TOWN OF BROOKLYN
PLANNING AND ZONING COMMISSION
Regular Meeting Agenda
Wednesday, December 2, 2020
6:30 p.m.

To join this hearing via the web or phone, follow the below instructions:	
Web **Go to www.webex.com** **On the top right, click Join** **Enter meeting information: 173 697 9203** **Enter meeting password: FALL1120red** **Click join meeting**	**Phone** **Dial 1-408-418-9388** **Enter meeting number: 173 697 9203** **You can bypass attendee number by pressing #**

I. Call to Order
II. Roll Call
III. Seating of Alternates
IV. Adoption of Minutes: Regular Meeting November 17, 2020
V. Public Commentary
VI. Unfinished Business:
- **a. Reading of Legal Notice:**
- **b. New Public Hearings:**
- **c. Continued Public Hearings:**
- **d. Other Unfinished Business:**

VII. New Business:
- **a. Applications:**
  1. **SD 20-005** – **5-lot Subdivision**, Applicant: VBL Properties, LLC; 14 acres on the south side of Beecher Road (Map 22, Lot 38) in the RA Zone; Proposed creation of 5 residential building lots and an open space easement.
- **b. Other New Business:**

VIII. Reports of Officers and Committees:
- a. Staff Reports
- b. Budget Update
- c. Correspondence.
- d. Chairman's Report.

IX. Public Commentary
X. Adjourn

Michelle Sigfridson, Chairman

TOWN OF BROOKLYN
PLANNING AND ZONING COMMISSION
Regular Meeting
Tuesday, November 17, 2020
6:30 p.m.

To join this hearing via the web or phone, follow the below instructions:	
Web **Go to www.webex.com** **On the top right, click Join** **Enter meeting information: 173 034 4162** **Enter meeting password: NOVbrr2020** **Click join meeting**	**Phone** **Dial 1-408-418-9388** **Enter meeting number: 173 034 4162** **You can bypass attendee number by pressing #**

MINUTES

I. **Call to Order –** Michelle Sigfridson, Chair, called the meeting to order at 6:37 p.m.

II. **Roll Call** – Michelle Sigfridson, Carlene Kelleher, Earl Starks, Austin Tanner, Charles Sczuroski. Allen Fitzgerald was absent.

Staff Present: Jana Roberson, Director of Community Development; Rick Ives, First Selectman and ex officio Member of the PZC.

Also Present: Ronald Sorel, Hartford Road; Norm Thibeault, Killingly Engineering Associates.

III. **Seating of Alternates:** None.

IV. **Adoption of Minutes:** Regular Meeting October 20, 2020

Motion was made by C. Kelleher to approve the Minutes of the Regular Meeting of October 20, 2020. Second by E. Starks. No discussion.
Roll Call Vote: C. Kelleher – yes; E. Starks – yes; C. Sczuroski – yes; A. Tanner – abstained; M. Sigfridson – yes. Motion carried (4-0-1).

V. **Public Commentary –** None.

VI. **Unfinished Business**

a. Reading of Legal Notice

The Legal Notice for ZC 20-003 was read aloud by J. Roberson. It was posted on the PZC page of the Town of Brooklyn website.

b. New Public Hearings:

1. **ZC 20-003** – Zone Boundary Change from RA to VC; Applicant: Ronald Sorel, Location: 94-102 Hartford Road, Approximately 4 acres on the north side of Hartford Road.

   Ronald Sorel represented himself and explained that he wants to give a half-acre of his property to his son to build a house on. He has enough land to do this with the zone change. He said that it would be a free cut (nothing had been done since

1967). He explained that the VCZ goes all around his property and he was unaware that his property is in the RA Zone.

J. Roberson displayed an aerial photo of the neighborhood (included in packets to Commission Members). She orientated the area and indicated the zone boundary for the VCZ. She explained that the driveway that Mr. Sorel shares with his residential neighbor is in the VCZ, but the remainder of Mr. Sorel's property and his neighbor's property are outside of the VCZ. She noted that the minimum lot size in the RA Zone is 2 acres and in the VCZ it is 30,000 s.f. So, with the zone change, there would be enough room on the west side of Mr. Sorel's house for an additional house lot. She explained that most of the property is not very visible from Route 6.

Ms. Roberson explained that she had suggested to Mr. Sorel that he speak with his neighbor about including the neighbor's property in the zone change application to avoid a donut hole in the Zone. Mr. Sorel has spoken with the neighbor and the neighbor is amenable to the change. Mr. Sorel stated that Ms. Roberson's explanation is correct.

Motion was made by C. Kelleher to close the public hearing for **ZC 20-003** – Zone Boundary Change from RA to VC; Applicant: Ronald Sorel, Location: 94-102 Hartford Road, Approximately 4 acres on the north side of Hartford Road. Second by A. Tanner. No discussion.
Roll Call Vote: E. Starks – yes; C. Sczuroski – yes; A. Tanner – yes; C. Kelleher – yes; M. Sigfridson – yes. Motion carried unanimously (5-0-0).

c. Continued Public Hearings:

1. **SP 20-002** – Special Permit for additional vehicle storage, Applicant: Vachon Brooklyn, LLC, 512 Providence Road, Proposed construction of two 16' wide access drives to proposed new vehicle storage lots.

   Norm Thibeault, Killingly Engineering Associates, represented the Applicant and gave an overview:

   - The Applicant is looking to create two additional vehicle storage areas: One on the Route 6 side of a wetlands system (20-25 cars maximum); A second vehicle parking area across a wetlands systems that bi-sects the property from east to west (115 cars based upon parking spaces as per the defined dimensions in the Brooklyn Zoning Regulations). Mr. Thibeault stated that he would suspect that they would have more than that back there because it is not a parking area, it is a vehicle storage area for the stock of their vehicles.
   - Mr. Thibeault addressed changes made due to concerns from the last meeting:
     Complying with the Town's updated drainage regulations - You have to infiltrate a certain amount of storm water based on the soil type of the property:
     Mr. Thibeault explained that this property (especially in the rear) is comprised of very, very well-drained Hinckley sands and gravels which, therefore, require quite a bit of filtration in order to meet this requirement. Mr. Thibeault has discussed this with Ms. Roberson and with Syl Pauley, Town Engineer, and they came up with a design that does not quite meet the requirements for the two-year and five-year storms because we don't even generate enough storm water to meet those requirements. He said that what they are doing is infiltrating all of the storm water from those two

smaller storms and then, for the ten-year to 100-year storms, they are far in excess of the required storm water infiltration requirements. He said that this is what they needed to overcome with Mr. Pauley. Mr. Thibeault said that they did do some infiltration tests/test holes to verify the types of soils that are out there.

