IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MAINE

UNITED STATES OF AMERICA, Plaintiff, v. FKT RESORT MANAGEMENT LLC; FKT BAYLEY FAMILY LIMITED PARTNERSHIP; FRED W. BAYLEY; KATHLEEN M. BAYLEY; THOMAS R. BAYLEY; BAYLEY HILL DEER & TROUT FARM, INC.; and BAYLEY'S CAMPGROUND, INC., Defendants.	Civil Action No. 2:16-cv-00496-JAW

NOTICE OF LODGING OF PROPOSED CONSENT DECREE

Plaintiff United States of America with this notice lodges with the Court a proposed consent decree that contains the terms of a proposed settlement of this litigation. *See* Exhibit A. *The proposed Consent Decree should not be signed or entered by the Court at this time.*

The United States and all Defendants have resolved all claims in this litigation and have set forth their agreement in the attached proposed Consent Decree. The proposed Consent Decree has been signed by all parties other than the United States, and has been approved for lodging by the United States, with final approval subject to the completion of a public comment process.

The Consent Decree enjoins first-party defendants from discharging pollutants into waters of the United States. *See* Exhibit A, ¶ 9. In such cases, federal regulations require that non-parties to the litigation be afforded an opportunity to comment on the proposed judgment. *See* 28

C.F.R. § 50.7(a). The relevant regulations provide that the proposed judgment be lodged with the Court at least 30 days before the judgment is entered by the Court. *Id.* § 50.7(b).

The proposed Consent Decree recognizes this procedure. *See* Exhibit A, ¶ 51. It provides that the United States reserves the right to withhold its consent from the proposed Consent Decree if the comments received disclose facts which lead the United States to conclude that the proposed judgment is inappropriate, improper, or inadequate. The Defendants agree not to withdraw from, oppose entry of, or to challenge any provision of this Consent Decree, unless the United States has notified the Defendants in writing that it no longer supports entry of the Consent Decree. If consent is not withdrawn or withheld, the United States will execute the Consent Decree and submit it for approval by the Court and entry into the docket as a final Order.

Accordingly, the United States respectfully requests that the Court accept the lodging of the proposed Consent Decree but that the Court not enter it as an order at this time, pending further motion by the United States after the period for public comment.

Respectfully submitted,

Date: September 28, 2016

JOHN C. CRUDEN
Assistant Attorney General

s/ Amy J. Dona
AMY J. DONA
U.S. Department of Justice
Environment and Natural Resources Division
Environmental Defense Section
P.O. Box 7611
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THOMAS E. DELAHANTY II
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s/ John G. Osborn
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United States Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Attorneys for United States of America

CERTIFICATE OF SERVICE

I certify that on September 28, 2016, I electronically filed a true and correct copy of the foregoing Notice of Lodging of proposed Consent Decree with the Clerk of the Court using the Electronic Case Filing ("ECF") System of this Court, and mailed by United States Postal Service, a true and correct copy of the foregoing Notice of Lodging of proposed Consent Decree to counsel for FKT Resort Management LLC, FKT Bayley Family Limited Partnership, Fred W. Bayley, Kathleen M. Bayley, Thomas R. Bayley, Bayley Hill Deer & Trout Farm, Inc., and Bayley's Campground, Inc.

s/ Amy J. Dona

AMY J. DONA
U.S. Department of Justice
Environment and Natural Resources Division
Environmental Defense Section
P.O. Box 7611
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UNITED STATES OF AMERICA, Plaintiff, v. FKT RESORT MANAGEMENT LLC; FKT BAYLEY FAMILY LIMITED PARTNERSHIP; FRED W. BAYLEY; KATHLEEN M. BAYLEY; THOMAS R. BAYLEY; BAYLEY HILL DEER & TROUT FARM, INC.; and BAYLEY'S CAMPGROUND, INC., Defendants.	Civil Action No. 2:16-cv-00496-JAW

CONSENT DECREE

WHEREAS, the Plaintiff, the United States of America, on behalf of the United States Environmental Protection Agency ("EPA"), filed the Complaint herein against FKT Resort Management LLC, FKT Bayley Family Limited Partnership, Fred W. Bayley, Kathleen M. Bayley, Thomas R. Bayley, Bayley Hill Deer & Trout Farm, Inc., and Bayley's Campground, Inc. ("Defendants"), alleging that Defendants violated Sections 301(a) and 404 of the Clean Water Act ("CWA"), 33 U.S.C. §§ 1311(a), 1344;

WHEREAS, the Complaint alleges that Defendants violated CWA Section 301(a) by discharging dredged or fill material and/or controlling and directing the discharge of dredged or fill material into waters of the United States at the "Ross Road Site," located in the towns of Scarborough and Old Orchard Beach, Maine, and the "Campground Site," located in the town of Scarborough, Maine, (collectively, the "Sites," and more fully described in the Complaint), without authorization by the United States Department of the Army ("the Corps");

WHEREAS, the Complaint seeks (1) to enjoin the discharge of pollutants into waters of the United States in violation of CWA Section 301(a), 33 U.S.C. § 1311(a); (2) to require Defendants, at their own expense and at the direction of EPA, to restore and/or mitigate the damages caused by their unlawful activities; and (3) to require Defendants to pay civil penalties as provided in 33 U.S.C. § 1319(d);

WHEREAS, this Consent Decree is intended to constitute a complete and final settlement of the United States' claims under the CWA set forth in the Complaint regarding the Sites;

WHEREAS, the United States and Defendants agree that settlement of this case is in the public interest and that entry of this Consent Decree is the most appropriate means of resolving the United States' claims under the CWA against Defendants in this case; and

WHEREAS, the Court finds that this Consent Decree is a reasonable and fair settlement of the United States' claims against Defendants in this case, and that this Consent Decree adequately protects the public interest in accordance with the CWA and all other applicable federal law.

WHEREAS, nothing in this Consent Decree shall be deemed an admission by Defendants of any violation of the Clean Water Act or other applicable federal law.

THEREFORE, before the taking of any testimony upon the pleadings, without further adjudication of any issue of fact or law, and upon consent of the parties hereto by their authorized representatives, it is hereby ORDERED, ADJUDGED and DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of these actions and over the parties pursuant to CWA sections 309(b) and (d), 33 U.S.C. §§ 1319(b) and (d), and 28 U.S.C. §§ 1331, 1345, and 1355.

2. Venue is proper in the District of Maine pursuant to CWA Section 309(b), 33 U.S.C. § 1319(b), and 28 U.S.C. §§ 1391(b) and (c), because Defendants conduct business in this District, the subject property is located in this District, the violations alleged in the Complaint occurred in this District, and the penalty sought by the United States accrued in this District.

3. The Complaint states claims upon which relief can be granted pursuant to Sections 301, 309 and 404 of the CWA, 33 U.S.C. §§ 1311, 1319 and 1344.

II. APPLICABILITY

4. The obligations of this Consent Decree (including Appendix A and the Ross Road Site and Campground Site Work Plans prepared and approved thereunder) shall apply to and be binding upon Defendants and any successors, assigns, or other entities or persons otherwise bound by law. Defendants shall provide a copy of this Consent Decree, Appendix A, and the Ross Road Site and Campground Site Work Plans prepared and approved thereunder, to all officers, directors, employees, and agents who are responsible for compliance with any provision of this Decree, as well as to any contractor retained to perform work required under this Consent Decree. Defendants shall condition any contract for performance of the work on conformity with the terms of this Consent Decree, Appendix A and the Ross Road Site and Campground Site Work Plans. In any action to enforce this Consent Decree against a Defendant, the Defendant shall not raise as a defense the failure of any of its officers, directors, agents, employees, successors or assigns or any person, firm or corporation acting in concert or participation with the Defendant, to take any actions necessary to comply with the provisions hereof.

5. The transfer of ownership or other interest in any portion of the Sites shall not alter or relieve Defendants of their obligation to comply with all of the terms of this Consent Decree. At least thirty (30) days prior to the transfer of ownership or other interest in the Sites, the party making such transfer shall provide written notice and a true copy of this Consent Decree to its successors in interest and shall simultaneously notify the United States at the addresses specified in Section XI below that such notice has been given. As a condition to any such transfer, the Defendant making the transfer shall reserve all rights necessary to comply with the terms of this Consent Decree.

III. SCOPE OF CONSENT DECREE

6. This Consent Decree shall constitute a complete and final settlement of all civil CWA Sections 301(a) and 404 claims alleged in the Complaint against Defendants concerning the Sites.

7. It is the express purpose of the parties in entering this Consent Decree to further the objectives set forth in CWA Section 101, 33 U.S.C. § 1251. All plans, studies, construction, remedial maintenance, monitoring programs, and other obligations in this Consent Decree or resulting from the activities required by this Consent Decree shall have the objective of causing Defendants to achieve and maintain full compliance with, and to further the purposes of, the CWA.

8. Defendants' obligations under this Consent Decree are joint and several.

9. Except as in accordance with this Consent Decree, Defendants are enjoined from discharging any pollutant into waters of the United States, unless such discharge complies with the provisions of the CWA and its implementing regulations.

10. This Consent Decree is not and shall not be interpreted to be a permit or modification of any existing permit issued pursuant to Sections 402 or 404 of the CWA, 33 U.S.C. §§ 1342 or 1344, or any other law. Nothing in this Consent Decree shall limit the ability of the United States Army Corps of Engineers to issue, modify, suspend, revoke or deny any individual permit or any nationwide or regional general permit, nor shall this Consent Decree limit the EPA's ability to exercise its authority pursuant to Section 404(c) of the CWA, 33 U.S.C. § 1344(c). Any discharge of dredged and/or fill material necessary for work required by this Consent Decree shall be consistent with the requirements of Appendix A.

11. This Consent Decree in no way affects or relieves Defendants of their responsibility to comply with any applicable federal, state, or local law, regulation or permit.

12. This Consent Decree in no way affects the rights of the United States as against any person not a party to this Consent Decree.

13. The United States reserves any and all legal and equitable remedies available to enforce the provisions of this Consent Decree and applicable law.

14. Except as set forth in Paragraphs 1 and 2, supra, nothing in this Consent Decree shall constitute an admission of fact or law by any party.

IV. CIVIL PENALTIES

15. Defendants shall pay a civil penalty to the United States in the amount of Two Hundred and Twenty-Seven Thousand, Five Hundred Dollars ($227,500), in accordance with the following schedule:

a. on or before 30 days after the Effective Date, Defendants shall pay to the United States the sum of $113,750; and

b. on or before 6 months after the Effective Date, Defendants shall pay to the United States the sum of $113,750, plus interest on said sum accruing from the Effective Date to the date of payment, at the rate specified in 28 U.S.C. § 1961 as of the Effective Date. Interest shall be computed daily and compounded annually.

16. Defendants shall make the above-referenced payment by FedWire Electronic Funds Transfer ("EFT" or wire transfer) to the U.S. Department of Justice account in accordance with current electronic funds transfer procedures, referencing U.S.A.O. file number 2014V00147, EPA Region I and the DOJ case number 90-5-1-1-19988. Payment shall be made in accordance with instructions provided to Defendants by the Financial Litigation Unit of the United States Attorney's Office for the District of Maine. Any payments received by the Department of Justice after 4:00 P.M. (Eastern Time) will be credited on the next business day.

17. Upon payment of the civil penalty required by this Consent Decree, Defendants shall provide written notice, at the addresses specified in Section XI of this Consent Decree, that such payment was made in accordance with Paragraph 16.

18. Civil penalty payments pursuant to this Consent Decree (including stipulated penalty payments under Section X) are penalties within the meaning of Section 162(f) of the

Internal Revenue Code, 26 U.S.C. § 162(f), or of 26 C.F.R. § 1.162-21 and are not tax deductible expenditures for purposes of federal law.

V. RESTORATION, MITIGATION AND PRESERVATION

19. Defendants shall perform restoration, mitigation, and preservation projects under the terms and conditions stated in Appendix A appended hereto and in accordance with the Ross Road Site and Campground Site Work Plans approved thereunder, all of which are incorporated herein into this Consent Decree by reference. The parties acknowledge and agree that the objective of such restoration, mitigation, and preservation projects is to restore and replace the lost ecological functions and services of the alleged filled and disturbed wetlands, streams, and other waters described in the Complaint.

20. Upon completion of the terms and conditions of Appendix A, Defendants shall comply with all use restrictions identified in Appendix A.

21. As partial compensatory mitigation, Defendants shall establish the enforceable conservation easements identified in Appendix A (the "Ross Road Site Conservation Easement" and the "Campground Site Conservation Easement") in accordance with the schedule set forth in Appendix A.

22. Where any compliance obligation under this Section and Appendix A requires Defendants to obtain a federal, state, or local permit or approval, Defendants shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. Defendants may seek relief under the provisions of Section IX of this Consent Decree (Force Majeure) for any delay in the performance of any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, if Defendants have submitted timely and complete applications and have taken all other actions necessary to obtain all such permits or approvals.

VI. NOTICES AND OTHER SUBMISSIONS

23. Defendants shall provide EPA and the United States Department of Justice with written reports at the addresses specified in Section XI below and in accordance with the

requirements of and schedule in Appendix A and the Ross Road Site and Campground Site Work Plans.

24. In all notices, documents or reports submitted to the United States pursuant to this Consent Decree, Defendants shall, by signature of a senior management official, certify such notices, documents and reports as follows:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature by any one Defendant shall satisfy this requirement on behalf of and bind all Defendants.

VII. RETENTION OF RECORDS AND RIGHT OF ENTRY

25. Until termination of this Consent Decree, Defendants shall preserve and retain all records and documents now in their possession or control or which come into their possession or control that relate in any manner to the performance of the tasks in Appendix A, regardless of any corporate retention policy to the contrary. Until termination of this Consent Decree, Defendants shall also instruct their contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to the performance of the tasks in Appendix A.

26. At the conclusion of the document retention period, Defendants shall notify the United States at least 90 days prior to the destruction of any such records or documents, and upon request by the United States, Defendants shall deliver any such records or documents to EPA. Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If

the United States requests delivery of Defendants' records or documents and Defendants assert such a privilege, Defendants shall provide the United States with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Defendants. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

27. Until termination of this Consent Decree, the United States and its authorized representatives and contractors shall have authority at all reasonable times, upon advance reasonable notice and upon presentation of credentials, to enter the Ross Road Site and Campground Site to:

1) Inspect the Sites and monitor the activities required by this Consent Decree;

2) Verify any data or information submitted to the United States in connection with the Sites or pursuant to this Consent Decree;

3) Obtain samples and, upon request, splits of any samples taken by Defendants or their representatives, contractors, or consultants;

4) Obtain documentary evidence, including photographs and similar data;

5) Assess Defendants' compliance with this Consent Decree; and,

6) Inspect and review any records required to be kept under the terms and conditions of this Consent Decree.

28. Upon request, Defendants shall provide EPA or their authorized representatives splits of any samples taken by Defendants. Upon request, EPA shall provide Defendants splits of any samples taken by EPA.

29. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States pursuant to applicable federal laws, regulations, or permits, nor does it limit or affect any duty or obligation of Defendants to

maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

VIII. DISPUTE RESOLUTION

30. This Section shall govern all disputes arising with respect to the meaning or requirements of this Consent Decree. This Section does not govern disputes concerning EPA's comments on, modification of, approval of, or disapproval of the Ross Road Site Work Plan and the Campground Site Work Plan (or other item required to be submitted under Appendix A), which are governed by the dispute resolution procedures in Appendix A.

31. Any dispute that arises with respect to the meaning or requirements of this Consent Decree shall be, in the first instance, the subject of informal negotiations between the United States and Defendants affected by the dispute to attempt to resolve such dispute. The period for informal negotiations shall not extend beyond thirty (30) days beginning with written notice by one party to the other affected party or parties that a dispute exists, unless agreed to in writing by those parties. If a dispute between the United States and Defendants cannot be resolved by informal negotiations, then the position advanced by the United States shall be considered binding unless, within fourteen (14) days after the end of the informal negotiations period, Defendants file a motion with the Court seeking resolution of the dispute. The motion shall set forth the nature of the dispute and a proposal for its resolution. The United States shall have thirty (30) days to respond to the motion. In resolving any such dispute, Defendants shall bear the burden of proving by a preponderance of the evidence that the United States' position is not in accordance with the objectives of this Consent Decree and the CWA, and that Defendants' position will achieve compliance with the terms and conditions of this Consent Decree and the CWA.

32. If the United States believes that a dispute is not a good faith dispute, or that a delay would pose or increase a threat of harm to the public or the environment, it may move the Court for a resolution of the dispute prior to the expiration of the thirty (30) day period for informal negotiations. Defendants shall have fourteen (14) days to respond to the motion and

propose an alternate resolution. In resolving any such dispute, Defendants shall bear the burden of proving by a preponderance of the evidence that the United States' position is not in accordance with the objectives of this Consent Decree, and that Defendants' position will achieve compliance with the terms and conditions of this Consent Decree and the CWA.

33. The filing of a motion asking the Court to resolve a dispute shall not extend or postpone any obligation of Defendants under this Consent Decree as a result of such filing, except as provided in Paragraph 41 below regarding payment of stipulated penalties; however, Defendants reserve the right to seek a judicial stay of any obligation under the Consent Decree relating to the dispute pending judicial resolution of the dispute, and the United States reserves the right to oppose any request for a judicial stay. In seeking a stay, Defendants shall demonstrate that the stay shall not pose or increase a threat of harm to the public or the environment.

IX. FORCE MAJEURE

34. Defendants shall perform the actions required under this Decree within the time limits set forth or approved herein, unless the performance is prevented or delayed solely by events which constitute a Force Majeure event. A Force Majeure event is defined as any event arising from causes beyond the control of Defendants, including their employees, agents, consultants and contractors, which could not be overcome by due diligence and which delays or prevents the performance of an action required by this Consent Decree within the specified time period. A Force Majeure event does not include, inter alia, increased costs of performance, changed economic circumstances, changed labor relations, normal precipitation or climate events, changed circumstances arising out of the sale, lease or other transfer or conveyance of title or ownership or possession of the Sites, or failure to obtain federal, state or local permits, unless, as described in Paragraph 22, Defendants have submitted timely and complete applications and have taken all other actions necessary to obtain all such permits or approvals.

35. If Defendants believe that a Force Majeure event has affected Defendants' ability to perform any action required under this Consent Decree, Defendants shall notify the United

States in writing within seven (7) calendar days after the event at the addresses listed in Section XI. Such notice shall include a discussion of the following:

A. what action has been affected;

B. the specific cause(s) of the delay;

C. the length or estimated duration of the delay; and

D. any measures taken or planned by Defendants to prevent or minimize the delay and a schedule for the implementation of such measures.

Defendants may also provide to the United States any additional information that they deem appropriate to support their conclusion that a Force Majeure event has affected their ability to perform an action required under this Consent Decree. Failure to provide timely and complete notification to the United States shall constitute a waiver of any claim of Force Majeure as to the event in question.

36. If the United States determines that the conditions constitute a Force Majeure event, then the deadline for the affected action shall be extended by the amount of time of the delay caused by the Force Majeure event. Defendants shall coordinate with EPA to determine when to begin or resume the operations that had been affected by any Force Majeure event.

37. If the parties are unable to agree whether the conditions constitute a Force Majeure event, or whether the length of time for fulfilling the provision of the Consent Decree at issue should be extended, any party may seek a resolution of the dispute under the procedures in Section VIII of this Consent Decree.

38. Defendants shall bear the burden of proving (1) that the alleged noncompliance at issue was caused by circumstances entirely beyond the control of Defendants and any entity controlled by Defendants, including their contractors and consultants; (2) that Defendants or any entity controlled by Defendants could not have foreseen and prevented such alleged noncompliance; and (3) the number of days of alleged noncompliance that were caused by such circumstances.

X. STIPULATED PENALTIES

39. After entry of this Consent Decree, if Defendants fail to timely fulfill any requirement of the Consent Decree (including Appendix A and any Work Plan prepared and approved thereunder), Defendants shall pay a stipulated penalty to the United States for each violation of each requirement as follows:

A.	For Day 1 up to and including Day 30 of non-compliance	$1,000.00 per day
B.	For Day 31 up to and including 60 of non-compliance	$2,000.00 per day
C.	For Day 61 and beyond of non-compliance	$3,000.00 per day

Stipulated penalties accrue from the date of the violation and payment of such stipulated penalties shall be made no later than thirty (30) days after the United States issues Defendants a written demand. The method of payment shall be in accordance with the provisions of Paragraph 44 below.

40. Any disputes concerning the amount of stipulated penalties, or the underlying alleged violation that gives rise to the stipulated penalties, that cannot be resolved by the parties pursuant to the Dispute Resolution provisions in Section VIII and/or the Force Majeure provisions in Section IX shall be resolved upon motion to this Court as provided in Paragraphs 31, 32 and 33.

41. The filing of a motion requesting that the Court resolve a dispute shall stay Defendants' obligation to pay any stipulated penalties with respect to the disputed matter pending resolution of the dispute. Notwithstanding the stay of payment, stipulated penalties shall continue to accrue from the first day of any alleged failure or refusal to comply with any term or condition of this Consent Decree. In the event that Defendants do not prevail on the disputed issue, stipulated penalties shall be paid by Defendants as provided in this Section.

42. To the extent Defendants demonstrate to the Court that a delay or other alleged violation was due to a Force Majeure event (as defined in Paragraph 34 above) or otherwise prevail on the disputed issue, the Court shall excuse the stipulated penalties for that delay or non-compliance.

43. In the event that a stipulated penalty payment is applicable and not made on time, interest will be charged in accordance with the statutory judgment interest rate provided for in 28 U.S.C. § 1961. The interest shall be computed daily from the time the payment is due until the date the payment is made. The interest shall also be compounded annually.

44. Defendants shall make any payment of a stipulated penalty by FedWire Electronic Funds Transfer ("EFT" or wire transfer) to the U.S. Department of Justice account in accordance with current electronic funds transfer procedures, referencing U.S.A.O. file number 2014V00147, EPA Region I and the DOJ case number 90-5-1-1-19988. Payment shall be made in accordance with instructions provided to Defendants by the Financial Litigation Unit of the United States Attorney's Office for the District of Maine. Any payments received by the Department of Justice after 4:00 P.M. (Eastern Time) will be credited on the next business day. Further, upon payment of any stipulated penalties, Defendants shall provide written notice, at the addresses specified in Section XI of this Decree.

45. The United States may, in its sole and unreviewable discretion, suspend, mitigate, or waive any stipulated penalty owed under this Section.

46. Nothing in this Decree, including but not limited to the provisions of this Section, shall be construed to preclude or limit the right of the United States to seek sanctions for contempt of this Decree or any order to enforce this Decree, provided, however, that the amount of any additional civil penalties sought or assessed pursuant to Section 309 of the CWA, 33 U.S.C. § 1319, for any alleged violations of this Consent Decree shall be reduced by the amount of any stipulated penalties actually paid by Defendants for the same violation.

XI. ADDRESSES

47. All notices and communications required under this Consent Decree shall be made to the parties through each of the following persons and addresses:

A. TO EPA:

(1) Laura Beveridge
Enforcement Counsel
U.S. Environmental Protection Agency, Region 1
5 Post Office Square
Suite 100, OES04-3
Boston, MA 02109
Beveridge.Laura@epa.gov

(2) Denise Leonard
Wetlands Enforcement Section
U.S. Environmental Protection Agency, Region 1
5 Post Office Square
Suite 100, OES04-1
Boston, MA 02109
Leonard.Denise@epa.gov

B. TO THE UNITED STATES DEPARTMENT OF JUSTICE

Amy J. Dona
Environmental Defense Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044
amy.dona@usdoj.gov

D. TO DEFENDANTS:

Gene Libby
Libby O'Brien Kingsley & Champion, LLC
62 Portland Road, Suite 17
Kennebunk, ME 04043
glibby@lokllc.com

48. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

49. Notices submitted pursuant to this Section shall be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XII. COSTS OF SUIT

50. Each party to this Consent Decree shall bear its own costs and attorneys' fees in this action; however, the United States reserves the right to seek costs (including attorneys' fees) incurred in any action necessary to enforce this Consent Decree, and Defendants reserve the right to oppose any request for such costs.

XIII. PUBLIC COMMENT

51. The parties acknowledge that after the lodging and before the entry of this Consent Decree, final approval by the United States is subject to the requirements of 28 C.F.R. § 50.7, which provides for public notice and comment. The United States reserves the right to withhold or withdraw its consent to the entry of this Consent Decree if the comments received disclose facts which lead the United States to conclude that the proposed judgment is inappropriate, improper, or inadequate. Defendants agree not to withdraw from, oppose entry of, or to challenge any provision of this Consent Decree, unless the United States has notified Defendants in writing that it no longer supports entry of the Consent Decree.

XIV. CONTINUING JURISDICTION OF THE COURT

52. This Court shall retain jurisdiction over this action in order to enforce or modify the Consent Decree consistent with applicable law or to resolve all disputes arising hereunder as may be necessary or appropriate for construction or execution of this Consent Decree.

XIVI. EFFECTIVE DATE

53. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket.

XV. MODIFICATION

54. Upon its entry by the Court, this Consent Decree (including Appendix A) shall have the force and effect of a final judgment. Any modification of this Consent Decree (including Appendix A) shall be in writing, and shall not take effect unless signed by both the United States and Defendants and approved by the Court. This Section does not govern modifications of the Ross Road Site Work Plan and the Campground Site Work Plan (or other item required to be submitted under Appendix A).

XVI. TERMINATION

55. Except for Paragraph 21, this Consent Decree may be terminated by either of the following:

A. Defendants and the United States may at any time make a joint motion to the Court for termination of this Decree or any portion of it; or

B. Defendants may make a unilateral motion to the Court to terminate this Decree after each of the following has occurred:

1. Defendants have attained and maintained compliance with all provisions of this Consent Decree, including Appendix A and any Work Plan prepared and approved thereunder, for twelve (12) consecutive months;

2. Defendants have paid all penalties and other monetary obligations hereunder and no penalties or other monetary obligations are outstanding or owed to the United States;

3. Defendants have certified compliance pursuant to subparagraphs 1 and 2 above to the Court and all Parties; and

4. within forty-five (45) days after receiving such certification from Defendants, has not contested in writing that such compliance has been achieved. If EPA disputes Defendants' full compliance, this Consent Decree shall remain in effect pending resolution of the dispute by the Parties or the Court.

XV. SIGNATORIES/SERVICE

56. Each undersigned representative of Defendants, the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice, and the Environmental Protection Agency certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

57. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Defendants agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XVI. INTEGRATION

58. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein, other than deliverables that are subsequently submitted and approved pursuant to this Decree. The Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Consent Decree.

XVII. FINAL JUDGMENT

59. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States and Defendants.

XVIII. APPENDIX

60. The following Appendix is attached to and part of this Consent Decree: "Appendix A" is the "Scope of Work for Wetland Restoration, Mitigation and Preservation, Bayley Sites."

IT IS SO ORDERED.

Dated and entered this _____ day of _____, 2016.

_____
UNITED STATES DISTRICT JUDGE

ON BEHALF OF THE UNITED STATES:

Date:_____

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Assistant Attorney General

_____
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ON BEHALF OF DEFENDANTS:

Date: 9/15/16

FKT Resort Management LLC
By:
{title} General Partner

Date: 9/15/16

FKT Bayley Family Limited Partnership
By:
{title} General Partner

Date: 9/15/16

Fred W. Bayley

Date: 9/15/16

Kathleen M. Bayley

Date: 9/15/16

Thomas R. Bayley

Date: 9/15/16

Bayley Hill Deer & Trout Farm, Inc.
By:
{title} President

Date: 9/15/16

Bayley's Campground, Inc.
By:
{title} President

APPENDIX A
TO CONSENT DECREE

United States v. FKT Resort Management, LLC, et al.
(D. Me.)

SCOPE OF WORK FOR WETLAND RESTORATION, MITIGATION & PRESERVATION BAYLEY SITES: Ross Road & Campground Scarborough and Old Orchard Beach, Maine

August 18, 2016

APPENDIX A
TABLE OF CONTENTS

A. GENERAL PROVISIONS

This Appendix generally describes the activities comprising the injunctive relief required by Section V of the Consent Decree in the matter of United States v. Fred W. Bayley, et al. (D. Me.) ("Consent Decree"). It provides the general requirements for restoration, mitigation, and monitoring work to be performed at the "Ross Road Site," located in the towns of Scarborough (Map/Lot Number R086001) and Old Orchard Beach (Map/Book/Lot Number 101/1/16), Maine, and the "Campground Site," located in Scarborough (Map/Lot Number R087018), Maine. The portions of the Ross Road Site subject to the requirements of the injunctive relief set forth herein are identified on Attachments A and B of this Appendix ("Ross Road Site Project Areas"). The portions of the Campground Site subject to the requirements of the injunctive relief set forth herein are identified on Attachments C and D of this Appendix ("Campground Site Project Areas").

As directed by Section F, *infra*, Defendants shall submit two detailed work plans for achieving the goals and performing the restoration, mitigation, and monitoring requirements described herein – one for the Ross Road Site ("Ross Road Site Work Plan") and one for the Campground Site ("Campground Site Work Plan"). Each work plan shall be subject to EPA review and approval pursuant to Section G. All injunctive relief performed pursuant to the Consent Decree shall comply with the technical specifications, performance standards, monitoring, and other requirements set forth in this Appendix and in the applicable work plans. The Parties acknowledge that the restoration, mitigation, and monitoring requirements required by this Appendix will be implemented in a phased approach, over a period of multiple growing seasons according to the schedule set forth in the applicable work plan. The Parties further acknowledge that, subject to EPA approval, the materials and labor necessary to achieve said

requirements will be provided by the Defendants from their own resources unless Defendants must procure such items from a third-party source.

B. ROSS ROAD SITE

1. ROSS ROAD SITE – PROJECT AREA 1

Project Area 1 of the Ross Road Site is identified on Attachments A and B and includes sub-areas labeled Field 1, Field 2, and Field 3. Defendants shall establish through restoration and/or mitigation no less than 31.7 acres of scrub shrub wetland in Project Area 1. The scrub shrub wetland in Field 1 shall be approximately 9.4 acres. The scrub shrub wetland in Field 2 shall be approximately 17.6 acres. The scrub shrub wetland in Field 3 shall be approximately 4.7 acres. Depending on site conditions, and consistent with the applicable technical standards set forth in Section E.1.a, *infra*, the scrub shrub wetland established in Project Area 1 shall either be a wetland/upland mosaic with pit-and-mound microtopography characteristic of that made by wind-thrown trees or shall have more uniform wetland topography characteristic of a natural undisturbed wetland forest floor without pit-and-mound microtopography. To achieve these goals, Defendants shall perform the work generally described below and shall comply with the applicable technical specifications and performance standards set forth herein and in the Ross Road Site Work Plan.

a. *Fill Removal & Elevation Restoration*: Defendants shall re-grade, excavate, and/or over-excavate[1] Project Area 1 to achieve the surface elevations necessary to create the pattern of topographical relief required by Section E.1.a, *infra*, and shall comply with the applicable technical specifications and performance standards for topsoil depth and

[1] For the purposes of this Appendix, "over-excavation" shall be defined as removal of fill and/or dredged material and elevation restoration to the elevation necessary to accommodate the addition of sufficient organic topsoil while achieving the hydrological requirements. The terms "fill" and "dredged material" as used in this Appendix shall be defined consistent 40 C.F.R. § 232.2.

hydrology set forth in Section E and the Ross Road Site Work Plan. Where site-specific fieldwork indicates that the existing topography, hydrology, and topsoil depth and content are consistent with the applicable specifications and standards, as determined by EPA, then excavation, over-excavation, and/or backfilling with additional topsoil will not be required.

b. *Pond Restoration*: The pond in Field 2 of Project Area 1, identified on Attachment B, shall be backfilled to an elevation that will support Palustrine scrub shrub and/or Palustrine emergent marsh vegetation and that will accommodate the addition, as necessary, of sufficient organic topsoil to meet the technical specifications set forth herein and in the Ross Road Site Work Plan.

c. *Drainage & Ditch Removal*: Defendants shall remove, or permanently disable to EPA's satisfaction, all drainage from Project Area 1, including, but not limited to, all subsurface drainage, underdrains, pipes, gravel bedding, and other drainage structures. The Ross Road Site Work Plan shall identify the location of all drainage in Project Area 1 and propose a method for removing and/or permanently disabling that drainage that is compatible with the restoration/mitigation work required by this Appendix. If additional drainage is discovered during implementation of the restoration and mitigation work or during the applicable monitoring period, Defendants shall amend the Ross Road Site Work Plan to both identify and propose a method for removing and/or permanently disabling such drainage. In addition, Defendants shall fill all interior ditches and perimeter ditches to an elevation comparable to the adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in Project Area 1.

d. *Road Removal*. Consistent with Section E.1.h, *infra*, all roads and other travelways in Project Area 1, including all gravel or other substrate, shall be removed and re-

graded to an elevation comparable to the adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in Project Area 1. However, Defendants may retain or create a vegetated dirt travelway along the border of Project Area 1, as depicted on Attachment B. Such travelway shall comply with the requirements of Section E.1.h and use of such travelway shall be limited consistent with the use restrictions set forth in Section B.1.f and the enforceable conservation easement required by Section D.1 of this Appendix.

e. *Planting:* It is expected that Project Area 1 will support a variety of wetland classes, ranging from emergent wetland habitat to scrub shrub and, through natural regeneration, early successional wetland forest. Defendants shall submit a detailed planting plan for Project Area 1 to EPA for approval as part of the Ross Road Site Work Plan. At a minimum, the planting plan shall require Defendants to seed Field 1, Field 2, and Field 3 with a native inland wetland conservation mix and plant each Field, with the exception of the former pond location in Field 2, with native wetland scrub shrub species in densities of not less than 500 stems per acre. Scrub shrub species shall be no less than 18 inches in height and must have a regional indicator status of FAC, FACW, or OBL as defined by the U.S. Army Corps of Engineers' *Northcentral and Northeast 2016 Regional Wetland Plant List* dated April 28, 2016, and attached hereto as Attachment J (hereafter "*2016 Regional Plant List*"), provided, however, that (1) FAC species in Field 2 and Field 3 shall constitute no more than 50% of the woody species planted and (2) the combination of woody species planted in each Field reflects the natural diversity of wetland species present in appropriate undisturbed reference areas agreed to by the Parties. Formerly ponded areas of Field 2 may be planted with either native wetland scrub shrub species or with Palustrine emergent marsh vegetation.

f. *Use Restrictions*: Project Area 1 shall be designated a no mow/no

farming/no grazing zone. The use of all off-road motorized vehicles shall be prohibited in Project Area 1, except for that use necessary to plant, maintain, and manage the wetland and other habitat established pursuant to this Appendix and to respond to the threat or actual occurrence of fire. In addition to the above-stated use restrictions, Project Area 1 shall be subject to the use restrictions set forth in the conservation easement established by Defendants pursuant to Section D, *infra*.

2. ROSS ROAD SITE – PROJECT AREA 2 (LONG POND)

Project Area 2 of the Ross Road Site is identified on Attachments A and B. Defendants shall address the effects of the rectangular water body, identified on Attachments A and B as "Long Pond," on the hydrology of the Ross Road Site through the construction of two berms as generally depicted on Attachment B. As discussed further below, the berms shall be designed to raise, to the maximum extent practicable, upgradient groundwater elevations in Field 1 and Field 2 of Project Area 1, in an effort to restore the hydrology of the Ross Road Site to a condition similar to that in existence prior to the construction of Long Pond. In addition, Defendants shall create a 4.4 acre graded wetland bench in Project Area 2 around the perimeter of Long Pond as generally depicted on Attachment B, which will provide habitat for native wildlife and serve as a transitional vegetative zone between open water areas and wetlands areas. On the berms, Defendants shall establish and plant a combined total of no less than 2.6 acres of scrub shrub wetland above the expected ordinary high water mark ("OHWM"). On the 4.4 acre graded wetland bench, Defendants shall establish and plant approximately 2.4 acres of scrub shrub wetland above the OHWM and approximately 2 acres of vegetative wetland below the OHWM in water depths that generally do not exceed 12 inches during much of the year. While it is anticipated that additional aquatic habitat will be created in between the berms and wetland

bench, such as deeper water marsh and open water areas of variable depths, this habitat shall not be counted toward the total wetland acreage required on the berms and wetland bench. To achieve these goals, Defendants shall perform the work generally described below and shall comply with the applicable technical specifications and performance standards set forth herein and in the Ross Road Site Work Plan

a. *Berms:* In accordance with plans and specifications developed by an appropriately licensed professional engineer in consultation with a qualified hydrogeologist and constructed under the supervision of such engineer, Defendants shall divide Long Pond into two smaller ponds through the construction of two berms as generally depicted on Attachment B. Engineering plans for the construction of the berms containing the seal and signature of an appropriately licensed engineer shall be submitted as part of the Ross Road Site Work Plan required by Section F and shall contain project specifications for the construction of the berms. Project specifications, including, *inter alia*, project specifications related to the placement, composition, height, and width of the berms, shall be selected to (1) ensure the structural integrity of the berms; (2) achieve the maximum practicable rise in groundwater elevations in Field 1 and Field 2 of Project Area 1 consistent with the results of groundwater modeling to be conducted pursuant to Attachment E (Ross Road Site Groundwater Modeling Outline); and (3) allow for the establishment of a combined total of no less than 2.6 acres of scrub shrub wetland above the OHWM on the berms themselves. All groundwater modeling conducted pursuant to Attachment E shall be done by a qualified hydrogeologist in accordance with the schedule and requirements set forth therein. It is envisioned that on-site materials will be used for the berms, provided that (1) the hydrologic properties of such on-site materials are similar to the hydrologic properties of materials showing the maximum practicable rise in groundwater elevations in Field

1 and Field 2 based on groundwater modeling conducted pursuant to Attachment E and (2) the topsoil layer complies with the applicable technical specifications for depth and organic composition necessary to support the wetland vegetation specified in the relevant planting plan.

b. *Wetland Bench*: In accordance with plans and specifications developed by an appropriately licensed professional engineer and approved by EPA, and constructed under the supervision of such engineer, Defendants shall create a 4.4 acre graded wetland bench in Project Area 2 around the perimeter of Long Pond in order to create a transitional vegetative zone between open water areas and wetlands areas and to provide valuable habitat for native wildlife. Engineering plans for the construction of the graded wetland bench containing the seal and signature of an appropriately licensed engineer shall be submitted as part of the Ross Road Site Work Plan required by Section F and shall contain project specifications that allow for the establishment of approximately 2.4 acres of scrub shrub wetland on the bench above the OHWM and approximately 2 acres of vegetated wetland on the bench below the OHWM in water depths generally not to exceed 12 inches during much of the year. It is envisioned that on-site materials will be used to create the wetland bench, provided that the topsoil layer complies with the applicable technical specifications for depth and organic composition necessary to support the wetland vegetation specified in the relevant planting plan.

c. *Drainage & Ditch Removal*: (1) EPA acknowledges that Defendants have taken measures to permanently disable a drainage pipe in the southwest corner of Long Pond in Project Area 2, in the location generally depicted on Attachment B, by capping the inlet and filling the drainage pipe with concrete grout that cannot be removed. Defendants shall provide the exact location of this drainage pipe, a detailed description of the method of permanently disabling the drainage pipe, and, consistent with Section E.2.d, *infra*, a maintenance plan for

ensuring that the drainage pipe will remain permanently disabled with the Ross Road Site Work Plan. (2) Defendants shall remove, or permanently disable to EPA's satisfaction, any additional drainage not part of the final design plan for Long Pond from Project Area 2, including, but not limited to, all subsurface drainage, underdrains, pipes, gravel bedding, and other drainage structures. The Ross Road Site Work Plan shall identify the location of all additional drainage in Project Area 2 and propose a method for removing and/or permanently disabling that drainage that is compatible with the restoration/mitigation work required by this Appendix. If additional drainage is discovered during implementation of the restoration and mitigation work or during the applicable monitoring period, Defendants shall amend the Ross Road Site Work Plan to both identify and propose a method for removing and/or permanently disabling such drainage. (3) In addition, Defendants shall fill any ditches to an elevation consistent with the final plan for Project Area 2.

d. *Road Removal:* Consistent with Section E.1.h, *infra*, all roads and other travelways in Project Area 2, including all gravel or other substrate, shall be removed and re-graded to an elevation comparable to adjacent undisturbed land or to an elevation consistent with the final plan for Project Area 2.

e. *Planting.* Defendants shall submit a detailed planting plan for Project Area 2 to EPA for approval as part of the Ross Road Site Work Plan. At a minimum, the planting plan shall require Defendants to (1) seed all portions of the berms and wetland bench above the OHWM with a native inland wetland conservation mix appropriate for the wetland hydrology established in these areas; (2) plant the 2.6 acres of wetland established above the OHWM on the berms and the approximately 2.4 acres of wetland established above the OHWM on the wetland bench with native wetland woody species in densities of not less than 500 stems

per acre; and (3) plant the approximately 2 acres of vegetated marsh established below the OHWM on the wetland bench with native freshwater marsh species in densities necessary to achieve 70% aerial coverage with native FACW and OBL plants by the end of the final monitoring period. Native woody vegetation used in Project Area 2 shall be no less than 18 inches in height and must have a regional indicator status of FAC, FACW, or OBL as defined by the *2016 Regional Plant List*, provided, however, that the combination of woody species planted reflects the natural diversity of wetland species present in appropriate undisturbed reference areas agreed to by the Parties. Marsh vegetation planted below the OHWM may include a mixture of plugs and woody species, provided that the combination reflects the natural diversity present in a typical southern Maine freshwater marsh of a similar water depth and creates a natural transitional vegetative zone between open water and scrub shrub wetland.

f. *Use Restrictions*: Project Area 2 shall be designated a no mow/no farming/no grazing zone. The use of all off-road motorized vehicles shall be prohibited in Project Area 2, except for that use necessary to plant, maintain, and manage the berms, wetland bench, and other habitat established pursuant to this Appendix and to respond to the threat or actual occurrence of fire. In addition to the above-stated use restrictions, Project Area 2 shall be subject to the use restrictions set forth in the conservation easement established by Defendants pursuant to Section D, *infra*.

