restrictions (CCR) for The Pinehills (October 11, 2000, and as subsequently amended), the Master Plan for the Pinehills (July 2000, and as subsequently amended), the Use Restrictions and Rules set forth in Exhibit C of the CCR, and Pinehills' individual property deeds shall not be amended in such a way as to remove or reduce restrictions on the construction or installation of wells. In addition, during the permit period, no new wells will be installed anywhere on the Pinehills property that are not regulated by this permit or Pinehills' other three WMA permits (9P3-4-21-239.03, 9P4-4-21-239.04, and 9P4-4-21-239.09), except for the well authorized for the Bump Rock Road District by the Fifth Amendment to the Declaration of Covenants, Conditions, and Restrictions for the Pinehills (September 13, 2006).

12. Certification for Stormwater Management, LID Practices, and Private Well Mitigation Credit

Pinehills provided certification that the Declaration of Covenants, Conditions and Restrictions (CCR) for The Pinehills (October 11, 2000, and as subsequently amended), the Master Plan for the Pinehills (July 2000, and as subsequently amended), the Use Restrictions and Rules set forth in Exhibit C of the CCR, and the Stormwater Design Guidelines adopted pursuant to Article V of the CCR (Section 2 of the Information Package for Developers, Builders and Contractors) impose the stormwater management standards, LID practice requirements, and private well restrictions for which the permittee received mitigation credit, including but not limited to the requirements and restrictions in the conditions of this permit.

13. CCR Amendments

Within six months of permit issuance, Pinehills will amend the CCR as follows:

- a. § 2.28: rewrite the definition of "Permits" to include "renewed";
- b. § 4.1: add "or renewal" after "modification" each instance it appears in 3rd and 4th sentences and of the 2nd paragraph; and
- c. Exhibit E: include all WMA permits.

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

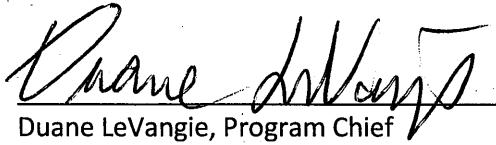
The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

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, Program Chief
Water Management Act Program
Bureau of Water Resources

2/21/2019
Date

APPENDIX A

IRRIGATION MANAGEMENT, WATER CONSERVATION, AND DROUGHT MANAGEMENT PLAN FOR PINEHILLS COMMON AREAS

1. Common areas shall be irrigated only when needed. At a maximum, irrigation shall occur at a rate of no more than 1-inch per week.
2. All watering of common areas shall occur after 7 p.m. and before 7 a.m., with the following exceptions:
 - use of the system shall be allowed between 7 a.m. and 7 p.m. for maintenance activities including startup, winterization, leak detection and other system repairs, and
 - watering of slopes and disturbed areas between 7 a.m. and 7 p.m. shall be allowed for the purpose of establishing plantings to prevent erosion. At a maximum, this watering can take place three times a day during daylight hours, but must be limited to 10 minute increments, equaling a total of 30 minutes per day for a three week period for each disturbed area.

Exceptions to the ban on daytime watering are contingent upon the Permittee tracking and reporting such use to the Department.

3. Pinehills shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in Table A-1 below. Pinehills shall be responsible for tracking groundwater levels and drought advisories by following the instruction in Table A-2. Pinehills shall also document compliance with the seasonal limits on nonessential outdoor water use annually in its WMA Annual Report Form.

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.

The following uses may be allowed, before 7 am and after 7 pm, when mandatory restrictions are in place:

- irrigation to establish a new lawn and new plantings during the months of May and September;
- irrigation of public parks and recreational fields by means of automatic sprinklers outside the hours of 7 am to 7 pm;
- irrigation of gardens, flowers and ornamental plants by means of a hand-held hose or drip irrigation systems; and
- irrigation of lawns by means of a hand-held hose.