Selection of plantings to be used for screening on the northern property line:
Mr. Thibeault chose Moonglow Junipers (grow 16-20 feet high) and Leatherleaf Vibernum (grow 6-10 feet tall). One is an evergreen and the other is an evergreen deciduous tree. Ms. Roberson prefers more native species like white pine. Mr. Thibeault said that they have no objection if that is what the Commission prefers.

Lighting:
They are specifying lighting fixtures no higher than twelve feet high and are full cut-off lighting. Lighting to directed downward toward the parking lot.

Adjusted the Location of the Fence:
Mr. Thibeault explained that he, at the suggestion of Ms. Roberson, moved the fence inside of the plantings (reversed) so that the abutting property owners would see the plantings instead of the fence line.

Ms. Roberson expressed concern as to whether, or how well, the Commission Members were orientated to the site and the proposed plans. She displayed aerial photos (Google Earth), on-the-ground photos, and site plans (all included in packets to Commission Members) as she orientated the area and explained about the wetlands systems and the proposed plans. She explained why she recommends white pine for the plantings. She stated that it is the PC Zone and this is an appropriate use for the Zone. She explained that although there aren't many nearby residences, they have been enjoying a lot of privacy, so the landscaping is not only for aesthetics, it is also for buffering.

Ms. Roberson displayed the site plans and she indicated and explained the wetlands systems, the historic crossing which they have IWWC permission to cross, the proposed parking areas, water quality basin (native plants specified for this area), isolated wetland/crossing/narrow access drive. Mr. Thibeault commented that the isolated wetland is an old pit where someone, in the past, had taken gravel out of there, down to the water table, and that is why that wetland is there. Ms. Roberson stated agreement with Mr. Thibeault's specification of red maples for the center island area (which collects rainwater). She indicated the storm water infiltration basin which has been reviewed by the Review Engineer. Ms. Roberson referred to and read from Mr. Pauley's letter (dated November 13, 2020) in which he explains that his concerns were addressed and that no further review is required.

Ms. Roberson commented on how close the parking area is to the rear property line. The closest yard is approximately 50 feet and the closest house is approximately 100 feet. The fence is specified as eight-foot, chain link with privacy slats. Ms. Roberson recommends brown or redwood for the color of the slats. Ms. Roberson displayed photos of areas where buffering is important including the major wetland, isolated wetland, and the house near the access drive.

QUESTIONS FROM THE COMMISSION:

C. Kelleher asked about the lack of foliage on the lower part of the pine trees in the photos which enables viewing through them. Mr. Thibeault explained that he has that same concern with the pines and that is why he chose the species that he did because they provide that low-level screening. He said that he wouldn't have an issue with planting some pine trees as well. He commented that in the area that Ms. Kelleher was referring to, neighbors would not see the cars that would be parked there, but would potentially be able to see the fence. There was discussion about trees. Mr. Thibeault stated that either way or any combination is certainly fine with the Applicant.

Ms. Kelleher asked if there was any interest from the neighbors. Mr. Thibeault stated that several of the neighbors had attended the IWWC meeting.

There were no comments from the public pertaining to this public hearing.

Motion was made by C. Kelleher to close the public hearing for **SP 20-002** – Special Permit for additional vehicle storage, Applicant: Vachon Brooklyn, LLC, 512 Providence Road, Proposed construction of two 16' wide access drives to proposed new vehicle storage lots. Second by A. Tanner. No discussion.
Roll Call Vote: E. Starks – yes; C. Sczuroski - no; A. Tanner – yes; C. Kelleher – yes; M. Sigfridson – yes. Motion carried (4-1-0).

d. Other Unfinished Business:

1. **SP 20-002** – Special Permit for additional vehicle storage, Applicant: Vachon Brooklyn, LLC, 512 Providence Road, Proposed construction of two 16' wide access drives to proposed new vehicle storage lots.

Motion was made by C. Kelleher to approve the Special Permit application of Vachon Brooklyn, LLC for construction of two new vehicle storage lots and 16' wide access drives at 512 Providence Road (Map 41, Lots 13A and 14), identified in the files of the Brooklyn Land Use Office as SP 20-002, in accordance with all final documents and testimony submitted with the application with the finding that the design is consistent with the Special Permit criteria including those specific to the Planned Commercial Zone with the following conditions:

1. The Inland Wetlands and Watercourses Commission approval with conditions and the Planning and Zoning Commission approval with conditions must be included on the final recorded special permit plans. Draft final approved plans shall be printed on paper and submitted to town staff for review prior to printing on archival material. The final approved plans bearing the seal and signature of the appropriate professionals and signed by Commission Chairs shall be recorded along with the Special Permit in the office of the Town Clerk.
2. Prior to the commencement of any activity undertaken in accordance with this approval, the limit of disturbance shall be flagged in the field by a licensed land surveyor and such flags shall be posted high above grade on trees or on construction fence so as not to be disturbed by clearing activities. The limits of disturbance markings shall remain in place for the duration of the development activity and shall be replaced if disturbed. Additionally, property lines within 50' of the area of disturbance shall be flagged. All flagging as required by this approval shall be checked no less frequently than quarterly by the operator to ensure they are in place and shall be restored if disturbed or removed.
3. Prior to the commencement of any activity undertaken in accordance with this approval, erosion and sedimentation control measures as shown on the approved plans shall be installed to the satisfaction of the Land Use Office. The Land Use Office shall have the authority to direct that additional erosion and sedimentation control measures be installed if deemed necessary to maintain adequate protection from erosion and sedimentation.

Second by E. Starks. No discussion.
Roll Call Vote: C. Sczuroski - no; A. Tanner – yes; C. Kelleher – yes; E. Starks – yes; M. Sigfridson – yes. Motion carried (4-1-0).