3. ROSS ROAD SITE – PROJECT AREA 3

Project Area 3 of the Ross Road Site is identified on Attachments A and B. Defendants shall establish through restoration and/or mitigation a scrub shrub wetland of no less than 12.8 acres in Project Area 3. Depending on site conditions, and consistent with the applicable technical standards set forth in Section E.1.a, *infra*, the scrub shrub wetland established in

Project Area 3 shall either be a wetland/upland mosaic with pit-and-mound microtopography characteristic of that made by wind-thrown trees or shall have more uniform wetland topography characteristic of a natural undisturbed wetland forest floor without pit-and-mound microtopography. To achieve these goals, Defendants shall perform the work generally described below and shall comply with the applicable technical specifications and performance standards set forth herein and in the Ross Road Site Work Plan.

a. *Fill Removal & Elevation Restoration*: Defendants shall re-grade, excavate, and/or over-excavate Project Area 3 to achieve the surface elevations necessary to create the pattern of topographical relief required by Section E.1.a, *infra*, and shall comply with the applicable technical specifications and performance standards for topsoil depth and hydrology set forth in Section E and the Ross Road Site Work Plan. Where site-specific fieldwork indicates that the existing topography, hydrology, and topsoil depth and content are consistent with the applicable specifications and standards, as determined by EPA, then excavation, over-excavation, and/or backfilling with additional topsoil will not be required.

b. *Drainage & Ditch Removal*: Defendants shall remove, or permanently disable to EPA's satisfaction, all drainage from Project Area 3, including, but not limited to, all subsurface drainage, underdrains, pipes, gravel bedding, and other drainage structures. The Ross Road Site Work Plan shall identify the location of all drainage in Project Area 3 and propose a method for removing and/or permanently disabling that drainage that is compatible with the restoration/mitigation work required by this Appendix. If additional drainage is discovered during implementation of the restoration and mitigation work or during the applicable monitoring period, Defendants shall amend the Ross Road Site Work Plan to both identify and propose a method for removing and/or permanently disabling such drainage. In addition,

Defendants shall fill any ditches to an elevation comparable to the adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in Project Area 3.

c. *Road Removal.* Consistent with Section E.1.h, *infra*, all roads and other travelways, if any, in Project Area 3, including all gravel or other substrate, shall be removed and re-graded to an elevation comparable to adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in Project Area 3.

d. *Planting:* It is expected that Project Area 3 will support a variety of wetland classes, ranging from emergent marsh habitat to scrub shrub and, through natural regeneration, early successional wetland forest. Defendants shall submit a detailed planting plan for Project Area 3 to EPA for approval as part of the Ross Road Site Work Plan. At a minimum, the planting plan shall require Defendants to seed Project Area 3 with a native inland wetland conservation mix and plant it with native wetland scrub shrub species in densities of not less than 500 stems per acre. Scrub shrub species shall be no less than 18 inches in height and must have a regional indicator status of FAC, FACW, or OBL as defined by the *2016 Regional Plant List*, provided, however, that (1) FAC species shall constitute no more than 50% of the woody species planted in Project Area 3 and (2) the combination of woody species planted reflects the natural diversity of wetland species present in appropriate undisturbed reference areas agreed to by the Parties. If appropriate, the location of the former tributary in Project Area 3, as identified on Attachment B, shall be planted with Palustrine emergent marsh vegetation.

e. *Use Restrictions*: Project Area 3 shall be designated a no mow/no farming/no grazing zone. The use of all off-road motorized vehicles shall be prohibited in Project Area 3, except for that use necessary to plant, maintain, and manage the wetland and

other habitat established pursuant to this Appendix and to respond to the threat or actual occurrence of fire. In addition to the above-stated use restrictions, Project Area 3 shall be subject to the use restrictions set forth in the conservation easement established by Defendants pursuant to Section D, *infra*.

4. ROSS ROAD SITE – PROJECT AREA 4

Project Area 4 of the Ross Road Site is identified on Attachments A and B. Defendants shall establish through restoration and/or mitigation a scrub shrub wetland of no less than 5.1 acres in Project Area 4. Depending on site conditions, and consistent with the applicable technical standards set forth in Section E.1.a, *infra*, the scrub shrub wetland established in Project Area 4 shall either be a wetland/upland mosaic with pit-and-mound microtopography characteristic of that made by wind-thrown trees or shall have more uniform wetland topography characteristic of a natural undisturbed wetland forest floor without pit-and-mound microtopography. In addition, Defendants shall establish a 0.3 acre naturalizing buffer between the stream and the top of bank and in the lower field area as indicated on Attachment B. To achieve these goals, Defendants shall perform the work described below and shall comply with the applicable technical specifications and performance standards set forth herein and in the Ross Road Site Work.

a. *Fill Removal & Elevation Restoration*: Defendants shall re-grade, excavate, and/or over-excavate Project Area 4 to achieve the surface elevations necessary to create the pattern of topographical relief required by Section E.1.a, *infra*, and shall comply with the applicable technical specifications and performance standards for topsoil depth and hydrology set forth in Section E and the Ross Road Site Work Plan. Where site-specific fieldwork indicates that the existing topography, hydrology, and topsoil depth and content are

consistent with the applicable specifications and standards, as determined by EPA, then excavation, over-excavation, and/or backfilling with additional topsoil will not be required.

b. *Drainage & Ditch Removal*: Defendants shall remove, or permanently disable to EPA's satisfaction, all drainage from Project Area 4, including, but not limited to, all subsurface drainage, underdrains, pipes, gravel bedding, and other drainage structures. The Ross Road Site Work Plan shall identify the location of all drainage in Project Area 4 and propose a method for removing and/or permanently disabling that drainage that is compatible with the restoration/mitigation work required by this Appendix. If additional drainage is discovered during implementation of the restoration and mitigation work or during the applicable monitoring period, Defendants shall amend the Ross Road Site Work Plan to both identify and propose a method for removing and/or permanently disabling such drainage. In addition, Defendants shall fill any ditches to an elevation comparable to the adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in Project Area 4.

c. *Road Removal*. Consistent with Section E.1.h, *infra*, all roads and other travelways, if any, in Project Area 4, including all gravel or other substrate, shall be removed and re-graded to an elevation comparable to adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in Project Area 4.

d. *Planting*: Defendants shall submit a detailed planting plan for Project Area 4 to EPA for approval as part of the Ross Road Site Work Plan. The planting plan shall require Defendants to seed the 5.1 acre scrub shrub wetland established in Project Area 4 with a native inland wetland conservation mix and plant it with native wetland scrub shrub species in densities of not less than 500 stems per acre. Scrub shrub species shall be no less than 18 inches

in height and must have a regional indicator status of FAC, FACW, or OBL as defined by the *2016 Regional Plant List*, provided, however, that (1) FAC species shall constitute no more than 50% of the woody species planted in Project Area 4 and (2) the combination of woody species planted reflects the natural diversity of wetland species present in appropriate undisturbed reference areas. In addition, the planting plan for Project Area 4 shall require Defendants to enhance the naturalizing buffer with native scrub shrub species that provide soil stabilization and benefit native wildlife in densities of not less than 400 stems per acre. Scrub shrub species planted in the naturalized buffer shall be no less than 18 inches in height and must reflect the natural diversity of wetland species present in appropriate undisturbed reference areas. Selection of appropriate undisturbed reference areas shall be agreed to by the Parties.

e. *Use Restrictions*: Project Area 4 shall be designated a no mow/no farming/no grazing zone. The use of all off-road motorized vehicles shall be prohibited in Project Area 4, except for that use necessary to plant, maintain, and manage the wetland and other habitat established pursuant to this Appendix and to respond to the threat or actual occurrence of fire. In addition to the above-stated use restrictions, Project Area 4 shall be subject to the use restrictions set forth in the conservation easement established by Defendants pursuant to Section D, *infra*.

5. ROSS ROAD SITE – PROJECT AREA 5 (STREAM BUFFER ENHANCEMENT AREA)

Project Area 5 of the Ross Road Site is identified on Attachments A and B. The southern portion of Project Area 5 contains a cleared and/or fielded area that, in places, slopes steeply toward an unnamed tributary. The rest of Project Area 5 is, with the exception of several stream crossings across unnamed tributaries and dirt roads, largely undisturbed. Defendants shall establish a maximum of 1.6 acres of scrub shrub wetland in the southern portion of Project

Area 5 in the location of the cleared and/or fielded area as generally depicted on Attachment B and shall plant such acreage with FAC, FACW and/or OBL shrub species in accordance with the planting plan required by Section B.5.c and Section E.1.e. Defendants shall also enhance the riparian stream buffer along the unnamed tributaries, where disturbed, through a combination of plantings intended to stabilize soil and benefit native wildlife, road removal, and, if necessary, stream channel restoration. To achieve these goals, Defendants shall perform the work generally described below and shall comply with the applicable technical specifications and performance standards set forth herein and in the Ross Road Site Work Plan.

a. *Fielded Area*. Defendants shall remove all fill from the 1.6 acre area in the southern portion of Project Area 5, as identified on Attachment B, and re-grade it, as necessary, to establish a scrub shrub wetland consistent with the applicable technical specifications and performance standards set forth in this Appendix and in the Ross Road Site Work Plan.

b. *Riparian Stream Buffer*. Defendants shall identify any additional disturbed areas in the riparian stream buffer, depicted on Attachment B, and shall submit a detailed plan for enhancing those areas, through a combination of planting intended to benefit wildlife, soil stabilization, road removal, and where necessary, stream channel restoration, with the Ross Road Site Work Plan.

c. *Planting*: Defendants shall submit a detailed planting plan for Project Area 5 to EPA for approval as part of the Ross Road Site Work Plan. The planting plan shall allow natural undisturbed sections adjacent to the unnamed tributaries in Project Area 5, such as the mature, uneven-aged canopy in the north portion of Project Area 5, to remain intact and continue to provide a seed source and serve as a natural buffer. The planting plan for the scrub

shrub wetland to be established in the southern portion of Project Area 5 shall factor in the effect of the slope on available hydrology and require Defendants to seed suitable areas with an appropriate native inland wetland conservation mix and plant FAC, FACW, and/or OBL scrub shrub species reflective of the diversity present in appropriate undisturbed reference areas. Portions of the slope not seeded and planted with wetland species and any other disturbed portions of the riparian stream buffer shall be seeded with an appropriate native inland conservation mix and enhanced with plantings reflective of the natural diversity present in appropriate undisturbed reference areas. Selection of appropriate undisturbed references areas shall be agreed to by the Parties.

d. *Invasive Species Control*. An area of common reed grass (*Phragmites australis*), an invasive species, has been observed in Project Area 5. Defendants shall identify the location of the common reed grass and implement appropriate measures to eradicate and control the spread of common reed grass. A plan outlining such measures and setting forth a schedule for implementation of those measures shall be submitted to EPA for approval within 30 calendar days of entry of the Consent Decree. In addition, the Invasive Species Control Plan for the Ross Road Site, required by Section F.3, *infra*, shall address the risks related to common reed grass and identify a full range of practicable measures for preventing the reintroduction of common reed grass.

e. *Drainage & Ditch Removal*: Defendants shall remove, or permanently disable to EPA's satisfaction, all drainage from Project Area 5, including, but not limited to, all subsurface drainage, underdrains, pipes, gravel bedding, and other drainage structures. The Ross Road Site Work Plan shall identify the location of all drainage in Project Area 5 and propose a method for removing and/or permanently disabling that drainage that is compatible with the

restoration/mitigation work required by this Appendix. If additional drainage is discovered during implementation of the restoration and mitigation work or during the applicable monitoring period, Defendants shall amend the Ross Road Site Work Plan to both identify and propose a method for removing and/or permanently disabling such drainage. In addition, Defendants shall fill all interior ditches and perimeter ditches to an elevation comparable to the adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in Project Area 5.

f. *Road and Stream Crossing Removal.* Consistent with Section E.1.h, *infra*, all roads and other travelways in Project Area 5, including all gravel or other substrate, shall be removed and re-graded to an elevation comparable to adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in Project Area 5. However, Defendants may retain or create a vegetated dirt travelway to access "Stream Crossing #2" and "Stream Crossing #3" on Attachment F from Field 3 of Project Area 1, as depicted on Attachment B. Such travelway shall comply with the requirements of Section E.1.h and use of such travelway shall be limited consistent with the use restrictions set forth in Section B.5.g and the enforceable conservation easement required by Section D.1 of this Appendix. All other stream crossings in Project Area 5 shall be removed and impacted portions of the streams in Project Area 5 shall be restored to their pre-disturbance conditions as determined by the appropriate undisturbed reference areas agreed to by the parties. Technical specifications and performance standards for stream restoration shall be set forth in the Ross Road Site Work Plan and shall be consistent with Corps of Engineers New England District Mitigation Guidance dated July 10, 2010, and attached hereto as Attachment I (hereafter "*Corps Mitigation Guidance*").

g. *Use Restrictions*: Project Area 5 shall be designated a no mow/no

farming/no grazing zone. The use of all off-road motorized vehicles shall be prohibited in Project Area 5, except for that use necessary to plant, maintain, and manage the wetland and other habitat established pursuant to this Appendix and to respond to the threat or actual occurrence of fire. In addition to the above-stated use restrictions, Project Area 5 shall be subject to the use restrictions set forth in the conservation easement established pursuant to Section D, *infra*.

C. CAMPGROUND SITE

The Campground Site Project Areas are identified on Attachments C and D. Defendants shall establish through restoration and/or mitigation a scrub shrub wetland of no less than 5.4 acres in Project Area A and a 0.9 acre forested freshwater wetland in Project Area B that will serve as buffer between restoration/mitigation areas and nearby campsites. The total area to be restored and/or mitigated in Campground Site Project Areas shall be no less than 6.3 acres. Depending on site conditions, and consistent with the applicable technical standards set forth in Section E.1.a, *infra*, the scrub shrub wetland established in Project Area A shall either be a wetland/upland mosaic with pit-and-mound microtopography characteristic of that made by wind-thrown trees or shall have more uniform wetland topography characteristic of a natural undisturbed wetland forest floor without pit-and-mound microtopography. To achieve these goals, Defendants shall perform the work generally described below and shall comply with the applicable technical specifications and performance standards set forth herein and in the Campground Site Work Plan.

1. *Fill Removal & Elevation Restoration*: Defendants shall re-grade, excavate, and/or over-excavate Project Areas A and B to achieve the surface elevations necessary to create the pattern of topographical relief required by Section E.1.a, *infra*, and shall comply with the

applicable technical specifications and performance standards for topsoil depth and hydrology set forth in Section E and the Campground Site Work Plan. Where site-specific fieldwork indicates that the existing topography, hydrology, and topsoil depth and content are consistent with the applicable specifications and standards, as determined by EPA, then excavation, over-excavation, and/or backfilling with additional topsoil will not be required.

2. *Drainage & Ditch Removal*: Except for the culvert that crosses the gravel road along the southern edge of the Campground Site, as identified on Attachment D, Defendants shall remove, or permanently disable to EPA's satisfaction, all drainage in Project Area A and Project Area B of the Campground Site, including, but not limited to, all subsurface drainage, underdrains, pipes, gravel bedding, and other drainage structures. The Campground Site Work Plan shall identify the location of all drainage in Project Area A and Project Area B and propose a method for removing and/or permanently disabling that drainage that is compatible with the restoration/mitigation work required by this Appendix. If additional drainage is discovered during implementation of the restoration and mitigation work or during the applicable monitoring period, Defendants shall amend the Campground Site Work Plan to both identify and propose a method for removing and/or permanently disabling such drainage. In addition, Defendants shall fill any ditching in Project Areas A and B to an elevation comparable to the adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established.

3. *Road Removal.* Consistent with Section E.1.h, *infra*, all roads and other travelways, if any, in Project Areas A and B, including all gravel or other substrate, shall be removed and re-graded to an elevation comparable to adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established.

4. *Planting:* Defendants shall submit a detailed planting plan for Project Areas A and B to EPA for approval as part of the Campground Site Work Plan. At a minimum, the planting plan shall require Defendants to seed Project Area A with a native inland wetland conservation mix and plant it with native wetland scrub shrub species in densities of not less than 500 stems per acre. Scrub shrub species shall be no less than 18 inches in height and must have a regional indicator status of FAC, FACW, or OBL as defined by the *2016 Regional Plant List*, provided, however, that (1) FAC species shall constitute no more than 50% of the woody species planted in Project Area A and (2) the combination of woody species planted reflects the natural diversity of wetland species present in appropriate undisturbed reference areas. In addition, such planting plan shall require Defendants to seed Project Area B with a native inland wetland conservation mix and plant it with native tree species in densities of not less than 400 stems per acre. Tree species shall be no less than 18 inches in height and must have a regional indicator status of, FAC, FACW, or OBL as defined by the *2016 Regional Plant List*, provided, however, that the combination of woody species planted reflects the natural diversity of wetland species present in appropriate undisturbed adjacent reference areas. Selection of appropriate undisturbed adjacent reference areas for both Project Area A and Project Area B shall be agreed to by the Parties.

5. *Use Restrictions*: Project Areas A and B shall be designated no mow/no farming/no grazing zones. The use of all off-road motorized vehicles shall be prohibited in Project Areas A and B, except for that use necessary to plant, maintain, and manage the wetland and other habitat established pursuant to this Appendix and to respond to the threat or actual occurrence of fire. Use restrictions applicable to Project Areas A and B shall be established by Defendants in accordance with Section D 2, *infra*.

D. PRESERVATION AND USE RESTRICTIONS

1. ROSS ROAD SITE CONSERVATION EASEMENT

a. As further compensatory mitigation for the permanent and temporal loss of wetlands, Defendants shall establish an enforceable conservation easement ("Ross Road Site Conservation Easement") to impose the use restrictions set forth in Section B, *supra*, and to permanently protect wetlands, including those established pursuant to this Appendix, as well as associated open water, upland habitat, and other undisturbed land in each Project Area as shown on Attachment G (hereafter "Ross Road Site Preservation Areas"). The purpose of the Ross Road Site Conservation Easement shall be to ensure that those wetlands, including the hydrology, habitat, and water quality benefits thereof, as well as the habitat of any associated open water and uplands in the Ross Road Site Preservation Areas are preserved in perpetuity. Within the Ross Road Site Preservation Areas, the Ross Road Site Conservation Easement shall include prohibitions on the building of structures and the performance of grazing and other farming activities; restrictions on mowing and clearing of vegetation (other than for removal of dead wood and invasive species and the protection of human safety); restrictions on the draining or filling of wetlands; prohibitions on the use of motorized vehicles, except for that necessary to plant, maintain, and manage the wetland and other habitat established pursuant to this Appendix and to respond to the threat or actual occurrence of fire; a requirement that the berms in Project Area 2 be properly maintained; and such other restrictions and requirements as may be necessary to achieve the purposes stated herein.

b. Defendants shall establish the Ross Road Site Conservation Easement pursuant to the Uniform Conservation Easement Act, Title 33 Maine Revised Statutes Annotated ("M.R.S.A."), Sections 476-479C, or other applicable Maine law if the Uniform Conservation

Easement Act is not appropriate. The Ross Road Site Conservation Easement shall be finalized and properly recorded no later than 6 months after completion of active construction measures on the Ross Road Site, unless EPA has agreed in writing to an extension of this time. The Ross Road Site Conservation Easement shall be enforceable under Maine law and granted in favor of a governmental or not-for-profit entity approved in writing by EPA and authorized to hold such an interest pursuant to 33 M.R.S.A. Section 476(2) ("Easement Holder"). The Ross Road Site Conservation Easement shall grant EPA a third-party right of enforcement as defined by 33 M.R.S.A. Section 476(4). Prior to entering into the Ross Road Site Conservation Easement, Defendants shall submit a draft conservation easement to EPA for review and approval. The draft conservation easement shall be submitted to EPA no later than 4 months after completion of active construction measures on the Ross Road Site. Following approval by EPA, Defendants shall use best efforts to finalize the Ross Road Site Conservation Easement promptly and record it in the manner required by 33 M.R.S.A. Section 477. Defendants shall mail a copy of the final Ross Road Site Conservation Easement to EPA within 60 days of its recording.

2. CAMPGROUND SITE CONSERVATION EASEMENT

a. Defendants shall create an enforceable conservation easement for the Campground Site Project Areas that is similar to that described in Section D.1, *supra*, ("Campground Site Conservation Easement"). The purpose of the Campground Site Conservation Easement shall be to impose the use restrictions set forth in Section C, *supra*, and ensure that wetlands, including the hydrology, habitat, and water quality benefits thereof, as well as the habitat of any associated upland habitat in Project Area A and Project Area B of the Campground Site, are preserved in perpetuity. *See* Attachment H (Campground Site Preservation Areas). The Campground Site Conservation Easement shall include prohibitions on

the building of structures and the performance of grazing and other farming activities; restrictions on mowing and clearing of vegetation (other than for removal of dead wood and invasive species and the protection of human safety); restrictions on the draining or filling of wetlands; prohibitions on the use of motorized vehicles, except for that necessary to plant, maintain, and manage the wetland and other habitat established pursuant to this Appendix and to respond to the threat or actual occurrence of fire; and such other restrictions and requirements as may be necessary to achieve the purposes stated herein.

b. The Campground Site Conservation Easement shall be finalized and properly recorded no later than 6 months after completion of active construction measures on the Campground Site, unless EPA has agreed in writing to an extension of this time. The Campground Site Conservation Easement shall be enforceable under Maine law and granted in favor of a governmental or not-for-profit entity approved in writing by EPA and authorized to hold such an interest pursuant to 33 M.R.S.A. Section 476(2). The Campground Site Conservation Easement shall grant EPA a third-party right of enforcement as defined by 33 M.R.S.A. Section 476(4). Prior to entering into a conservation easement for the Campground Site Project Areas, Defendants shall submit a draft conservation easement to EPA for review and approval. The draft Campground Site Conservation Easement shall be submitted to EPA no later than 4 months after completion of active construction measures on the Campground Site. Following approval by EPA, Defendants shall use best efforts to finalize the Campground Site Conservation Easement promptly and record it in the manner required by 33 M.R.S.A. Section 477. Defendants shall mail a copy of the final Campground Site Conservation Easement for the Campground Site Project Areas to EPA within 60 days of its recording.

E. TECHNICAL SPECIFICATIONS AND PERFORMANCE STANDARDS

Each work plan shall include technical specifications and performance standards including, but not limited to, specifications and standards for hydrology, topsoil composition and depth, plantings, seeding, erosion control, control of invasive species, and other factors necessary to ensure that the required restoration and mitigation work achieves the goals set forth above for each Project Area. The technical specifications and performance standards of general application set forth below, as well as the technical specifications and performance standards specific to a particular Project Area as set forth in Section B (Ross Road Site) and Section C (Campground Site), shall be included in the work plans required by Section F. Any additional technical specifications and performance standards shall be approved by EPA pursuant to Section G and, for wetland areas, must be consistent with the *Corps Mitigation Guidance*.[2]

1. Wetland Areas. Defendants shall successfully establish the wetland acreage and wetland classes specified in Section B (Ross Road Site) and Section C (Campground Site) for each Project Area of each Site. Upon completion of the final monitoring period, all wetland areas restored, mitigated, or otherwise established pursuant to this Appendix shall, at a minimum, meet the federal wetland criteria outlined in the *Corps of Engineers Wetlands Delineation Manual* dated January 1987, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual—North Central and Northeast Region* (version 2.0) dated January 2012 and attached hereto as Attachment K ("*Corps Northeast Regional Supplement*"), and the *Corps Mitigation Guidance*. In order to ensure the successful establishment and long term

[2] The purpose of the *Corps Mitigation Guidance* is to provide guidance on the restoration and mitigation requirements for wetlands in New England. The *Corps Mitigation Guidance* acknowledges the need for flexibility and states that variances are permissible to reflect site specific conditions. In the event of an inconsistency between the *Corps Mitigation Guidance* and this Appendix or an approved work plan developed pursuant to this Appendix, the terms of this Appendix or approved work plan shall control.

viability of wetlands established pursuant to this Appendix, the following technical specifications and performance standards shall apply.

a. *Topographical Relief (Scrub Shrub Wetlands*): In all areas designated as scrub shrub wetland on Attachment B (Ross Road Site) and Attachment D (Campground Site), Defendants shall create, in accordance with the technical standards set forth below, either a wetland/upland mosaic with pit-and-mound microtopography characteristic of that made by wind-thrown trees or a wetland with more uniform wetland topography characteristic of a natural undisturbed wetland forest floor without pit-and-mound microtopography. In order to take advantage of variable site conditions, Defendants may create a combination of pit-and-mound topography and more uniform wetland topography in any area designated as scrub shrub wetland on Attachments B and D. Excess material excavated from areas designated as scrub shrub wetland on Attachment B (Ross Road Site) and Attachment D (Campground Site) may be used to complete restoration and mitigation work elsewhere on either Site, including Project Area 2 of the Ross Road Site, if use of such material is appropriate to achieve the restoration and mitigation goals and complies with the applicable technical specifications and performance standards. Defendants shall submit a detailed grading plan for each Project Area to EPA for approval with the relevant work plan. Grading plans for the Campground Site shall be prepared by a qualified wetland scientist. Grading plans for the Ross Road Site shall be prepared by a qualified wetland scientist in consultation with the hydrogeologist responsible for the groundwater modeling required by Attachment E. Each grading plan shall:

i. Identify which portions of each area designated as scrub shrub wetland on Attachments B (Ross Road Site) and D (Campground Site) will have pit-and-mound microtopography and which will have more uniform wetland topography similar to a natural

undisturbed wetland forest floor without pit-and-mound microtopography;

ii. Effectuate the following technical standards:

1. Pit-and-Mound Mosaic: The pit-and-mound mosaic shall generally be created by excavating a checker-board type pattern. Excavate from the pits may be used to create "mounds" provided, however, that the mounds do not account for more than 30% of the total acreage designated as scrub shrub wetland in a given Project Area, or for Project Area 1 of the Ross Road Roads Site, a given Field.

2. Undisturbed Wetland Forest Floor: Topography intended to replicate a natural undisturbed wetland forest floor without pit-and-mound microtopography shall be created by "rough grading" designated areas to create a scrub shrub wetland with hydrology capable of supporting FAC, FACW, or OBL vegetation as required by the applicable technical specifications and performance standards set forth in this Appendix or the relevant work plan.

iii. Ensure that the grading, excavating, and/or over-excavating necessary to create the desired topographical relief will be done in a manner consistent with the applicable technical specifications and performance standards for topsoil depth and hydrology set forth in this Appendix and the relevant work plan.

b. *Hydrology*: After completion of the earthwork necessary to achieve required surface elevations and accommodate the addition of required topsoil, the hydrology of wetlands areas shall be sufficient to successfully establish and continue to support wetland vegetation. During the monitoring period, the hydrology shall be monitored in accordance with the relevant monitoring plan by measuring the depth of inundation and/or depth to the water table, in the monitoring wells. At the end of the final monitoring period, Defendants shall

demonstrate with data from monitoring wells that when monthly precipitation is at or above the 1981 to 2010 mean at the Portland International Jetport weather station, the water table shall, at a minimum, be within 12 inches of the surface for at least 14 consecutive days during the growing season. For the purposes of this Appendix, and consistent with the *Corps Northeast Regional Supplement*, the growing season shall be determined by the median frost free dates of 28 degree Fahrenheit (-2.2 degrees Celsius) air temperature in spring and fall based on long-term records gathered at the National Weather Center meteorological stations and reported in WETS tables available from the Natural Resource Conservation Service National Water and Climate Center at *http://www.wcc.nrcs.usda.gov/climate/wetlands.html.*

c. *Soils*: All wetland areas restored, mitigated, or otherwise established pursuant to this Appendix, shall have at least 12 inches of natural or manmade topsoil with a minimum organic carbon content of 4-12% carbon or 7 to 21% organic matter on a dry weight basis. Technical specifications for the percentage of organic carbon and/or organic matter in the work plans shall be tailored to reflect the needs of the specific wetland vegetation to be planted in a given Project Area consistent with the *Corps Mitigation Standards*.

d. *Use of On-Site Materials*: On-site material may be used as backfill to achieve desired surface elevations and as topsoil for planting in all Project Areas, provided that the on-site material complies with the technical standards set forth herein and in the applicable work plan.

e. *Plantings*: Defendants shall submit detailed planting plans to EPA for approval with the relevant work plan that effectuate the goals and technical standards for wetland and other vegetation in each Project Area of the Ross Road Site and the Campground Site as set forth in Section B (Ross Road Site) and Section C (Campground Site). In addition, each

planting plan shall incorporate, as appropriate, the following technical specifications: (1) species used in conjunction with the restoration and mitigation required by this Appendix shall be selected based on their value as habitat to native wildlife species and their ability to stabilize disturbed areas; (2) the planting of woody vegetation in all Project Areas shall be done by hand to help assure successful establishment; and (3) with the exception of Project Area 1 of the Ross Road Site, Defendants may, subject to EPA approval, relocate up to 50% of the plants in each community type within a Project Area to another location within the same Project Area if, during planting, as-built site conditions pose a threat to the survival of a planting and there is a location within the same Project Area with suitable hydrology and soils to maximize chances of survival. For Project Area 1 of the Ross Road Site, Defendants may, subject to EPA approval, relocate up to 50% of the plants in each community type in each Field to another location within the same Field if, during planting, as-built site conditions pose a threat to the survival of a planting and there is a location within the same Field with suitable hydrology and soils to maximize chances of survival. Upon completion of the final monitoring period the following performance standards for plantings shall be satisfied:

i. *Ross Road Site:*

1. Field 1 in Project Area 1 and the portions of Project Area 5 seeded and planted with wetland species shall have, at a minimum, a 95% aerial vegetative cover with no less than 51% aerial cover with native FAC, FACW, and OBL plants;

2. Field 2 and Field 3 in Project Area 1, wetland acreage established above the OHWM on the berms and graded wetland bench in Project Area 2, Project Area 3, and Project Area 4 shall each have, at a minimum, a 95% aerial

vegetative cover with no less than 70% aerial cover with native FAC, FACW, and OBL plants; and

3. The wetland acreage established below the OHWM on the graded wetland bench in Project Area 2 shall have, at a minimum, a 95% aerial vegetative cover with no less than 70% aerial cover with native FACW and OBL plants.

ii. *Campground Site*: Project Area A and Project Area B shall each have, at a minimum, a 95% aerial vegetative cover with no less than 70% aerial cover with native FAC, FACW, and OBL plants.

iii. If the survival and coverage rates for any Project Area are not met one year prior to the last monitoring period, Defendants shall take all necessary measures to ensure the required level of survival and coverage by the end of the next growing season, including re-planting and re-grading if necessary, and the relevant monitoring period shall be extended by up to 5 years or, if appropriate, a shorter timeframe approved by EPA.

f. *Invasive Species*: Defendants shall successfully control the introduction and spread of invasive species by, among other things: (1) only using plant material native to the region; (2) using appropriate measures to eradicate and/or control the spread of any existing invasive species; and (3) developing detailed Invasive Species Control Plans for each Site, as required by Section F.3, *infra*. Upon completion of the final monitoring period, invasive species shall be present in no more than 5% of the total aerial cover of the vegetated area in a given Project Area, with the exception of the 4.4 acre graded wetland bench in Project Area 2 where the presence of *typha* shall be limited to no more than 15% of the total aerial cover of the vegetated area.

g. *Erosion and Sedimentation Controls*: Appropriate erosion and sedimentation controls shall be implemented and maintained to prevent the transport of sediments and other pollutants off the Project Areas.

h. *Vegetated Travelway and Road Removal*: Defendants may retain or create a vegetated dirt travelway along the border of Project Area 1 and across Project Area 5 of the Ross Road Site as depicted on Attachment B. Such vegetated travelway shall be no more than 9 feet in width and shall match the proposed grade after all fill is removed from the Site. The vegetated travelway shall be amended with at least 12 inches of natural or manmade organic topsoil with suitable organic content and shall be seeded with a native herbaceous wetland seed mix. Other than backfill necessary to establish the required topsoil, no additional fill shall be used to create or maintain the vegetated travelway. Use of the vegetated travelway shall be limited consistent with the use restrictions set forth in Sections B.1.f and B.5.g and the enforceable conservation easement to be established pursuant to Section D.1 of this Appendix. All other roads and travelways, including all gravel or other substrate, shall be removed from each Project Area on both the Ross Road Site and the Campground Site by the end of the final monitoring period. Such roads shall be (1) re-graded to an elevation comparable to the adjacent undisturbed land or to an elevation consistent with the pattern of topographical relief to be established in a given Project Area; (2) backfilled, as necessary, with sufficient organic topsoil to comply with applicable technical specifications for topsoil depth and content set forth in this Appendix and the Ross Road Site Work Plan; (3) seeded with a native inland wetland conservation mix; (4) planted with native wetland scrub shrub species in densities required by the applicable technical standards set forth in this Appendix or the relevant work plan; and (5) monitored for invasive species for 5 years after planting. If necessary, EPA may extend the

monitoring period for invasive species in the travelway by up to 5 years. Defendants shall provide an accurate map identifying the location of all existing roads and other travelways on the Ross Road Site and the Campground Site; a description of the construction of each such road; and a proposal for removing each such road with the relevant work plan. No additional roads or travelways shall be constructed during implementation of restoration and mitigation work required by this Appendix.

i. *Stream Crossing and Culvert Removal*: With the exception of "Steam Crossing #2" and "Stream Crossing #3," as labeled on Attachment F (ME DEP Soil Disturbance Plan dated April 13, 2012, as revised December 19, 2012) and the culvert on the southern edge of the Campground Site, as identified on Attachment D, all stream crossings and culverts, if any, shall be removed from all Project Areas on the Ross Road Site and Campground Site and all impacted portions of the streams shall be restored to their pre-disturbance conditions in accordance with the technical specifications and performance standards set forth in the Ross Road Site Work Plan and based on the *Corps Mitigation Guidance*. No additional stream crossings or culverts shall be constructed during implementation of restoration and mitigation work required by this Appendix.

j. *Wetland Monitoring*: Defendants shall submit wetland monitoring plans to EPA for approval with the relevant work plan that require technical documentation of the presence of wetland hydrology and vegetation for all wetland areas restored, mitigated, or otherwise established in each Project Area pursuant to this Appendix. Monitoring shall be conducted for 5 full growing seasons following seeding and planting. Each wetland monitoring plan shall also include an adaptive management program that provides early indication of potential problems and development of corrective action(s) to be taken subject to EPA approval.

At the end of the final monitoring period, Defendants shall submit a final monitoring report supported by technical documentation demonstrating that the performance standards for wetland establishment, hydrology, vegetative survival and cover rates, and invasive species control set forth in this Appendix and in the relevant work plan have been met. If necessary, EPA may extend the monitoring period by up to 5 years to ensure the presence of wetland hydrology and vegetation in all wetland acreage in all Project Areas to be restored, mitigated or otherwise established by this Appendix.