Water uses NOT subject to mandatory restrictions are those required:

- for health or safety reasons;
- by regulation;
- for the production of food and fiber;
- for the maintenance of livestock; or

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

Table A-1. Seasonal Limits on Nonessential Outdoor Water Use

Permittee must at a minimum implement the following outdoor water use restrictions:

Groundwater Level Triggered Restrictions from May 1st through September 30th

Nonessential outdoor water use is allowed no more than TWO DAYS per week before 7 a.m. and after 7 p.m. whenever:

- a) Groundwater levels at USGS Monitoring Well 415453070434901 (PWW 22) Plymouth, MA decline to or below the groundwater trigger for 60 consecutive days. The monthly trigger levels are listed below and are the period of record monthly 25th percentile depth to water level values, as determined and published by the USGS. Restrictions could start on May 1, so **monitoring of PWW 22 begins on March 1 of each year.**

Trigger Values for Outdoor Water Use Restrictions (feet below land surface)*

March	April	May	June	July	Aug	Sept
24.56	24.13	24.03	24.00	24.49	25.00	25.29

*As of 3/23/2018

Once implemented, the restrictions 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);

Or

- b) A Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force for Southeastern MA.

Table A-2.

Instructions for Accessing U.S. Geologic Survey Groundwater Level and Massachusetts Drought Advisory Website 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 “WaterLevel, BelowLSD (Mean)”.
- Under “Output Format” click on “Table” and enter the number of days of records (the default is 7 days; entering 60 will give you 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 level is at or below the trigger for 60 consecutive days.

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 restrictions. The Department reserves the right to require use of a different well.

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.

4. The irrigation system shall have an automatic shut-off system, such as a rain gauge, which will automatically shut down the irrigation system during rain events.
5. All irrigation water shall be metered. Review of the water consumption data shall be conducted by the Permittees at least twice during each irrigation season to ensure proper usage.
6. At a minimum, weekly inspections of the irrigation system shall be conducted to detect any leaks, adjust coverage and replace defective irrigation heads.
7. The Permittee shall review annually the landscape policy for the common areas to ensure that that the amount of water needed for irrigation of common areas remains consistent with the withdrawal parameters and conditions of this permit and to consider ways to improve overall efficiency.
8. To the maximum extent practical, native and drought-tolerant species shall be incorporated into the landscaping plans.
9. To the extent practical, drip irrigation shall be used instead of spray irrigation but spray irrigation will likely still be needed.
10. At least every two (2) years, the Permittee shall provide education and training to those persons responsible for the day-to-day implementation of this plan (e.g., Pinehills’ employees, outside contractors). At a minimum, this training shall provide a review the requirements of the *Irrigation Management, Water Conservation and Drought Management Plan for Pinehills Common Areas*, review the current management and conservation practices implemented by each person to ensure compliance with this plan, provide information to correct deficiencies, provide information on new measures that may be implemented to reduce irrigation demand, and review record keeping and reporting practices.

11. The Permittee shall encourage all landscape professionals to abide by a series of best management practices for lawn and garden maintenance. These practices include recommendations that:

- Aeration be provided to common areas at least once per year.
- Mower blades be kept sharp to prevent excessive tearing of grass. Lawn mower blades should be raised to 2-½ inches. Longer grass provides shade for the roots and helps reduce water loss.
- Mulch be used as a ground cover to reduce water evaporation from the soil and reduce the number of weeds competing for soil moisture.
- Planted soils be amended with compost or other materials to increase their water retention capability.

The Permittee shall reference the *Irrigation Management Water Conservation and Drought Management Plan for the Pinehills Common Areas* in all landscape services contracts between the Permittee and landscape professionals working within The Pinehills, and include a copy of the plan as an attachment to all such contracts.

12. The Permittee shall be responsible to maintain records to demonstrate compliance with the requirements of this plan. These records shall be made available to the Department upon request.