2. **ZC 20-003** – Zone Boundary Change from RA to VC; Applicant: Ronald Sorel, Location: 94-102 Hartford Road, Approximately 4 acres on the north side of Hartford Road.

Motion was made by C. Kelleher to approve the zone boundary change (**ZC 20-003 – Zone Boundary Change from RA to VC, Applicant: Ronald Sorel, Location: 94-102 Hartford Road, Approximately 4 acres on the north side of Hartford Road)** with the finding that it is suitable for the location, will aid in the protection of public health, safety, welfare, and property values and is consistent with the Plan of Conservation and Development and the intent of the Zoning Regulations. The zone boundary change shall become effective 15 days from the date of publication on the website.
Second by E. Starks. No discussion.
Roll Call Vote: A. Tanner – yes; C. Kelleher – yes; E. Starks – yes; C. Sczuroski - yes; M. Sigfridson – yes.
Motion carried unanimously (5-0-0).

Mr. Sorel asked if he can have the survey done now. Ms. Roberson explained the process.

VII. New Business

a. Applications: None.

b. Other New Business: None.

VIII. Reports of Officers and Committees:

a. Staff Reports
ZEO Report (dated November 3, 2020) was included in packets to Commission Members.
ZEO, Margaret Washburn will attend the next meeting.

b. Correspondence – None.

Ms. Roberson stated that, between meetings, she usually e-mails any correspondence to the Commission Members.

c. Chairman's Report – None.

IX. Public Commentary – None.

X. Adjourn

M. Sigfridson adjourned the meeting at 7:38 p.m.

Respectfully submitted,

J. S. Perreault
Recording Secretary

RECEIVED

NOV 1 8 2020

Received Date _____

PLANNING AND ZONING COMMISSION
TOWN OF BROOKLYN
CONNECTICUT

Application # SD SD20-005

Check # 1109

APPLICATION FOR SUBDIVISON/RESUBDIVISION

Name of Applicant VBL PROPERTIES LLC Phone 860 823-9597
Mailing Address 8 FINN LANE, PLAINFIELD CT
Applicants Interest in the Property OWNER

Property Owner VBL PROPERTIES LLC Phone 860 823-9597
Mailing Address 8 FINN LANE, PLAINFIELD, CT

Name of Engineer/Surveyor CLA ENGINEERS / ARCHER SURVEYING LLC
Address 16 PRODUCE RD, BROOKLYN CT
Contact Person PAUL ARCHER Phone 315-7740 Fax
BOB DEZUCA 860 334-4207
Name of Attorney
Address
Phone Fax

Subdivision ✓ Re subdivision
Property location BEECHER ROAD
Map # 22 Lot # 38 Zone RA Total Acres 14± Acres to be Divided 14±
Number of Proposed Lots 5 Length of New Road Proposed 0
Sewage Disposal: Private ✓ Public
Note: Hydrological report required by Section 11.6.2
Length of new Sewer proposed: Sanitary Storm
Water: Private ✓ Public

Is parcel located within 500 feet of an adjoining Town? No

The following shall accompany the application when required:
4.2.2 **Fee $** **State ($60.00)** 4.2.3 Sanitary Report 4.2.5, 3 copies of plans
4.2.4 Application/ Report of Decision from the Inland Wetlands Com. & the Conservation Com.
4.2.6 Erosion & Sediment Control Plans
4.2.7 Certificate of Public Convenience and Necessity
4.2.8 Applications filed with other Agencies

The owner and applicant hereby grant the Brooklyn Planning and Zoning Commission, the Board of Selectman, Authorized Agents of the Planning and Zoning Commission or Board of Selectman, permission to enter the property to which the application is requested for the purpose of inspection and enforcement of the Zoning regulations and the Subdivision regulations of the Town of Brooklyn

Applicant: Betty Lee Date 11.17.2020

Owner: Betty Lee Date 11.17.2020

*Note: All consulting fees shall be paid by the applicant

CLA Engineers, Inc.

Civil • Structural • Survey

317 MAIN STREET • NORWICH, CT 06360 • (860) 886-1966 • (860) 886-9165 FAX

November 18, 2020

Jana Butts Roberson, AICP
Director of Community Development/Town Planner
Town of Brooklyn
69 South Main Street
Suite 22
Brooklyn, CT 06234

RE: VBL Properties LLC Subdivision
Beecher Rd, Brooklyn
CLA 6382

Dear Jana:

Attached is the following related to the above referenced project:

1) P&Z Application / Application Fee
2) 5 sets of plans
3) NDDH Letter
4) Archeologist Report

As part of this submission, our client is proposing an Open Space Easement centered on Blackwell Brook. The proposed open space would provide permanent protection and access to a significant water resource. In preserving this location as open space, several of the town's open space criteria such as providing recreation, protecting natural streams, protecting natural drainage systems, preserving open space along road frontage, and preserving wildlife habitat would be met. It is also significant that Blackwell's Brook is a high quality perennial stream that is currently enjoyed as a trout fishery.

We note that the proposed easement is predominately wetlands associated with the brook. We could provide an irregular shaped easement to include percentages of upland but feel that the easement as shown would be the most practical and beneficial for Town recreation use. In accordance with Subdivision Section 8.4.1, it appears the Commission has discretion on these percentages.

Please contact me if you have any questions.

Sincerely,

Robert A. DeLuca, P.E.

NORTHEAST DISTRICT DEPARTMENT OF HEALTH
69 SOUTH MAIN STREET, UNIT 4, BROOKLYN, CT 06234
860-774-7350/FAX 860-774-1308 WWW.NDDH.ORG

July 23, 2020

VBL Properties, LLC
8 Finn Lane
Plainfield, CT 06374

SUBJECT: FILE #18000188 -- BEECHER ROAD #, MAP #22, LOT #38, BROOKLYN, CT

Dear VBL Properties, LLC:

Upon review of the subdivision plan (CLA ENGINEERS INC, VBL PROPERTIES, PROJ#CLA-6382, DRAWN 03/18/2020, REVISED 06/19/2020) submitted to this office on 06/29/2020 for the above referenced subdivision, The Northeast District Department of Health concurs with the feasibility of this parcel of land for future development. Additionally, approval to construct individual subsurface sewage disposal systems may be granted based on compliance with appropriate regulations and the Technical Standards as they apply to individual building lots with the following notations:

1. Lots # 38, 38-2, 38-3 & 38-5 require that a Professional Engineer design and submit individual plot plan(s) for review and approval prior to construction.
2. Lots # 38-4 require surveyor's plot plan(s) to be submitted for review and approval prior to construction.
3. Proposed lots # 38 is based on a 4 bedroom multi-family home at the location tested. If the number of bedrooms are increased, septic system sizes will require an increase per the Technical Standards.
4. Proposed lots # 38-2, 38-3, 38-4, & 38-5 are based on 3 bedroom homes at the locations tested. If the number of bedrooms are increased, septic system sizes will require an increase per the Technical Standards.
5. Additional soil testing will be required in the area of the proposed primary septic system on Lot # 38 for verification of soil conditions at the time of septic system design. 4 bedroom multi-family home will require a 1500 gallon septic tank.