2. Ross Road Site – Project Area 2. Consistent with Section B.2, *supra*, Defendants shall successfully construct the berms and wetland bench under the supervision of and in accordance with plans and specifications developed by an appropriately licensed engineer in consultation with a qualified hydrogeologist and shall establish no less than 2.6 acres of scrub shrub wetland above the expected OHWM on the berms and no less than 4.4 acres of wetland habitat on the wetland bench comprised of approximately 2.4 acres of scrub shrub wetland above the OHWM and approximately 2 acres of persistent emergent vegetated wetland below the OHWM in water depths generally not to exceed 12 inches during much of the year.

a. *Wetlands in Project Area 2*. The technical specifications and performance standards set forth in Section E.1, *supra*, including the monitoring requirements, shall apply to all wetlands restored, mitigated, or otherwise established in Project Area 2 of the Ross Road Site.

b. *Berms and Wetland Bench*. Technical specifications for the construction of the berms and graded wetland bench shall be set forth in engineering plans containing the seal and signature of an appropriately licensed engineer and be submitted with the Ross Road Site Work Plan. As stated in Section B.2, *supra*, such technical specifications shall be developed by an appropriately licensed professional engineer based on the results of groundwater modeling

conducted by a qualified hydrogeologist in accordance with Attachment E (Ross Road Site Groundwater Modeling Outline) and shall be selected to meet the following performance standards: (1) ensure the structural integrity of the berms; (2) achieve the maximum practicable rise in groundwater elevations in Field 1 and Field 2 of Project Area 1 consistent with the results of groundwater modeling to be conducted pursuant to Attachment E; (3) establish a combined total of no less than 2.6 acres of scrub shrub wetland above the expected OHWM on the berms; and (4) establish no less than 4.4 acres of wetland habitat on the wetland bench comprised of approximately 2.4 acres of scrub shrub wetland above the OHWM and approximately 2 acres of persistent emergent vegetated wetland below the OHWM in water depths generally not to exceed 12 inches during much of the year. On-site materials may be used for the berms and wetland bench, provided that (1) the hydrologic properties of such on-site materials are similar to the hydrologic properties of materials showing the maximum practicable rise in groundwater elevations in Field 1 and Field 2 based on groundwater modeling conducted pursuant to Attachment E and (2) the topsoil layer complies with the applicable technical specifications for depth and organic composition specified in Section E.1 of this Appendix and in the Ross Road Site Work Plan. Performance standards for the expected rise in upgradient groundwater levels due to construction of the berms shall be developed based on the additional groundwater modeling to be conducted pursuant to Attachment E and shall also be set forth in the Ross Road Site Work Plan.

c. *Hydrologic Monitoring.* In addition to the wetland monitoring plan required by Section E.1.j, *supra*, Defendants shall submit a hydrologic monitoring plan for Project Area 2 to EPA for approval with the Ross Road Site Work Plan in order to evaluate the groundwater and surface water response to site modifications carried out pursuant to Section B.2

of this Appendix. The hydrologic monitoring plan shall require Defendants to retain a qualified hydrogeologist to monitor changes in the groundwater and surface water in Project Area 1, Project Area 2, and, as appropriate, other areas of the Ross Road Site within the model boundaries, to assess general consistency with predictions for the expected rise in upgradient groundwater levels based on the groundwater modeling conducted pursuant to Attachment E. Hydrologic monitoring shall begin no later than 3 months following the completion of construction of the berms and wetland bench in Project Area 2. Monitoring data along with a written assessment of system response shall be submitted to EPA no later than 6 months following completion of construction and shall reflect at least 3 months of hydrologic monitoring data. Monitoring shall continue with written reporting every 6 months for a duration of 5 years after construction of the berms, or until EPA determines that the system has reach equilibrium and states in writing that the monitoring may cease. At the end of the final monitoring period, Defendants shall submit a final monitoring report with technical documentation establishing that the rise upgradient groundwater levels is consistent with performance standards developed based on groundwater modeling conducted pursuant to Attachment E. The monitoring plan for Project Area 2 shall also include an adaptive management program that (1) provides early indication of potential problems in the event the berms are not achieving the rise in upgradient groundwater elevations predicted by groundwater modeling conducted pursuant to Attachment E and (2) allows for corrective actions to be taken subject to EPA approval.

d. *Operation and Maintenance.* Defendants shall submit an Operation and Maintenance Plan for Project Area 2 to EPA for approval with the Ross Road Site Work Plan that (1) describes how the berms will be maintained in order to support restored wetlands in the long term and (2) how the physical structure of the berms, wetland bench, pipe seals, and other

site features will be inspected and maintained over time.

3. Preservation and Use Restrictions.

a. All use restrictions applicable to the Ross Road Site, as set forth in Section B and Section D.1, shall be imposed and all Project Areas on the Ross Road Site, as depicted on Attachment G (Ross Road Site Preservation Areas), shall be protected in perpetuity through Defendants' establishment of the Ross Road Site Conservation Easement described in Section D.1 of this Appendix.

b. All use restrictions applicable to the Campground Site, as set forth in Section C and Section D.2, shall be imposed and all Project Areas on the Campground Site, as depicted on Attachment H (Campground Site Preservation Areas), shall be protected in perpetuity through Defendants' establishment of the Campground Site Conservation Easement described in Section D.2 of this Appendix.

F. WORK PLANS

Defendants shall provide to EPA two separate, detailed work plans for performing the restoration and mitigation work on the Ross Road Site described in Section B and the restoration and mitigation work on the Campground Site described in Section C. The Campground Site Work Plan shall be submitted to EPA within 60 calendar days of entry of the Consent Decree. The Ross Road Site Work Plan shall be submitted within 90 calendar days of entry of the Consent Decree. Each work plan shall be developed by an experienced wetland scientist working, where required by this Appendix, in collaboration with an appropriately licensed professional engineer and/or qualified hydrogeologist, and shall include, in addition to the above-stated requirements, the following:

1. *Schedule:* Each work plan shall include a schedule for performing the injunctive

relief required by this Appendix. The schedule submitted as part of the Campground Site Work Plan shall specify that all earthwork, seeding, and planting shall be completed by May 31, 2017, unless an extension of time is granted in writing by EPA.[3] Defendants shall submit a proposed schedule for completion of all restoration and mitigation work on the Ross Road Site, including construction of the berms in Project Area 2, to EPA for approval with the Ross Road Site Work Plan. It is expected that performance of restoration and mitigation work on the Ross Road Site will be phased to take advantage of changes in site hydrology resulting from construction of the berms in Project Area 2. However, the proposed schedule for performance of restoration and mitigation work on the Ross Road Site shall require Defendants to complete all earthwork, seeding, and planting no later than December 31, 2019, unless an extension of time is granted in writing by EPA.

2. *Technical Specifications and Performance Standards:* Each work plan shall include technical specifications and performance standards including, but not limited to, technical specifications for surface elevations, hydrology, topsoil composition and depth, plantings, seeding, erosion control, control of invasive species, and other factors necessary to ensure that the required restoration and mitigation work achieves the goals set forth above for each Project Area. The technical specification and performance standards set forth in Section B (Ross Road Site) and Section C (Campground Site), as well as those set forth in Section E shall be included in the work plans. Any additional technical specifications and performance standards shall be approved by EPA pursuant to Section G and, for wetland areas, must be consistent the *Corps Mitigation Guidance*.

[3] The parties acknowledge that achievement of the May 31, 2017, deadline for earthwork, seeding, and planting at the Campground Site is dependent upon favorable weather and other on-the-ground conditions. Accordingly, this deadline may be extended, with EPA approval, to accommodate delays caused by weather or other conditions not controlled by Defendants.

3. *Invasive Species Control Plans.* Each work plan shall include a detailed Invasive Species Control Plan developed in accordance with Section I.4.f of the *Corps Mitigation Guidance*. To account for variable site conditions and the broad range of wetland classes to be established, the Invasive Species Control Plans shall address the specific challenges invasive species pose to the restoration and mitigation required in each Project Area and identify a full range of practicable measures to eradicate, control, and prevent the introduction of invasive species.

4. *Appropriate Supervision:* Each work plan shall specify that (1) restoration and/or mitigation activities involving earth moving for the purpose of establishing wetland areas shall be supervised in the field by a wetland scientist with experience in wetland restoration and construction and wetland hydrology; (2) restoration/mitigation activities involving planting and seeding shall be supervised by a wetland scientist with a working knowledge of botany in addition to experience in wetland restoration and construction and wetland hydrology; and (3) that such persons will be retained to supervise and conduct monitoring after the restoration/mitigation activities are completed. In addition, the Ross Road Site Work Plan shall specify that (1) all engineering plans and specifications for construction of the berms and graded wetland bench in Project Area 2 shall be sealed and signed by an appropriately licensed professional engineer working in consultation with qualified hydrogeologist and based on groundwater modeling conducted by that qualified hydrogeologist; (2) the berms and graded wetland bench shall be constructed in accordance with those plans and specifications under the supervision of an appropriately licensed professional engineer; and (3) both an appropriately licensed professional engineer and qualified hydrogeologist shall be retained to supervise and conduct monitoring activities after completion of the project. The names, address, contact

information, and qualifications of all experts, contractors, and subcontractors retained to perform the injunctive relief required by this Appendix shall be set forth in the relevant work plan. Consistent with Section G, *infra*, EPA retains the right to disapprove of any expert, contractor, or subcontractor.[4]

5. *Permitting.* Consistent with Section V of the Consent Decree, it is Defendants' sole responsibility to obtain all federal, state, and local permits and approvals necessary to complete the injunctive relief described in this Appendix. Each work plan shall identify the relevant federal, state, and local permits and approvals necessary for completion of the work required on the Ross Road Site and the Campground Site and provide a schedule for timely submittal of a complete application for all such permits and approvals.

6. *Reporting and Monitoring:* Each work plan shall include a reporting and monitoring plan that is consistent with Section E.1.j and Section E.2.c and, as appropriate and applicable, with the *Corps Mitigation Guidance*, to assess the progress of the work required by this Appendix and to assess the success of such work in relation to the goals and standards set forth herein and in the applicable work plan. At a minimum, the monitoring and reporting plan shall require Defendants to submit to EPA the following:

a. *Status Reports during the Construction Period.* Defendants shall provide EPA with monthly status reports for each Project Area via electronic transmission during the active construction and planting phases of the injunctive relief required by this Appendix. Such

[4] EPA acknowledges that Defendants have retained Rick Jones, of Jones Associates, Inc., as their wetland scientist to assist with wetland restoration and mitigation work on both the Ross Road Site and the Campground Site. EPA further acknowledges that Defendants have retained Matt Reynolds, of Drumlin Environmental, LLC, who is both a hydrogeologist and a licensed engineer, to conduct groundwater modeling and monitoring and to develop and implement engineering plans for the berms and graded wetland bench in Project Area 2 of the Ross Road Site. EPA has reviewed their qualifications and, at present, has no objection to Defendants' retention of either Mr. Jones or Mr. Reynolds.

monthly status reports shall include a description of work undertaken during the reporting period, a description of any problems encountered, and a description of and schedule for actions taken, or to be taken, to address problems encountered. Alternatively, status reports required under this section may be provided on any other schedule proposed by Defendants and accepted in writing by EPA.

b. *Annual Reports during the Construction Period.* An annual report shall be provided by December 15th of each year in which active measures (*i.e.*, non-monitoring activities) are being implemented. Such Annual Reports shall describe the work conducted during the calendar year, problems encountered, and corrective measures taken in response to such problems. Such reports shall include photographs depicting the work and an overall qualitative wetland vegetation assessment for each Project Area on the Ross Road Site and the Campground Site.

c. *Monitoring Reports.* Monitoring reports, including a final monitoring report, assessing the success of the work required by this Appendix in relation to the goals and standards set forth herein and in the applicable work plan shall be provided to EPA consistent with the requirements of the monitoring plans developed pursuant to Section E.1.j and Section E.2.c and approved by EPA pursuant to Section G.

7. *As-Built Plans for Wetland Areas.* Each work plan shall require Defendants to submit surveyed as-built plans for all wetland areas restored, mitigated, or otherwise established pursuant to this Appendix in each Project Area of the Ross Road Site and the Campground Site. As-built plans for wetland areas shall be submitted to EPA within one month after completion of active construction measures in a given Project Area and shall be prepared and certified by an appropriately licensed surveyor.

8. *Construction Completion Report for Project Area 2 of the Ross Road Site.* In addition to the surveyed as-built plans for all wetland areas established in Project Area 2 of the Ross Road Site required by Section F.7, *supra*, the Ross Road Site Work Plan shall require Defendants to submit a Construction Completion Report for Project Area 2 that includes the following:

a. A chronological description of all construction activities performed to create the berms and wetland bench.

b. Certification of compliance with all plan and specifications for Project Area 2, as well as certification of compliance with any changes to those plans and specifications approved by EPA. Such certification shall include supporting documentation, such as photographs, field notes, analytical data confirming the hydrologic properties of berm material used, and other documentation appropriate to establish compliance with the plans and specifications for Project Area 2.

c. Surveyed as-built plans for the berms and wetland bench bearing the seal and signature of an appropriately licensed professional engineer.

G. EPA RESPONSE TO WORK PLANS

1. Within a reasonable time after receipt of a work plan or other item submitted to EPA for approval under this Appendix, EPA shall in writing either: (a) approve, in whole or in part, the work plan or other submission; (b) approve, in whole or in part, the work plan or other submission, upon specified conditions; (c) modify, in whole or in part, the work plan or other submission to cure deficiencies; (d) disapprove, in whole or in part, the work plan or other submission, directing that Defendants modify the submission; or (e) any combination of the above.

2. If the submission is approved, Defendants shall take all actions required by the submission in accordance with the schedules and requirements of the submission, as approved. If the submission is conditionally approved or approved only in part, Defendants shall, upon written direction from EPA, take all actions required by the approved portion of the submission that EPA determines are technically severable from any disapproved portions, subject to Defendants' right to dispute only the specified conditions or the disapproved portions, under Section I of this Appendix.

3. If the submission is modified by EPA, Defendants shall take all actions required by the modified submission, unless Defendants dispute the modifications or portions thereof, in which case Defendants shall invoke the dispute resolution provisions of Section I of this Appendix for the disputed modifications.

4. If the submission is disapproved in whole or in part, Defendants shall, within 30 days or such other time as the Parties agree to in writing, correct all deficiencies and resubmit the submission for approval, in accordance with the preceding Paragraphs, unless Defendants dispute the basis for the disapproval, in which case Defendants shall invoke the dispute resolution provisions of Section I of this Appendix. The 30-day period to cure applies only to deficiencies identified by EPA in accordance with this Paragraph. If the resubmission is approved in whole or in part, Defendants shall proceed in accordance with the preceding Paragraph.

5. If a resubmitted work plan, or portion thereof, is disapproved in whole or in part, EPA may again require Defendants to correct any deficiencies, in accordance with the preceding Paragraphs, or may itself correct any deficiencies, subject to Defendants' right to invoke the dispute resolution provisions in Section I of this Appendix.

H. PERFORMANCE OF WORK AND MODIFICATION OF WORK PLANS

1. Defendants shall carry out the wetland restoration and monitoring described in this Appendix in accordance with the approved work plans, including the schedule therein, and any subsequently incorporated modifications to it.

2. At any time after EPA approves a work plan, EPA or Defendants may propose modifications to an approved work plan. Modifications may be incorporated into the relevant work plan upon written agreement of the Parties and shall become effective under the Consent Decree without further action by the Parties or the Court.

3. The Parties shall resolve any disputes regarding proposed modifications to an approved work plan, including, but not limited to, any disputes regarding proposed modifications designed to attain and/or maintain any of the performance standards identified in this Appendix, in accordance with the dispute resolution provisions in Section I, below.

I. WORK PLAN DISPUTES

1. If Defendants object to any of EPA's actions in response to the original or any revised work plan, or any other item submitted to EPA for approval pursuant to this Appendix, or if Defendants or EPA object to any subsequently proposed modification of an approved work plan or submission, Defendants and EPA shall employ the dispute resolution provisions set forth in the remainder of this Section. The procedures outlined in this Section shall constitute Defendants' sole means of objecting to or disputing any response from EPA regarding a draft or any revised draft work plan, any subsequent proposed modification of an approved work plan, and any other item submitted for to EPA for approval pursuant to this Appendix. Accordingly, the dispute resolution provisions contained in Section V of the Consent Decree do not apply to any objections or disputes described in this Section.

2. If Defendants wish to invoke dispute resolution provisions set forth herein concerning a work plan or other item submitted to EPA for approval, Defendants shall notify EPA in writing, at the addresses specified in Section V of the Consent Decree, of their objection(s) within 10 business days of receipt of the disputed EPA comment, modification, disapproval, or other action. Defendants' written notice ("Defendants' Objection Letter") shall describe the substance of the objection(s) and shall invoke Section I of this Appendix.

3. Upon EPA's receipt of Defendants' Objection Letter, the Parties shall conduct negotiations for up to 10 business days, during which time Defendants have the right to meet with the appropriate Technical Enforcement Manager, or his or her designee, within EPA New England's Office of Environmental Stewardship;[5] provided, however, that if said Technical Enforcement Manager or his or her designee is not available during that time, the 10 day period shall be extended for another 10 days to allow for a meeting. If there is no agreement at the conclusion of the ten day period, but both Parties agree that further negotiation would be beneficial, the Parties may agree to continue dispute resolution for a period of time specifically agreed to in writing by EPA and Defendants.

4. Any mutual resolution reached by the Parties pursuant to his Section shall be incorporated in writing into the relevant work plan and shall become effective without further action by the Parties or the Court. If the Parties have not resolved the dispute by the conclusion of the dispute resolution period specified in Section I.3 above (including any agreed-upon extensions), then each party shall prepare and submit a final statement of the dispute, with supporting documentation, to the Technical Enforcement Manager. These documents shall

[5] If the Technical Enforcement Manager is or was a member of the case team responsible for negotiating the instant Consent Decree, including Appendix A, Defendants shall have the right to meet with the Deputy Director of EPA New England's Office of Environmental Stewardship or his or her designee.

constitute the administrative record for purposes of resolving the dispute. The Technical Enforcement Manager shall render a decision based upon the administrative record under applicable principles of administrative law.[6] Defendants shall abide by the decision of the Technical Enforcement Manager, and such decision shall be incorporated in writing into the relevant work plan, and shall become effective without further action by the Parties or the Court.

5. If EPA objects to any proposed modification made by Defendants to an approved work plan or other submission, EPA staff shall notify Defendants in writing of the objection(s) within 10 business days of receipt of the proposed modification. The notice ("EPA's Objection Letter") shall describe the substance of the objections and shall invoke this Section I of this Appendix to the Consent Decree. Upon Defendants' receipt of EPA's objection letter, EPA and Defendants shall follow the procedures and requirements set forth in Sections I.1 through I.4, above.

[6] The decision shall be issued by the Technical Enforcement Manager provided the Manager is or was not a member of the case team responsible for negotiating the Consent Decree. If the Technical Enforcement Manager is or was a member of the team, then the decision shall be issued by the Deputy Director of EPA New England's Office of Environmental Stewardship, or his/her designee, provided such person is or was not a member of the team.

J. LIST OF ATTACHMENTS

Attachment	Document
A	Ross Road Site – Overview
B	Ross Road Site – Injunctive Relief Requirements
C	Campground Site – Overview
D	Campground Site – Injunctive Relief Requirements
E	Ross Road Site Groundwater Modeling Outline
F	ME DEP Soil Disturbance Plan (April 13, 2012, as revised December 19, 2012)
G	Map of Ross Road Site Preservation Areas Subject to Conservation Easement
H	Map of Campground Site Preservations Areas Subject to Conservation Easement
I	*Corps of Engineers New England District Mitigation Guidance* (July 10, 2010)
J	*Northcentral and Northeast 2016 Regional Wetland Plant List* (April 28, 2016)
K	*Regional Supplement to the Corps of Engineers Wetland Delineation Manual—North Central and Northeast Region* (version 2.0) (January 2012)

U.S. v. FKT Resort Management LLC, et al.
Consent Decree,
Appendix A

Attachment A

Ross Road Site Overview

Created by the U.S. EPA Region 1 on 9/6/2016.

N
W E
S

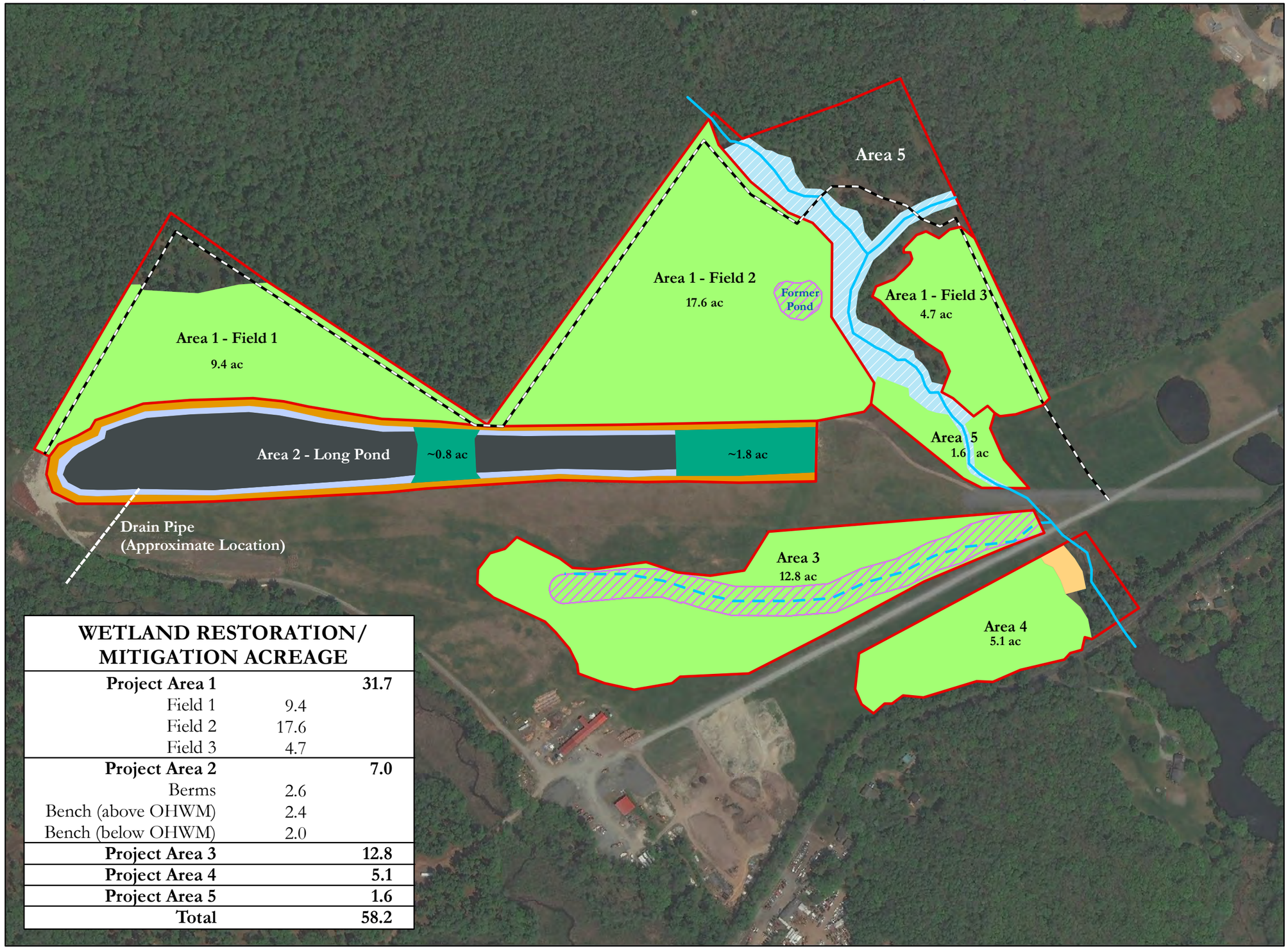
Scale 1 : 4,000

0 250 500 Feet

Project Area Boundaries

EPA

Aerial Photo: Digital Globe 05/24/2015.
Map Tracker ID: 10949



WETLAND RESTORATION/ MITIGATION ACREAGE		
Project Area 1		**31.7**
Field 1	9.4	
Field 2	17.6	
Field 3	4.7	
Project Area 2		**7.0**
Berms	2.6	
Bench (above OHWM)	2.4	
Bench (below OHWM)	2.0	
Project Area 3		**12.8**
Project Area 4		**5.1**
Project Area 5		**1.6**
Total		**58.2**

U.S. v. FKT Resort Management LLC, et al.

Consent Decree, Appendix A

Attachment B

Ross Road Site Injunctive Relief Requirements

Created by the U.S. EPA Region 1 on 9/6/2016.

N W E S

Scale 1 : 4,000

0 250 500 Feet

Site Features

- Project Area Boundaries
- Tributaries
- Former Tributary
- Vegetated Dirt Travelway (no more than 9 ft in width)

Injunctive Relief Requirements

- Scrub Shrub Wetland
- Berms (Scrub Shrub Wetland)
- Wetland Bench (~2.4 acres above Ordinary High Water Mark)
- Wetland Bench (~2 acres below Ordinary High Water Mark)
- Potential Emergent Marsh
- Naturalized Buffer (0.3 ac)
- Riparian Stream Buffer/ Enhancement Planting Area

EPA

Sources: Jones Associates, Inc., EPA, Aerial Photo: Digital Globe 05/24/2015.
Map Tracker ID: 10949

U.S. v. FKT Resort Management LLC, et al.
Consent Decree,
Appendix A

Attachment C

Campground Site Overview

Created by the U.S. EPA Region 1 on 9/6/2016.

N
W E
S

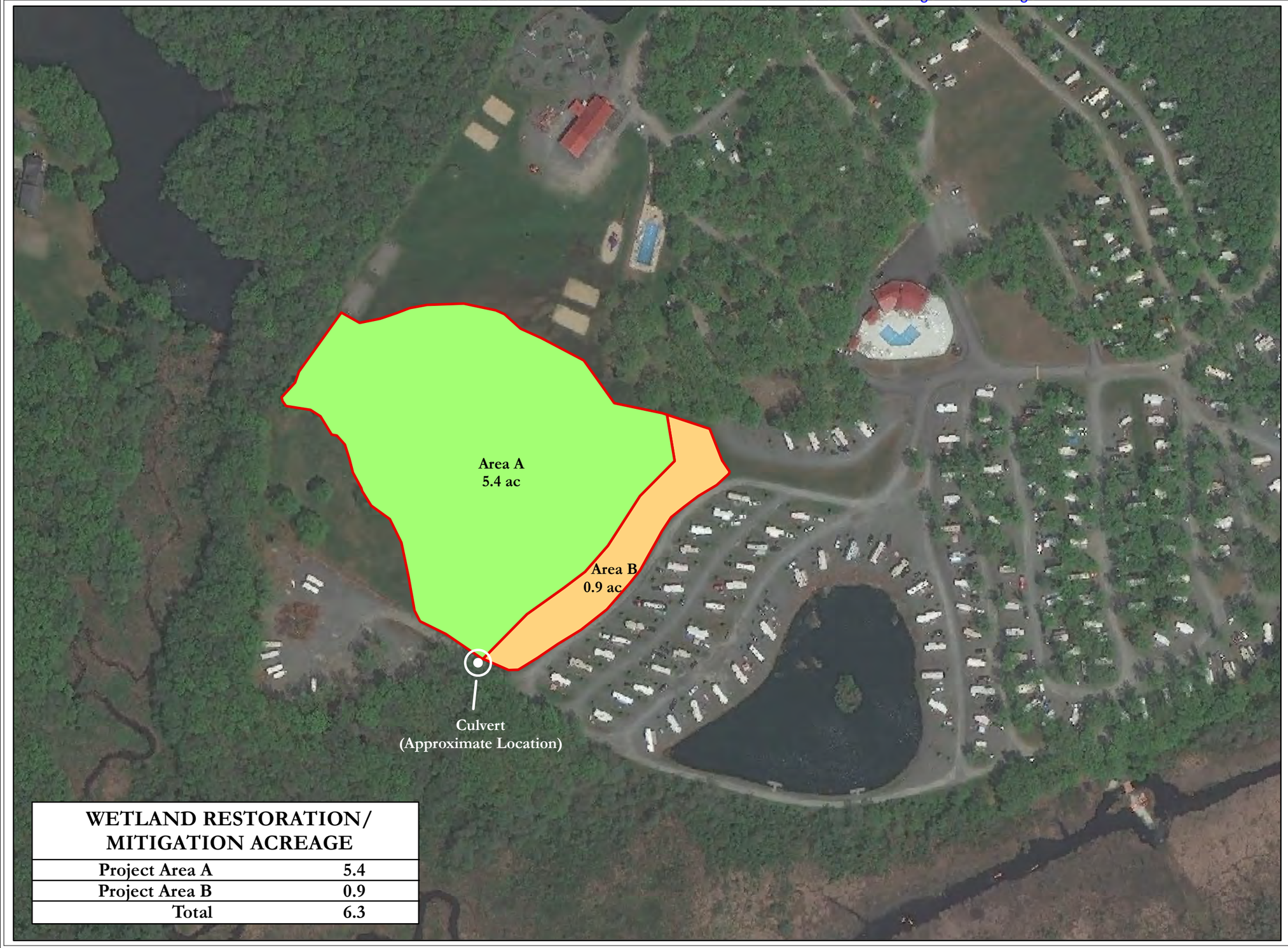
Scale 1 : 2,000

0 125 250 Feet

Project Area Boundaries

EPA

Aerial Photo: Digital Globe 05/24/2015.
Map Tracker ID: 10949



WETLAND RESTORATION/ MITIGATION ACREAGE	
Project Area A	5.4
Project Area B	0.9
Total	6.3

U.S. v. FKT Resort Management LLC, et al.

Consent Decree, Appendix A

Attachment D

Campground Site Injunctive Relief Requirements

Created by the U.S. EPA Region 1 on 9/6/2016.

N
W E
S

Scale 1 : 2,000

0 125 250 Feet

Site Features

Project Area Boundaries

Injunctive Relief Requirements

Forested Wetland (0.9 ac)

Scrub Shurb Wetland (5.4 ac)

EPA

Sources: Jones Associates, Inc., EPA, Aerial Photo: Digital Globe 05/24/2015.
Map Tracker ID: 10949

U.S. v. FKT Resort Management, LLC, et al.
ATTACHMENT E TO APPENDIX A OF THE CONSENT DECREE

ROSS ROAD SITE GROUNDWATER MODELING OUTLINE
August 18, 2016

I. Modeling Purpose and Goals:

Defendants shall develop and utilize a groundwater model to evaluate the changes in the groundwater/surface water hydrology of the Ross Road Site that will be created by dividing Long Pond into several smaller ponds through the constructing of berms. The purpose of the model is fourfold. First, the model will be used to document current site conditions and demonstrate that site hydrology will respond to the planned changes in Long Pond consistent with the parties' expectation that a sloping water table condition will be re-established across the dividing berms, returning the overall hydrology of the Ross Road Site to a condition that is similar to its original hydrology. Second, model results will be used to determine whether construction of two berms, rather than three berms as originally proposed, will achieve an equivalent rise in groundwater elevations and is acceptable to EPA. Third, model results predicting the expected rise in groundwater elevation will be used to optimize the project design to achieve elevation levels similar to the original hydrology of the site as required by Appendix A to the Consent Decree.[1] Fourth, model results will be used to estimate the response time for changes in the groundwater system due to construction of the berms in order to appropriately phase restoration and mitigation work on the Ross Road Site.

II. Proposed Modeling Development:

In order to develop the model, three general tasks have been proposed:

1. Site-specific hydrogeologic parameters will be measured (or estimated where they cannot reasonably be measured);
2. The numerical model will be set up and calibrated to existing conditions as reflected in measured water levels and/or surface water flows; and,
3. The calibrated model will then be used to simulate the resulting hydrology with Long Pond divided into smaller ponds through different berm configurations.

A brief description of each task is provided below.

Task 1. The available site-specific data (*i.e.*, groundwater and surface water elevations) will be supplemented with new hydrogeologic data from the site including the following:

- Additional groundwater elevation data has or will be collected as described in Section III and Section IV, below.
- Hydraulic conductivity will be measured by conducting slug tests and/or constant drawdown tests in existing monitoring wells Nos. 101, 102, 103, 105 and 106. The hydraulic

[1] Should it become necessary, original site hydrology will be determined by modeling pre-disturbance conditions.

conductivity of soil that will be used for the berms will be estimated based on geotechnical lab tests (*e.g.*, grain size analysis and permeability).

- Surface water flow will be measured at several locations in the unnamed stream and in Mill Brook to provide a general measure of flow and gain or loss from groundwater to these streams.
- Additional elevation survey data will be collected along the unnamed stream and Mill Brook.
- Defendants shall provide EPA with all model input data in electronic form.

Task 2. The planned choice of groundwater modeling software will be *AnAqSim*, which is an "analytical element" model developed by Fitts Geosolutions (http://www.fittsgeosolutions.com/). It uses widely recognized numerical algorithms and is efficient to set up and run. AnAqSim can simulate all of the conditions at the Bayley site, including the current hydrology and the modified conditions once Long Pond is divided.

The groundwater model will be developed and calibrated by comparing the water elevations and surface water flows calculated by the model with elevations and flows measured at the site. Typically, models use average annual precipitation (water in), and are calibrated to corresponding "average" water elevations established by measuring water level data and/or surface water flow over one or more years. In the case of the Bayley model, spring high water data may be used for calibration because the site-specific groundwater level and surface water flow data (Task 1 above) are planned to be collected in May.

Task 3. The groundwater model will be calibrated to reflect current hydrology as measured in water level and surface water flow data. The layout of the initial calibrated model will then be modified by changing the model layout to reflect proposed site modifications at the Ross Road Site, including "inserting" berms in Long Pond that have the characteristics of the soil proposed for creating the berms, the filling of the small pond in Field 2, and any other potential site modifications that may affect site hydrology. The model will then be run to calculate the range of expected change in water elevations caused by these site modifications. Results from this model analysis will be used to develop site plans with specifications for berm and pond construction intended to optimize the design so that it achieves the maximum practicable rise in groundwater elevation. Model results will also be used to estimate the response time for changes in the groundwater system due to construction of the berms in order to appropriately phase restoration and mitigation work on the Ross Road Site.

Limitations. The groundwater model will be constructed and calibrated using site-specific hydrogeologic data collected from limited number of locations (10-20) on the Ross Road Site. Data will not be collected off of the property and areas off-site that are included in the model domain will be characterized based on published geologic and hydrogeologic data. Hydraulic conductivity will be estimated from single-well tests. A multi-well aquifer pumping test will not be conducted. Therefore, data to support transient simulations (*e.g.*, specific yield) will be limited and the primary model output is anticipated to be from steady state simulations.

Considering the quantity and time duration of the input and calibration data, the output of the model will be expected to show the nature and general magnitude of the water level and hydrology changes that will occur at the Ross Road Site as a result of dividing Long Pond into 4

small ponds. For example, the model may predict that the water table will rise by three to four feet beneath Field #1 and by one to two feet beneath Field #2. The model sensitivity will predict larger-scale changes but will not be capable of predicting small scale water table changes (*e.g.*, on the level of inches) or transient changes such as seasonal water table and surface water flow fluctuations.

III. Preliminary Data Collection, Model Calibration, and Modeling Results:

Preliminary groundwater data were collected at the Ross Road Site in 2014 and biweekly during April and May 2015. Following the identification of a drain that influences the elevation of Long Pond, the following supplemental tasks were performed:

1. A round of measurements was collected during the week of August 10, 2015 that included water level measurements in all wells and at surface water locations, flow measurements in the eastern stream and a flow measurement of the drain discharge to provide a set of calibration data for the groundwater model. This round of measurements was collected coincident with and/or prior to drain removal from Long Pond.
2. Recording pressure transducers were placed at existing measuring locations in Long Pond and in wells MW-103 and MW-101 at the west and east ends of Long Pond, respectively. These transducers will record water level data daily.
3. The drain from Long Pond was capped and grouted by August 14, 2015, in the manner described in Exhibit 1, in order to prevent the creation of a preferential groundwater flow path along the former drain alignment. The water level in Long Pond and the surrounding groundwater system was then allowed to stabilize through Spring 2016.
4. The existing groundwater model was modified to include a drain feature and the calibration was revised using the August 10, 2015 dataset. Once calibrated, this model was modified to conduct preliminary predictive modeling similar to that described in Task 3. This preliminary predictive modeling also included the discharge from the drain set to zero. Preliminary model documentation, including all data collected to develop the model, was submitted to EPA & DOJ following this step, during the week of August 31, 2015. *See* Exhibit 2 (Drumlin Environmental, LLC, "Summary of Preliminary Groundwater Model" (August 2015)).

IV. Groundwater Modeling Update:

Data collection, modeling and reporting was performed in the Spring of 2016 to fulfill the goals of Tasks 1-3 (above). Data collection, modeling and reporting was performed in accordance with the schedule set forth below and includes the following:

1. During the months of April and May 2016, a second round of water level and flow measurements was conducted.
2. The model was re-run (representing Spring 2016 conditions with no drain) and the calibration was refined using 2016 data, as appropriate, consistent with Task 2. Predictive modeling from Task 3 was conducted using the re-calibrated model. Predictive modeling (Task 3) considered a range of different berm configurations, including variations on the number of berms, berm dimension and location, and berm

construction. The predictive modeling also considered system response over time in order to appropriately phase restoration and mitigation work on the Ross Road Site.

3. A final groundwater modeling report was prepared and submitted to EPA and DOJ in June 2016 (hereafter "June 2016 Report"). *See* Exhibit 3 (Drumlin Environmental, LLC, "Groundwater Modeling Update" (June 2016)). The June 2016 Report includes a description of all data collection and modeling tasks, including all data collected to develop and calibrate the model in electronic format. The June 2016 Report also describes and evaluates various berm configurations, including both a three berm scenario and a two berm scenario, in order to show the rise in upgradient water table expected with each option. The report also includes a discussion of the expected time required for the hydrologic system to reach equilibrium post-berm construction, which indicates that 80% to 85 % of the change would likely occur within 12 months of berm construction and greater than 90% of the change would likely occur within 18 months.
4. Based on the June 2016 Report, and subsequent information provided by Drumlin Environmental, LLC, EPA determined that the two berm configuration is an acceptable alternative to the three berm configuration originally proposed. EPA's acceptance of the two berm configuration is based on the understanding that both the two berm scenario and the three berm scenario will achieve a similar rise in groundwater across the site, with the modeled two berm scenario indicating that the groundwater elevation rise associated with this scenario will cover a larger area in Fields 1 and 2 in Project Area 1.

V. Additional Groundwater Modeling and Final Groundwater Modeling Report

1. Additional fine-tuning modeling shall be conducted prior to submission of the Ross Road Site Work Plan in order to optimize berm placement and design to achieve the maximum practicable rise in upgradient groundwater elevations. Small changes in berm dimensions, placement, and variations in material (*e.g.*, hydraulic conductivity) within the range of available on-site material, will be explored in several groundwater modeling runs based on the two-berm configuration recommended by Drumlin Environmental, LLC, in the June 2016 Report. Modeling output from this fine-tuning will compare various two-berm arrangements and an optimized berm design will be chosen, with EPA concurrence, which achieves the maximum practicable rise in groundwater elevation.
2. This modeling shall be summarized in a Final Groundwater Modeling Report and submitted to EPA as an Appendix to the Ross Road Site Work Plan. The Final Groundwater Modeling Report shall include comparisons between model runs and the recommended optimized berm configuration. If the time expected for the hydrologic system to reach equilibrium after construction of the recommended optimized berm design is different than that predicted in the June 2016 Report, then the Final Groundwater Modeling Report shall also include a discussion of the expected time required for the hydrologic system to reach equilibrium.
3. Results from the additional modeling analysis shall be used to develop site plans for the berms and wetland bench required by Section B.2 of Appendix A with project specifications designed to achieve the technical specifications and performance standards set forth in E.2 of Appendix A. In addition, results from the additional modeling shall be considered in developing the phasing of the restoration and mitigation work on the Ross Road Site as required by Section F.1 of Appendix A.