13. The Permittee shall submit an annual report of conservation implementation for the previous irrigation season. This conservation report shall be submitted with the Permittee's annual withdrawal report. At a minimum this report shall include:

- a. Monthly withdrawal volumes for the irrigation season.
- b. A log of the nonessential outdoor water use restrictions that were implemented.
- c. Results of the review of water consumption data required by Item 5 and any response actions taken as a result of these reviews.
- d. The results of the annual review of the landscape policy and any response action taken as a result of this review.
- e. A listing of native and drought-tolerant species utilized in the landscaping and the locations of where these species have been planted.
- f. The locations where drip irrigation has been implemented.
- g. The dates, times and volumes of water used for system maintenance activities including startup, winterization, leak detection and other system repairs.
- h. A summary of any education and training provided.
- i. A Certification Statement attesting that the requirements of this plan were implemented during the previous irrigation season.

APPENDIX B

Pinehills Irrigation Water Management Act (WMA) Permit Monitoring and Reporting Plan

Introduction

This Monitoring and Reporting Plan (the Plan) was prepared to satisfy Special Condition 4 of WMA Permit #9P4421239.11 (the Permit), which requires that a Plan be prepared to ensure that the data necessary to implement the actions outlined in Special Condition 3 (Conservation and Drought Management Requirements) and Appendix A (Irrigation Management, Water Conservation, and Drought Management Plan for Pinehills Common Areas) of the Permit are collected and recorded.

I. Compliance Requirements for Pinehills Common Area Irrigation Water Management Act Permit #9P4421239.11

Effective Date: October 3, 2007 through August 31, 2030
Authorized Total Annual Withdrawal: 54.91 million gallons per year (MGY)
Authorized Daily Average Withdrawal: 0.33 million gallons per day (MGD)

II. Responsible Parties for Eel River Watershed Permitted Irrigation Wells

Pinehills LLC and the Pinehills Landowners Association Inc. (collectively referred to hereinafter as "Pinehills") are the responsible parties for irrigation wells located within the Eel River watershed. Pinehills will notify the Department of Environmental Protection (DEP) when and if there is a change in responsibility status.

III. Calculating Withdrawal Volumes for Wells in the Eel River Watershed

Initially, for all irrigated common areas, withdrawal volumes will be calculated assuming 1-inch of irrigation per week per acre served. Through this method, each individual well's allotment can essentially be established as a percent of the total permitted withdrawal volume based on the percentage of irrigated acreage. The Doublebrook Road and Sacrifice Rock Road wells are currently the only irrigation wells within the Eel River watershed. The permitted withdrawal rates for the Doublebrook Well and Sacrifice Rock Road well are 50 gpm and 25 gpm, respectively.

IV. Training

At least every two (2) years, the Pinehills shall provide education and training to those persons responsible for the day-to-day implementation of irrigation practices (e.g., Pinehills' employees, Owners Associations, outside contractors). At a minimum, this training will include a review of the requirements of the *Irrigation Management, Water Conservation and Drought Management Plan for Pinehills Common Areas* (Appendix A), a review of the current management and conservation practices implemented by each well owner or other responsible party to ensure compliance with Appendix A, to provide information to correct deficiencies, to provide information on new measures that may be implemented to manage irrigation demand consistent with the parameters of the Permit, and to review record keeping and reporting practices. The training session will be limited to one day or less to ensure maximum participation.

Sign-in sheets from these biannual training sessions will be provided to DEP in the Annual Report (described below). The sign-in sheet will include the individual's name, their affiliation and position, and contact information (phone/e-mail).

V. Analysis of Data and Annual Reporting

Data to be analyzed include:

- Water withdrawal data from all wells governed by this Permit;
- Contact information from each well operator governed by this Permit;
- Withdrawal allotment calculations (per well basis);
- Pump test reports from newly constructed irrigation wells;
- Plans and as-built drawings of irrigation wells and control systems;
- Landscaping plans;
- Drought status log;
- Notes/minutes taken during the annual review of the *Irrigation Management, Water Conservation, and Drought Management Plan for Pinehills Common Areas* (Appendix A); and
- Biannual training sign-in sheets.