Be advised you must receive approval from the appropriate commissions in the Town of Brooklyn prior to construction of these lots.

This letter is NOT to be construed as an APPROVAL TO CONSTRUCT the septic system and DOES NOT indicate that the Northeast District Department of Health endorses approval for issuance of any building permit.

Should you have any questions, please feel free to contact the sanitarian that reviewed your plan.

Sincerely,

Sherry McGann, RS
Registered Sanitarian ~ NDDH

cc: Town of Brooklyn; CLA Engineers; Archer Surveying

Brooklyn Inland Wetlands
Commission
P.O. Box 356
Brooklyn, Connecticut 06234

9489 0090 0027 6215 8998 24

CERTIFIED #

VBL Properties LLC
8 Finn Lane
Plainfield, CT 06374

November 5, 2020

RE: Notice of Decision – 060920B VBL Properties, LLC, Beecher Road, Map 22, Lot 38, RA Zone; 5 Lot Subdivision.

Dear VBL Properties LLC:

At its October 13, 2020 meeting, upon further review of the application materials and information provided to the commission. the Brooklyn Inland Wetlands and Watercourses Commission rescinded its prior decision denying the application and upon a finding that the application and site plan comply with the regulations. The Brooklyn Inland Wetlands and Watercourses Commission, approved your application for a permit, 060920B VBL Properties, LLC, Beecher Road, Map 22, Lot 38, RA Zone; 5 Lot Subdivision, with the following conditions:

Modifications to the plans must be made to meet the requirements of the town's consulting engineer as contained in his memo dated 8/27/20. A revised plan shall be submitted to town staff for review with the following revisions within 30 days of action by the commission:

Sheet 1 of 8 – Cover Sheet (Archer Sheet 1 of 8)

1. The "Index of Drawings" prepared by professionals should be revised to reflect titles on the respective plans in the plan set, as follows:

Cover Sheet	Sheet 1 of 8
Existing Condition Plan	Sheet 2 of 8
Subdivision Plan	Sheet 3 of 8
Grading & Septic Design Plan 1 of 2	Sheet 4 of 8
Grading & Septic Design Plan 2 of 2	Sheet 5 of 8
Driveway Sightline Plan & Profile	Sheet 6 of 8
Construction Details	Sheet 7 of 8
History Plan	Sheet 8 of 8

This requirement is to avoid confusion and to accurately describe what is in the plan set.

Sheet 2 of 8 – Existing Condition Plan

The professional land surveyor's seal and signature shall be included on this plan.

The soil scientist's name and signature shall be included on this plan.

Sheet 3 of 8 – Subdivision Plan

The professional land surveyor's seal and signature shall be included on this plan.

Sheet 7 of 8 – Construction Details

A staked hay bale sediment control detail and stone check dam detail should be included on this plan as the use of the same is noted under "Erosion & Sediment Control Narrative" on this plan.

In Note No. 9 under the "Erosion & Sediment Control Narrative," it states that slopes steeper than 3H:1V should be constructed with erosion control matting. Slopes steeper than 3H:1V should be avoided to minimize soil erosion and sediment transport due to difficulty in reestablishing and maintaining vegetation on steeper slopes, especially in shady areas. Therefore, it is recommended that no regraded slope exceeds 3H:1V. Therefore, as a condition of approval, the Commission shall require that no created slope shall exceed 3H:1V.

The professional engineer's seal and signature shall be included on this plan.

These changes will bring the plans into compliance with the requirements of the Regulations.

General Condition:

The inland wetlands agent is authorized to require additional erosion and sedimentation controls be installed by the site contractor during construction if, in the opinion of the agent, site conditions warrant additional protective measures.

A legal notice of this approval was posted on the Town of Brooklyn's Website on November 2, 2020. Please note this action of the Brooklyn Inland Wetlands and Watercourses Commission may be appealed for fifteen-day period following the publication of the legal notice.

If you have any questions, please call Margaret Washburn at 860-779-3411 Ext. 31.

Issued by:

Margaret Washburn

Margaret Washburn
Wetlands Enforcement Officer

MW/acl
CC: File, Archer Surveying, CLA Engineers Inc.

AUGUST 2020

PHASE IB CULTURAL RESOURCES RECONNAISSANCE SURVEY OF THE PROPOSED BEECHER ROAD SUBDIVISION PROJECT IN BROOKLYN, CONNECTICUT

PREPARED FOR:

VBL PROPERTIES LLC
108 STARKWEATHER ROAD
MOOSUP, CONNECTICUT

HERITAGE CONSULTANTS

55 EAST CEDAR STREET
NEWINGTON, CONNECTICUT 06111

ABSTRACT

This report presents the results of a Phase IB cultural reconnaissance survey of the proposed Beecher Road development project, a five-lot housing subdivision to be constructed in Brooklyn, Connecticut. Heritage Consultants, LLC completed the current Phase IB cultural resources reconnaissance survey on behalf of VBL Properties LLC in August of 2020. A total of 60 of 62 (97 percent) planned shovel tests were excavated throughout the areas containing five proposed house, driveway, and septic system locations associated with the Beecher Road subdivision. This effort did not result in the identification of and archaeological resources. Therefore, no additional examination of the project area for the proposed Beecher Road development project is recommended prior to construction.