VI. List of Exhibits

Exhibit 1: Maine Drilling & Blasting, Memorandum Re: Drain Pipe Grouting Results (October 16, 2015).

Exhibit 2: Drumlin Environmental, LLC, Summary of Preliminary Groundwater Model (August 2015).

Exhibit 3: Drumlin Environmental, LLC, Groundwater Modeling Update (June 2016).

Consent Decree, Appendix A, Attachment E – Ross Road Site Groundwater Modeling Outline

Exhibit 1: Maine Drilling & Blasting, Memorandum Re: Drain Pipe Grouting Results (October 16, 2015).

Maine Drilling & Blasting

October 16, 2015
To: Tom Bayley
From: Peter Marcotte
RE: Drain Pipe Grouting Results.

Mr. Bayley,
We have drafted this memo to summarize the grouting work completed August 14, 2015.

- The Drain Pipe Diagram is Figure 1
  - The Inlet was capped before grouting.
  - The standpipe remained open.
  - The Outlet was fitted with a compression fitting for grout input, shown in Figure 2
- Grout was injected into the outlet until an undiluted grout return was observed at the standpipe, shown in Figure 3.
  - The grout placed was a neat mix of Type I/II Portland cement with 5 gallons of water.
  - The quantity of grout placed was 119 each 94 lb bags.
  - The yield of the grout mix is 1.16 cubic foot per 94 lb bag = 138 cubic feet of grout placed.
  - An 8" pipe is 0.35 CF/LF = Theoretically 394.4 LF of 8" pipe was filled. This matches the field measure of the standpipe to outlet distance, shown in Figure 4.

Based on the observations of the work performed, we consider the entire section of pipe between the outlet and the stand pipe has been fully grouted.

Sincerely:

Peter Marcotte
pmarcotte@mdandb.com

Maine Drilling & Blasting, Inc.
P.O. Box 1140
423 Brunswick Avenue
Gardiner, ME 04345
207.582.2338
207.582.8794 FAX

Divisional Offices
Connecticut 860.242.7419
Maine 207.582.2338
Massachusetts/RI 508.478.0273
New Hampshire 603.647.0299
New York 518.632.9170
Pennsylvania 800.422.4927
Vermont 802.479.3341

Maine Drilling & Blasting

Setting Earth Shattering Standards Since 1966

A Breed Apart

Figure 1

BAYLEY PROPERTY
DRAIN PIPE GROUTING
ROSS ROAD, SCARBOROUGH, ME

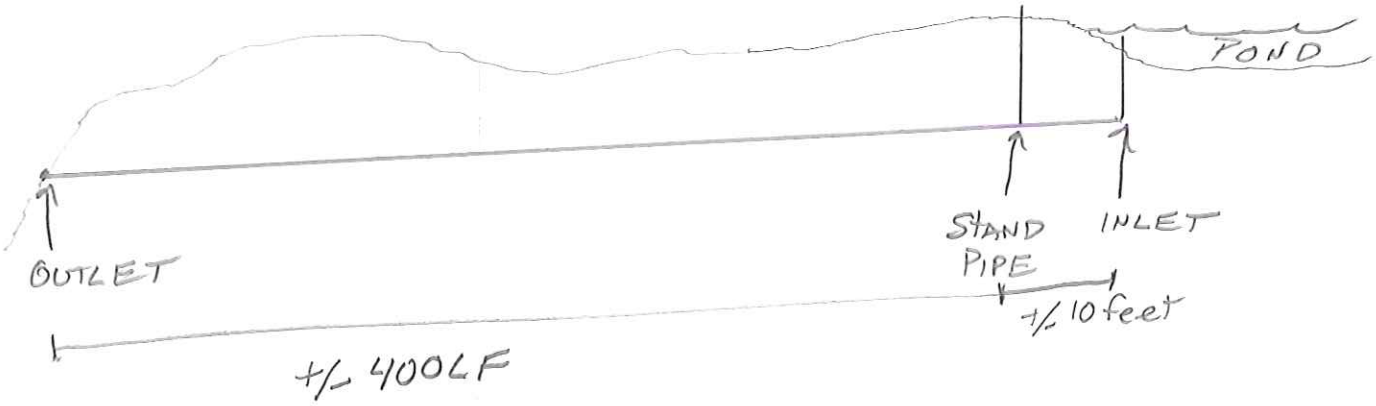
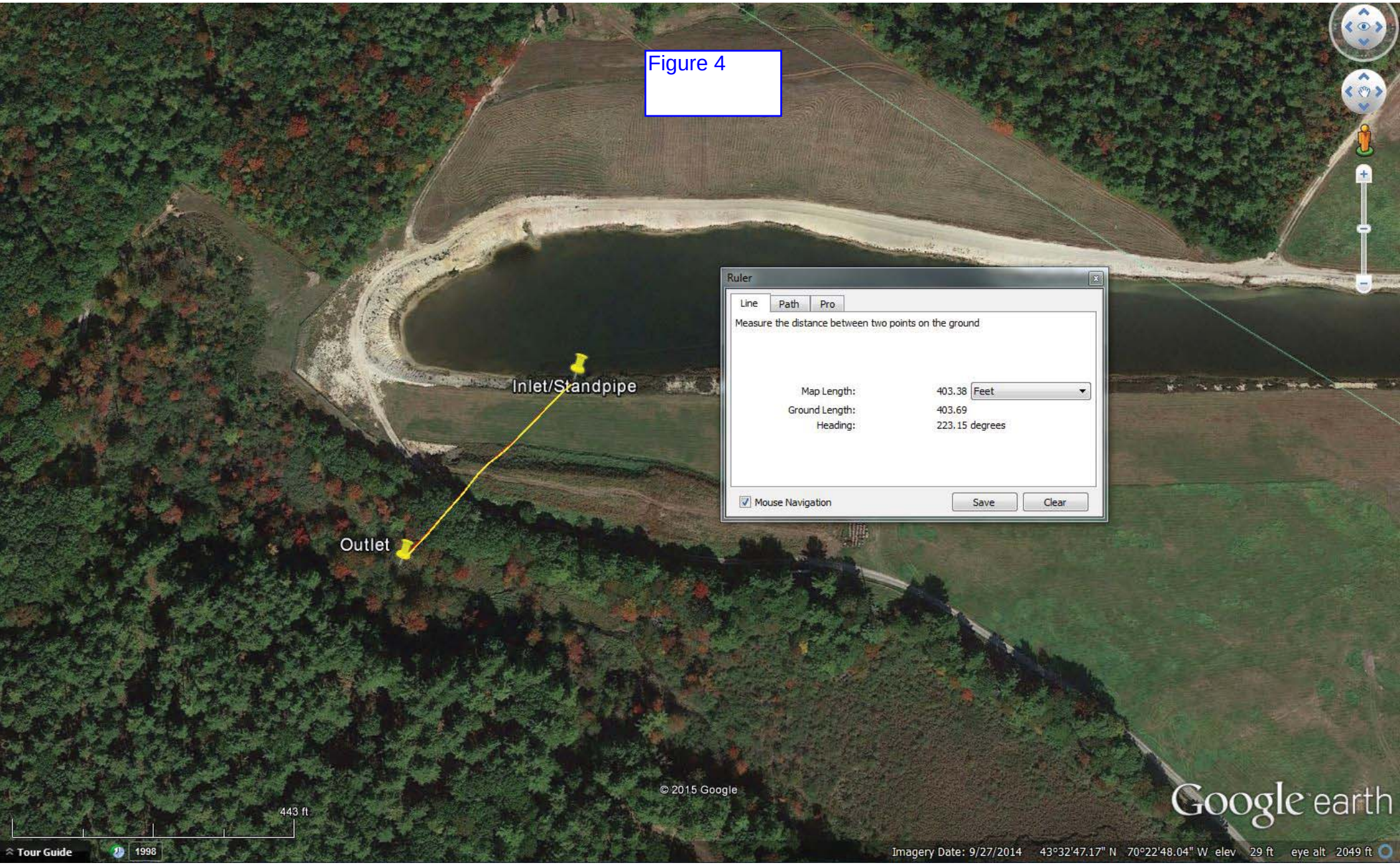


Figure 2


Figure 3

Figure 4


Inlet/Standpipe
Outlet
Ruler
Line
Path
Pro
Measure the distance between two points on the ground
Map Length: 403.38 Feet
Ground Length: 403.69
Heading: 223.15 degrees
Mouse Navigation
Save
Clear
© 2015 Google
443 ft
Google earth
Tour Guide
1998
Imagery Date: 9/27/2014 43°32'47.17" N 70°22'48.04" W elev 29 ft eye alt 2049 ft

Consent Decree, Appendix A, Attachment E – Ross Road Site Groundwater Modeling Outline

Exhibit 2: Drumlin Environmental, LLC, Summary of Preliminary Groundwater Model (August 2015).

CONFIDENTIAL SETTLEMENT SUBJECT TO F.R. EVID. 408

SUMMARY OF PRELIMINARY GROUNDWATER MODEL BAYLEY FARM PROPERTY SCARBOROUGH AND OLD ORCHARD BEACH, MAINE

AUGUST 2015

Prepared for

Fred and Kathleen Bayley

Drumlin Environmental

Prepared by

Drumlin Environmental, LLC
97 India Street
P. O. Box 392
Portland, Maine 04112-0392
(207) 771-5546

SUMMARY OF PRELIMINARY BAYLEY GROUNDWATER MODEL

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

As part of a settlement negotiation between the United States and Fred and Kathleen Bayley, wetland restoration activities are proposed for the Bayley Farm property on the north side of Ross Road (Scarborough Map/Lot Number R086/001 and Old Orchard Beach Map/Book/Lot Number 101/1/16). An element that is being considered as part of the proposed wetland restoration activities is to divide Long Pond into 4 smaller ponds by using soil from the site to construct 3 berms across the pond.

To evaluate the changes in the groundwater/surface water hydrology of the Bayley Farm site that would be created by closing the drain in Long Pond and dividing Long Pond into 4 smaller ponds, a groundwater model has been developed consistent with the understanding of the parties as reflected in the *"Outline of Groundwater Model Development"*, as revised on May 6, 2015.

This document summarizes the preliminary groundwater model development and results based on hydrologic data collected at the site during 2014 and 2015. In accordance with the agreement between the Bayleys and the EPA, additional hydrologic data will be collected in the spring of 2016 and the model will be revised, as appropriate. The spring 2016 model will be used to support development of the final Work Plan for site restoration.

The remainder of the document is organized in six sections.

- Section 2.0 summarizes the site-specific data that was collected and used during model development and calibration;
- Section 3.0 describes the model configuration;
- Section 4.0 describes the calibration process and results for this preliminary model;
- Section 5.0 presents the results of model predictions related to sealing the drain from Long Pond and dividing Long Pond into 4 smaller ponds: and,
- Section 6.0 summarizes the model status and preliminary predictions.

2.0 SUMMARY OF GEOLOGIC AND HYDROGEOLOGIC SITE DATA

Several types of geologic and hydrogeologic data were collected from the Bayley Farm property and used to support development of the groundwater model. These data are summarized below and in Appendix A of this document.

2.1 Topographic, Bathymetric and Geologic Data

Ground surface elevation data for the property and the surrounding area encompassed within the groundwater model were derived from the 2-foot topographic contour layers available for download from the Maine Office of GIS (MEOGIS). These contours were incorporated into the base map used in the model.

According to the Surficial Geologic Maps of the Old Orchard Beach and Prouts Neck Quadrangles (Maine Geological Survey Open File No. 99-94 and 99-97, respectively), the surficial geologic deposits at the Bayley Farm property are mapped primarily as Presumpscot Formation silts and clays, with wetland, swamp deposits bordering the unnamed stream east of Long Pond (herein referred to as the East Stream) and Mill Brook west of Long Pond. There are also two small end moraines (describe as including sand and gravel) mapped at the east end and south of Long Pond. Figure A-A in Appendix A includes a geologic map excerpted from OFN 99-94 and 99-97 for reference.

The specific subsurface geologic materials present at the Bayley Farm site were examined through hand auger and Geoprobe borings. A 3-inch bucket-style hand auger was used to install monitoring wells 101 to 111 at the site in 2014. These hand auger borings encountered sandy textured soil from the ground surface to the bottom of the hand auger boring, which varied in depth from 3.4 feet at MW-110 to 10.3 feet at MW-111.

In May 2015, five Geoprobe borings were also advanced at the site. The purpose of the Geoprobe borings was to evaluate the subsurface conditions below the available hand auger depths. Borings were advanced at the east and west and of Long Pond and at 3 locations on the north side of the pond. Figure A-B in Appendix A shows the locations of the Geoprobe borings. Four of the borings encountered gray silt and clay soil (consistent the Presumpscot Formation materials mapped in the area) below the sand. (The fifth boring encountered loose sand and was terminate above the silt/clay soil.) As shown in Figure A-B, the silt/clay soil was encountered at an elevation of approximately 20 feet at the west end of Long Pond and was deeper (between elevation 7 and 10 feet) to the east.

In June 2015, measurements were made of the depth of Long Pond along its length. These depth measurements were subtracted from the pond surface elevation at the time they were measured, to determine the bottom elevation of Long Pond, which was between 8 and 11 feet. Figure A-B includes these pond bottom elevation data.

2.2 Groundwater Elevation and Stream Flow Data

The elevation of groundwater on the Bayley Farm property has been measured in monitoring wells at the site periodically since April 2014. To support the development of the groundwater model, additional measurements were made during 2015. Table A-1 in Appendix A summarizes the groundwater elevation data measured at the site.

Surface water flow estimates were also made by gauging flow at several locations in East Stream (see Figure A-B) on April 16, May 4, and August 7, 2015. Table A-2 in Appendix A summarizes the surface water flow measurement data. The higher April measurements were collected near the end of spring snow-melt conditions and reflect a combination of surface water runoff and groundwater-fed base flow. In the 13 days prior to collection of the May 4 data, there was less than 0.5 inches of precipitation at the nearby Portland, Maine NOAA weather observing station, so the May 4 data are more representative of groundwater-fed base flow conditions. Data from August 7 reflects both season low groundwater and low precipitation conditions.

2.3 Hydraulic Conductivity Data

The hydraulic conductivity of the saturated sandy soils was measured using constant-head or rising head tests in several monitoring wells at the site. Table A-3 in Appendix A summarizes the hydraulic conductivity measured in monitoring wells at the site. At the time that the data were collected, existing wells 9, 17, 25, 27 and 31 were either dry or had less than 0.5 feet of water in the well, therefore these wells were not able to be tested as anticipated.

The measured hydraulic conductivity in wells MW-101, MW-102, MW-105 and MW-106 ranged between 9.7 ft/day and 19.7 ft/day. Well MW-103, at the western end of Long Pond, had a lower measured hydraulic conductivity of 0.88 ft/day.

In additional to measuring the hydraulic conductivity of the saturated sandy soils at the Bayley Farm site, soil samples from the unsaturated zone on the north side of Long Pond were also collected in May 2015. These samples were collected from areas and depths that represent on-site soil that would be available to use in construction of the dividing berms for Long Pond. Samples were collected from below the organic topsoil horizon at 6 locations shown on Figure A-C in Appendix A, where the existing ground surface will be lowered during the wetland restoration work. Seven soil samples from depths ranging from 0.7 to 4.0 feet were submitted for grain size analysis. Plots of these data are included in Appendix A and show that the available soil is generally fine or fine-medium sand with the percent of fines (less than the #200 sieve) ranging from approximately 2% to 13 %. Using the method of Hazen (1893), the hydraulic conductivity of this soil was estimated and is summarized in Appendix A.

In addition to the grain size measurements, two soil samples, representing the soil with a low (~4-5%) and high (~13%) percentage of fines, were remolded and tested for permeability in the lab. The soil with the low percentage of fines had a laboratory permeability of 42 ft/day. Soil with the high percentage of fines had a permeability of 10.8 ft/day. A summary if these permeability data are included in Appendix A.

3.0 GROUNDWATER MODEL DEVELOPMENT

The groundwater model was developed using the Analytic Aquifer Simulator (AnAqSim) software code, as described in the "*Outline of Groundwater Model Development*". AnAqSim version 2015-1 was used for the Bayley model. Drumlin was assisted in setting up and running the model by Charles Fitts, Ph.D., of Fitts Geosolutions, LLC.

AnAqSim uses the analytic element method for simulating groundwater flow. An overview of the model capabilities is as follows.

- The model is set up to include perimeter model boundaries and interior boundaries that are identified as domains, with hydrogeologic properties specified for each domain.
- A single set of hydrogeologic properties (e.g., hydraulic conductivity, storativity, etc.) are specified within each domain. These properties are not varied with a domain.
- The model can incorporate no-flow boundaries, specified head boundaries, stream/river flow and recharge, which are the principal factors controlling the hydrology of the Bayley Farm site.

Additional information about the model capabilities is available from Fitts Geosolutions, LLC at www.fittsgeosolutions.com.

3.1 Model Conceptualization and Setup

The area incorporated in the model is shown on Figure 1. An overview of the model setup is provided in the following sections.

- Model Layering. The model was constructed with a single layer. This was based on the geologic data discussed in Section 2.1, which indicated that the surficial groundwater flow system in the sandy soil is underlain by silt/clay Presumpscot Formation soil. The silt/clay soil of the Presumpscot Formation represents a lower groundwater flow boundary because the hydraulic conductivity of the silt/clay soil is likely to be several orders of magnitude lower than the sandy soil. In addition, the bottom of Long Pond is approximately at the elevation of the silt/clay soil and fully penetrates the surficial aquifer.

- Model Boundaries. Model boundaries were identified where groundwater conditions could be inferred to be specified-flow or specified head conditions. These boundaries are show in Figure 1 and described below (beginning at the right angle boundary northwest of Long Pond and proceeding clockwise). No-flow boundaries are shown in green, specified head boundaries are shown in orange.

    - Northern Boundary approximates a topographic divide and is a specified-flow (no-flow) boundary.

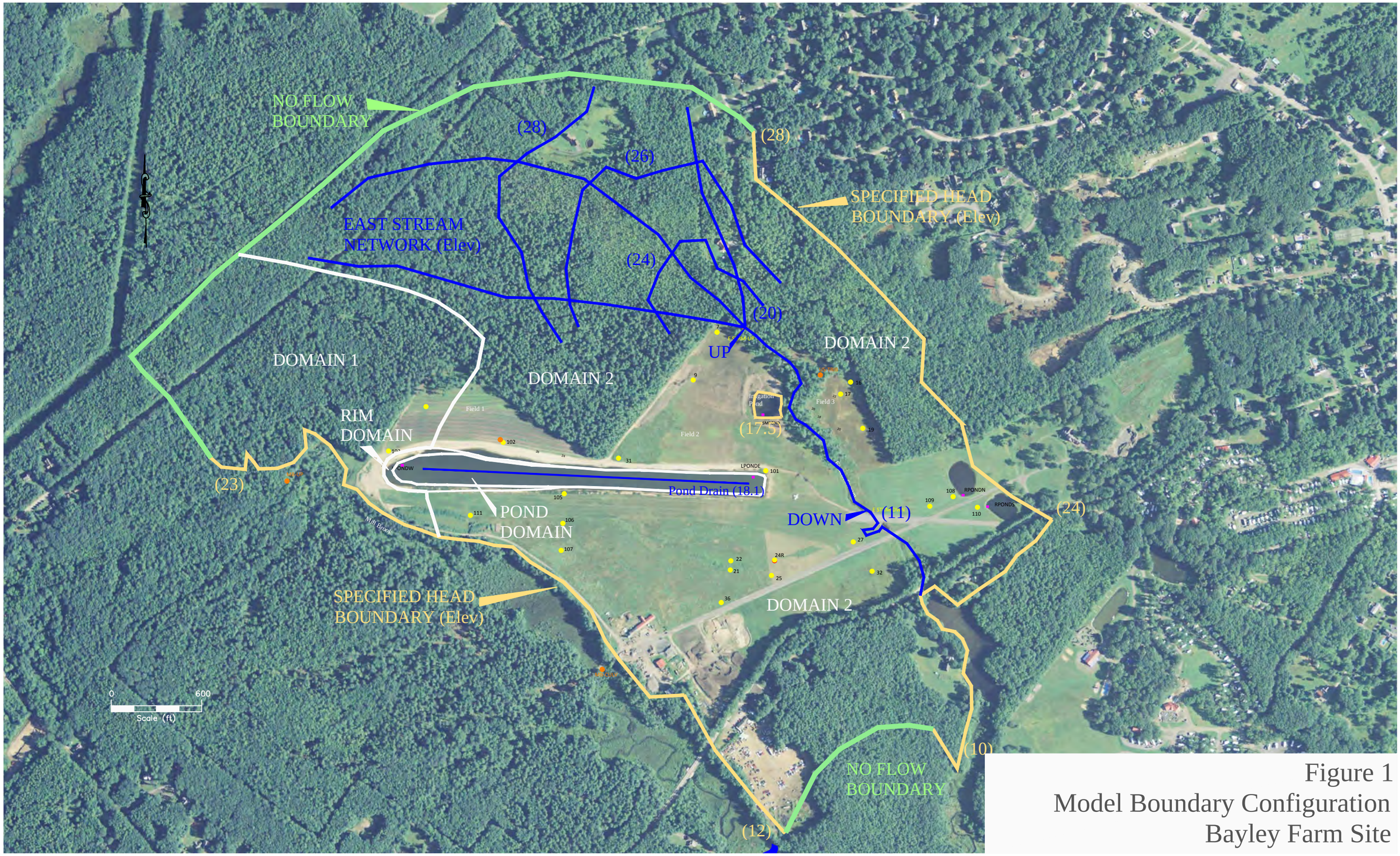


Figure 1
Model Boundary Configuration
Bayley Farm Site

- Eastern Boundary lies along lower edge of the hill to the east of the Bayley Farm. Bedrock beneath this hill is close to the ground surface and the groundwater elevation along this boundary is expected to be controlled by the bedrock elevation. This boundary is a specified-head boundary varying in elevation from 28 feet in the northeast to 24 feet in the southeast. This specified head boundary then follows the topographic tributary to the east stream and along the topographic contour south of Ross Road. Over this length the specified head drops from 24 feet to 10 feet.
- Southern Boundary spans the topographic divide across the lower end of the East Stream drainage and the Mill Brook drainage and is a specified-flow (no flow) boundary representing diverging flow lines toward each drainage.
- West Boundary is a specified-head boundary along the edge of the Mill Brook valley. This boundary represents an approximation of the groundwater seepage face along the brook valley. The specified head varies in elevation from 12 feet on the southeast to 23 feet in the northwest.

- Model Domains. Domains in AnAqSim correspond to regions with similar geologic and hydrogeologic properties. The Bayley Farm model was configured with 2 primary domains (Domain 1 and Domain 2). The area of each domain is shown in Figure 1. Domain 1 was configured with the bottom specified at elevation 18 feet, based on the shallower silt/clay interface encountered at the west end of Long Pond in Geoprobe Boring A (Figure A-B). Domain 2 was configured with the bottom at elevation 9 feet, based on the elevation of the silt/clay interface in the other Geoprobe borings.

  In addition to the two primary domains, there were several other domains included in the two versions of the model (current conditions and divided Long Pond).
  - The Pond Domain was specified with very high hydraulic conductivity in the current conditions model and the smaller ponds were specified as similar high hydraulic conductivity domains in the divided model.
  - The Rim Domain was specified around the western end of Long Pond. The Rim Domain was included to simulate the hydraulic conductivity that is the result of both accumulated sediment and shallower silt/clay interface that results in the relatively large water elevation difference between the pond surface and nearby groundwater at the western end of the pond.
  - In the model where Long Pond is divided into smaller ponds, the soil berms were each specified as domains.

- Internal Line Boundaries – East Stream The interior of the model within Domain 2 includes the East Stream shown in Figure 1, which is represented by several River line boundary segments within the model. Each line boundary segment (reach) is specified with a starting and ending stage (elevation) and a bottom conductance. Groundwater flows into or out of the stream line segment based on the relative elevation of the groundwater versus the stream stage and the conductance.

  From the northern end of Field 2 to the south, the East Stream line boundary follows the course of the stream on the Bayley Farm site. At the northern end of Field 2 (marked “UP”

on Figure 1) and at the culvert east of Long Pond (marked "Down" on Figure 1), the stream elevation and flow were measured in April, May and August 2015. The May 2015 elevation data was used to specify the stage (elevation) of East Stream at those two locations.

North of Field 2, the model includes a network of stream boundary segments. In the model, the stream elevation is specified to be approximately equal to the ground surface as determined by the 2-foot topography available for this area from the Maine Office of GIS. These stream line boundaries in the model do not follow specific surface water flow channels, because these off-site features have not been mapped. Instead, their purpose is to represent the general hydrology that allows water at or near the ground surface to flow to the upper end of the East Stream channel ("UP" location in Figure 1) at the northern edge of the Bayley Farm site.

Long Pond. In the "current conditions" model, a River line boundary was included in the Long Pond domain. This line boundary was included to represent the drain that controlled the elevation of Long Pond. The elevation of this line boundary line was specified to be 18.3 feet, which was the inlet elevation of the drain. The line boundary feature effectively prevented the water level in Long Pond from rising above 18.3 feet in the model.

For modeling conditions without the Long Pond drain, the River line boundary was removed, which allowed the water elevation within Long Pond domain to rise and fall with the surrounding groundwater system.

- Area Sinks/Sources. AnAqSim incorporates precipitation as specified recharge for each domain. Recharge is the portion of the precipitation that infiltrates downward to the water table. *(The remainder of the precipitation either flows overland as surface runoff, is evaporated (E) or taken up by the vegetation (a process referred to as evapotranspiration, or ET).* In the groundwater model, a recharge value was specified for each domain. A lower recharge percentage was assigned to Domain 1 and the Rim domain, based on their lower hydraulic conductivities. A higher recharge percentage was assigned to Domain 2, where the hydraulic conductivity was higher. For Long Pond, recharge was calculated from precipitation and pan evaporation data.

  Two sets of recharge values were used in the modeling process. The "current conditions" model was run as a transient simulation, with recharge varying from month to month based on the precipitation records from August 2014 to July 2015. "Future conditions" models were run as steady state simulations. For these model runs, the total annual precipitation measured from August 2014 to July 2015 was used as the basis for the recharge values. Recharge (and evaporation) rates used in the model are summarized in Table 1.

Table 1
Recharge Rates Used in Model Simulations

Period	Precipitation[1] *(inch)*	Recharge Domain 1 & Rim *(ft/day)*	Recharge Domain 2 *(ft/day)*	Recharge Long Pond[2] *(ft/day)*
8/ 2014	5.5	0.0019	0.0004	0.0013
9/2014	0.75	0.0004	0.0001	-0.0072
10/2014	3.5	0.0030	0.0006	0.0043
11/2014	3.5	0.0047	0.0009	0.0069
12/2014	6.375	0.0111	0.0022	0.0171
1/2015	3.5	0.0030	0.0006	0.0094
2/2015	2.575	0.0025	0.0005	0.0077
3/2015	1.75	0.0024	0.0005	0.0047
4/2015	3.5	0.0063	0.0013	0.0014
5/2015	1.75	0.0015	0.0003	-0.0093
6/2015	4.5	0.0020	0.0004	-0.0015
7/2015	0.75	0.0003	0.0001	-0.0136
Annual (Steady-State)	37.95	0.0033	0.00065	0.00177

1. Precip 8/2014-8/2015 at Scarborough, based on http://water.weather.gov/precip/ Quantitative Precip Estimate.
2. Recharge for Long Pond was calculated as Precipitation – Evaporation. Negative values mean that evaporation exceeded precipitation for the month specified.

3.2 Model Parameterization

The AnAqSim model requires that a number of parameters be specified for each domain and boundary. Parameters (e.g., hydraulic conductivity, storativity, etc.) are applied by the model to the entire domain, rather than subareas within a domain. This model structure simplifies model construction, but does not allow the parameters to be varied within a domain to fine-tune the model to subareas that may have localized variations.

During initial set-up and early runs of the "current condition" model, the parameter values were assigned based on a combination of field-measured values as described in Section 2 and values derived from the literature for similar geologic and hydrogeologic conditions. As calibration progressed, parameter values (principally hydraulic conductivity and recharge percentage) were adjusted manually to improve overall calibration.

Table 2 summarize the parameters incorporated in the final, calibrated model.

Table 2
Summary of Hydrogeologic Parameters Used in the Model

Domain	Bottom Elevation	Porosity	Hydraulic Conductivity	Specific Yield	Storativity
	(ft)		*(ft/d)*		
Domain 1	18	0.3	4	0.1	0.04
Domain 2	9	0.3	70	0.1	0.04
Long Pond	9	0.999	5,000	0.1	0.999
Rim	9	0.3	0.5	0.1	0.04
Berms 1, 2, 3	9	0.3	11 or 40	0.1	0.001

4.0 GROUNDWATER MODEL PROCESS AND CALIBRATION

4.1 Modeling Overview

The modeling process that was adopted included a calibration phase and preliminary predictive modeling phase that uses parameters from the calibrated model. During the calibration phase, the model was run as a 1-year transient simulation with one month time steps corresponding the August 2014 through July 2015. Groundwater elevations calculated by the model were compared to groundwater elevations measured in wells at the site in April, May, June and August 2015. Groundwater elevations were the primary calibration metric. Modeled flows for the May 2015 time step in the East Stream were also compared to measured flow data on a qualitative basis to see whether the model was predicting the same order-of-magnitude flow as measured at the site.

Once the "current conditions" model was calibrated through the transient simulation process, the model was run in several predictive modes, which are presented in Section 5.0.

1. A transient simulation was run with the Long Pond drain removed so that comparisons could be made of the pond elevation and groundwater elevations throughout a representative annual cycle.
2. A steady-state model of current conditions was run using the calibrated parameters and average annual recharge rates from Table 1;
3. A steady state predictive model was run with the drain feature removed from Long Pond; and,
4. A steady-state predictive model was run with Long Pond divided into 4 small ponds.

The modeled groundwater elevations from predictive models (Items 3 and 4) were compared to the groundwater elevations from steady-state current conditions model (Item 2) to estimate the magnitude of the change in groundwater elevations at the site.

4.2 Model Calibration

As described above, the primary calibration metric for the model was a comparison between modeled and measured groundwater elevations at the monitoring wells on-site. Figure 2 and Table 3 show the results of this comparison for the groundwater elevations measured in April, May, June and August 2015. The average residual between modeled and measured elevations for the 4 datasets is 0.00537 feet and the sum of the residuals squared is 41.58 feet. The average residuals ranged from -0.067 feet for the May dataset to -0.58 feet for the April dataset.

Figure 2
Modeled versus Measured Groundwater Elevations

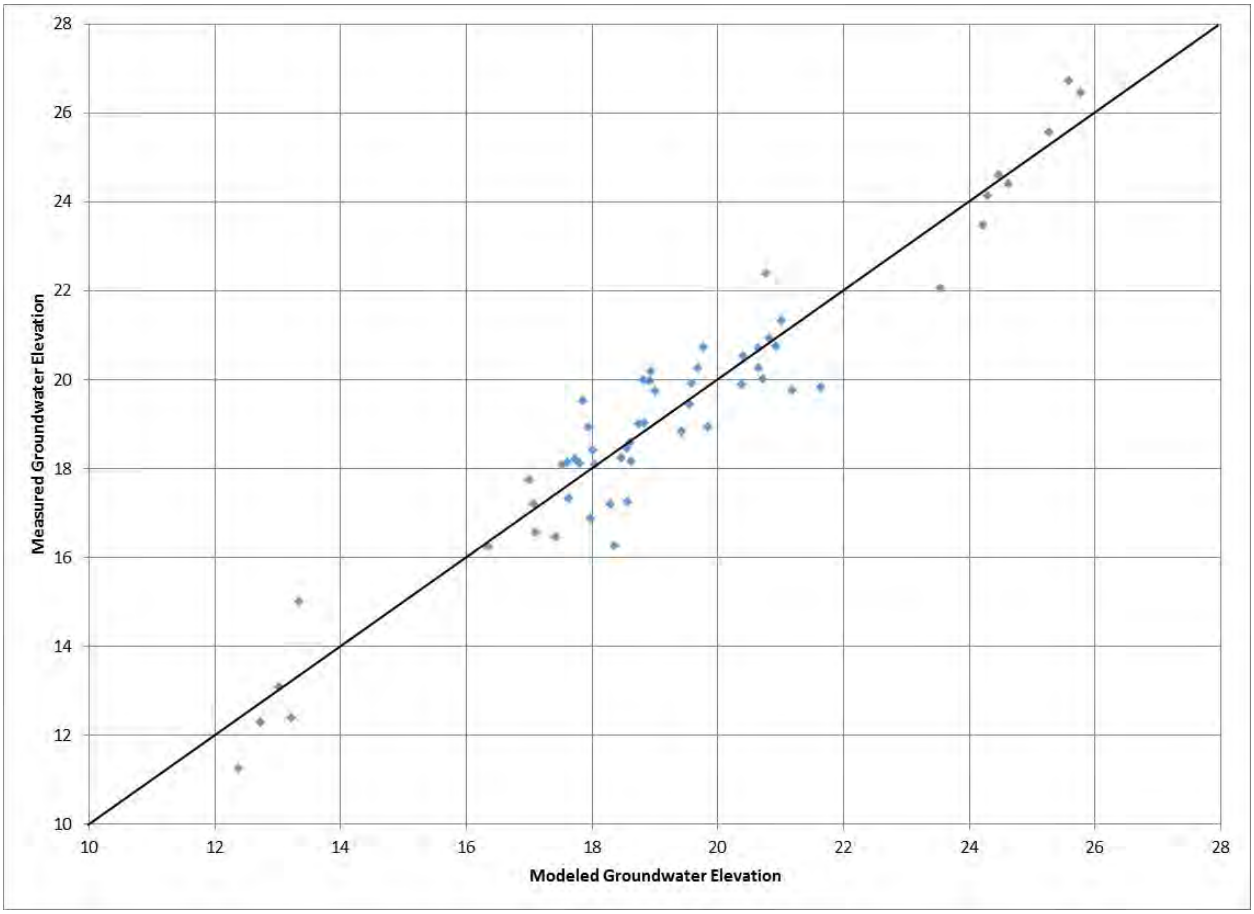


Figure 2 shows the comparison between modeled and measured elevations for the monitoring wells during April, May, June and August 2014. These points fall close to the diagonal line in Figure 2, which would represent perfect agreement between modeled and measured water elevations. *(It should be kept in mind that the modeled values represent an average condition for the corresponding month, while the measured data represent a specific date. Some of the variation between these values would be expected based on, for example, whether rainfall in a particular month fell before or after the field date, or fell uniformly during the month.)*

The close correlation between the modeled and measured groundwater elevations for data from 4 different months and wells across the whole Bayley site, indicate that the model reproduces the current conditions at the site well.

Table 3

Comparison of Modeled and Measured Groundwater Elevations

Well	5/4/2015				4/16/2015				8/7/2015				6/10/2015		
	Modeled	Measured	Residual		Modeled	Measured	Residual		Modeled	Measured	Residual		Modeled	Measured	Residual
27	13.21014	12.41	0.800136		13.01604	13.09	-0.07396		12.37684	11.25	1.126837		12.71751	12.3	0.4175062
32	13.32932	15.02	-1.690676												
25	17.06392	17.22	-0.15608												
21	17.97009	16.89	1.080085		17.62545	17.33	0.2954489		16.34425	16.26	0.084253		17.09113	16.58	0.511129
36	17.93831	18.93	-0.991691												
19	18.92801	20.19	-1.261994												
16	21.17525	19.78	1.39525												
17	19.83153	18.93	0.9015306												
101	17.79329	18.12	-0.326705		17.72026	18.23	-0.509735		16.99956	17.76	-0.760439		17.51242	18.09	-0.577578
7	20.91693	20.76	0.1569293		20.81965	20.93	-0.110352		20.38023	19.91	0.4702323		20.64459	20.72	-0.075409
9	20.71491	20.03	0.6849149												
31	18.99272	19.76	-0.767284												
102	20.99935	21.34	-0.340654		20.75428	22.4	-1.64572		19.58414	19.92	-0.335858		20.39048	20.54	-0.149515
103	24.61286	24.42	0.1928625		24.46089	24.62	-0.159107		23.54401	22.08	1.464012		24.21593	23.49	0.7259278
104	25.77614	26.48	-0.70386		25.57483	26.74	-1.165174		24.29003	24.14	0.1500328		25.25901	25.59	-0.33099
105	18.59816	18.59	0.0081591		18.54683	18.48	0.0668289		18.04165	18.11	-0.068353		18.45967	18.26	0.1996679
106	18.91808	19.97	-1.051921		18.80516	20	-1.194838		18.28925	17.2	1.089246		18.61472	18.18	0.4347211
107	18.8287	19.03	-0.201299		18.73254	19.01	-0.277464		18.35981	16.27	2.089811		18.57123	17.25	1.321226
108	20.64589	20.28	0.3658852												
109	18.00165	18.43	-0.42835		17.85126	19.53	-1.678736		17.41944	16.47	0.9494421		17.6083	18.16	-0.5517
110	21.63598	19.82	1.815983												
111	19.76302	20.73	-0.966981		19.677	20.28	-0.602999		19.41473	18.83	0.5847304		19.53408	19.45	0.0840821
	Average Residual:		-0.067535				-0.587984				0.570329				0.1674224
	Sum Residual Squared		17.560293				9.1469602				11.156676				3.7196579
All Data	***Average Residual:***		***0.0053698***		***Sum Residual Squared:***		***41.583586***								

In addition to calibrating the model by comparing the modeled and measured groundwater elevations, some measured flow data are available for comparison to flows calculated by the model. The May 4, 2015 dataset is the best available flow data for comparison to the model, which calculates groundwater discharge to the River line boundaries within the model and does not account for surface runoff. During the 10 days preceding May 4, 2015, there was no snow melt and minimal precipitation, so the flow in the east stream was predominantly representative of groundwater-fed base flow conditions. In contrast, flow measured in April represented a high proportion of snow melt and surface runoff.