Based on the data gathered and analyzed above, an Annual Report will be produced by the Pinehills for DEP to summarize the irrigation season. This Annual Report will be submitted to DEP by February 28 of each year. The report will include:

- A certified statement of withdrawal on a form provided by DEP;
- Pump test reports from newly constructed irrigation wells;
- Details on irrigation well control systems and as-built plans showing rain gauge locations for newly constructed wells;
- Locations where drip irrigation has been implemented;
- A listing of native and drought-tolerant species used in the landscaping and their locations;
- Summaries (if any) of changes to control systems or in rain gauge locations for any existing wells;
- Updated irrigation well owner contact information;
- Explanations of changes in allotments on a per well basis and supporting calculations;
- Summary of drought monitoring (the Excel spreadsheet required in Section V above) to include instances (if any) where drought status or groundwater levels triggered mandatory irrigation withdrawal reductions;
- Summary of Pinehills twice yearly review of water consumption data and any actions taken as a result thereof;
- Summary of meter calibration testing;
- The results of the annual review of the *Irrigation Management, Water Conservation, and Drought Management Plan for Pinehills Common Areas* (Appendix A);
- A certification statement attesting that the requirements of the *Irrigation Management, Water Conservation, and Drought Management Plan for Pinehills Common Areas* were implemented during the previous irrigation season;
- When applicable, a summary of the biannual training program and inclusion of the sign-in sheet, and
- The dates, times and volumes of water used for system maintenance activities including startup, winterization, leak detection and other system repairs.

Appendix C – Pinehills Indirect Mitigation Credit Summary

A mitigation plan is required for three of Pinehills LLC’s (Pinehills) permits, as shown in Table C-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 C-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 C-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;

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

- Certified Vernal Pools and abutting land as designated by the NHESP;
- 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 C-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 C-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	58	0.1	5.8
	079A-000-001A-017			
	079A-000-001A-018			

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 this permit 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 C-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

APPENDIX D

MITIGATION PLAN DOCUMENTATION
Applicant Certification for Land Protected for Mitigation Credit

Applicant Certification for Land Protected for Mitigation Credit

I hereby certify that:

1. I have compiled, evaluated and/or established all pertinent documents, instruments, records and information necessary to provide this certification, including the documents listed as attachments to this certification;
2. I have consulted with legal, technical and other qualified professionals, as necessary for me to make this certification;
3. the following is true with respect to each of the parcels of conservation land or portions thereof for which mitigation credit is requested:
 - a. the entire portion of land for which mitigation credit is requested is subject to a conservation restriction, easement, or covenant;
 - b. the conservation restriction, easement or covenant took effect on or after January 1, 2005, and will remain in effect until the MassDEP WMA Permit expiration date listed at the end of this form;
 - c. the conservation restriction, easement or covenant is recorded in the Registry of Deeds of the appropriate county or filed with the appropriate Registration District of the Land Court;
 - d. at a minimum, the conservation restriction, easement or covenant prohibits the following uses and activities except for the rights reserved by the grantor:
 - i. industrial, commercial or residential use;
 - ii. recreational activities that materially alter the landscape or potentially degrade water quality (e.g., playing fields, golf courses, swimming pools, play structures, downhill ski areas);
 - iii. motorized vehicles of any kind;
 - iv. disposal or discharge of hazardous materials or wastes;
 - v. storage of hazardous materials;
 - vi. storage or use of fertilizers, herbicides or pesticides; and
 - vii. installation or construction of structures and impervious surfaces.
 - e. the conservation restriction, easement or covenant includes a reservation of rights by the grantor notwithstanding the prohibited activities and uses for no more than the following:
 - i. passive recreation such as walking, hiking, horseback riding, non-motorized bicycle riding and cross-country skiing;
 - ii. maintenance mowing;
 - iii. selective cutting or pruning of trees, brush and other vegetation to prevent, control or remove hazards, disease, insect damage, fire damage, storm damage or invasive species;
 - iv. maintenance and repair of existing structures identified in the restriction or easement (e.g., fences, stone walls); and
 - v. installation of paths for passive recreational use.