In addition, the 1854 and 1869 maps of the study region depict what was identified historically as a "grist mill" or an "old mill" in the northeastern most portion of the project parcel. Heritage personnel visually inspected this area but found no evidence of the former mill location; this area was heavily overgrown at the time of the visual inspection. It is possible that it was destroyed. Nevertheless, this part of the project parcel will not be impacted by the proposed construction. Should project plans change to include the area at the southwestern edge of the intersection of Beecher Road and Rukstella Road, additional shovel testing would be recommended to test for archaeological resources related to the former mill location.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER I
INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance survey for a proposed five-lot residential subdivision in Brooklyn, Connecticut (Figure 1). VBL Properties LLC requested that Heritage Consultants, LLC (Heritage) complete the current reconnaissance survey as part of the planning process for the proposed residential development, which will include five houses, as well as associated driveways, septic lines, and leaching fields. Heritage completed this investigation in August of 2020. All work associated with this investigation was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut Historic Commission, State Historic Preservation Office.

Project Description and Methods Overview

As mentioned above, the proposed undertaking will consist of the construction of five single-family residences, associated driveways, and septic systems in Brooklyn, Connecticut. The proposed subdivision will occupy an approximately 14.5 acre parcel that occupies agricultural fields and forested land bordered by Beechers Road to the north, Rukstella Road to the east, forested land to the southeast, and agricultural fields to the southwest and west. In addition, Blackwell Brook runs from Beecher Road in the northeast portion of the project area south, between two proposed house lots. Access to the development area will be from Beechers and Rukstella Roads.

The current Phase IB cultural resources reconnaissance survey consisted of the completion of the following tasks: 1) a contextual overview of the area's prehistory, history, and natural setting (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously completed cultural resources surveys and previously recorded cultural resources in the region encompassing the study area; 3) a review of readily available historic maps and aerial imagery depicting the study area in order to identify potential historic resources and/or areas of past disturbance; 4) subsurface testing of the proposed project impact area (e.g., houses, driveways, septic systems, and leaching fields); and 5) preparation of the current Phase IB cultural resources assessment survey report.

Project Results and Management Recommendations Overview

During the current Phase IB cultural resources survey, a total of 60 of 62 (97 percent) planned shovel tests were excavated throughout the house lots, driveways, and septic systems associated with the proposed Beecher Road subdivision in Brooklyn, Connecticut (Figure 2). This effort failed to identify any evidence archaeological evidence. Therefore, no additional examination of the project area associated with the proposed Beecher Road development project is recommended prior to construction.

Project Personnel

Key personnel for this project included David R. George, M.A., R.P.A., (Principal Investigator), Ms. Kelsey Tuller, M.A. (Field Director); Mr. Stephen Anderson, B.A., (GIS Specialist); and Ms. Christina Volpe, B.A., (Historian). In addition, Ms. Elizabeth Correia, M.A., (Laboratory Specialist) assisted in the compilation of this report.

Organization of the Report

The natural setting of the region encompassing the project area is presented in Chapter II; it includes a brief overview of the geology, hydrology, and soils, of the study region. The prehistory of the project region is outlined briefly in Chapter III. The history of the region encompassing the project area is chronicled in Chapter IV, while a discussion of previous archaeological investigations near the Beecher Road Subdivision is presented in Chapter V. The methods used to complete this investigation are discussed in Chapter VI. The results of this investigation and management recommendations for the project area and the identified cultural resources are presented in Chapter VII.

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed housing subdivision project. Previous archaeological research has documented that a few specific environmental factors can be associated with both prehistoric and historic period site selection. These include general ecological conditions, as well as types of fresh water sources, soils, and slopes present in the area. The remainder of this section provides a brief overview of the ecology, hydrological resources, and soils present within the project area and the larger region in general.

Ecoregions of Connecticut

Throughout the Pleistocene and Holocene Periods, Connecticut has undergone numerous environmental changes. Variations in climate, geology, and physiography have led to the "regionalization" of Connecticut's modern environment. It is clear, for example, that the northwestern portion of the state has very different natural characteristics than the coastline. Recognizing this fact, Dowhan and Craig (1976), as part of their study of the distribution of rare and endangered species in Connecticut, subdivided the state into various ecoregions. Dowhan and Craig (1976:27) defined an ecoregion as:

> "an area characterized by a distinctive pattern of landscapes and regional climate as expressed by the vegetation composition and pattern, and the presence or absence of certain indicator species and species groups. Each ecoregion has a similar interrelationship between landforms, local climate, soil profiles, and plant and animal communities. Furthermore, the pattern of development of plant communities (chronosequences and toposequences) and of soil profile is similar in similar physiographic sites. Ecoregions are thus natural divisions of land, climate, and biota."

Dowhan and Craig defined nine major ecoregions for the State of Connecticut. They are based on regional diversity in plant and animal indicator species (Dowhan and Craig 1976). Only one of the ecoregions is germane to the current investigation: Northeast Hills Ecoregion. A summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the project area.

Northeast Hills Ecoregion

The Northeast Hills ecoregion consists of a hilly upland terrain located between approximately 40.2 and 88.5 km (25 and 55 mi) to the north of Long Island Sound (Dowhan and Craig 1976). It is characterized by streamlined hills bordered on either side by local ridge systems, as well as broad lowland areas situated near large rivers and tributaries. Physiography in this region is composed of a series of north-trending ridge systems, the western-most of which is referred to as the Bolton Range and the eastern-most as the Mohegan Range (Bell 1985:45). Elevations in the Northeast Hills range from 121.9 to 243.8 m (400 to 800 ft) above sea level, reaching a maximum of nearly 304.8 m (1,000 ft) above sea level near the Massachusetts border (Bell 1985). The bedrock of the region is composed of Schist and gneiss created during the Paleozoic as well as gneiss and granite created during the Precambrian period (Bell 1985). Soils in uplands areas have been deposited on top of glacial till and in the valley they consist of stratified deposits of sand, gravel, and silt (Dowhan and Craig 1976).

Hydrology of the Study Region

The project parcel is located within close proximity to several streams, ponds, and wetlands. These fresh water sources include the Blackwell Brook, Cold Spring Brook, Pine Brook, Tatnic Brook, Tripp Hollow Brook, the Quinebaug River, Paradise Lake, and Wauregan Pond, as well as several unnamed ponds, streams, and associated wetlands. As stated before, the Blackwell Brook runs through the project area, and it located approximately 50 m (164 ft) to the west of one of the easternmost proposed house lot (Figure 1). Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for prehistoric occupations because they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources. These water sources also provided the impetus for the construction of water powered mill facilities during the eighteenth and nineteenth centuries.