On May 4, 2015 the measured flow in the East Stream of 75 gpm at the upstream location (Figure 1, UP). The groundwater model calculated a flow at the upstream location of 108 gpm in April and 44 gpm in May, which brackets the measured data. The May 4, 2015 downstream flow (Figure 1, DOWN) was measured at 195 gpm (which is a gain of 120 gpm from the upstream location). The model predicted a gain in flow between the UP and DOWN location of 133 gpm for April and 117 gpm for May, which also closely brackets the measured gain of 120 gpm.

5.0 EVALUATION USING THE PRELIMINARY GROUNDWATER MODEL

As discussed in Section 4.1, the calibrated model was used to run several simulations to evaluate current and potential future hydrologic conditions at the Bayley Farm site. The results of these simulations are discussed in this section.

5.1 Transient Model Simulation with the Long Pond Drain Removed

Following completion of the calibration process, the calibrated transient model was run with the Long Pond drain removed. The model was run in monthly time steps over the same period from August 2014 through July 2015. The purpose of the simulation was to examine how water elevations would have fluctuated in Long Pond and nearby monitoring wells if the drain had not been present during this period of time.

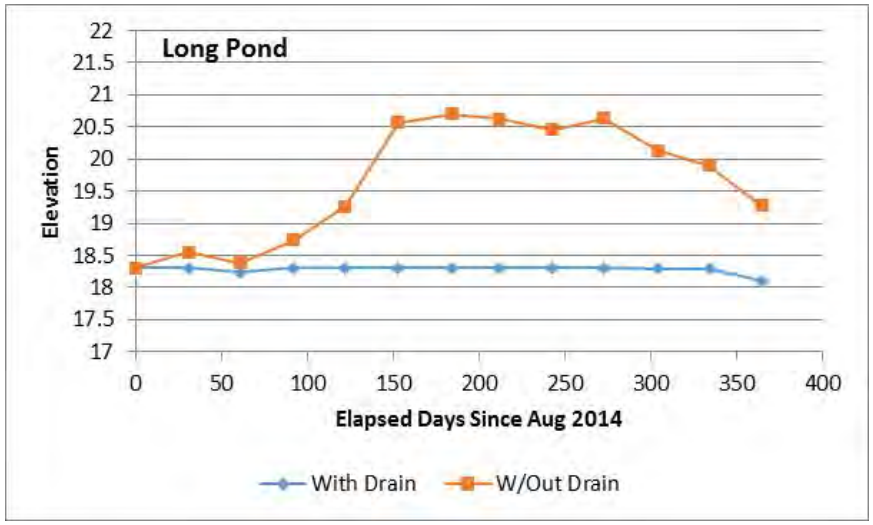
Figure 3 includes plots of the model-predicted water elevation in Long Pond, MW-101 (east end of the pond), MW-103 (west end of the pond) and MW-7 (at the north end of Field 2) with and without the drain. These plots illustrate several features of the site hydrology and the effects of the Long Pond drain.

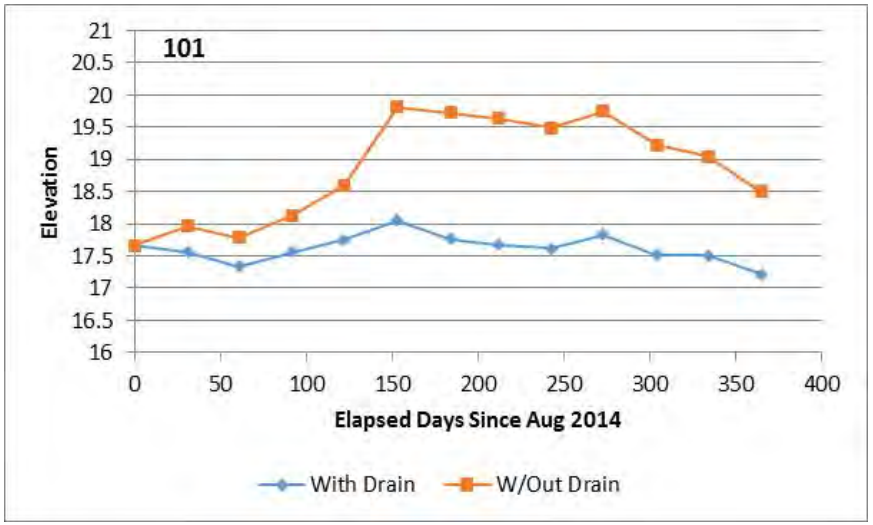
- Long Pond: With the drain removed, the model predicts that the elevation of the Pond would have been up to 2 feet +/- higher than it was with the drain set at 18.3 feet. The period of highest water level would have occurred from December through April (from approximately 150 to 275 days in the graphs in Figure 3), and then the pond level would have dropped through the spring and summer, ending at approximately 1 foot higher in July. *(Note that this prediction is based on precipitation occurring as rain, rather than snow, so the actual pond level during winter and the spring snow melt would have varied from the modeled condition due to frozen storage of recharge.)*

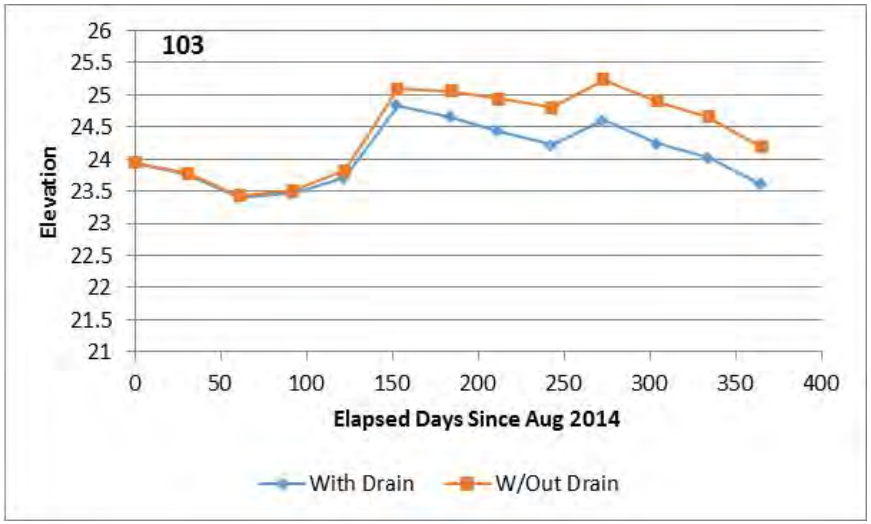
- MW-101 and MW-103: The modeled water levels at these wells indicated that the drain in Long Pond has lowered the groundwater elevation, however, the magnitude of this effect is different at the eastern (MW-101) and western (MW-103) ends of the pond. At the west end of the pond the groundwater elevation is already significantly higher than the pond, so the rise in the pond level only results in a small (~ 0.5 foot) rise in MW-103. At the eastern end of the pond, the groundwater is well connected to the pond, so the model predicts that the rise in the pond will result in a rise of similar magnitude in the groundwater at MW-101.

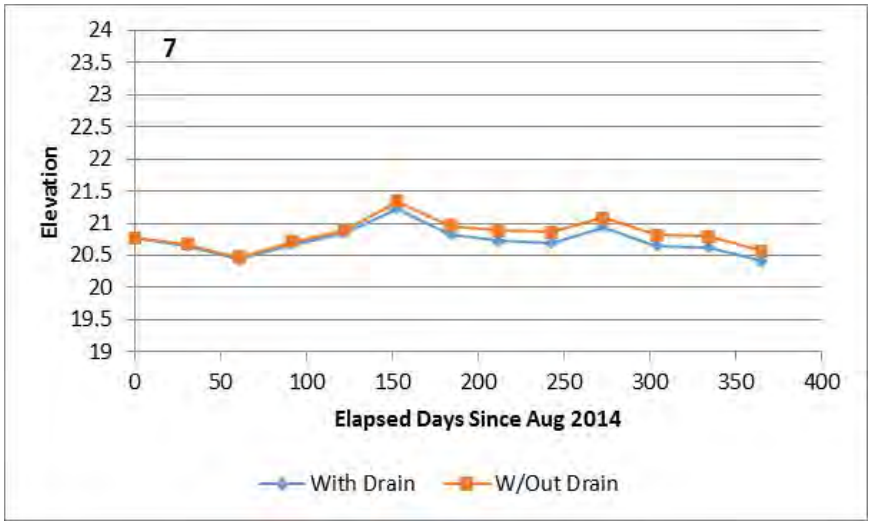
- MW-7: The model predicts that the drain in Long Pond has had very little effect on the groundwater elevation at MW-7. In contrast to groundwater elevations immediately adjacent to Long Pond (e.g., MW-101 and MW-103), the model predicts diminishing influence of the pond elevation at greater distances from the pond. A similar smaller influence would be expected moving away from the pond in all directions.

Figure 3
Comparison of Modeled Water Elevations
With and Without Long Pond Drain









Note: Day 0 – August 1, 2014

The modeling evaluation demonstrates that the drain in Long Pond has maintained a lower water level in the groundwater immediately adjacent to the pond. On August 14, 2015 the Bayleys sealed the drain and as a result, the pond level is expected to rise and fall seasonally. Since the pond elevation is controlled by the highest groundwater elevation, which is at the west end of Long Pond, sealing the drain should result in a smaller rise in the seasonal high water table at the west end of the pond and a larger rise in the high water table at the eastern end of the pond. With Long Pond in its current configuration and the drain sealed, the east end of the pond and the groundwater system underlying and around the east end of the pond should equilibrate at a higher elevation.

The modeling data reflected in Figure 3 also illustrate that the hydrology of the site, and the influence of any feature, varies over time. The steady state model simulations discussed below represent average conditions and it is important to remember that actual conditions will vary from the predicted averages both seasonally and year-to-year, depending on the actual precipitation.

5.2 Steady State Model Simulations – Current Conditions

Using the calibrated model parameters reflected in Table 2, the preliminary model was run as a steady-state model reflecting current conditions, with the drain in Long Pond, using average recharge during the period of August 2014 through July 2015. Figure 4 shows the modeled groundwater flow conditions. The model shows that groundwater flows toward and into Long Pond from the northwest and flows out of Long Pond toward the east and southeast. The model shows that groundwater in the central and eastern areas of the site, including groundwater beneath Fields 2 and 3, flows toward East Stream.

5.3 Steady State Model Simulations – Conditions With Long Pond Drain Removed

The calibrated model was also used to simulate steady state conditions with the drain removed from Long Pond. Figure 5A shows the modeled groundwater contours under these conditions and Figure 5B shows the model-predicted change in the groundwater elevation due to removing the drain. As discussed in Section 5.1, the largest rise in the groundwater, approximately 2 feet, is predicted to be at the east end of Long Pond, which would create conditions in this area that are more conducive to wetland hydrology. The change in the groundwater elevation near the western end of the pond is anticipated to be less (on the order of 0.5 to 1.5 feet).

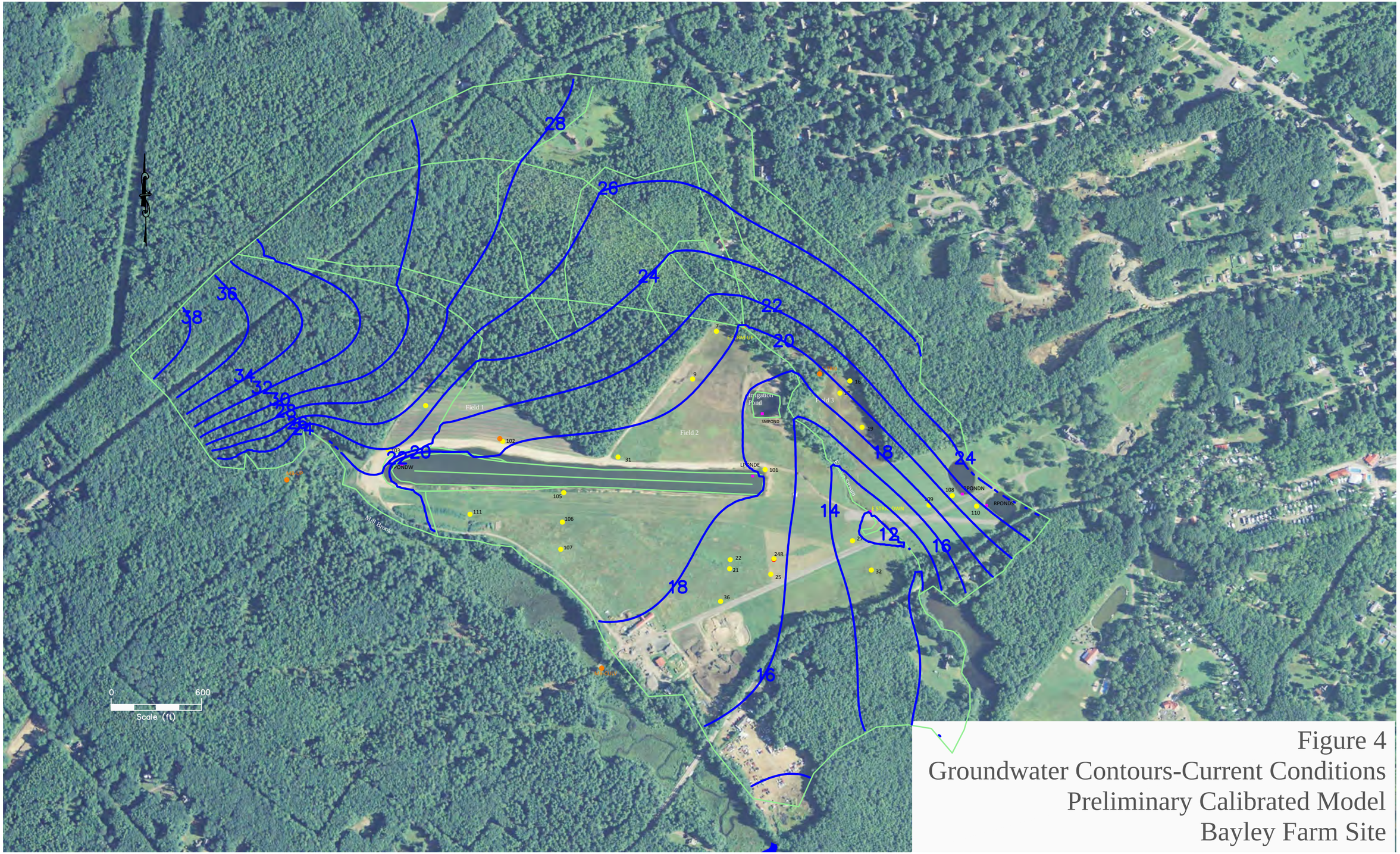


Figure 4
Groundwater Contours-Current Conditions
Preliminary Calibrated Model
Bayley Farm Site

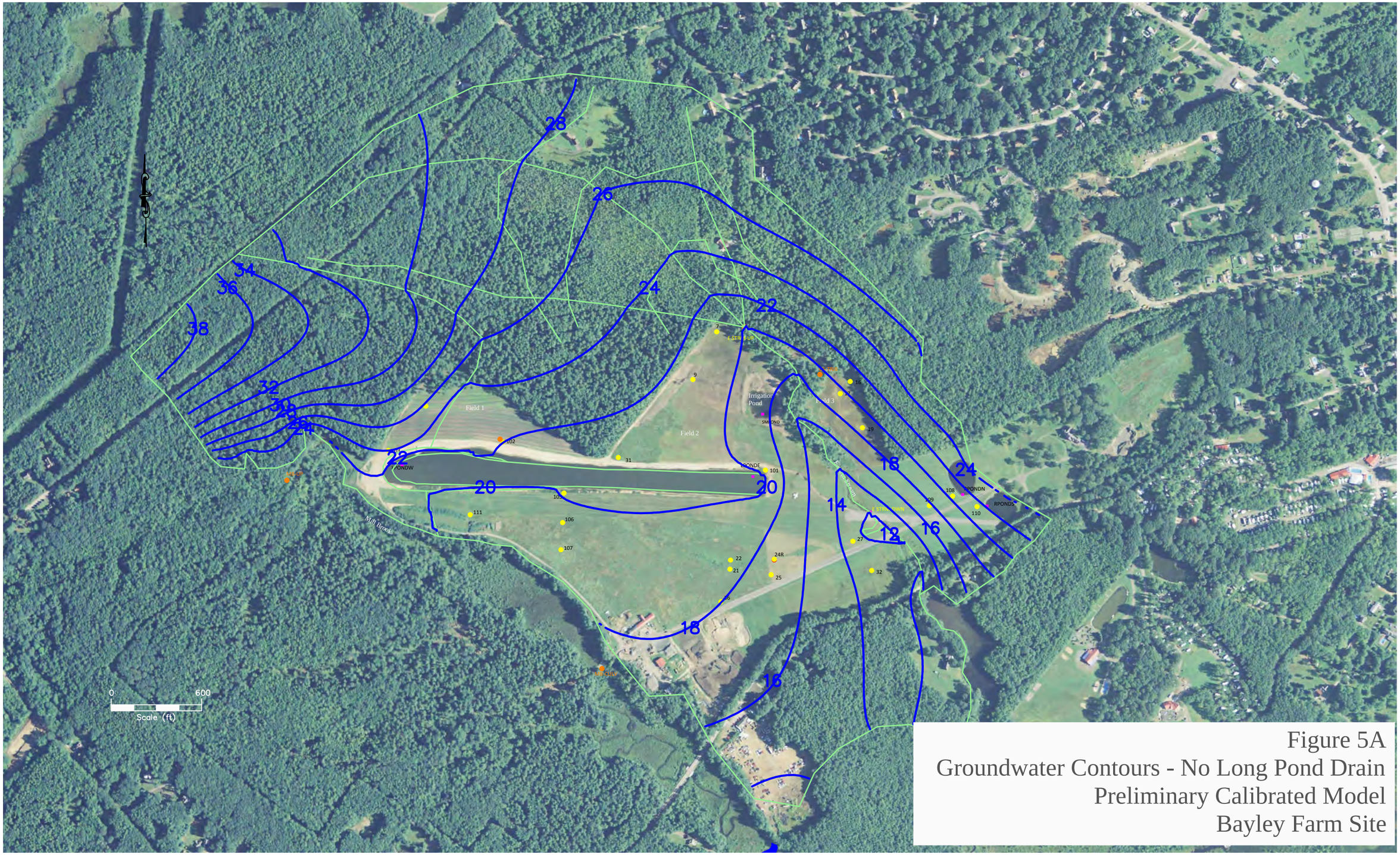


Figure 5A
Groundwater Contours - No Long Pond Drain
Preliminary Calibrated Model
Bayley Farm Site

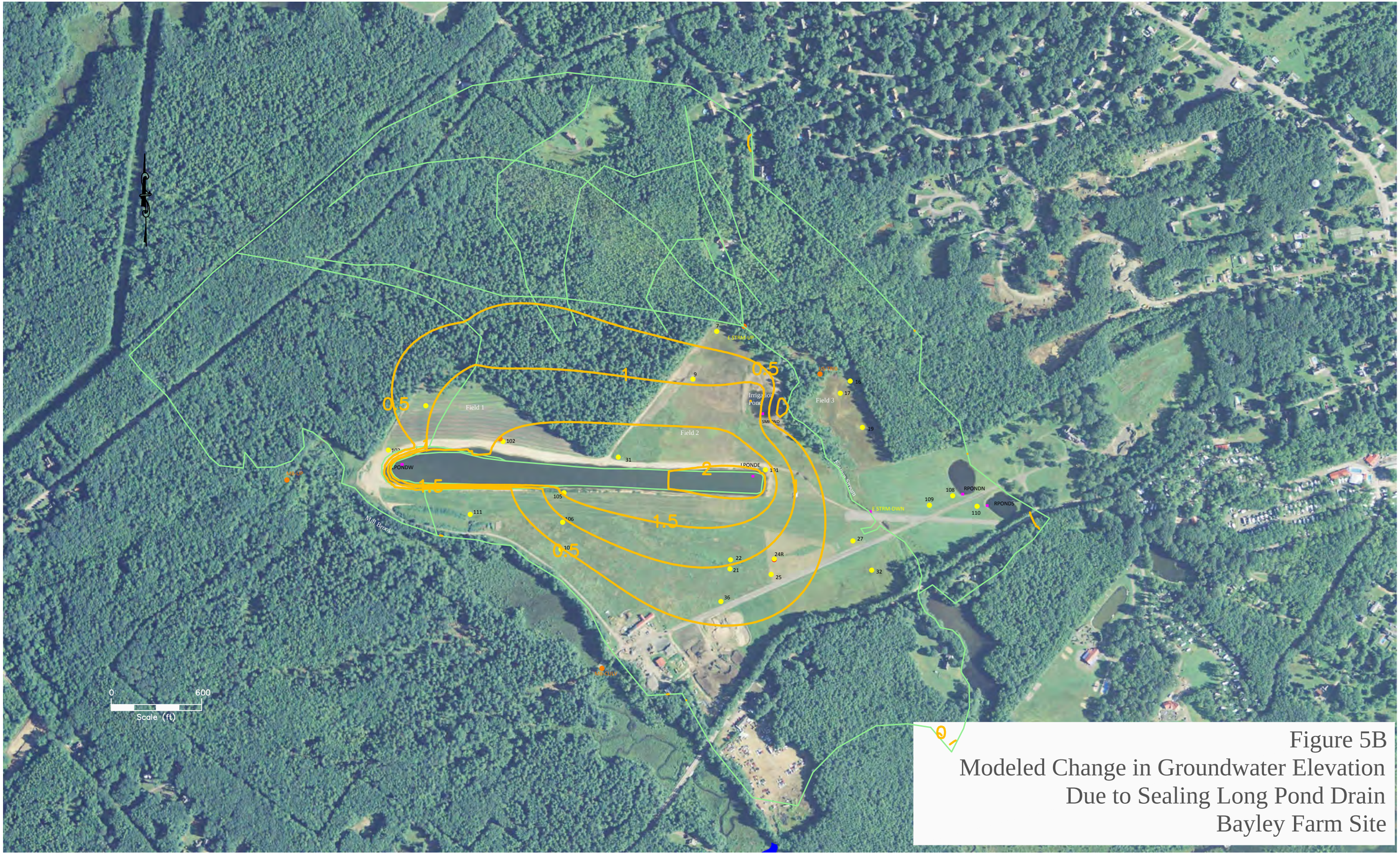


Figure 5B
Modeled Change in Groundwater Elevation
Due to Sealing Long Pond Drain
Bayley Farm Site

5.4 Steady State Model Simulations – Conditions With 4 Small Ponds

The calibrated model was also used to simulate steady state conditions with Long Pond divided into 4 smaller ponds (and the small irrigation pond in Field 2 filled). Figure 6A shows the predicted groundwater contours under these conditions. Based on the model predictions, the berms would act to establish a gradient from west to east, with the western pond rising to an elevation of 23 to 24 feet and the eastern pond remaining close to its current elevation (i.e., 18 to 18.5 feet).

Figures 6B and 6C show the change in groundwater elevation that is predicted by the model as a result of dividing Long Pond into 4 small ponds. In the model simulation depicted in Figure 6B, the dividing berms have a hydraulic conductivity (K) of 40 ft/day. This is the value measured in the laboratory for site soil having 4.3 percent fine-grained soil (e.g., silt). In the model simulation depicted in Figure 6C, the dividing berms have a hydraulic conductivity of 11 ft/day. This is the value measured in the laboratory for site soil having 12.9 percent fine-grained soil.

Grain size distribution of samples collected from areas where soil will be available to create the berms (See Appendix A) indicated that the percentage of fines ranged from approximately 2.5 percent to 12.9 percent. It will be impractical to segregate soil with the higher versus lower percentage of fines in the field during construction, because the range is too narrow. Therefore, the constructed berms are anticipated to result in changes to the groundwater elevation in the general range of those predicted by the model as shown in Figures 6B and 6C.

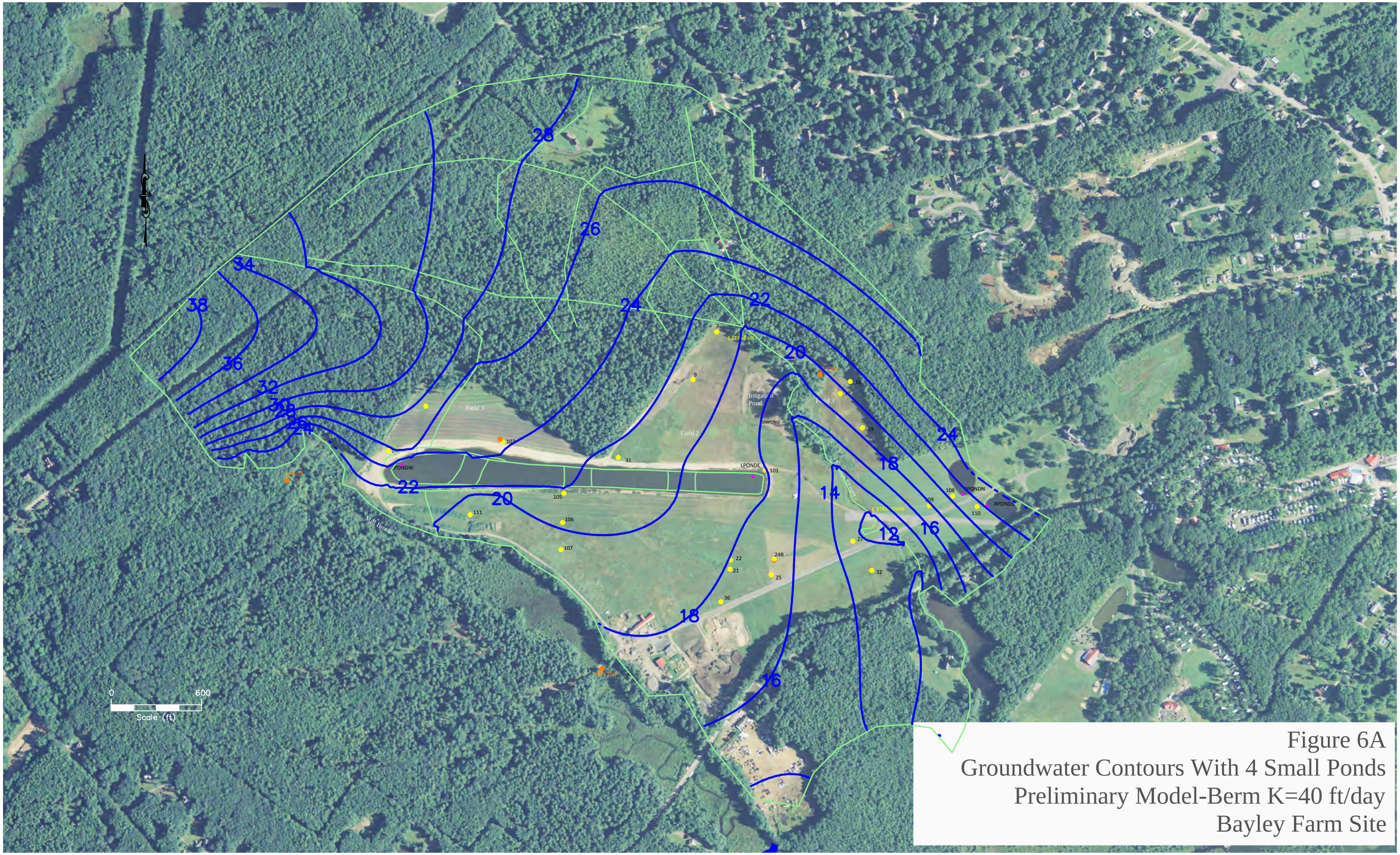


Figure 6A
Groundwater Contours With 4 Small Ponds
Preliminary Model-Berm K=40 ft/day
Bayley Farm Site

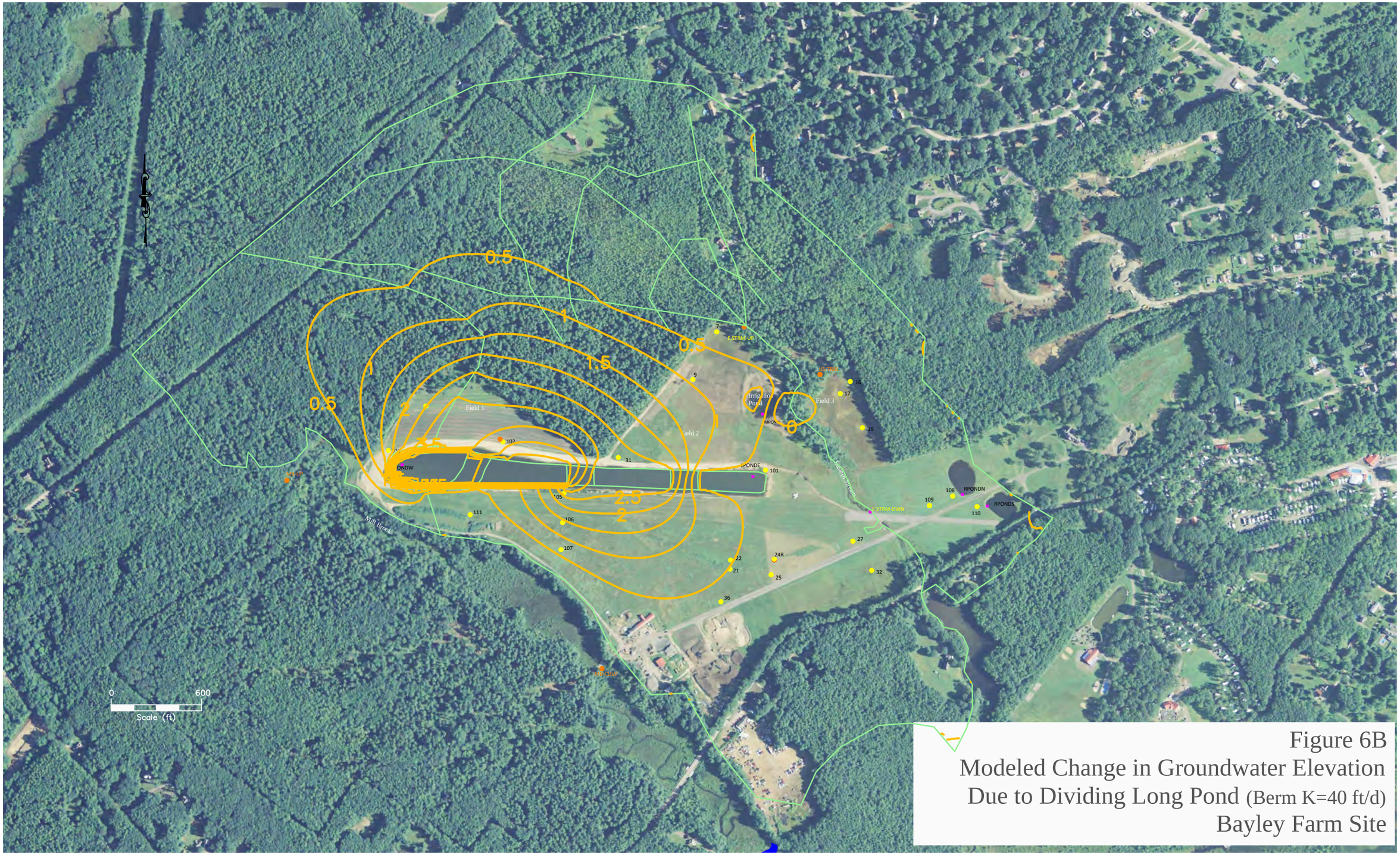


Figure 6B
Modeled Change in Groundwater Elevation
Due to Dividing Long Pond (Berm K=40 ft/d)
Bayley Farm Site

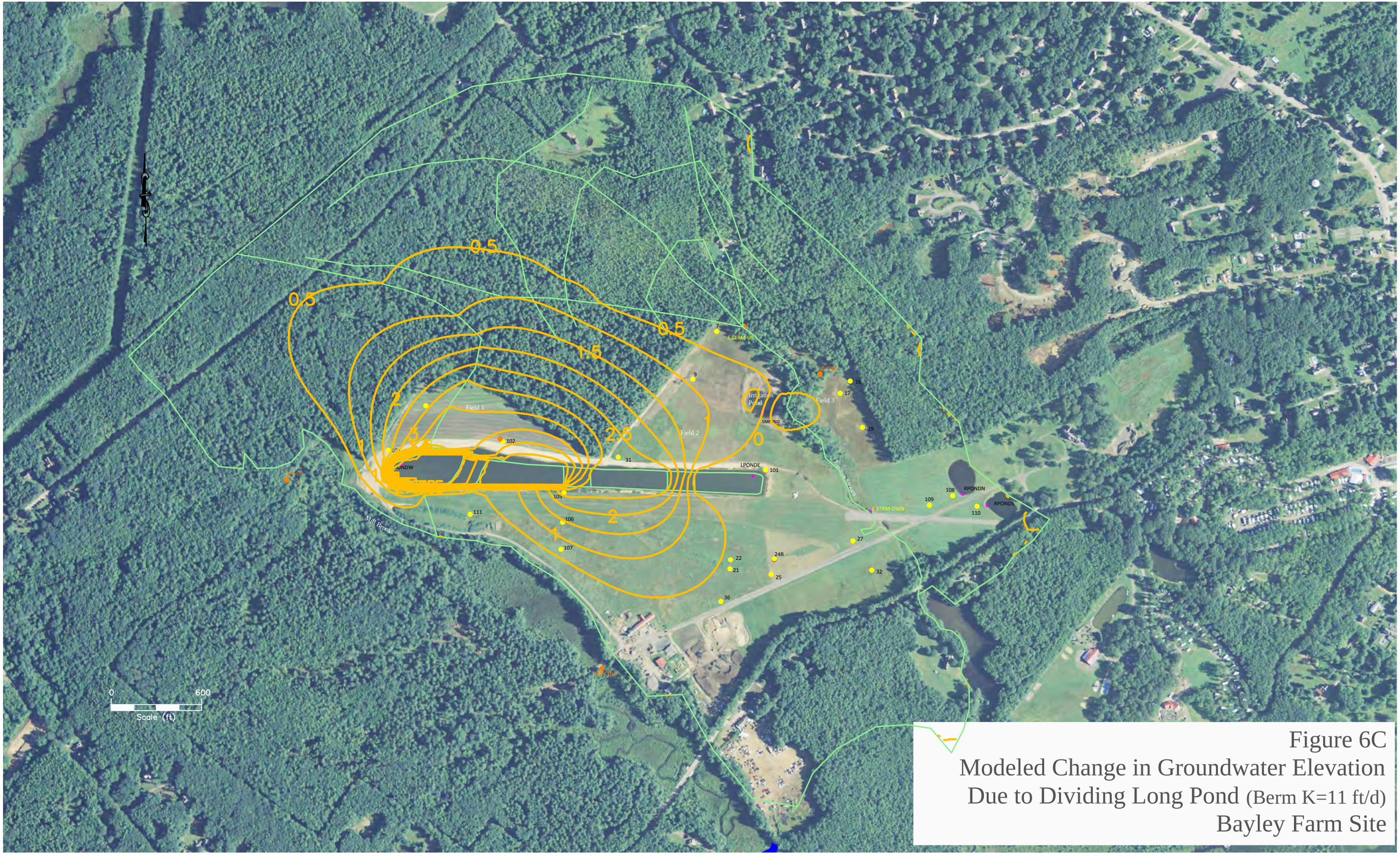


Figure 6C
Modeled Change in Groundwater Elevation
Due to Dividing Long Pond (Berm K=11 ft/d)
Bayley Farm Site

6.0 CLOSING

A preliminary groundwater flow model has been developed to simulate hydrologic conditions at the Bayley Farm property north of Ross Road using the AnAqSim modeling program developed by Fitts Geosolutions, LLC. The model was calibrated using available geologic information from the site and groundwater elevation data collected in monitoring wells during 2014 and 2015. Groundwater data from April, May, June and August 2015 were used as the principal calibration metric. As shown in Figure 2 and Table 3, there was reasonable agreement between the measured elevations and the elevations predicted by the calibrated model. The model also predicted flows in the East Stream in May 2015 that bracketed the measured flows.

Using the calibrated preliminary model, several simulations have been run to examine the influence of future changes on site hydrology. The preliminary model indicates that sealing the Long Pond drain would have resulted in a rise in the pond level on the order of 2 feet under precipitation conditions similar to the period from August 2014 through July 2015. The model shows that the higher pond elevation would have resulted in a rise in groundwater elevation on the order of 2 feet around the east end of the Pond, and a smaller rise (on the order of 0.5 to 1.5 feet) in the groundwater around the west end of the pond. The higher groundwater elevations underlying and around the east end of the pond should create conditions more conducive to wetland hydrology in this area.

The preliminary model has also been used to simulate the division of Long Pond into 4 smaller ponds using available soil from on the site. The model predicts that installation of dividing berms establishes a hydraulic gradient from west to east across the pond. The model-predicted rise in the groundwater elevation at the western end of the pond is on the order of 2 feet. On the north central side of the pond, the predicted rise is between 2 and 4 feet. At the east end of the pond, the model predicts that the groundwater will remain close to its current elevation.

Consistent with the agreement between the Bayleys and EPA, an additional set of elevation groundwater data will be collected in the spring of 2016. These data will reflect changes that occur between August 2015 and spring 2016, when the drain in Long Pond is sealed and the pond elevation responds to precipitation and changes in the surrounding groundwater hydrology. The spring 2016 data will be reviewed and simulated with the preliminary model to determine whether modifications should be made to the preliminary model to improve the representation of the site hydrology. The spring 2016 model, rather than the preliminary model described in this summary report, will be used as the basis for planning wetland restoration activities at the Bayley Farm site.

SOURCES CONSULTED

Clinch, J Michael and Woodrow B. Thompson. 1999. *"Surficial Geologic Map of the Prouts Neck Quadrangle, Maine"*. Maine Geological Survey Open-File No. 99-97.

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Hazen, A. 1893. *Some Physical Properties of Sand and Gravels.* Massachusetts State Board of Health, 24th Annual Report.

Hvorselv, M.J., 1951. *Time Lag and Soil Permeability in Ground-Water Observations*. Bull No 36, Waterways Experimental Station, Corps of Engineers. US Army. Vicksburg, MI, pp 1-50.

Retelle, Michael J. 1999. *"Surficial Geologic Map of the Old Orchard Beach Quadrangle, Maine"*. Maine Geological Survey Open-File No. 99-94.