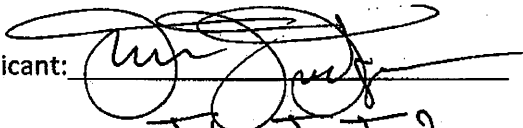
- f. for land not owned by the permit applicant or its affiliate, the owner of the land has agreed to its use for mitigation credit for the MassDEP WMA Permit listed at the end of this form; and
 - g. there are no encumbrances on the property that supersede the conservation restriction, easement or covenant.
4. I shall maintain a copy of all records, regardless of form (e.g., both printed and electronic) upon which I rely in making this certification until a final decision on this application has been issued by the Department and, if this application is approved, will do so thereafter in accordance with the permit conditions. Such records shall include without limitation all documents described in paragraph 1, above, and any supporting documents provided to me by, or relied upon by, such qualified professionals as I may consult in certifying as to the information set forth in paragraph 2, above;
5. I attest under the pains and penalties of perjury that the information contained in this certification and its attachments is, to the best of my knowledge and belief, true, accurate and complete. I am authorized to make this attestation on behalf of the permit applicant. I am aware that there are significant penalties for submitting false, inaccurate or incomplete information, including, but not limited to, the possibility of fine and imprisonment for knowing violations; and
6. I am aware that submitting a false and misleading certification could lead to modification, suspension or revocation of any permit granted pursuant to this certification, as set forth in 310 CMR 36.29 and 36.43.

Attachments:

- A. A table containing the following information for each parcel of land subject to this certification: area of protected land in acres, name of owner(s), municipal assessor's map and lot numbers, source(s) of funding for land purchase, date of land purchase, outstanding lien or mortgage holders, effective date of conservation restriction/easement/covenant, term of conservation restriction/easement/covenant, cost of land purchase or restriction/easement/covenant, and area of Priority Conservation Land¹ in acres.
- B. A copy of the deed to each parcel of land referred to in paragraph 3 above.
- D. A copy of each conservation restriction, easement or covenant referred to in paragraph 3.a. above.
- E. A colored map(s) at an appropriate scale that depicts each parcel of land subject to this certification and any Priority Conservation Land¹ for which 0.2 credits per acre is sought.
- F. If any parcel of land subject to this certification is not owned by the permit applicant or its affiliate, a Land Owner Agreement to Use of Land as Mitigation for Withdrawals in Accordance with a MassDEP Water Management Permit.

¹ Priority Conservation Lands, as defined in the WMA Permit Guidance Document, include NHESP-designated lands (namely BioMap2 Core Habitats and Critical Natural Landscapes, Certified Vernal Pools and abutting land, and Priority Habitats of Rare and Endangered Species), Areas of Critical Environmental Concern, aquatic buffers including buffer zones of DFW Coldwater Fishery Resources (CFRs), and Outstanding Resource Waters (ORWs).

July 13, 2018

Signature of Applicant: 

Date: 9/4/18

Printed Name of Applicant: John J. Judge

MassDEP WMA Permit # _____

MassDEP WMA Permit Expiration Date: _____

APPENDIX E

MITIGATION PLAN DOCUMENTATION

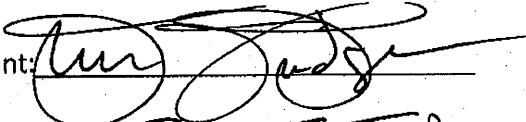
Applicant Certification for Stormwater Management, LID Practices, and Private Well Mitigation Credit

Applicant Certification for Stormwater Management, LID Practices, and Private Well Mitigation Credit

I hereby certify that:

1. I have compiled, evaluated and/or established all pertinent documents, instruments, records and information necessary to provide this certification, including without limitation, the Declaration of Covenants, Conditions and Restrictions ("CCR") for The Pinehills (October 11, 2000, and as subsequently amended), the Master Plan for the Pinehills (July 2000, and as subsequently amended), the Use Restrictions and Rules set forth in Exhibit C of the CCR, and the Stormwater Design Guidelines adopted pursuant to Article V of the CCR (Section 2 of the Information Package for Developers, Builders and Contractors);
2. I have consulted with legal, technical and other qualified professionals, as necessary for me to make this certification;
3. the following is true:
 - a. construction projects greater than 5,000 square feet are subject to the stormwater management standards set forth in the documents described in paragraph 1, above;
 - b. all land subject to the Master Plan for the Pinehills (July 2000, and as subsequently amended) ("the Pinehills property") is subject to the stormwater management standards set forth in the documents described in paragraph 1, above;
 - c. the stormwater runoff infiltration requirements set forth in the documents described in paragraph 1, above, include a minimum runoff volume equal to 0.5 inches over the impervious surface areas; and
 - d. Pinehills LLC and the Pinehills Landowners Association have the authority to enforce the requirements described in paragraphs 3a through 3c.
4. the following is true:
 - a. at least 3000 acres of the Pinehills property is under common ownership and control, and at least 70% of the Pinehills property is common open space or utilized for common facilities;
 - b. all rooftop runoff from structures within the Eel River Watershed, which comprises one-third of the Pinehills is directly infiltrated within the Pinehills property;
 - c. a 200-foot vegetated road buffer is maintained along the entirety of Old Sandwich Road; and
 - d. Pinehills LLC and the Pinehills Landowners Association have the authority to enforce the requirements described in paragraphs 4a through 4c above, in accordance with the terms of the CCR.

5. the following is true:
 - a. at the present time there are no wells on the Pinehills property that are not regulated by WMA permits 9P342123903, 9P442123904, 9P442123909, and 9P442123911 with the exception of the well authorized by the 5th Amendment to the CCR;
 - b. no one other than Pinehills LLC, Pine Springs LLC, the Pinehills Landowners Association or the owner of a Golf Course (as defined in the CCR) is authorized to construct or install a well within the Pinehills property; and
 - c. Pinehills LLC and the Pinehills Landowners Association have the authority to enforce the restriction described in paragraph 5b above, in accordance with the terms of the CCR.
6. I shall maintain a copy of all records, regardless of form (e.g., both printed and electronic) upon which I rely in making this certification until a final decision on this application has been issued by the Department and, if this application is approved, will do so thereafter in accordance with the permit conditions. Such records shall include without limitation all documents described in paragraph 1, above, and any supporting documents provided to me by, or relied upon by, such qualified professionals as I may consult in certifying as to the information set forth in paragraph 2, above;
7. I attest under the pains and penalties of perjury that the information contained in this certification is, to the best of my knowledge and belief, true, accurate and complete. I am authorized to make this attestation on behalf of the permit applicant. I am aware that there are significant penalties for submitting false, inaccurate or incomplete information, including, but not limited to, the possibility of fines and imprisonment for knowing violations; and
8. I am aware that submitting a false and misleading certification could lead to modification, suspension or revocation of any permit granted pursuant to this certification, as set forth in 310 CMR 36.29 and 36.43.