Soils Comprising the Project area

Soil formation is the direct result of the interaction of several variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to many diagenic processes. Different classes of artifacts may be preferentially protected, or unaffected by these processes, whereas others may deteriorate rapidly. Cyclical wetting and drying, freezing and thawing, and compression can accelerate chemically and mechanically the decay processes for animal bones, shells, lithics, ceramics, and plant remains. Lithic and ceramic artifacts are largely unaffected by soil pH, whereas animal bones and shells decay more quickly in acidic soils such as those that are present in within the current project area. In contrast, acidic soils enhance the preservation of charred plant remains.

A review of the soils within the project area is presented below. The proposed development sites are characterized by Adrian, Canton, Charlton, Hinckley, Ninigret, Palms, Tisbury, and Walpole soils (Figure 3). Descriptions taken from the United States Department of Agriculture soil survey are provided below.

Adrian Soils:

The Adrian series consists of very deep, very poorly drained soils formed in herbaceous organic materials over sandy deposits on outwash plains, lake plains, lake terraces, flood plains, moraines, and till plains. Slope ranges from 0 to 1 percent. Typical sequence, depth and composition of this soil is as follows: **Oa1**--0 to 41 cm (16 inches); black (10YR 2/1) broken face, black (N 2.5/) rubbed muck (sapric material); about 12 percent fiber, less than 5 percent rubbed; moderate medium granular structure; primarily herbaceous fibers; neutral [pH 7.0 in water]; abrupt wavy boundary; **Oa2**--41 to 51 cm (16 to 20 inches); black (10YR 2/1) broken face, very dark brown (10YR 2/2) rubbed muck (sapric material); about 15 percent fiber, less than 5 percent rubbed; weak coarse subangular blocky structure; primarily herbaceous fibers; slightly acid [pH 6.5 in water]; gradual wavy boundary; **Oa3**--51 to 69 cm (20 to 27 inches); black (10YR 2/1) broken face, black (10YR 2/1) rubbed muck (sapric material); about 12 percent fiber, less than 5 percent rubbed; weak thick platy structure; primarily herbaceous fibers; moderately acid [pH 6.0 in water]; gradual wavy boundary; **Oa4**--69 to 86 cm (27 to 34 inches); black (10YR 2/1) broken face, black (10YR 2/1) rubbed muck (sapric material); about 12 percent fiber, less than 5 percent rubbed; massive; primarily herbaceous fibers; strongly acid [pH 5.5 in water]; abrupt smooth boundary; **Cg1**--86 to 152 cm (34 to 60 inches); gray (10YR 5/1) sand; single grain; loose; common medium prominent light olive brown (2.5Y 5/4) masses of oxidized iron in the matrix; slightly alkaline; clear wavy boundary; and **Cg2**--152 to 203 cm (60 to 80 inches); dark gray (2.5Y 4/1) fine sand; single grain, loose; strongly effervescent; moderately alkaline.

Canton Soils:

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Slope ranges from 0 to 45 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. Typical sequence, depth and composition of this soil is as follows: **Oi**--0 to 5 cm; slightly decomposed plant material; **A**--5 to 13 cm; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; common fine roots; 5 percent gravel; very strongly acid (pH 4.6); abrupt smooth boundary; **Bw1**--13 to 30 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; very strongly acid (pH 4.6); clear smooth boundary; **Bw2**--30 to 41 cm; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; strongly acid (pH 5.1); clear smooth boundary; **Bw3**--41 to 56 cm; yellowish brown (10YR 5/4) gravelly fine sandy loam; weak medium subangular blocky; friable; common fine and medium roots; 15 percent gravel; strongly acid (pH 5.1); abrupt smooth boundary; and **2C**--56 to 170 cm; grayish brown (2.5Y 5/2) gravelly loamy sand; massive; friable; 25 percent gravel; moderately acid (pH 5.6).

Charlton Soils:

The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Slope ranges from 0 to 60 percent. Saturated hydraulic conductivity is moderately high or high. Typical sequence, depth and composition of this soil is as follows: **Oe**--0 to 4 cm; black (10YR 2/1) moderately decomposed forest plant material; **A**--4 to 10 cm; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; 5 percent gravel; very strongly acid; abrupt smooth boundary; **Bw1**--10 to 18 cm; brown (7.5YR 4/4) fine sandy loam; weak coarse granular structure; very friable; many fine and medium roots; 5 percent gravel; very strongly acid; clear wavy boundary; **Bw2**--18 to 48 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; 10 percent gravel and cobbles; very strongly acid; clear wavy boundary; **Bw3**--48 to 69 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; massive; very friable; few medium roots; 15 percent gravel and cobbles; very strongly acid; abrupt wavy boundary; and **C**--69 to 165 cm; grayish brown (2.5Y 5/2) gravelly fine sandy loam with thin lenses of loamy sand; massive; friable, some lenses firm; few medium roots; 25 percent gravel and cobbles; strongly acid.

Hinckley Soils:

The Hinckley series consists of very deep, excessively drained soils formed in glaciofluvial materials. They are nearly level through very steep soils on outwash terraces, outwash plains, outwash deltas, kames, kame terraces, and eskers. Hinckley soils comprise a small fraction of the northern segment of the proposed work area. Typical sequence, depth and composition of this soil is as follows: **Oe**--0 to 3 cm; moderately decomposed plant material derived from red pine needles and twigs; **Ap**--3 to 20 cm; very dark grayish brown (10YR 3/2) loamy sand; weak fine and medium granular structure; very friable; many fine and medium roots; 5 percent fine gravel; very strongly acid; abrupt smooth boundary; **Bw1**--20 to 28 cm; strong brown (7.5YR 5/6) gravelly loamy sand; weak fine and medium granular structure; very friable; common fine and medium roots; 20 percent gravel; very strongly acid; clear smooth boundary; **Bw2**--28 to 41 cm; yellowish brown (10YR 5/4) gravelly loamy sand; weak fine and medium granular structure; very friable; common fine and medium roots; 25 percent gravel; very strongly acid; clear irregular boundary; **BC**--41 to 48 cm; yellowish brown (10YR 5/4) very gravelly sand; single grain; loose; common fine and medium roots; 40 percent gravel; strongly acid; clear smooth boundary; **C**--48 to 165 cm; light olive brown (2.5Y 5/4) extremely gravelly sand consisting of stratified sand, gravel and cobbles;

single grain; loose; common fine and medium roots in the upper 20 cm and very few below; 60 percent gravel and cobbles; moderately acid.