APPENDIX A

SUPPORTING INFORMATION
PRELIMINARY GROUNDWATER MODEL
BAYLEY FARM SITE

Figures:

- A-A Surficial Geology
- A-B Geoprobe and Pond Bathymetry Data
- A-C Location of Soil Samples for Berm Construction

Tables:

- A-1 Groundwater and Surface Water Elevation Data
- A-2 Stream Flow Data
- A-3 Field Hydraulic Conductivity Summary

Grain Size Plots

Laboratory Hydraulic Conductivity Data

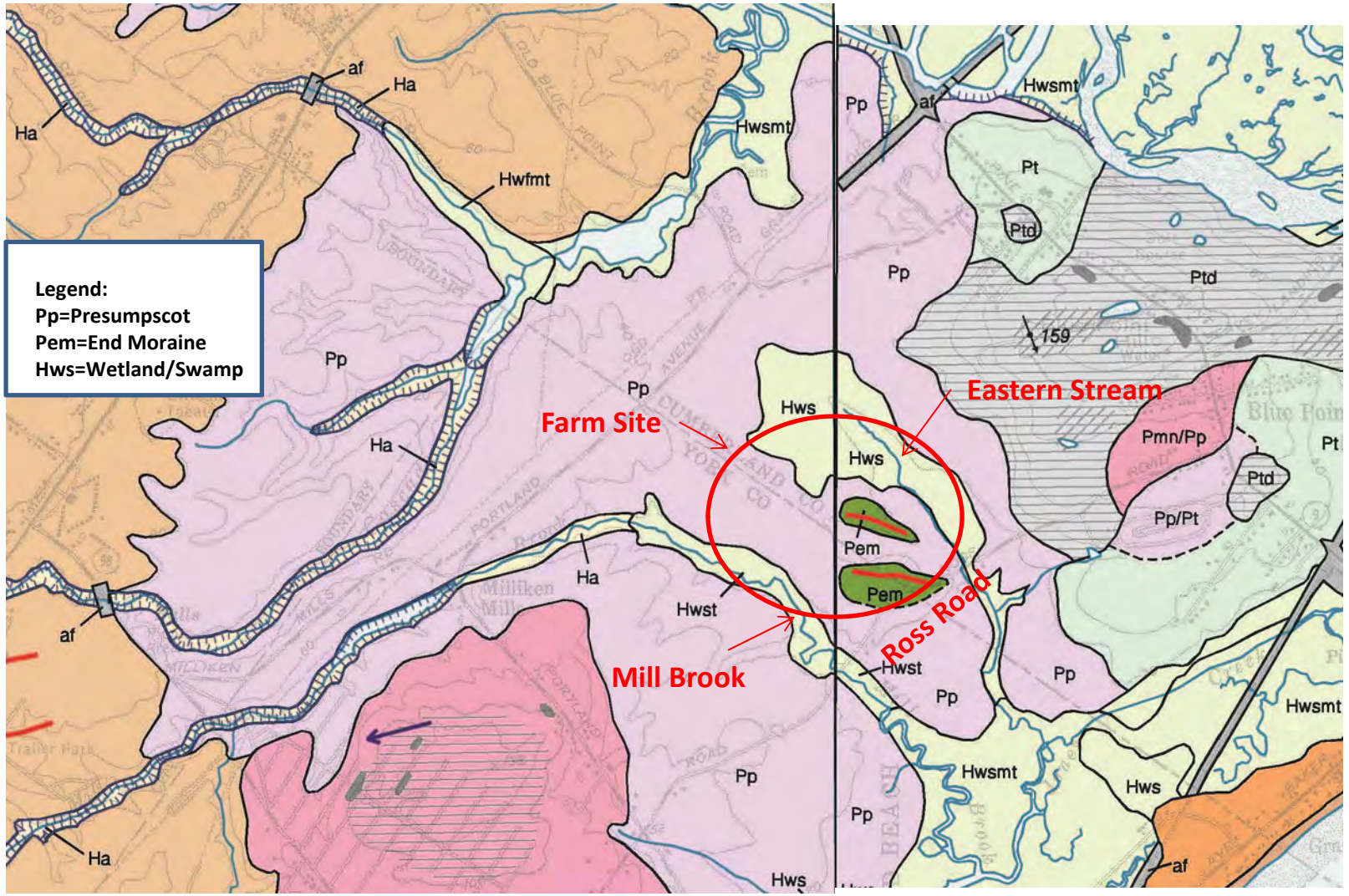


Figure A-A
Mapped Geology of the Bayley Farm Site

Source: Surficial Geologic Maps of the Old Orchard Beach & Prouts Neck Quandrangles, Maine Geological Survey OFN 99-94 & 99-97

Figure A-B
Bottom of Sand and Bottom of Long Pond Elevations
Bayley Farm Site

Figure A-C
Location of Soil Samples For Long Pond Berms
Bayley Farm Site

Table A-1

Groundwater and Surface Water Elevation Data

Bayley Farm Site

				4/15/14	4/25/14	6/25/14	8/6/14	8/18/14	4/16/15	4/20/15	4/28/15	5/4/15	5/26/15	6/10/15	8/7/15
Description	Top Elev	Grnd Elev	StickUp	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev
Groundwater	(ft,NAVD 88)		(ft)	(ft,NAVD 88)											
27	18.88	14.87	4.01	13	12.59	11.74	11.7	12.75	13.09		12.9	12.41	11.39	12.3	11.25
32	18.77	15.91	2.86	15.95	15.36	13.36	13.83	15.66	16			15.02			
25	24.07	20.35	3.72	18.08	17.41				18.25			17.22	<16.7	16.55	<16.17
24	19.81	16.89	2.92	15.17	15.08	14.89			11.04			11.06		9.28	
22	21.06	18.06	3	16.76	16.54	16.16									
21	21.63	18.81	2.82	17.22	16.84	16.33	16.38	17.12	17.33			16.89		16.58	16.26
36	23.91	20.69	3.22	19.95	18.82	17.54	17.4	19.66	20.51	20.33	20.39	18.93		18.03	<17.11
19	25.16	22.45	2.71	20.91	20.35	<19.56	19.76	20.38	20.48			20.19		20.3	<19.56
16	24.88	21.65	3.23	20.46	19.83	<19.48	<19.48	19.97	20.11			19.78		19.81	<19.48
17	24.32	20.97	3.35	19.81	19.11	<18.74	18.92	19.08	19.29			18.93		19.07	<18.92
101	22.4	21.17	1.23	18.41	18.24	18.05	18.12	18.35	18.23		18.37	18.12	17.95	18.09	17.86
7	25.42	22.14	3.28	20.97	20.83	20.37	20.42	20.81	20.93			20.76		20.72	19.91
9	24.71	22.21	2.5	20.75	20.46	19.61	19.63	21.23	20.66	20.44	20.9	20.03		20.06	<19.41
31	25.71	22.97	2.74	20.31	19.74	19.31	<19.21	20.6	20.48	20.36	20.44	19.76	<19.21	19.48	<19.26
102	28.5	27.47	1.03	21.3	21.06	20.78	20.36	21.53	22.4		21.87	21.34	20.5	20.54	19.92
103	31.17	30.14	1.03		24.02	23.12	22.59	23.55	24.62	24.46	24.72	24.42	23.14	23.49	22.08
104	29.25	28.35	0.9		26.39	25.5	24.9	26.04	26.74			26.48		25.59	24.14
105	26.7	25.64	1.06				18.25	18.67	18.48			18.59	18.3	18.26	18.11
106	24.65	22.74	1.91				17.54	19.58	20			19.97	18.54	18.18	17.2
107	26.96	24.63	2.33				16.63	18.36	19.01	18.74	19.61	19.03		17.25	16.27
108	24.28	22.59	1.69				19.82	20.57	20.98			20.28		20.16	19.31
109	23.11	20.21	2.9				17.55	18.98	19.53			18.43		18.16	16.47
110	23.02	21.91	1.11				19.46	20.18	20.75			19.82		19.74	18.81
111	29.36	26.88	2.48				19.2	20.01	20.28			20.73		19.45	18.83
Surface Stakes															
SPond (Stk 3)	20.16			17.49	17.44	17.17	17.46	17.53	17.49			17.46		17.51	17.15
LPondW (Stk 1)	19.91			18.46	18.43	18.41	18.41	18.49	18.2		18.23	18.21		18.18	18.12
LPondE (Stk 2)	20.36			18.31	18.27	18.26	18.27	18.34			18.3	18.29		18.28	18.2
Top N Culv (N)	13.7				9.88	9.65	9.7	10.03	10.1	10		10		9.88	9.7
Top S Culv (N)	13.21				9.66										
RPondN (Stk 5)	23.26						20.67	20.71	20.57			20.58			
RPondS (Stk 4)	20.96						18.81	18.79	18.75			18.76		18.73	
Mill Brook					8.7										
Mill Brook-up	10.09								8.44			8.09			7.59
Mill Brook-culv	8.95								4.3			3.9			3.6
East Strm-Up	21.32								19.52			19.27		19.17	18.32

Table A-2
Water Elevation and Flow in East Stream
Bayley Farm Site

		4/16/2015		5/4/2015		8/7/2015	
		Elevation	**Flow**	**Elevation**	**Flow**	**Elevation**	**Flow**
East Stream			(gpm)		(gpm)		(gpm)
	Upstream Near MW-7 (UP)	*19.52*	235	*19.27*	75	*18.32*	0
	DownStream At Culvert (DOWN)	*10.1*	527	*10*	194	*9.7*	<5

Table A-3
Summary of Hydraulic Conductivity Measurements
Bayley Farm Site

Hydraulic Conductivity Calculated from Well Tests

Well	K(ft/day)	K(cm/sec)
MW-102	15.25	5.38E-03
MW-101	15.04	5.31E-03
MW-106	19.69	6.95E-03
MW-105	9.70	3.42E-03
MW-103	0.88	3.09E-04

Notes:

1. Wells Except 103 Analyzed Using Hvorselv Constant Drawdown Method
2. Well 103 Analyzed Using Hvorselv Rising Head Method

Hydraulic Conductivity Calculated on Laboratory Soil Samples

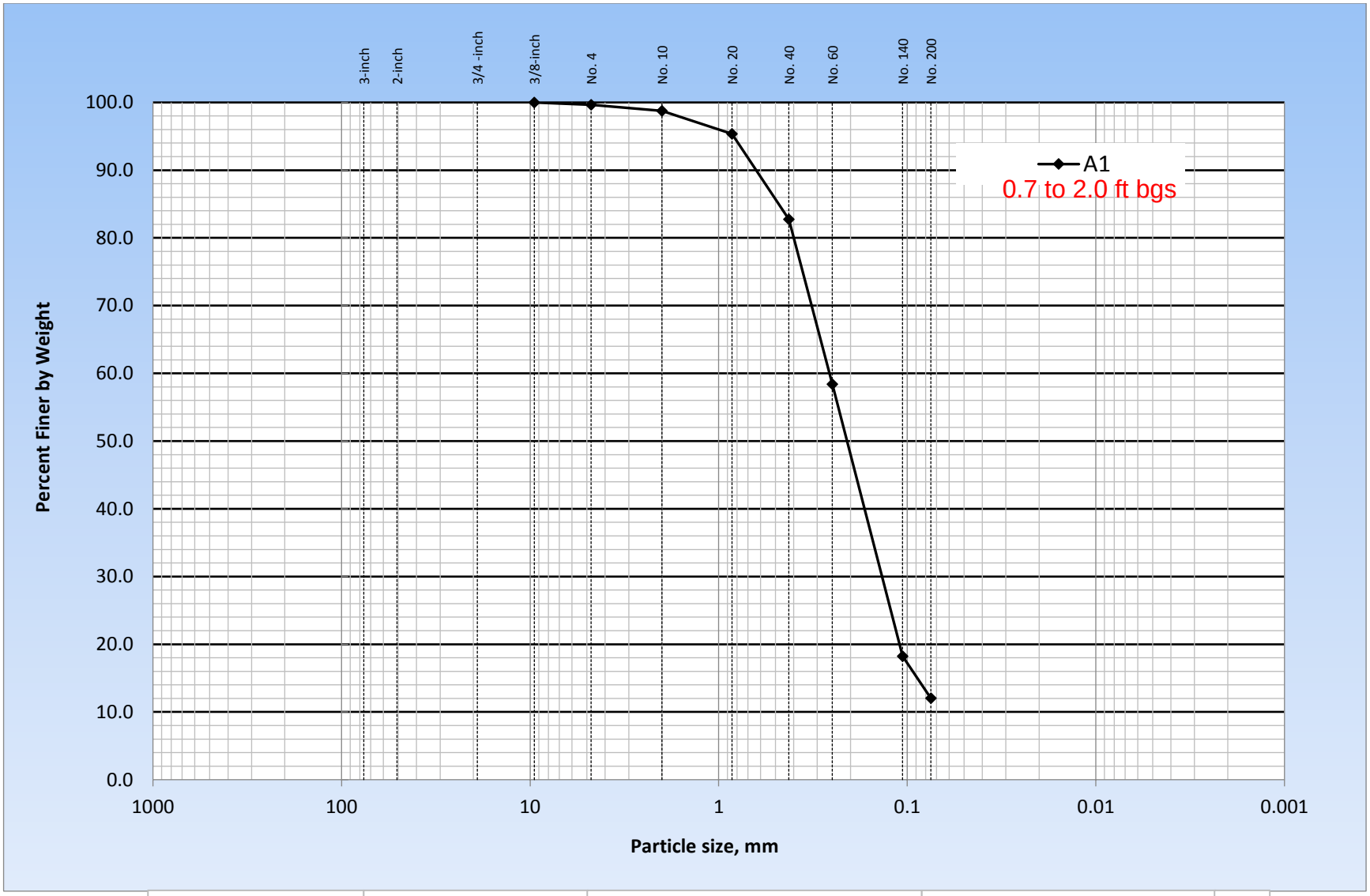
			Grain Size			Lab
Sample	Color	Depth	D10	K	K	K
			(cm)	(cm/sec)	(ft/day)	(cm/sec)
A1	Dk Brwn	0.7-2.0	0.007	3.92E-03	11.11	NA
A2	Orange	2.0-3.5	0.012	1.15E-02	32.66	1.50E-02
B2/B3	Brwn-Red	1.3-4.0	0.007	3.92E-03	11.11	3.80E-03
C2	Brwn-Red	1.5-2.5	0.012	1.15E-02	32.66	NA
D1	Brwn	1.2-2.0	0.012	1.15E-02	32.66	NA
E1	Dk Brwn	1.5-3.4	0.012	1.15E-02	32.66	NA
F2	Brwn	1.6-3.9	0.0075	4.50E-03	12.76	NA
C-Factor=	80					

Notes:

1. Grain Size Calculations Were Conducted Using Hazen Method

GRAIN SIZE ANALYSES
OF SOIL AVAILABLE FOR LONG POND BERMS

Particle Size Distribution

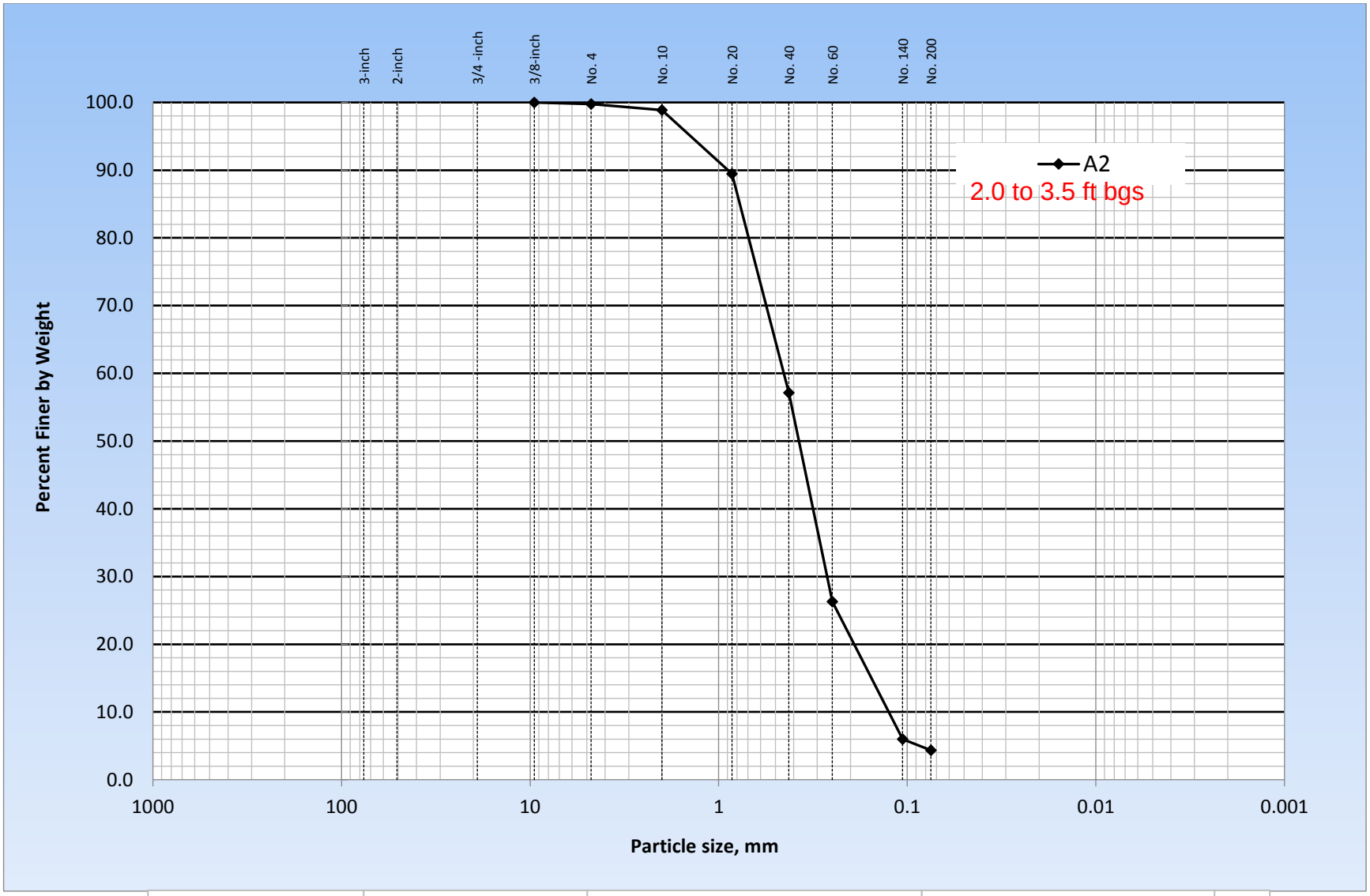


Cobbles	Cobbles		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

Particle Size Distribution Report
A1
Drumlin Environmental

Soil Metrics LLC Geotechnical Engineering

Particle Size Distribution

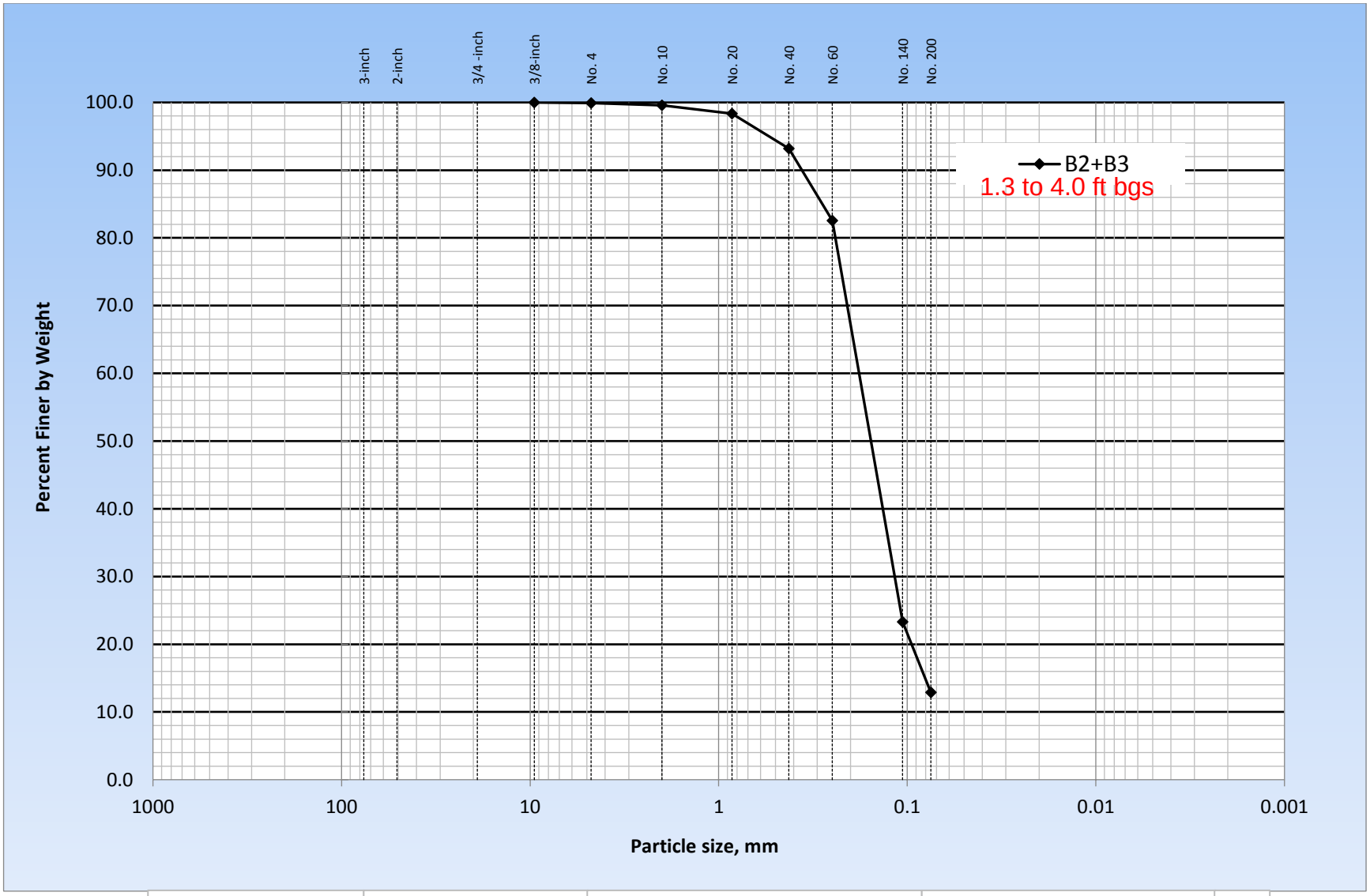


Cobbles	Cobbles		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

Particle Size Distribution Report
A2
Drumlin Environmental

Soil Metrics LLC Geotechnical Engineering

Particle Size Distribution

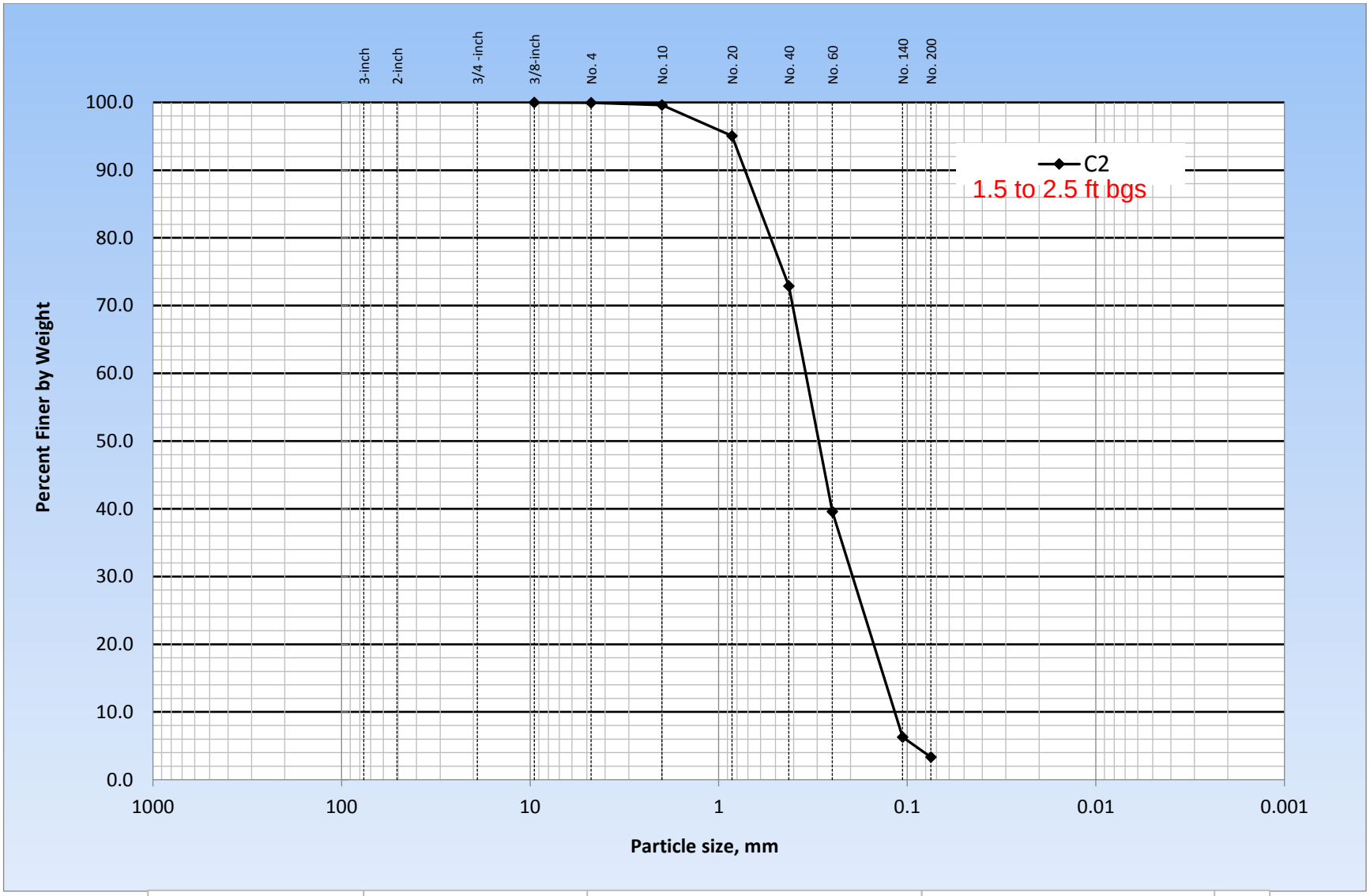


Cobbles	Cobbles		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

Particle Size Distribution Report
B2 + B3
Drumlin Environmental

Soil Metrics LLC Geotechnical Engineering

Particle Size Distribution

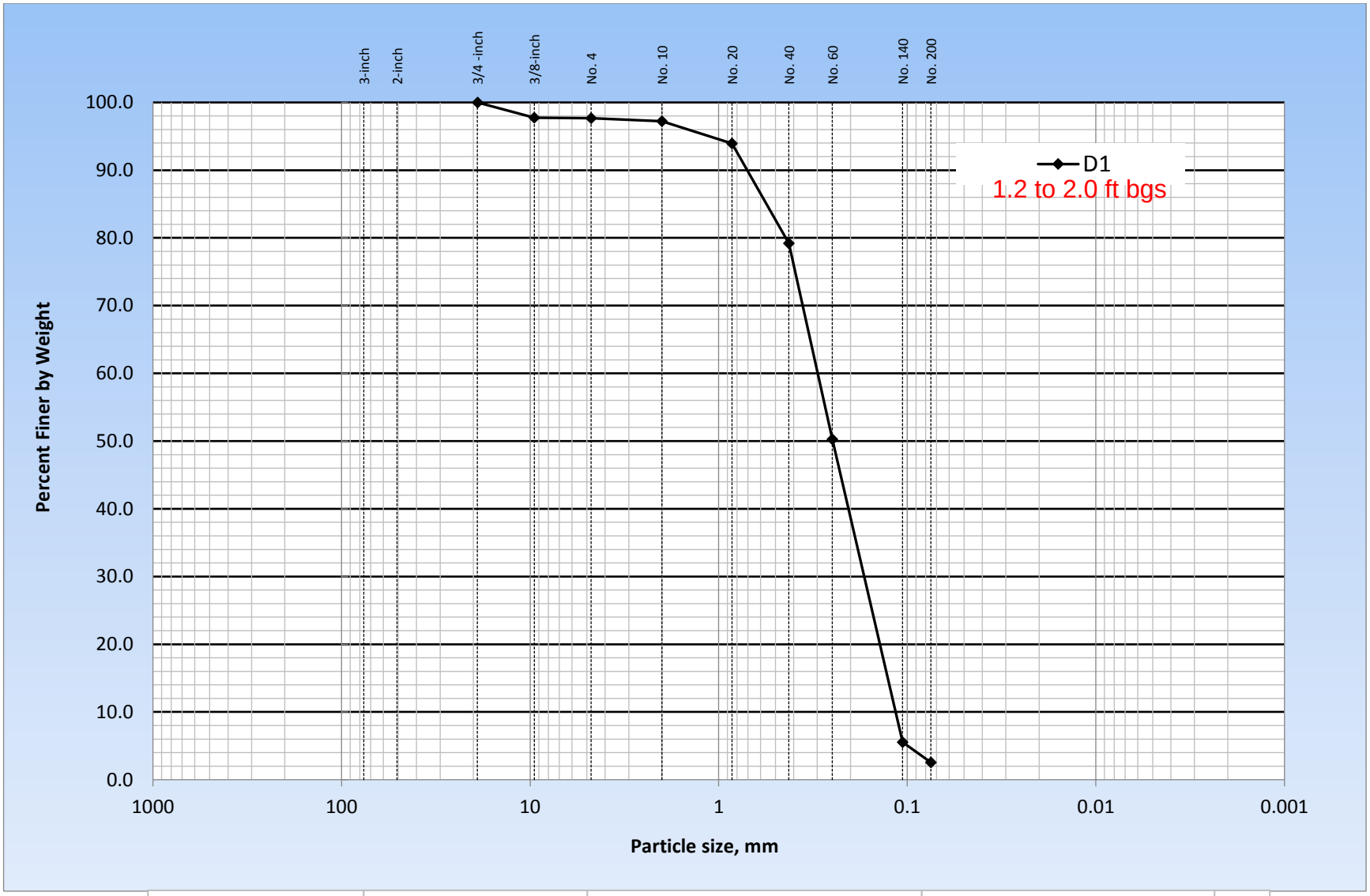


Cobbles	Cobbles		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

Particle Size Distribution Report
C2
Drumlin Environmental

Soil Metrics LLC Geotechnical Engineering

Particle Size Distribution

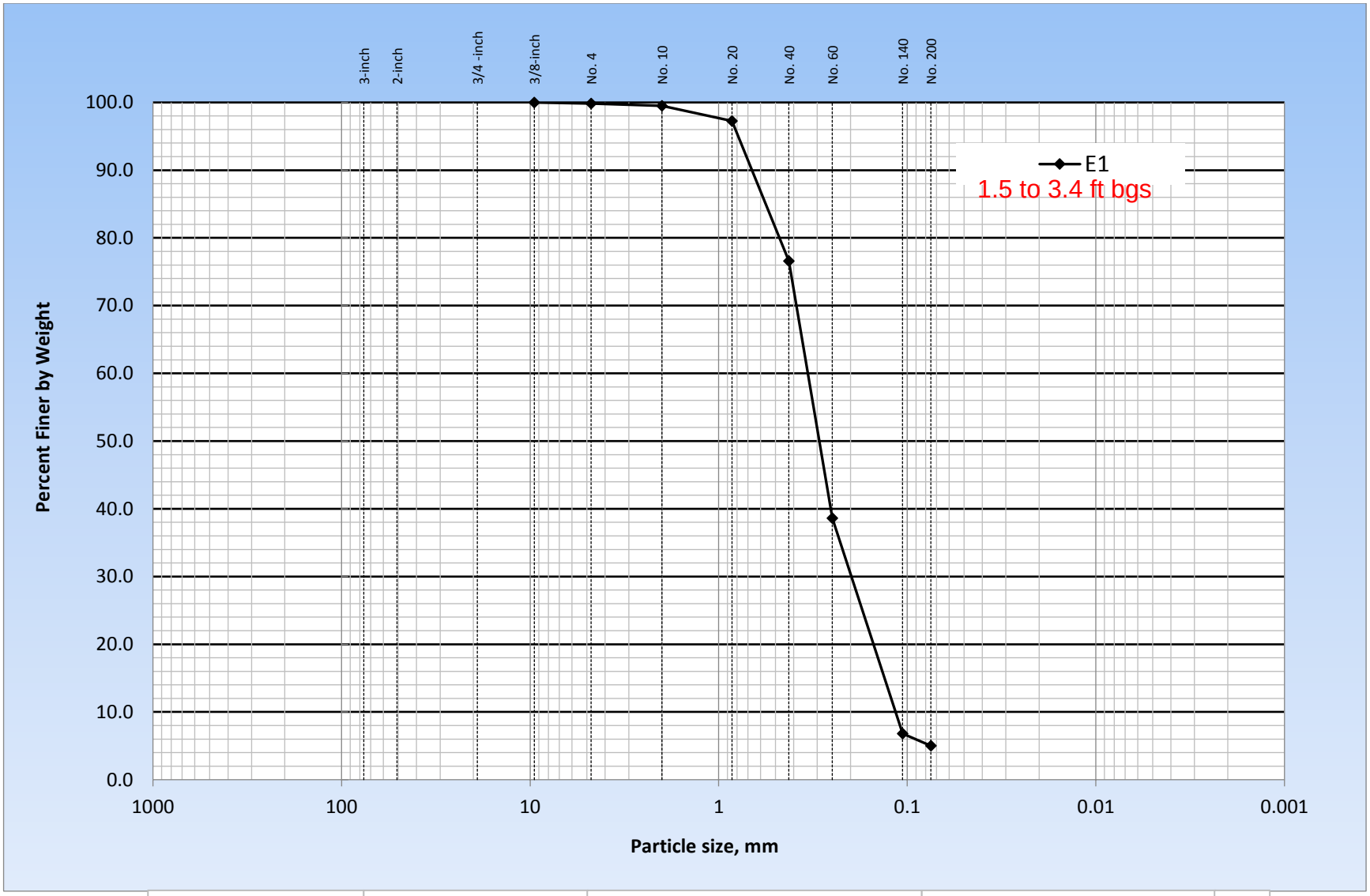


Cobbles	Cobbles		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

Particle Size Distribution Report
D1
Drumlin Environmetal

Soil Metrics LLC Geotechnical Engineering

Particle Size Distribution

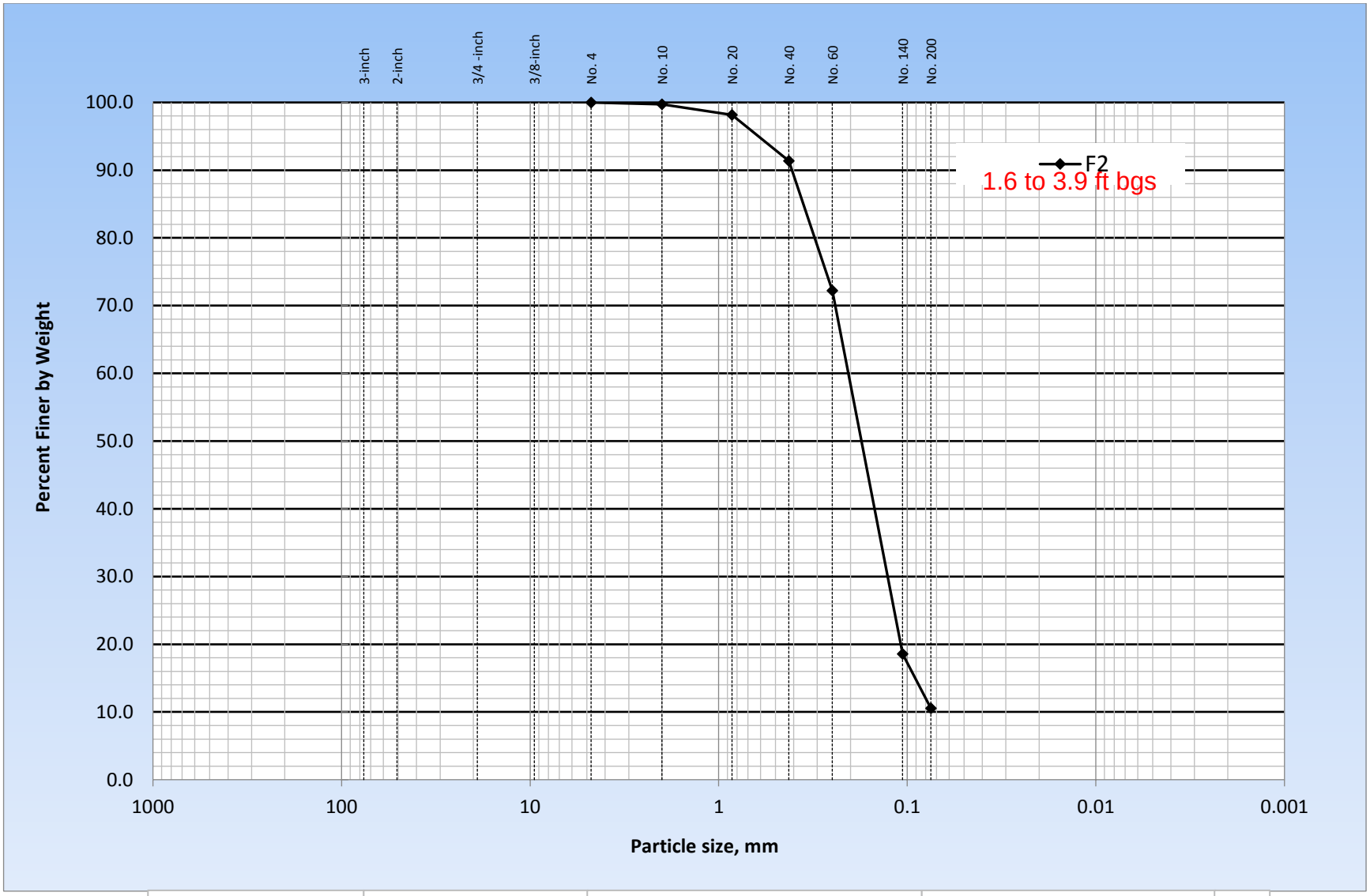


Cobbles	Cobbles		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

Particle Size Distribution Report
E1
Drumlin Environmental

Soil Metrics LLC Geotechnical Engineering

Particle Size Distribution



Cobbles	Cobbles		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

Particle Size Distribution Report
F2
Drumlin Environmental

Soil Metrics LLC Geotechnical Engineering

LABORATORY PERMEABILITY ANALYSES OF SOIL AVAILABLE FOR LONG POND BERMS

Constant Head Hydraulic Conductivity
ASTM D2434

Project Name:	Drumlin	Boring	
Project Location:		Sample No	B2/B3
Tested By:	sjr	Depth:	
Date:	6/3/2015	Remarks:	Moderately loose
Material Used		Sample Description	Brown Fine Sand,uniformly graded, little silt. (12.9 percent),

Unit Weight Determination

Diameter, D, cm	6.35	Height Before, H1 (cm)	15.85	Weight , W1, (gm)	1101.40
Area, A, (cm^2)	31.67	Height After, H2 (cm)	4.5	Weight After, W2, (gm)	540.62
Height Sample (cm)	11.35	Height Net, (cm)	11.35	Net Weight Soil , g	560.78
Volume Sample (cm^3)	359.45				
Initial Total Unit Weight gm/cm^3	1.39			Cell Empty (g)	2052.26
Initial Total Unit Weight $lbs.ft^3$	86.63			Cell after soil Compacted (g)	2551.06
				Net Wt Soil (g)	498.80

Moisture Content		
	Wt tare (gm)	36.74
	Tare + wet (gm)	101.99
	Tare +dry (gm)	93.75
	Wt dry soil (gm)	57.01
	Wt water (gm)	8.24
	Moisture content (%)	0.14
	Dry Unit Weight (lbs/ft^3)	75.69

Distance between Manometers (cm) 6.35

Test No	Manometers		Head, h cm	Q, cm3	Time (sec)	Q/At	h/l	K	Temp	K T corr
	H1 (cm)	H2 (cm)						cm/sec	(deg F)	cm/sec
1	50	41.8	8.2	25	164.7	0.0048	1.2913	3.71E-03	68	3.71E-03
2	48.5	40	8.5	25	153.65	0.0051	0.7489	3.84E-03	68	3.84E-03
3	48.7	36.5	12.2	25	106.04	0.0074	1.0749	3.87E-03	68	3.87E-03
4	49.3	32	17.3	25	73.9	0.0107	1.5242	3.92E-03	68	3.92E-03
5	45.6	22	23.6	25	64.97	0.0122	2.0793	3.27E-03	68	3.27E-03
6	44.5	23	21.5	25	56.29	0.0140	1.8943	4.14E-03	68	4.14E-03
									Average	3.8E-03
										(ft/d)
									K =	10.8

Constant Head Hydraulic Conductivity
ASTM D2434

Project Name:	Drumlin	Boring	
Project Location:		Sample No	A2
Tested By:	sjr	Depth:	
Date:	6/3/2015	Remarks:	Medium to loose
Material Used		Sample Description	Brown Fine to coarse Sand,widely graded, trace silt. (4.3 percent)

Unit Weight Determination

Diameter, D, cm	7.62	Height Before, H1 (cm)	16	Weight , W1, (gm)	2117.50
Area, A, (cm^2)	45.60	Height After, H2 (cm)	3	Weight After, W2, (gm)	1271.20
Height Sample (cm)	13	Height Net, (cm)	13	Net Weight Soil , g	846.30
Volume Sample (cm^3)	592.85				
Initial Total Unit Weight gm/cm^3	1.42			Cell Empty (g)	2076.39
Initial Total Unit Weight $lbs.ft^3$	88.90			Cell after soil Compacted (g)	2920.60
				Net Wt Soil (g)	844.21

Moisture Content		
	Wt tare (gm)	15.61
	Tare + wet (gm)	33.44
	Tare +dry (gm)	32.98
	Wt dry soil (gm)	17.37
	Wt water (gm)	0.46
	Moisture content (%)	2.65%
	Dry Unit Weight (lbs/ft^3)	86.60

Distance between Manometers (L) (cm) 7.62

Test No	Manometers		Head, h cm	Q, cm3	Time (sec)	Q/At	h/l	K	Temp	K T corr
	H1 (cm)	H2 (cm)						cm/sec	(deg F)	cm/sec
1	53.2	44.4	8.8	125	164.3	0.0167	1.1549	1.44E-02	68	1.44E-02
2	52	38.4	13.6	150	119.75	0.0275	1.0462	1.54E-02	68	1.54E-02
3	49.6	31.3	18.3	200	121.2	0.0362	1.4077	1.51E-02	68	1.51E-02
									Avg	1.5E-02
										(ft/d)
									K =	42.5

Consent Decree, Appendix A, Attachment E – Ross Road Site Groundwater Modeling Outline

Exhibit 3: Drumlin Environmental, LLC, Groundwater Modeling Update (June 2016).