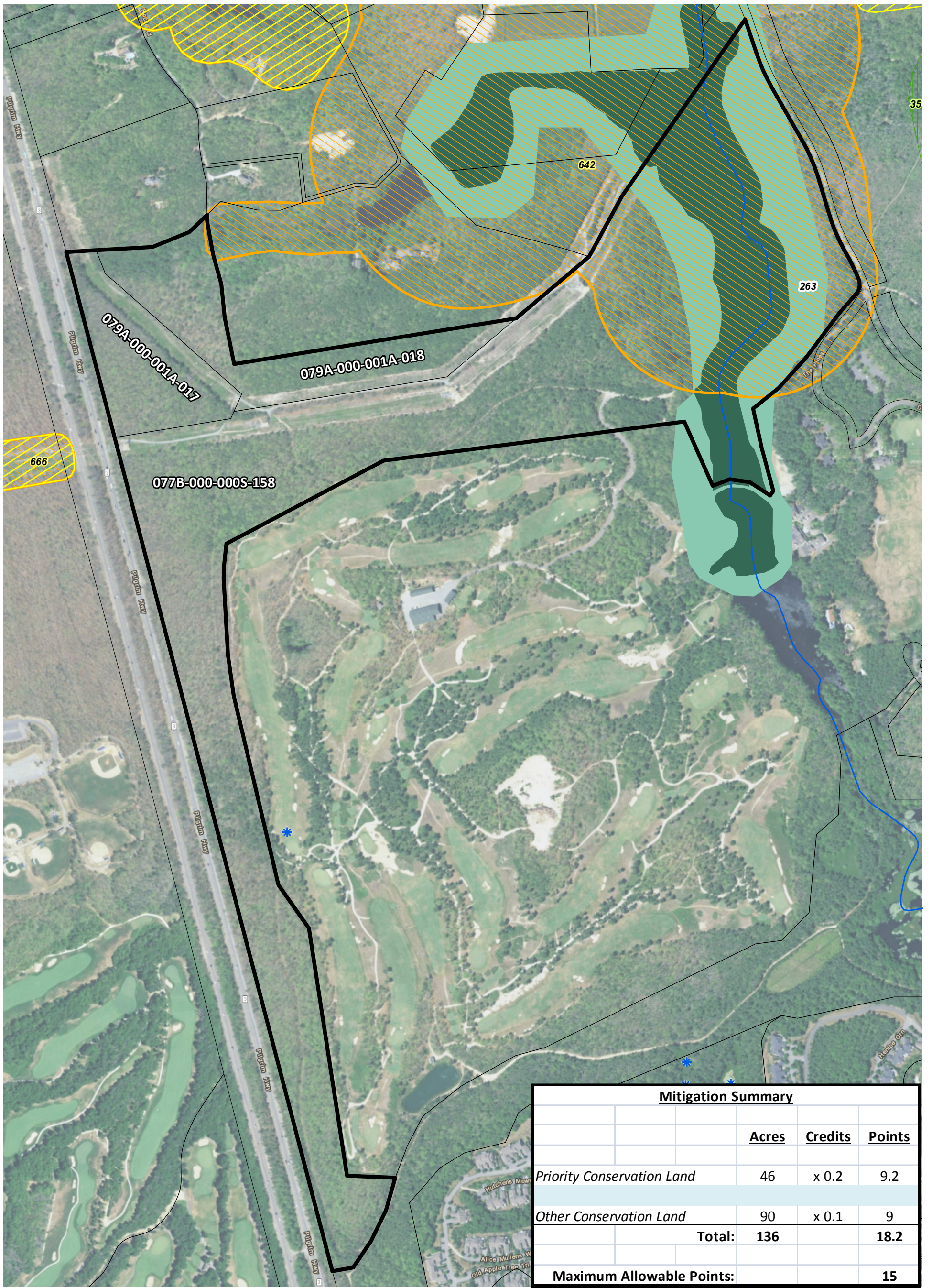
Signature of Applicant: 

Date: 10/16/18

Printed Name of Applicant: John J. Judge

MassDEP WMA Permit # _____

MassDEP WMA Permit Expiration Date: _____



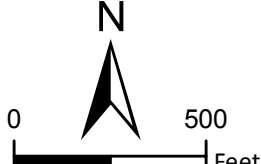
Mitigation Summary			
	Acres	Credits	Points
<i>Priority Conservation Land</i>	46	x 0.2	9.2
<i>Other Conservation Land</i>	90	x 0.1	9
Total:	136		18.2
Maximum Allowable Points:			15

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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
508-833-8600 • horsleywitten.com

Open Space Mitigation
The Pinehills
Plymouth, MA