Ninigret Soils:

The Ninigret series consists of very deep, moderately well drained soils formed in loamy over sandy and gravelly glacial outwash. They are nearly level to strongly sloping soils on glaciofluvial landforms, typically in slight depressions and broad drainage ways. Slope ranges from 0 through 15 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. Typical sequence, depth and composition of this soil is as follows: **Ap**--0 to 8 inches; very dark grayish brown (10YR 3/2) fine sandy loam; pale brown (10YR 6/3) dry; weak medium granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary; **Bw1**--8 to 16 inches; yellowish brown (10YR 5/6) fine sandy loam; weak coarse granular structure; very friable; few fine roots; strongly acid; clear wavy boundary; **Bw2**--16 to 26 inches; yellowish brown (10YR 5/4) fine sandy loam; very weak coarse granular structure; very friable; very few fine roots; common medium distinct light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) redoximorphic features; strongly acid; clear wavy boundary; and **2C**--26 to 65 inches; pale brown (10YR 6/3) loamy sand and few lenses of loamy fine sand; single grain; loose; many medium distinct light olive gray (5Y 6/2) and many prominent yellowish brown (10YR 5/8) redoximorphic features; strongly acid.

Palms Soils:

The Palms series consist of very deep, very poorly drained soils formed in herbaceous organic materials 41 to 130 cm (16 to 51 in) thick and the underlying loamy deposits in closed depressions on moraines, lake plains, till plains, outwash plains, and hillside seep areas, and on backswamps of flood plains. Slope ranges from 0 to 6 percent. Typical sequence, depth and composition of this soil is as follows: **Oa1**--0 to 36 cm (14 in); black (10YR 2/1) broken face and rubbed muck (sapric material); about 5 percent fiber, less than 5 percent rubbed; moderate medium granular structure; slightly sticky; about 20 to 25 percent mineral material; slightly acid [pH 6.5 in water]; abrupt smooth boundary; **Oa2**--36 to 71 cm (14 to 28 in); black (10YR 2/1) broken face and rubbed muck (sapric material); about 5 percent fiber, less than 5 percent rubbed; massive parting to weak coarse subangular blocky structure; slightly sticky; 10 to 20 percent mineral material; strongly acid [pH 5.5 in water]; clear smooth boundary; **Oa3**--71 to 89 cm (28 to 35 in); black (N 2.5/) rubbed muck (sapric material); about 5 percent fiber, less than 5 percent rubbed; massive; slightly sticky; 10 to 20 percent mineral material; moderately acid [pH 6.0 in water]; abrupt smooth boundary; and **Cg**--89 to 203 cm (35 to 80 inches); gray (10YR 5/1) clay loam; massive; friable; common medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron in the matrix; neutral in upper part, slightly effervescent; moderately alkaline in lower part.

Tisbury Soils:

The Tisbury series consists of very deep, moderately well drained loamy soils formed in silty eolian deposits overlying outwash. They are nearly level and gently sloping soils on outwash plains and terraces, typically in slight depressions and broad drainageways. Slope ranges from 0 to 3 percent. Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. Typical sequence, depth and composition of this soil is as follows: **Ap**--0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; weak coarse granular structure; friable; many very fine and fine roots; few scattered pebbles; strongly acid; abrupt smooth boundary; **Bw1**--8 to 18 inches; yellowish brown (10YR 5/6) silt loam; weak medium and coarse subangular blocky structure; very friable; common very fine and fine roots; few scattered pebbles; strongly acid; clear wavy boundary; **Bw2**--18 to 26 inches; brownish yellow (10YR 6/6) silt loam; massive; very friable; few fine roots; few scattered pebbles; common medium prominent grayish brown (2.5Y 5/2) iron depletions and common medium distinct strong

brown (7.5YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary; **2C**--26 to 60 inches; grayish brown (10YR 5/2) extremely gravelly sand; single grain; loose; 60 percent gravel; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and common medium faint light brownish gray (10YR 6/2) iron depletions; strongly acid.

Walpole Soils:

The Walpole Series consists of very deep, poorly drained sandy soils formed in outwash and stratified drift. They are nearly level to gently sloping soils in low-lying positions on terraces and plains. Slope ranges from 0 to 8 percent. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil, and high or very high in the substratum. Typical sequence, depth and composition of this soil is as follows: **Oe**--0 to 3 cm (0 to 1 in); black (10YR 2/1) moderately decomposed forest plant material; **A**--3 to 18 cm (1 to 7 in); very dark brown (10YR 2/2) sandy loam; weak medium granular structure; very friable; many fine and medium roots; 8 percent gravel; very strongly acid; clear smooth boundary; **Bg**--18 to 53 cm (7 to 21 in); dark grayish brown (2.5Y 4/2) sandy loam; massive; friable; common fine and few medium roots in the upper part of the horizon and few fine roots in the lower part; 10 percent gravel; common medium prominent strong brown (7.5YR 5/6) and common medium prominent yellowish brown (10YR 5/4) and yellowish brown (10YR 5/6) masses of iron accumulation and common medium distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual smooth boundary; **BC**--53 to 63 cm (21 to 25 in); light olive brown (2.5Y 5/4) gravelly sandy loam; massive; friable; 20 percent gravel; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) and dark grayish brown (2.5Y 4/2) iron depletions; strongly acid; clear smooth boundary; **C1**--63 to 104 cm (25 to 41 in); light yellowish brown (2.5Y 6/4) very gravelly loamy sand; single grain; very friable; 30 percent gravel and 5 percent cobbles; common medium distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) masses of iron accumulation; strongly acid; gradual smooth boundary; and **C2**--104 to 165 cm (41 to 65 in); light brownish gray (10YR 6/2) very gravelly sand, few brown (10YR 5/3) streaks; single grain; loose; 35 percent gravel and 5 percent cobbles; moderately acid.