CONFIDENTIAL SETTLEMENT SUBJECT TO F.R. EVID. 408

GROUNDWATER MODEL UPDATE
BAYLEY FARM PROPERTY
SCARBOROUGH AND OLD ORCHARD BEACH, MAINE

JUNE 2016

Prepared for

Fred and Kathleen Bayley

Drumlin Environmental

Prepared by

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BAYLEY GROUNDWATER MODEL UPDATE

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

2.0 SUMMARY OF GEOLOGIC AND HYDROGEOLOGIC SITE DATA

The August 2015 *Summary of Preliminary Groundwater Model* Report describes the topographic, bathymetric, geologic and hydrogeologic data used to develop the groundwater model. The reader is referred to that report for information about these site characteristics. Appendix A includes tables of information previously reported in the August 2015 report. Additional groundwater and surface water elevation data were also collected between August 2015 and May 2016. These data are discussed briefly below and summarized in Appendix A.

2.1 Groundwater Elevation and Stream Flow Data

The elevation of groundwater on the Bayley Farm property has been measured in monitoring wells at the site periodically between April 2014 and May 2016. Table A-1 in Appendix A summarizes the groundwater elevation data measured at the site. Table A-2 summarizes the surface water flow measurements made in 2015 and 2016.

In addition to periodic manual groundwater elevation measurements, pressure transducers with data loggers were placed in monitoring wells MW-103 at the west end of Long Pond and in MW-101 at the east end of Long Pond in August 2015. These transducers measured water level data every 4 hours between August 2015 and May 2016. Transducers were also placed at the east and west end of Long Pond to measure surface water elevation on a similar frequency. The transducers in Long Pond were removed at the end of December 2015, before Long Pond froze and were re-deployed in April 2015, when the ice on the pond melted. Figure 1 is a plot of groundwater and surface water elevation recorded by the pressure transducers from August 2015 through April 2016. Figure 1 also includes daily precipitation recorded at the nearby Portland International Jetport.

Figure 1 shows that the groundwater elevation at the west end of Long Pond in MW-103 continued to drop for several weeks after the Long Pond drain was sealed, then gradually rose through the fall and reached the highest elevation in March 2016 before beginning to drop. The total rise at MW-103 was slightly more than 3 feet. A similar pattern of rising water level was observed in MW-101 and in Long Pond. However in early January 2016, the elevation of Long Pond reached the rim at the eastern end at approximately 20.8 feet and water began to overflow from the pond. From January through early May this overflow persisted and the water elevation of Long Pond and MW-101 remained approximately constant.

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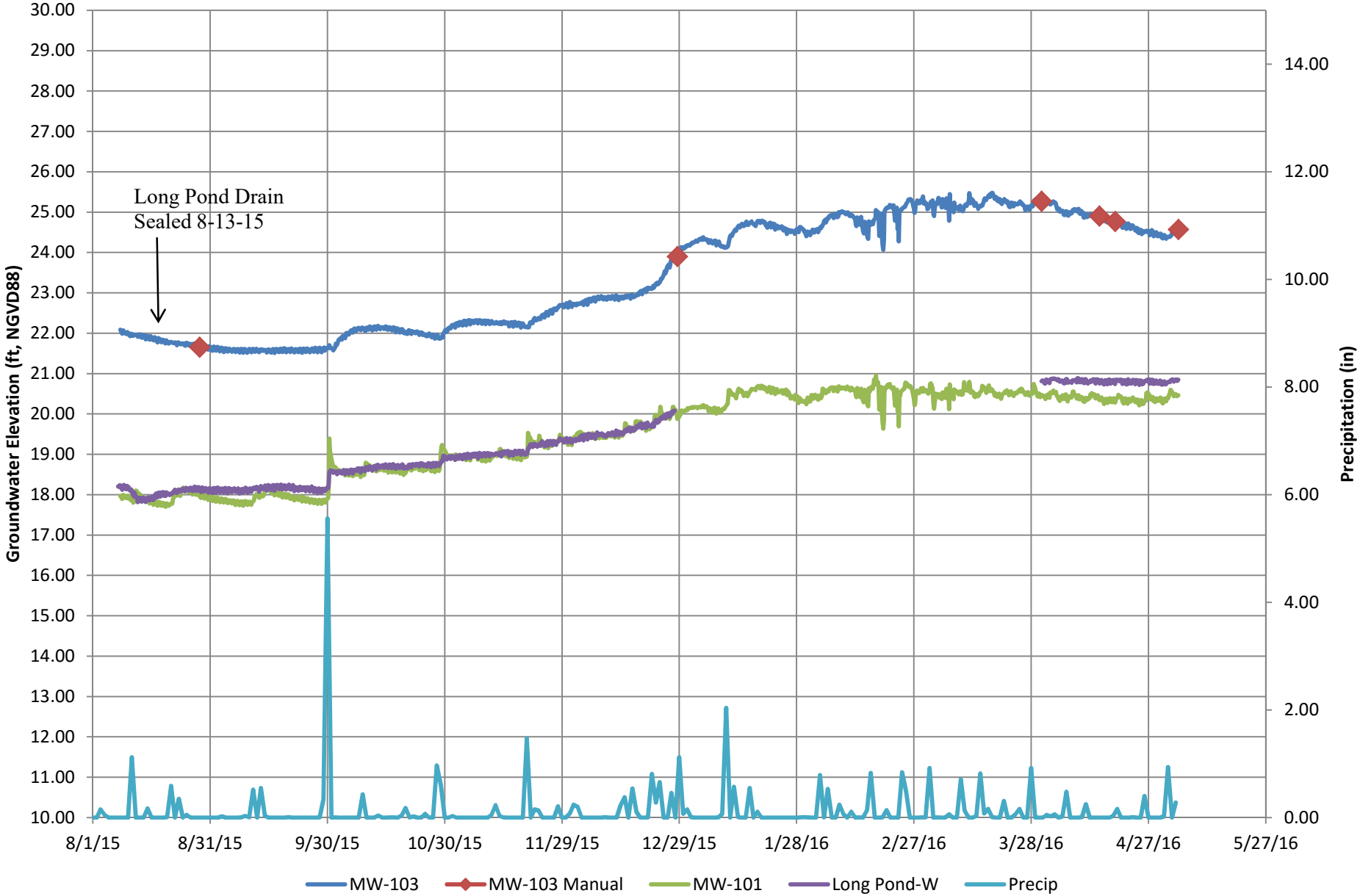
Figure 1
Groundwater Hydrograph Since August 2015



3.0 GROUNDWATER MODEL RE-CALIBRATION

As described in the August 2015 report, the groundwater model was developed using the Analytic Aquifer Simulator (AnAqSim) software code. AnAqSim version 2016-1 was used for the Bayley model. Drumlin was assisted in setting up and running the model by Charles Fitts, Ph.D., of Fitts Geosolutions, LLC.

Model Set-Up. The set-up and configuration of the re-calibrated model were the same as for the preliminary model. The model configuration (shown in Figure 2) included the same two primary domains (Domain 1 and Domain 2) as well as the Rim domain and the Long Pond Domain. As described in the August 2015 report, the drain in Long Pond was simulated at elevation 18.3 ft. In the updated model calibration, the drain was included for the months of August 2014 through mid-August 2015, then the drain was removed from subsequent time steps.

The boundaries were also the same as for the preliminary model, except for the western boundary representing Mill Brook. In the preliminary model, this was specified as a fixed head boundary. This fixed headed boundary tended to mute the variations in groundwater elevation southwest of Long Pond. In the updated model, most of the Mill Brook boundary was changed to a head-specified flux boundary (type 3). This change was made so that the model reflected greater variation in groundwater elevation southwest of Long Pond, to improve the match to the monitoring well data in this area.

Calibration Process. During the re-calibration phase, the model was run as a transient simulation with one month time steps incorporating the period from August 2014 through April 2016. Groundwater elevation data from this period reflected conditions with the Long Pond drain functioning (before mid-August 2015) and conditions when the drain was sealed (after mid-August 2015). As with the preliminary model, groundwater elevation data and the elevation data from Long Pond were the primary calibration metric. Groundwater elevations calculated by the model were compared to observed groundwater elevations measured in wells at the site during 8 monitoring events between April 2015 and April 2016. Changes in the elevation of Long Pond following closure of the drain represented the combined influence of the entire hydrologic system at the Bayley Farm property, therefore the rise of the pond since August 2015 was a valuable component of the calibration process.

In order to run a transient model, month by month recharge values were required as input to the model. These recharge values were derived from monthly precipitation as measured at the Portland International Jetport. The distribution of recharge during the year was derived from US Geological Survey Scientific Investigation Report (SIR) 2005-5038. Appendix A includes at tabulation (Table A-3) of the recharge values used for the transient calibration simulations, along with additional explanation of the methodology used to derive the recharge values.

During the calibration process, adjustments were made to the hydraulic conductivity, storativity and recharge ratio in order to optimize the match of the model to the measured groundwater and Long Pond elevations.

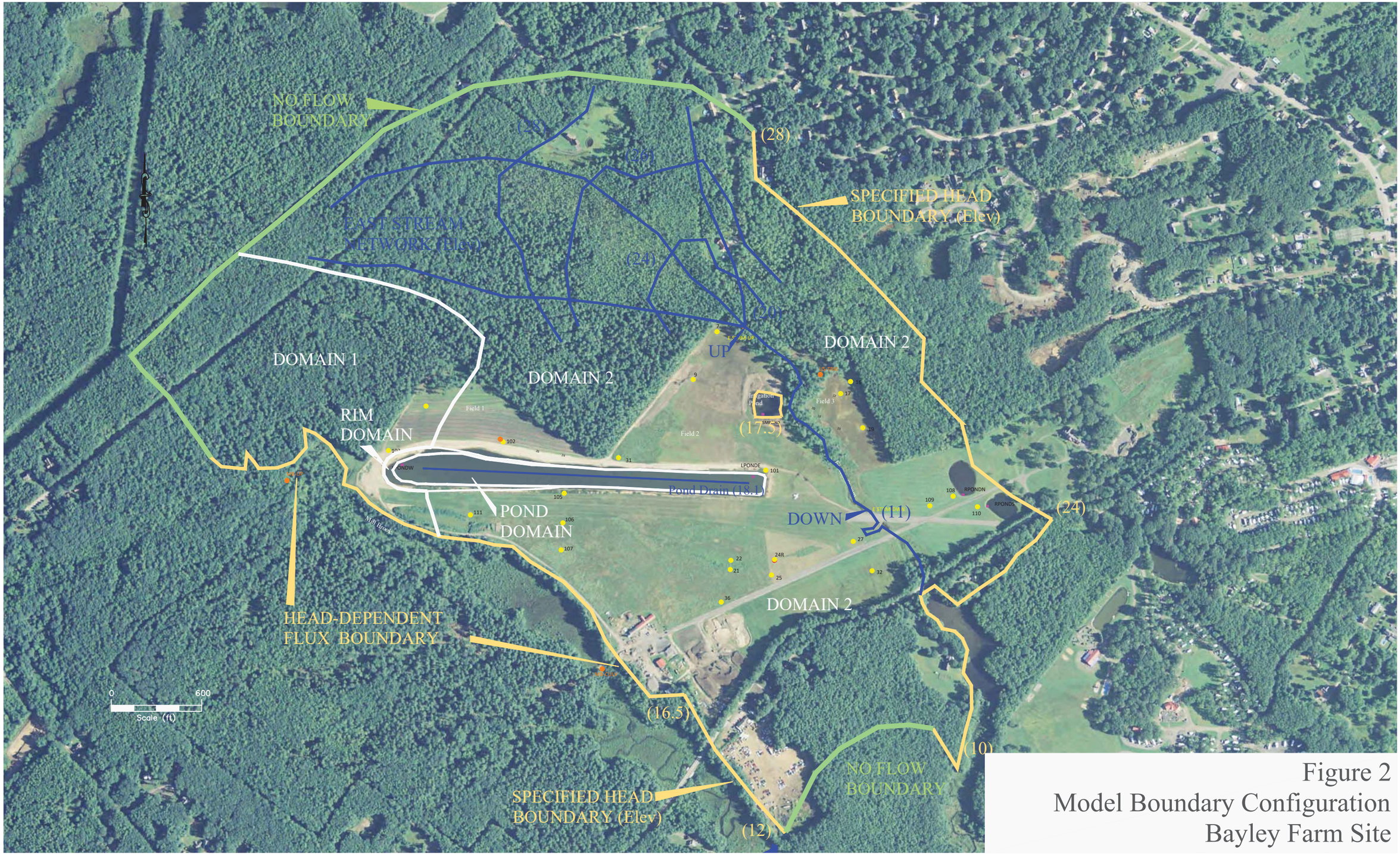


Figure 2
Model Boundary Configuration
Bayley Farm Site

4.0 MODEL RE-CALIBRATION RESULTS

As described above, the primary calibration metric for the model was a comparison between modeled and observed groundwater and Long Pond elevations on-site. Therefore, during the calibration process, hydraulic conductivity, storativity and recharge ratios were varied in all domains so that the model matched the rise in Long Pond as well as the observed groundwater elevations. Table 1 summarizes the parameters incorporated in the final, calibrated model.

Table 1
Summary of Hydrogeologic Parameters Used in the Updated Model

Domain	Bottom Elevation	Porosity	Hydraulic Conductivity	Specific Yield	Storativity	Recharge Ratio
	(ft)		*(ft/d)*			
Domain 1	18	0.3	21	0.1	0.025	0.18
Domain 2	9	0.3	51	0.1	0.025	0.21
Long Pond	9	0.999	5,000	0.1	0.999	P-E[1]
Rim	9	0.3	6	0.1	0.025	0.18
Berms 1, 2, 3	9	0.3	11 or 40	0.1	0.001	0.21

1. Recharge to the pond was calculated as precipitation (P) minus evaporation (E).

These values are generally of the same order of magnitude as the values used in the preliminary model.

The transient calibration model compared modeled elevations to approximately 100 elevation measurements made on-site between August 2014 and April 2016. The average residual (difference) between the modeled and observed elevations for the re-calibrated model was 0.07 feet and the sum of the residuals squared was 67.5 feet.

Figure 3 shows the comparison between the modeled and observed groundwater elevations at 19 monitoring wells at the site during 8 monitoring events between April 2015 and April 2016. These points fall close to the diagonal line in Figure 3, which would represent perfect agreement between modeled and measured water elevations. (It should be kept in mind that the modeled values represent an average condition for the corresponding month, while the measured data represent a specific date. Some variation between these values would be expected based on, for example, whether rainfall in a particular month fell before or after the measurement date, or fell uniformly during the month.)

The close correlation between the modeled and observed groundwater elevations for the 21 month period from wells across the whole Bayley site, indicate that the model reproduces the groundwater and surface water elevation conditions at the site well.

Figure 3
Modeled versus Observed Groundwater Elevations for the Re-Calibrated Model

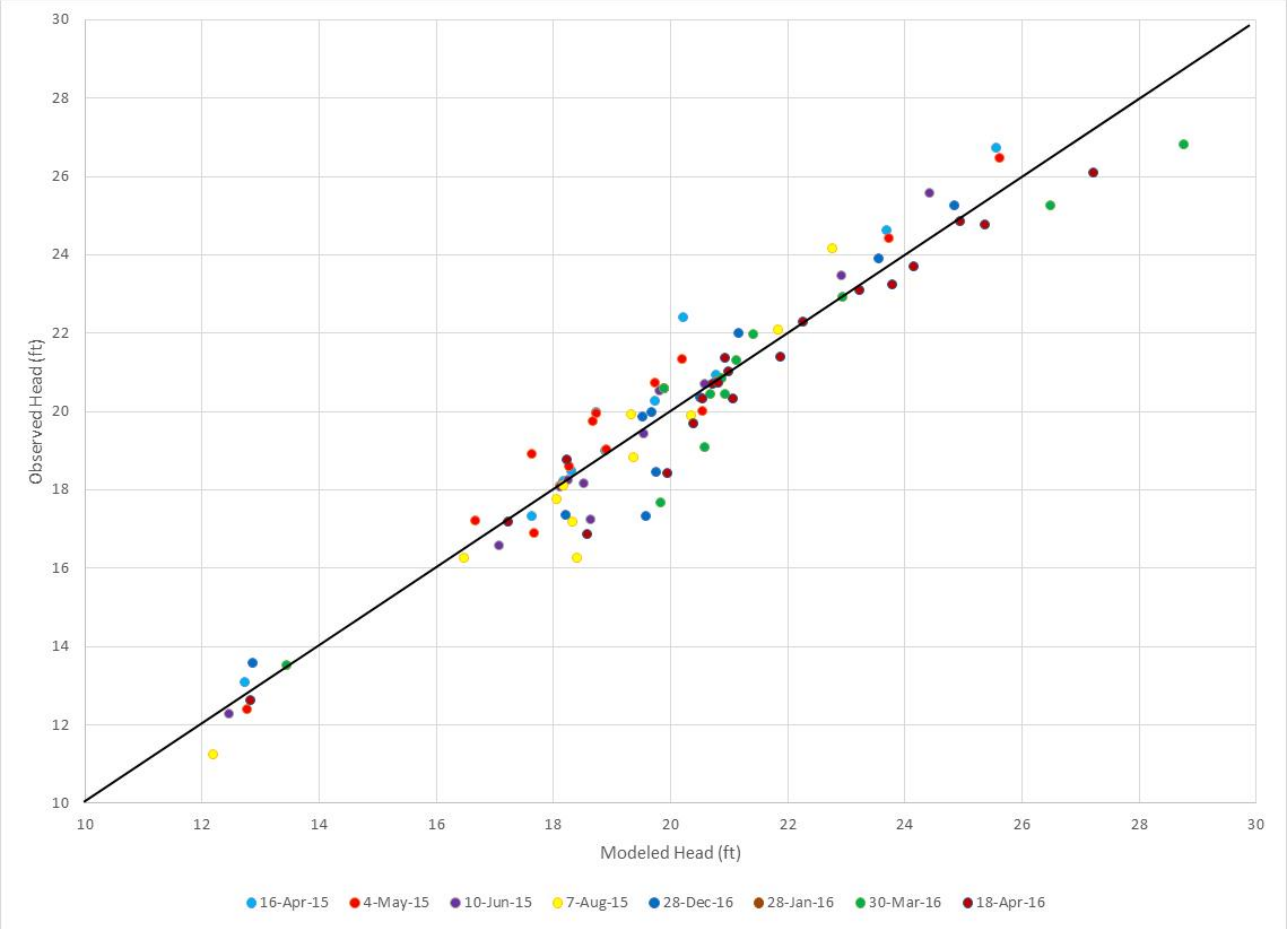
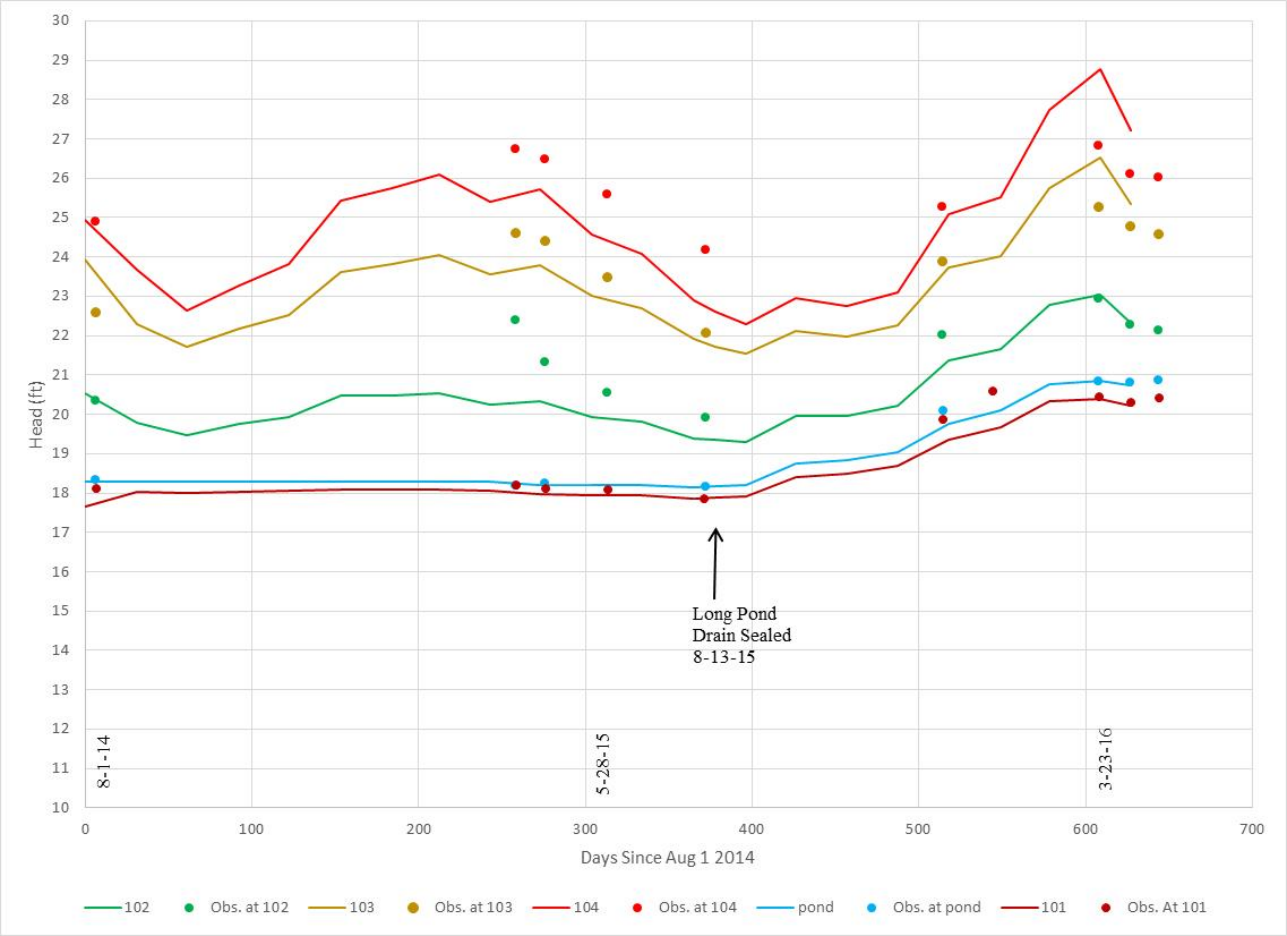


Figure 4 is a plot of the modeled (lines) and observed (dots) elevations for 4 monitoring wells on the north side of Long Pond and for Long Pond from August 2014 through April 2016. The x-axis of the plot is days since August 1, 2014 (the beginning of the modeled period). This plot shows several features about the water elevations at the site and the representation of these features by the model, as discussed below.

Figure 4
Modeled versus Observed Hydrographs Plots



The observed data (dots) show that there is a typical seasonal variation in the elevation of the groundwater and surface water, with the water elevation being highest in the spring and lowest in the summer and fall. For the Bayley Farm site during the monitoring period, the groundwater elevations have varied by approximately 3 feet.

Figure 4 shows that the model captures the general pattern of seasonal variation that occurs at the site and the rise in the groundwater and Long Pond elevations that resulted from closure of the drain. Some of the difference between the observed and modeled elevations are due to the fact that the recharge values used in each month do not directly correspond to the date the measurement was made. Additionally, the measured values in the spring of 2015 (i.e., days 250 to 300 +/-) reflect the spring melt of the deep snow pack, while the modeled values during this same time reflect month to month average recharge.

Figure 3 and the modeling statistics indicate that the model is well calibrated overall. However, Figure 4 also points out an important limitation of the model in predicting elevation changes at specific locations at the site. In this context, the model is a useful tool in predicting the type and magnitude of changes in hydrology (such as the closure of the Long Pond drain, or addition of

dividing berms in Long Pond), but the model is somewhat limited in the precision of its predictions of how much change will occur at a specific location (generally +/- 0.5 feet).

Finally, Figure 4 shows that the elevation of the groundwater at the Bayley site fluctuates naturally. The rate and magnitude of this fluctuation varies with the quantity and timing of recharge. The predictive modeling evaluation discussed in Section 5.0 was a steady state evaluation that used average inputs. It is important to recognize that there will be a seasonal fluctuation of 2 to 3 feet around the model predicted averages discussed in these sections.

5.0 EVALUATION USING THE UPDATED GROUNDWATER MODEL

The hydraulic parameters derived during the calibration of the transient model and summarized in Table 1 were used to create a series of steady state models to evaluate the influence of dividing Long Pond into smaller ponds through construction of berms. These steady state models are discussed and results are presented in the remainder of this section.

5.1 Steady State Model Simulation – Current Conditions

Using the calibrated model parameters reflected in Table 1, the model was run as a steady-state model reflecting average current conditions (with the drain in Long Pond closed). Figure 5 shows the modeled steady state groundwater flow conditions. Similar to the preliminary model, the updated model shows that groundwater flows toward and into Long Pond from the northwest and flows out of Long Pond toward the east and southeast. The updated model calculates that the long-term average elevation of Long Pond would be close to 20.8 feet, which is approximately 2.5 feet higher than the pond elevation when the drain was open, and close to the lip elevation at the eastern end of the pond.

5.2 Steady State Model Simulations – 4 Ponds, 3 Berms Configuration

The updated model was used to simulate steady state conditions with Long Pond divided into 4 smaller ponds (and the small irrigation pond in Field 2 filled). Figure 6A shows the predicted groundwater contours under these conditions, with the berms having a hydraulic conductivity of 40 ft/day. Based on the model predictions, the berms would act to establish a gradient from west to east, with the western pond rising to an average elevation of approximately 24.5 feet and the eastern pond dropping from its current elevation (i.e., 20.8 feet) to an average elevation of approximately 18.9 feet.

Figures 6B and 6C show the change in groundwater elevation from current conditions (i.e, Figure 5) predicted by the model as a result of dividing Long Pond into 4 small ponds. In the model simulation depicted in Figure 6B, the dividing berms have a hydraulic conductivity (K) of 40 ft/day. This is the value measured in the laboratory for available on-site soil having 4.3 percent fine-grained soil (e.g., silt). In the model simulation depicted in Figure 6C, the dividing berms have a hydraulic conductivity of 11 ft/day. This is the value measured in the laboratory for site soil having 12.9 percent fine-grained soil.

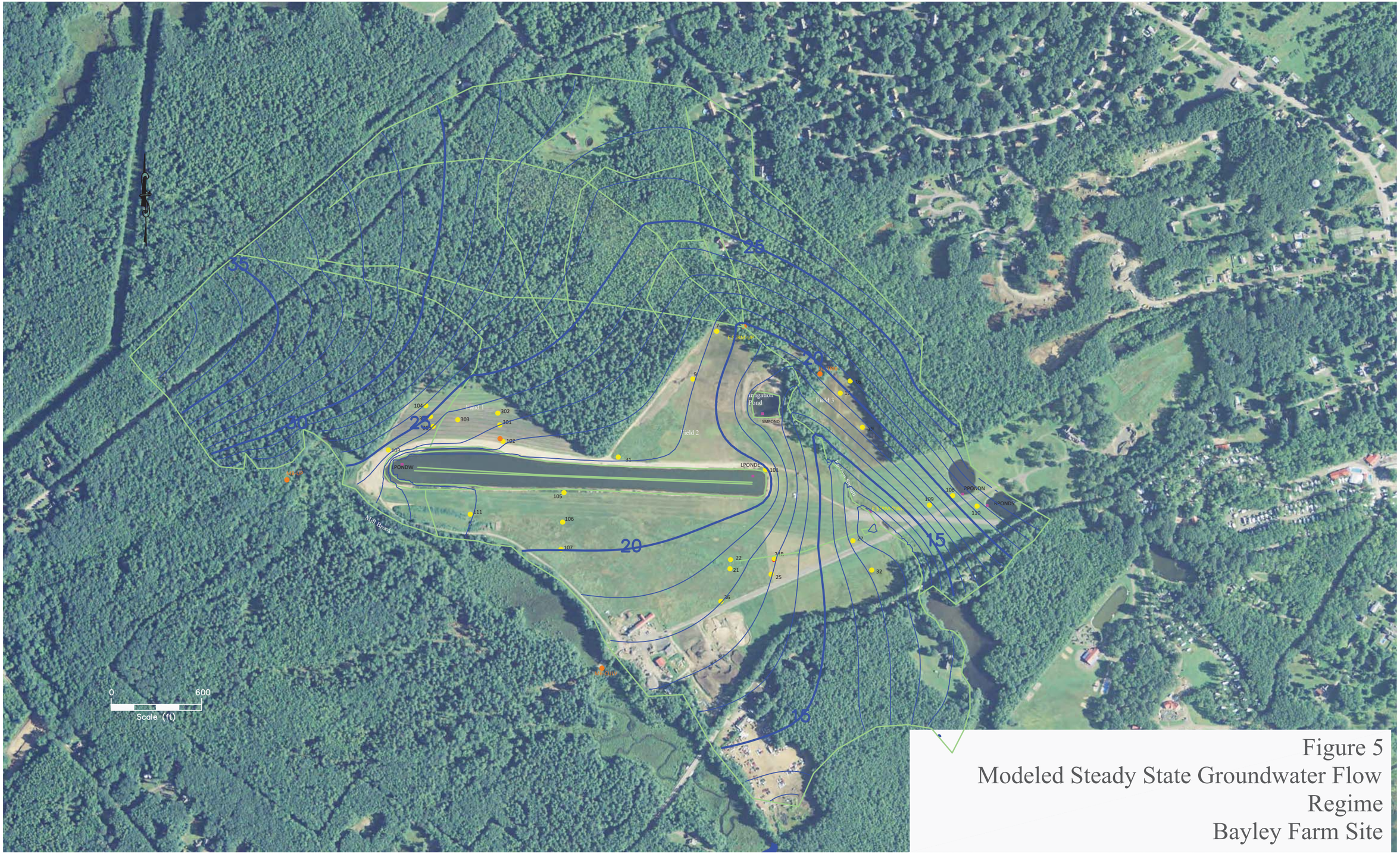


Figure 5
Modeled Steady State Groundwater Flow Regime
Bayley Farm Site

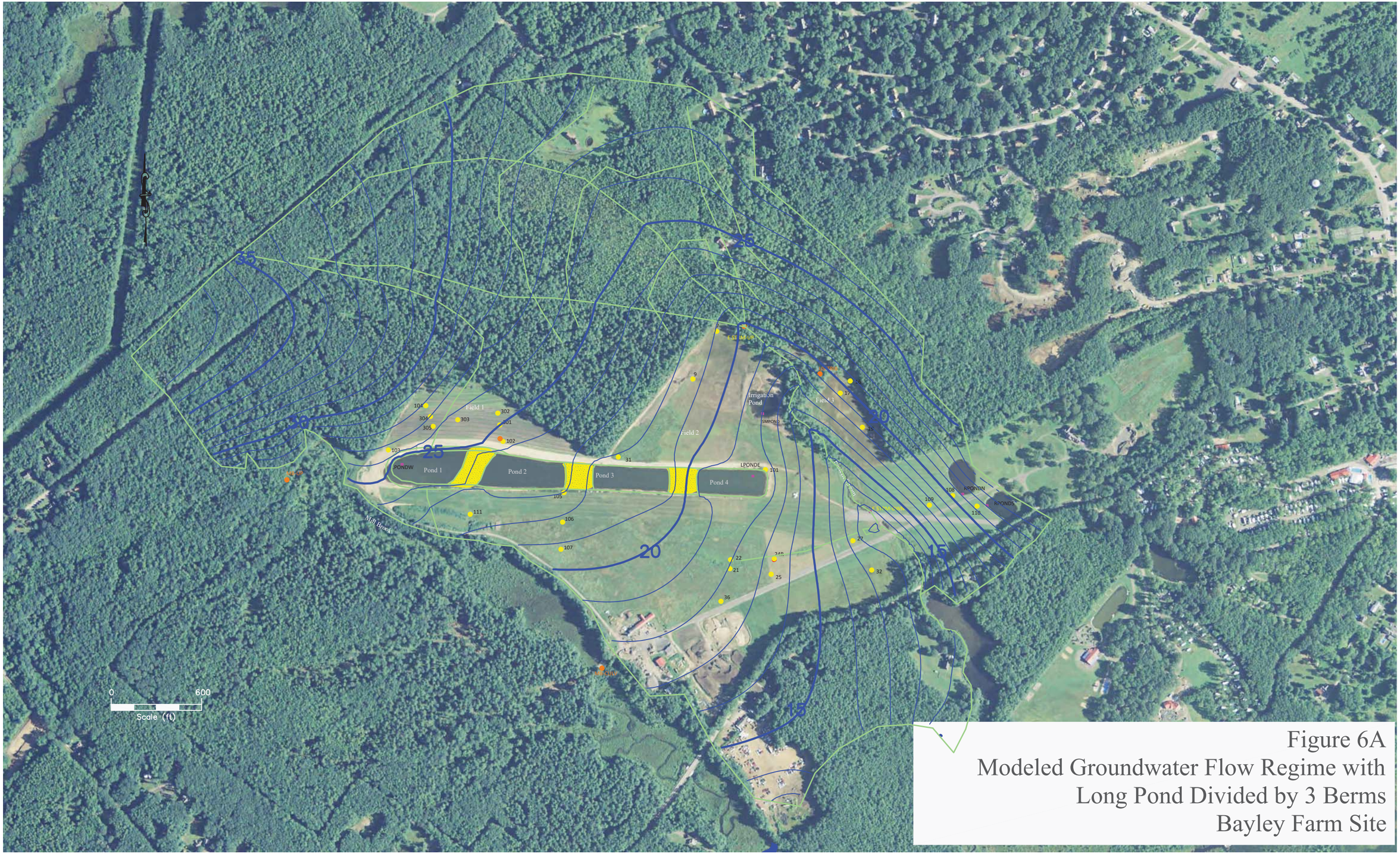


Figure 6A
Modeled Groundwater Flow Regime with
Long Pond Divided by 3 Berms
Bayley Farm Site

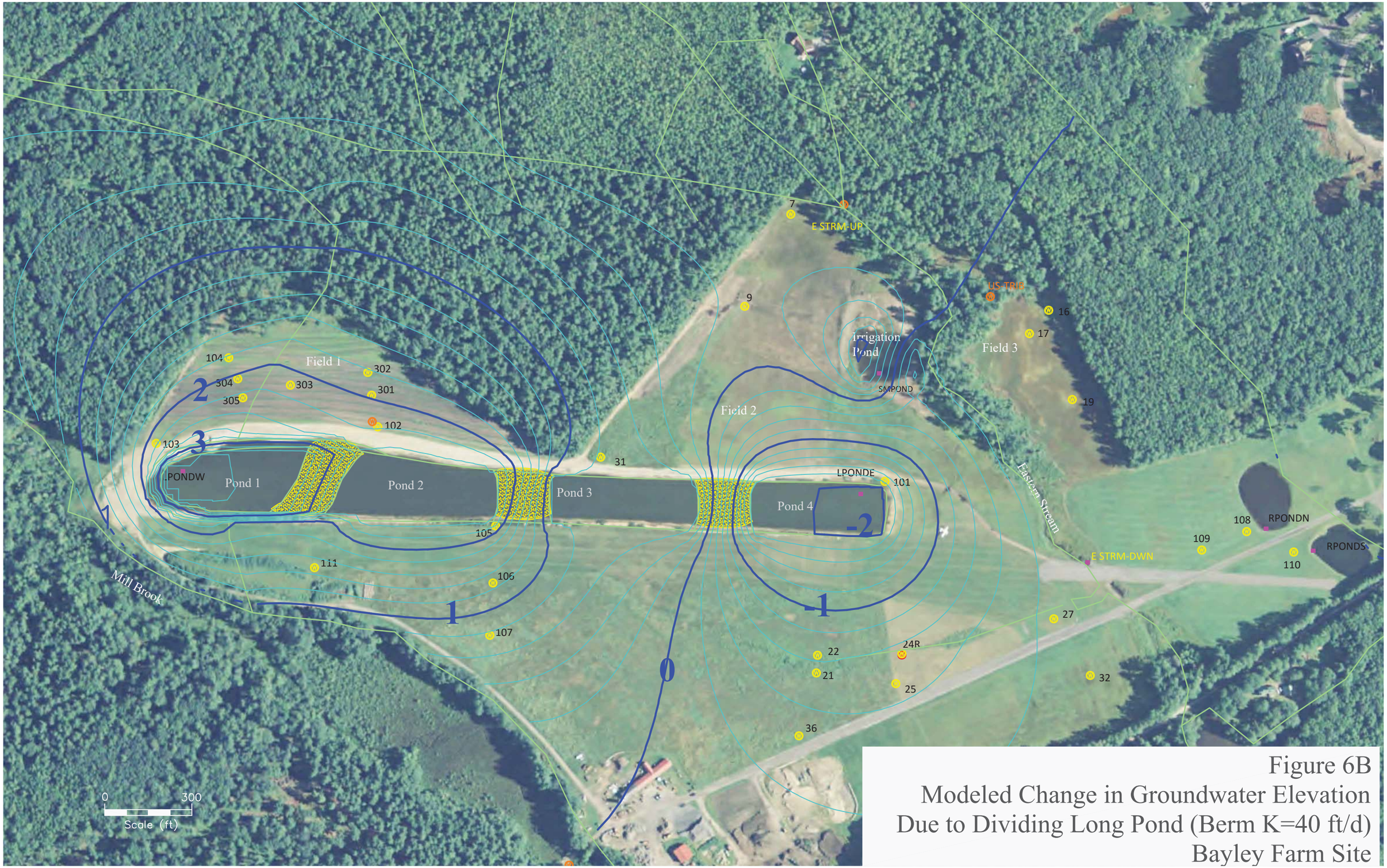


Figure 6B
Modeled Change in Groundwater Elevation
Due to Dividing Long Pond (Berm K=40 ft/d)
Bayley Farm Site

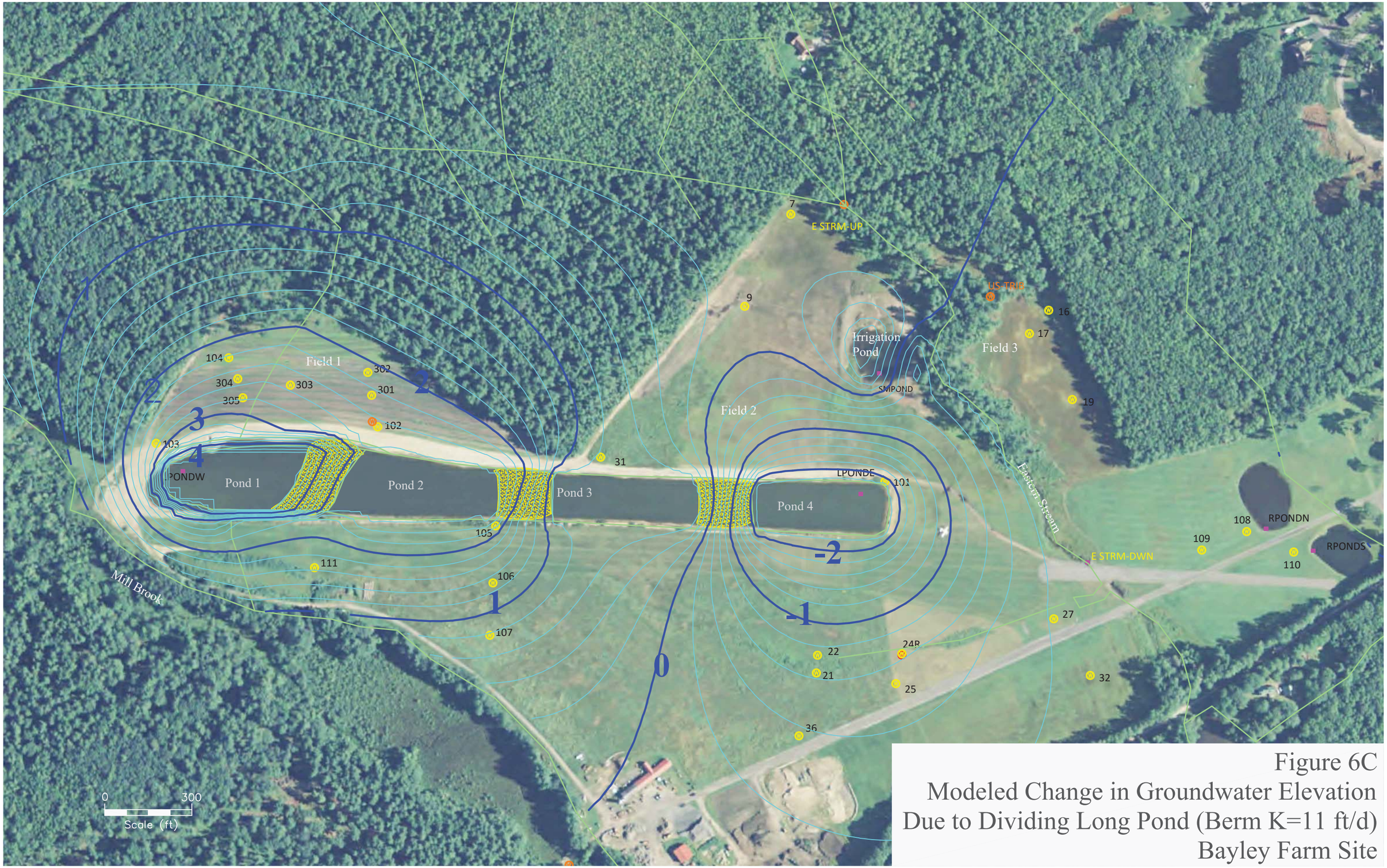


Figure 6C
Modeled Change in Groundwater Elevation
Due to Dividing Long Pond (Berm K=11 ft/d)
Bayley Farm Site

As discussed previously in the August 2015 *Summary of Preliminary Groundwater Model* report, the grain size distribution of samples collected from areas where soil will be available to create the berms had a percentage of fines ranging from approximately 2.5 percent to 12.9 percent. This range is relatively narrow, making it impractical to segregate soil with the higher versus lower percentage of fines in the field during construction. Therefore, actual soil used to construct berms is anticipated to have a percentage of fines generally between 2 and 13 percent, with the result that changes to the groundwater elevation would likely be in the general range of those predicted by the model as shown in Figures 6B and 6C.

5.3 Steady State Model Simulations –2 Berm Configurations

The model was also used to explore and evaluate the influence of the alternative approach of dividing Long Pond with 2 berms. An important goal of the changes to Long Pond is to raise the groundwater elevation beneath Field 1 and Field 2 to facilitate creation of wetlands in these areas. Therefore, the model was used to simulate one berm near the east end of Field 1 and a second berm at the east end of Long Pond (i.e., the east end of Field 2).

Figure 7A shows the predicted groundwater contours with 2 berms having a hydraulic conductivity of 40 ft/day. This would create 2 smaller ponds with the western pond rising to a model-predicted average elevation of approximately 23.5 feet and the eastern rising slightly to an average elevation of approximately 21.5 feet.

Figure 7B shows the change in groundwater elevation from current conditions (i.e, compared to Figure 5) predicted by the model as a result of building 2 berms and dividing Long Pond into 2 smaller ponds. The influence of this approach on groundwater elevations can be observed by comparing Figures 6B and 7B, and will be discussed further in Section 6.0.

A variation of the 2-berm model was also run with the middle berm being 50% wider than shown in Figures 7A and 7B to examine the influence of berm width. However, a wider berm only had a negligible influence on the model predicted changes in groundwater elevation.

5.4 Transient Model Simulation To Estimate Time to Equilibrium

A transient model analysis was also conducted to estimate the time required after berm construction for the groundwater system to equilibrate to the revised configuration. This analysis indicated that 80% to 85 % of the change would likely occur within 12 months of berm construction and greater than 90% of the change would likely occur within 18 months. This analysis was run using normal monthly precipitation data and the time required for re-equilibration would be longer or shorter depending on the whether the actual precipitation following construction was below or above normal, respectively.

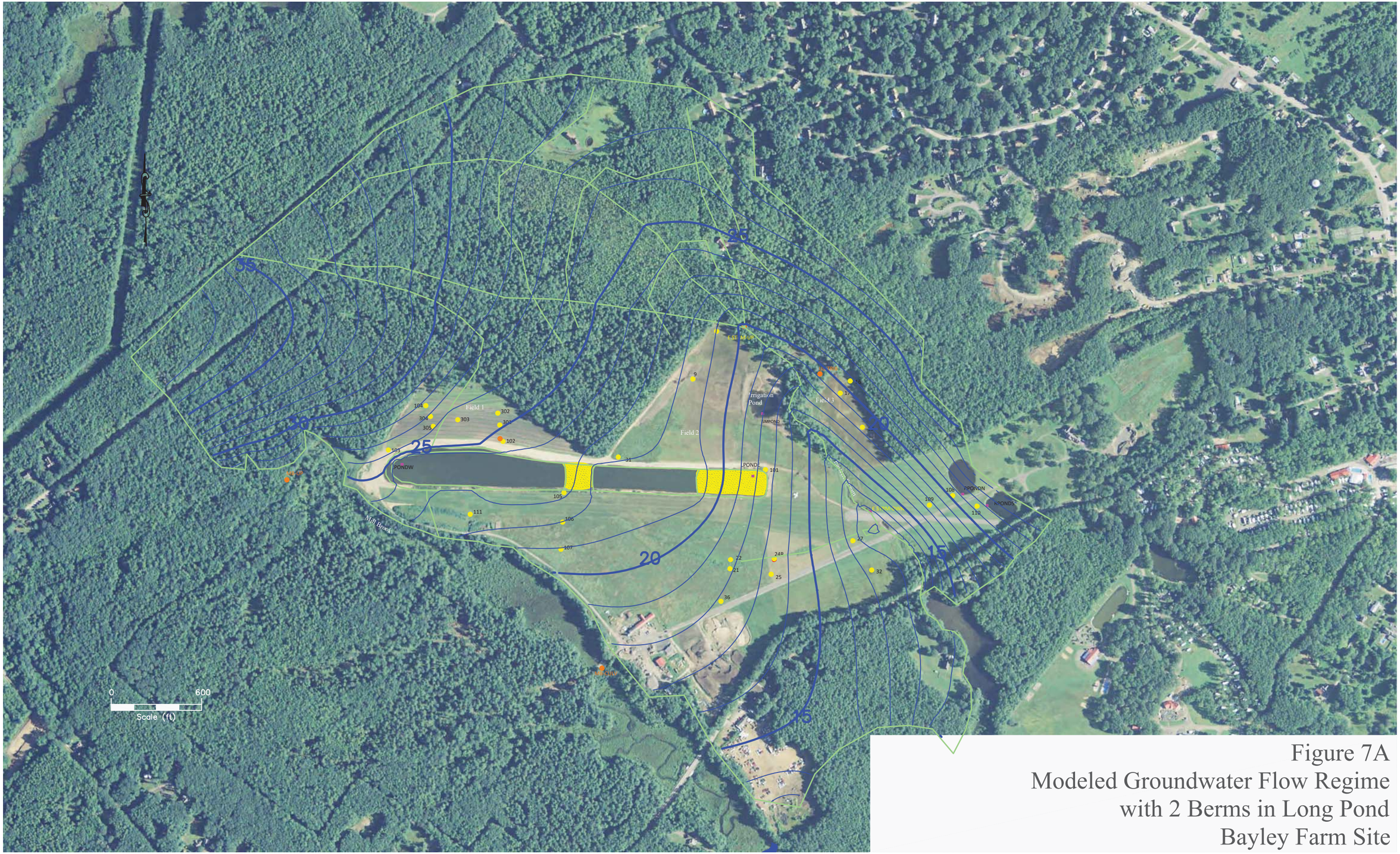


Figure 7A
Modeled Groundwater Flow Regime
with 2 Berms in Long Pond
Bayley Farm Site

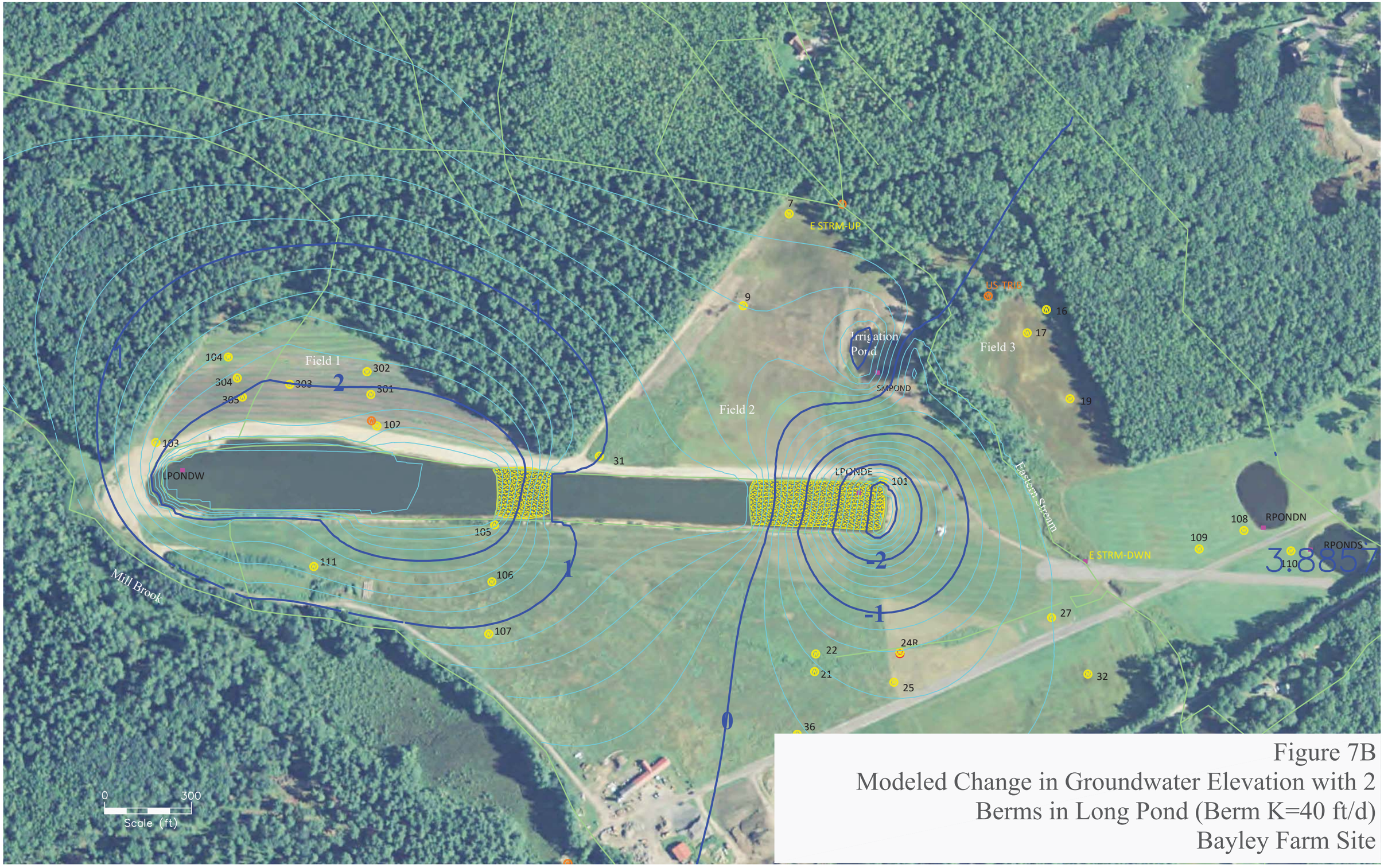


Figure 7B
Modeled Change in Groundwater Elevation with 2 Berms in Long Pond (Berm K=40 ft/d)
Bayley Farm Site

6.0 DISCUSSION, RECOMMENDATIONS AND LIMITATIONS

6.1 Discussion of the Modeling Evaluation

Figures 6 and 7 show the model-predicted changes in the elevation of groundwater and Long Pond in response to placing berms to create smaller ponds. An overview of these changes and comparison between different configurations are discussed below.

- Dividing Long Pond into small ponds separated by berms re-establishes a sloping water table across the berms, which is one of the primary goals of the restoration work at the Bayley site.

- Placement of the berms also raises the groundwater elevation beneath Field 1 and Field 2, which is another primary goal of dividing Long Pond. The higher groundwater elevation, together with re-grading the current land surface, will be used to create wetlands in Field 1 and Field 2.

- Comparison of Figures 6B and 6C show the expected range of change in the groundwater elevation possible using on-site soil to construct the berms. Figure 6B reflects berms with a lower percentage of silt and a higher hydraulic conductivity and Figure 6C reflects berms with a higher percentage of silt and a lower hydraulic conductivity. The actual hydraulic conductivity of the berms is likely to fall between the values reflected in Figure 6B and Figure 6C. Because there is a relatively narrow range of percentage of fines and hydraulic conductivity, it is not feasible to segregate soil with different characteristics during construction, as explained in Section 5.2.

- Comparison of Figure 6B and 7B show the differences in the expected groundwater elevation changes by placement of 3 berms versus 2 berms. In both of these figures, the hydraulic conductivity of the berms is the same (40 ft/day) and the total berm areas are the same (approximately 2.6 acres per the Statement of Work). The 3-berm approach creates a greater rise in the groundwater elevation in the western pond and adjacent groundwater (and a greater decrease in elevation at the eastern end of the pond). However the 2-berm approach creates a region of higher groundwater under a broader area of Field 1. The 2-berm approach also achieves some rise in groundwater elevation beneath Field 2, while the 3-berm approach induces a small decrease beneath Field 2.

  As noted above, the actual hydraulic conductivity of the berms is likely to be somewhat different than the value reflected in Figure 6B and 7B. However, the relative differences between the two berm configurations would be similar and so the comparison is still applicable.

- Sensitivity analyses were conducted with the model to assess how differing model parameterization would influence the predicted changes in groundwater elevation. A second calibration was conducted setting the hydraulic conductivity of Domain 1 at one-third of the value presented in Table 1. This lower hydraulic conductivity was closer to the values

measured in the monitoring well slug tests. This alternative calibration could not match the rise in Long Pond as well, however an reasonably good overall calibration could be achieved. This lower hydraulic conductivity model predicted the likely rise in the groundwater elevation created by 3 berms to be less than 0.5 feet higher than the model results presented in Figure 6B. A similar magnitude of difference (with less rise) would be predicted for a comparably higher hydraulic conductivity. Both of these changes are generally within the magnitude of the variation between modeled and observed measurements reflected in Figures 3 and 4. Based on this, the general conclusions drawn from the model would not change.

6.2 Recommendations

The updated modeling evaluation indicates that the overall influence of placing 2 berms or 3 berms to divide Long Pond is similar. However, the evaluation indicates that the approach that achieves the maximum practicable rise in the groundwater elevations beneath both Field 1 and Field 2 would be to place 2 berms as shown in Figure 7B. The groundwater model indicates that the berm in the middle of Long Pond will result in a rise in groundwater elevation across a broad area of Field 1. The model also indicates that placing a berm at the east end of Long Pond will result in a rise in the groundwater elevation beneath Field 2.

Based on these findings, we recommend that the Work Plan include a 2-berm design consistent with the configuration depicted in Figure 7B.

6.3 Limitations Inherent in the Modeling Evaluation

The groundwater model developed for the Bayley site used the analytical element modeling program AnAqSim, which was developed by Fitts Geosolutions, LLC. This model has been thoroughly tested and is commonly utilized among groundwater modeling professionals. The model was calibrated to an extensive set of site-specific groundwater and surface water elevation data spanning a 21 month period. The calibration statistics presented in Section 4.0 show good agreement between the modeled and observed data.

Nevertheless, any groundwater model, including the model prepared for the Bayley Farm site, is a numerical representation of actual conditions and requires many simplifications of a heterogeneous natural system. Therefore it is important to recognize the limitation of the modeling results.

The model is a steady state model that uses average input parameters, including both groundwater flow parameters such as hydraulic conductivity and recharge parameters. Therefore the model can reliably be used to evaluate average changes over the scale of the modeled area. The type of changes that meet these criteria include (a) general changes to the groundwater flow regime that will result from dividing Long Pond and (b) general changes in groundwater elevations created by the 3-berm approach and the 2-berm approach.

However, the model does not incorporate variations in parameters on the scale of an individual field, or between monitoring well locations. As shown in the hydrographs in Figure 4 and

discussed in Section 4.0, groundwater elevations at the Bayley site vary 2 to 3 feet seasonally. Figure 4 shows that there may be differences on the order of a foot or more between modeled and observed elevations at specific locations in the site. Consistent with this, predictions by the model at specific locations should be interpreted prudently.

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APPENDIX A

SUPPORTING INFORMATION
GROUNDWATER MODEL UPDATE
BAYLEY FARM SITE

Tables:

- A-1 Groundwater and Surface Water Elevation Data
- A-2 Stream Flow Data
- A-3 Recharge Rates Used for the Transient Model Re-Calibration

Table A-1

Groundwater and Surface Water Elevation Data
Bayley Farm Site

				4/15/2014	4/25/2014	6/25/2014	8/6/2014	8/18/2014	4/16/2015	4/20/2015	4/28/2015	5/4/2015	5/26/2015	6/10/2015	8/7/2015	12/28/2015	3/30/2016	4/14/2016	4/18/2016	5/4/2016
Description	Top Elev	Grnd Elev	StickUp	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev	Elev
Groundwater	(ft,NAVD 88)		(ft)	(ft,NAVD 88)																
27	18.88	14.87	4.01	13	12.59	11.74	11.7	12.75	13.09		12.9	12.41	11.39	12.3	11.25	13.59	13.53	12.92	12.63	
32	18.77	15.91	2.86	15.95	15.36	13.36	13.83	15.66	16			15.02								
25	24.07	20.35	3.72	18.08	17.41				18.25			17.22	<16.7	16.55	<16.17		18.64	18.64	17.18	
24	19.81	16.89	2.92	15.17	15.08	14.89			11.04			11.06		9.28						
22	21.06	18.06	3	16.76	16.54	16.16														
21	21.63	18.81	2.82	17.22	16.84	16.33	16.38	17.12	17.33			16.89		16.58	16.26	17.37	17.69	17.06	16.87	
36	23.91	20.69	3.22	19.95	18.82	17.54	17.4	19.66	20.51	20.33	20.39	18.93		18.03	<17.11	20.46		19.41	18.78	
19	25.16	22.45	2.71	20.91	20.35	<19.56	19.76	20.38	20.48			20.19		20.3	<19.56		21.13	20.88	20.37	
16	24.88	21.65	3.23	20.46	19.83	<19.48	<19.48	19.97	20.11			19.78		19.81	<19.48		20.95	20.39	19.77	
17	24.32	20.97	3.35	19.81	19.11	<18.74	18.92	19.08	19.29			18.93		19.07	<18.92		19.98	19.78	19.1	
101	22.4	21.17	1.23	18.41	18.24	18.05	18.12	18.35	18.23		18.37	18.12	17.95	18.09	17.86	19.88	20.45	20.36	20.32	20.44
7	25.42	22.14	3.28	20.97	20.83	20.37	20.42	20.81	20.93			20.76		20.72	19.91		21.31	21.01	20.75	
9	24.71	22.21	2.5	20.75	20.46	19.61	19.63	21.23	20.66	20.44	20.9	20.03		20.06	<19.41		21.4	20.82	20.32	
31	25.71	22.97	2.74	20.31	19.74	19.31	<19.21	20.6	20.48	20.36	20.44	19.76	<19.21	19.48	<19.26	21.39	21.92	21.25	21.02	21.57
102	28.5	27.47	1.03	21.3	21.06	20.78	20.36	21.53	22.4		21.87	21.44	20.6	20.54	20.02	22.11	23.03	22.5	22.39	22.23
103	31.17	30.14	1.03		24.02	23.12	22.59	23.55	24.62	24.46	24.72	24.42	23.14	23.49	22.08	23.9	25.27	24.9	24.77	24.57
104	29.25	28.35	0.9		26.39	25.5	24.9	26.04	26.74			26.48		25.59	24.18	25.28	26.83	26.26	26.11	26.01
105	26.7	25.64	1.06				18.25	18.67	18.48			18.59	18.3	18.26	18.11	20	20.85	20.73	20.71	20.67
106	24.65	22.74	1.91				17.54	19.58	20			19.97	18.54	18.18	17.2	18.46	20.46	19.83	19.69	
107	26.96	24.63	2.33				16.63	18.36	19.01	18.74	19.61	19.03		17.25	16.27	17.33	19.09	18.57	18.44	
108	24.28	22.59	1.69				19.82	20.57	20.98			20.28		20.16	19.31	21.71	21.62	20.89	20.42	
109	23.11	20.21	2.9				17.55	18.98	19.53			18.43		18.16	16.47	19.97	19.91	19.61	18.87	
110	23.02	21.91	1.11				19.46	20.18	20.75			19.82		19.74	18.81		21.54			
111	29.36	26.88	2.48				19.2	20.01	20.28			20.73		19.45	18.83	20.37	21.98	21.45	21.36	
Surface Stakes																				
SPond (Stk 3)	20.16			17.49	17.44	17.17	17.46	17.53	17.49			17.46		17.51	17.15				17.39	
LPondW (Stk 1)	19.91			18.46	18.43	18.41	18.41	18.49	18.2		18.23	18.21		18.18	18.12	20.08	20.81	20.81	20.77	20.84
LPondE (Stk 2)	20.36			18.31	18.27	18.26	18.27	18.34			18.3	18.29		18.28	18.2	20.1	20.89	20.85	20.84	20.88
Top N Culv (N)	13.7				9.88	9.65	9.7	10.03	10.1	10		10		9.88	9.7		10.25	10.05	9.98	
Top S Culv (N)	13.21				9.66															
RPondN (Stk 5)	23.26						20.67	20.71	20.57			20.58								
RPondS (Stk 4)	20.96						18.81	18.79	18.75			18.76		18.73						
Mill Brook					8.7															
Mill Brook-up	10.09								8.44			8.09			7.59					
Mill Brook-culv	8.95								4.3			3.9			3.6					
East Strm-Up	21.32								19.52			19.27		19.17	18.32			19.27	19.18	
301	30.46	27.4	2.96																23.2	23.06
302	28.73	25.66	2.08																24.23	24.28
303	31.49	28.06	3.43																23.78	23.67
304	29.82	28.68	1.14																24.92	24.85
305	31.32	29.12	2.2																23.89	23.79

Table A-2
Water Elevation and Flow in East Stream
Bayley Farm Site

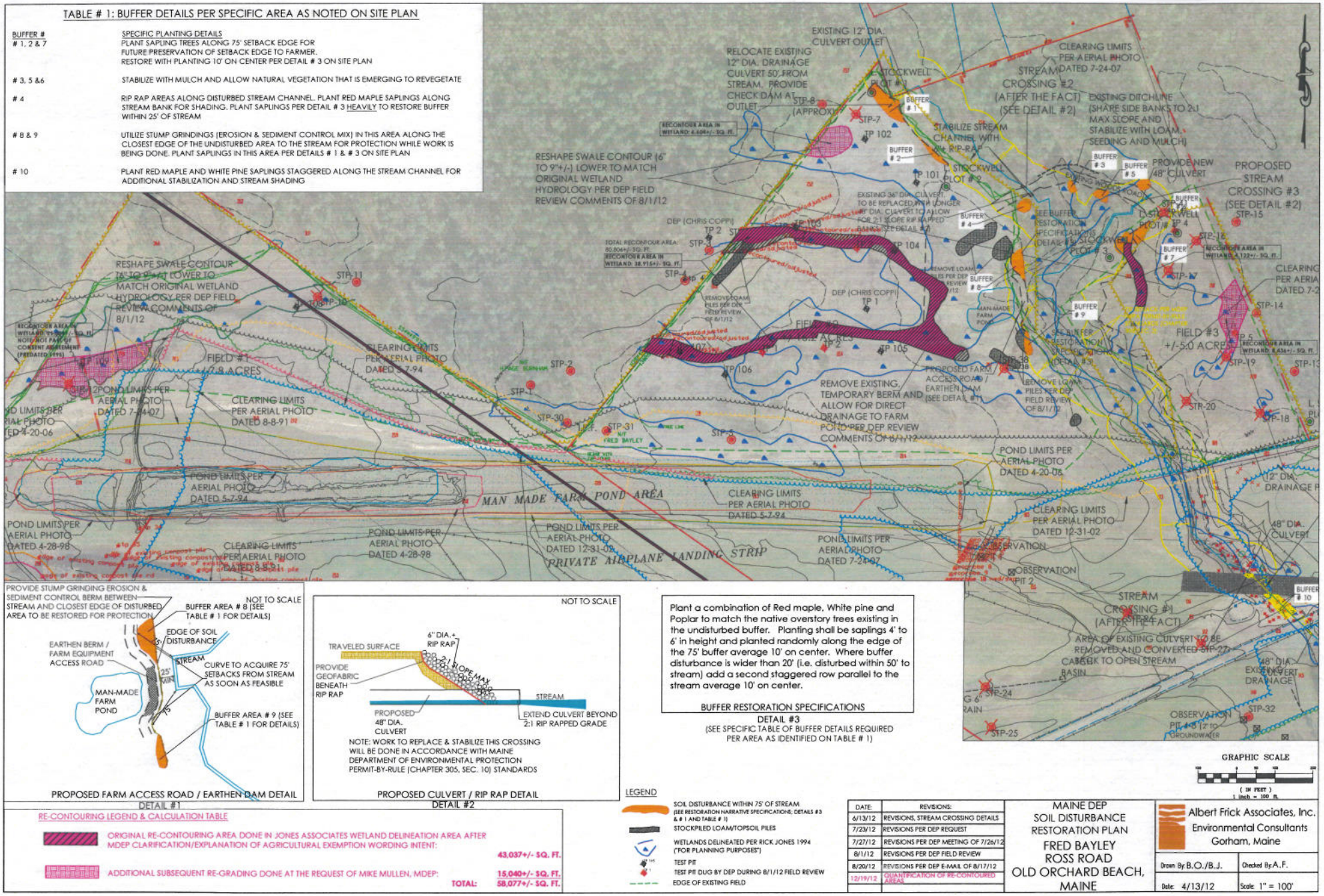
		4/16/2015		5/4/2015		8/7/2015		4/18/2016	
		Elevation	**Flow**	**Elevation**	**Flow**	**Elevation**	**Flow**	**Elevation**	**Flow**
East Stream			(gpm)		(gpm)		(gpm)		(gpm)
	Upstream Near MW-7 (UP)	*19.52*	235	*19.27*	75	*18.32*	0	*19.18*	*29*
	DownStream At Culvert (DOWN)	*10.1*	527	*10*	194	*9.7*	<5	*9.98*	184
	East Tributary		128		90				96
	Below Confluence		346		133				

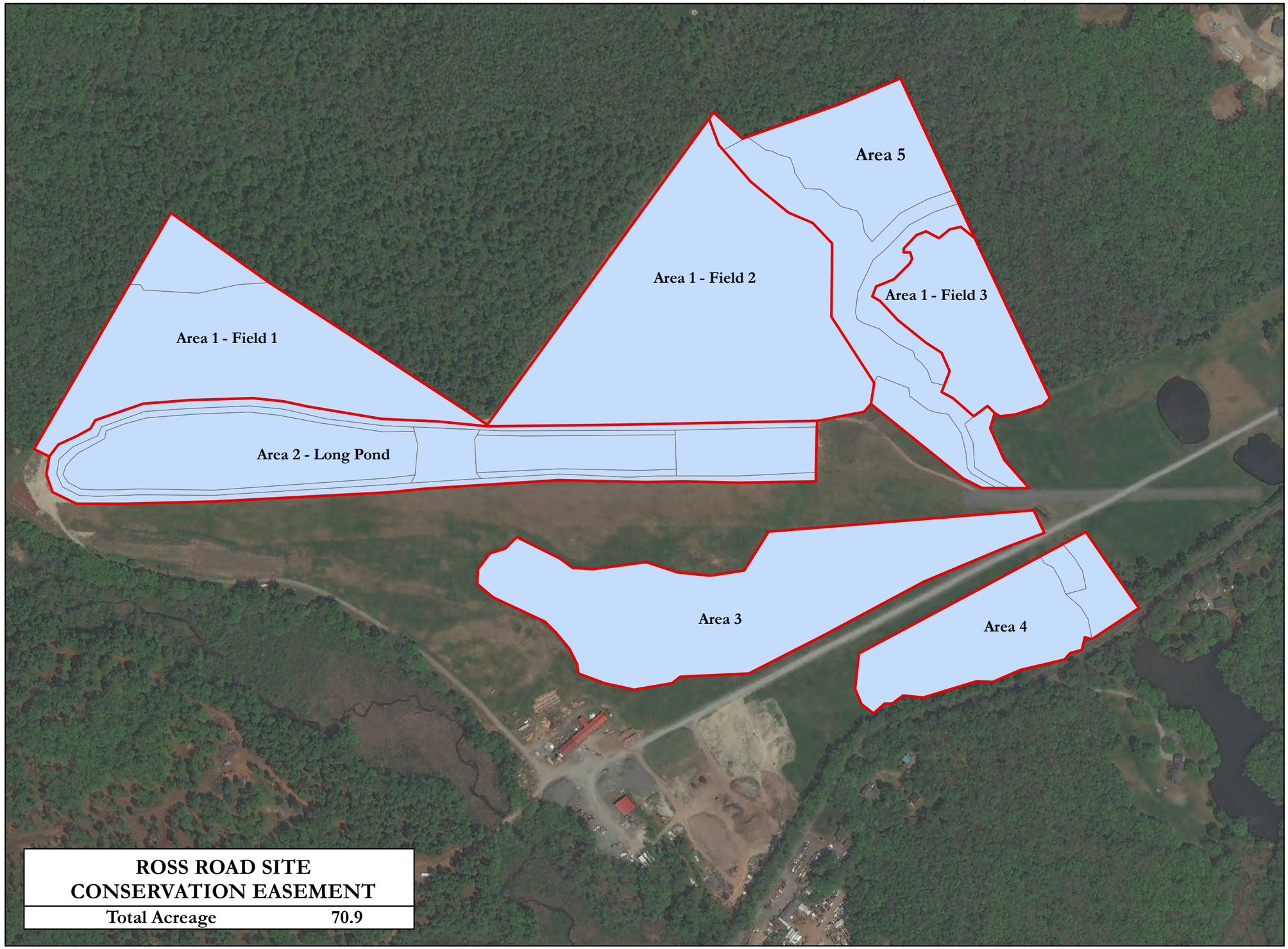
Table A-3
Recharge Rates Used in Transient Re-Calibration Model Simulation

Period	Precipitation[1] *(inch)*	Recharge[2]: Domain 1 *(ft/day)*	Recharge: Domain 2 & Rim *(ft/day)*	Recharge: Long Pond[3] *(ft/day)*
Recharge Ratio:		***0.21***	***0.18***	
8/ 2014	8.56	0.00103	0.00088	0.0127
9/2014	0.87	0.00021	0.00018	-0.0047
10/2014	6.57	0.00223	0.00191	0.0129
11/2014	3.96	0.00259	0.00222	0.0085
12/2014	6.27	0.00492	0.00422	0.0150
1/2015	4.67	0.00394	0.00337	0.0107
2/2015	2.81	0.00421	0.00360	0.0060
3/2015	1.79	0.00252	0.00216	0.0007
4/2015	5.03	0.00377	0.00323	0.0073
5/2015	2.31	0.00142	0.00121	-0.0036
6/2015	6.40	0.00161	0.00138	0.0063
7/2015	1.26	0.00016	0.00014	-0.0084
8/2015	2.95	0.00035	0.00030	-0.0024
9/2015	7.06	0.00174	0.00149	0.0125
10/2015	2.36	0.00080	0.00069	0.0016
11/2015	2.30	0.00151	0.00129	0.0038
12/2015	5.34	0.00419	0.00359	0.0125
1/2016	3.37	0.00284	0.00224	0.0072
2/2016	4.17	0.00624	0.00535	0.0101
3/2016	4.37	0.00614	0.00526	0.0076
4/2016	1.56	0.00117	0.00100	-0.0038
Values Used in Steady-State Models				
Annual (Steady-State)		0.00236	0.00202	0.005

1. Precip 8/2014-4/2016 at PWM, based on http://w2.weather.gov/climate/index.php?wfo-gyx.
2. Distribution of recharge derived from PWM Precipitation data, and calculated following the approach and data from USGS Scientific Investigation Report 2005-5038.
3. Recharge for Long Pond was calculated as Precipitation – Evaporation. Negative values mean that evaporation exceeded precipitation for the month specified. values based on meteorological data and Penman equation, published in http://www.nws.noaa.gov/oh/hdsc/PMP_related_studies/TR34.pdf. Evaporation calculated as pan evaporation * 0.77 (regional coefficient from NOAA Technical Report NWA33.

See Appendix A of the August 2015 *Preliminary Groundwater Modeling Summary* report for additional background and site-specific data.





U.S. v. FKT Resort Management LLC, et al.

Consent Decree,
Appendix A

Attachment G

Ross Road Site Conservation Easement

Created by the U.S. EPA Region 1 on 9/6/2016.

N
W E
S

Scale 1 : 4,000

0 250 500 Feet

Project Area Boundaries

Preservation Areas

ROSS ROAD SITE CONSERVATION EASEMENT	
Total Acreage	70.9

EPA

Aerial Photo: Digital Globe 05/24/2015.
Map Tracker ID: 10949

CAMPGROUND SITE CONSERVATION EASEMENT	
Total Acreage	6.3

U.S. v. FKT Resort Management LLC, et al.
Consent Decree,
Appendix A

Attachment H

Campground Site Conservation Easement

Created by the U.S. EPA Region 1 on 9/6/2016.

N
W E
S

Scale 1 : 2,000

0 125 250 Feet

Project Area Boundaries

Preservation Areas

EPA

Aerial Photo: Digital Globe 05/24/2015.
Map Tracker ID: 10949