Summary

A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater, suggests that the project parcel appears to be favorable to both prehistoric and historic period occupations. This includes areas of low to moderate slopes with well drained soils located near freshwater sources. The types of Native American sites that may be contained in these areas include seasonal base camps and may include areas of lithic tool manufacturing, hearths, post-molds and storage pits. Historic resources that may be encountered include the buried remains of outbuildings, wells, and small family cemeteries. Based on the close proximity to streams, it is possible that the area may contain buried architectural remains related to early Brooklyn.

CHAPTER III
PREHISTORIC SETTING

Introduction

Prior to the late 1970s and early 1980s, very few systematic archaeological surveys of large portions of the state of Connecticut had been undertaken. Rather, the prehistory of the region was studied at the site level. As a result, a skewed interpretation of the prehistory of Connecticut was developed. It was suggested that the upland portions of the state, i.e., the northeastern and northwestern hills ecoregions, were little used and rarely occupied by prehistoric Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the prehistoric era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the prehistory of Connecticut. The remainder of this chapter provides an overview of the prehistoric setting of the region encompassing the current project area.

Paleo-Indian Period (12,000 to 10,000 B.P.)

The earliest inhabitants of the area encompassing the State of Connecticut, who have been referred to as Paleo-Indians, arrived in the area by ca. 12,000 B.P. (Gramly and Funk 1990; Snow 1980). Due to the presence of large Pleistocene mammals at that time and the ubiquity of large fluted projectile points in archaeological deposits of this age, Paleo-Indians often have been described as big-game hunters (Ritchie and Funk 1973; Snow 1980); however, as discussed below, it is more likely that they hunted a broad spectrum of animals.

While there have been numerous surface finds of Paleo-Indian projectile points throughout the State of Connecticut, only two sites, the Templeton Site (6-LF-21) in Washington, Connecticut and the Hidden Creek Site (72-163) in Ledyard, Connecticut, have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980). The Templeton Site (6-LF-21) is in Washington, Connecticut and was occupied between 10,490 and 9,890 years ago (Moeller 1980). In addition to a single large and two small fluted points, the Templeton Site produced a stone tool assemblage consisting of gravers, drills, core fragments, scrapers, and channel flakes, which indicates that the full range of stone tool production and maintenance took place at the site (Moeller 1980). Moreover, the use of both local and non-local raw materials was documented in the recovered tool assemblage, suggesting that not only did the site's occupants spend some time in the area, but they also had access to distant stone sources, the use of which likely occurred during movement from region to region.

The only other Paleo-Indian site studied in detail in Connecticut is the Hidden Creek Site (72-163) (Jones 1997). The Hidden Creek Site is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut. While excavation of the Hidden Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleo-Indian era. Recovered Paleo-Indian artifacts included broken bifaces, side-scrapers, a fluted preform, gravers, and end-scrapers. Based on the types and number of tools, Jones (1997:77) hypothesized that the Hidden Creek Site represented a short-term occupation, and separate stone tool reduction and rejuvenation areas were present.

While archaeological evidence for Paleo-Indian occupation is scarce in Connecticut, it, combined with data from the West Athens Road and King's Road Site in the Hudson drainage and the Davis and Potts Sites in northern New York, supports the hypothesis that there was human occupation of the area not long after ca. 12,000 B.P. (Snow 1980). Further, site types currently known suggest that the Paleo-Indian settlement pattern was characterized by a high degree of mobility, with groups moving from region to region in search of seasonally abundant food resources, as well as for the procurement of high quality raw materials from which to fashion stone tools.

Archaic Period (10,000 to 2,700 B.P.)

The Archaic Period, which succeeded the Paleo-Indian Period, began by ca., 10,000 B.P. (Ritchie and Funk 1973; Snow 1980), and it has been divided into three subperiods: Early Archaic (10,000 to 8,000 B.P.), Middle Archaic (8,000 to 6,000 B.P.), and Late Archaic (6,000 to 3,400 B.P.). These periods were devised to describe all non-farming, non-ceramic producing populations in the area. Regional archaeologists recently have recognized a final "transitional" Archaic Period, the Terminal Archaic Period (3,400-2,700 B.P.), which was meant to describe those groups that existed just prior to the onset of the Woodland Period and the widespread adoption of ceramics into the toolkit (Snow 1980; McBride 1984; Pfeiffer 1984, 1990; Witthoft 1949, 1953).

Early Archaic Period (10,000 to 8,000 B.P.)

To date, very few Early Archaic sites have been identified in southern New England. As a result, researchers such as Fitting (1968) and Ritchie (1969) have suggested a lack of these sites likely is tied to cultural discontinuity between the Early Archaic and preceding Paleo-Indian Period, as well as a population decrease from earlier times. However, with continued identification of Early Archaic sites in the region, and the recognition of the problems of preservation, it is difficult to maintain the discontinuity hypothesis (Curran and Dincauze 1977; Snow 1980).

Like their Paleo-Indian predecessors, Early Archaic sites tend to be very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions the United States are represented by projectile points of the Kirk series (Ritchie and Funk 1973) and by Kanawha types (Coe 1964), sites of this age in southern New England are identified on the basis of a series of ill-defined bifurcate-based projectile points. These projectile points are identified by the presence of their characteristic bifurcated base, and they generally are made from high quality raw materials. Moreover, finds of these projectile points have rarely been in stratified contexts. Rather, they occur commonly either as surface expressions or intermixed with artifacts representative of later periods. Early Archaic occupations, such as the Dill Farm Site and Sites 6LF64 and 6LF70 in Litchfield County, and are represented by camps that were relocated periodically to take advantage of seasonally available resources (McBride 1984; Pfeiffer 1986). In this sense, a foraging type of settlement pattern was employed during the Early Archaic Period.

Middle Archaic Period (8,000 to 6,000 B.P.)

By the onset of the Middle Archaic Period, essentially modern deciduous forests had developed in the region (Davis 1969). It is at this time that increased numbers and types of sites are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site, which is in Manchester, New Hampshire and studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between ca. 7,700 and 6,000 years ago. In fact, Dincauze (1976) obtained several radiocarbon dates from the Middle Archaic component of the Neville Site. The dates, associated with the then-newly named Neville type projectile point, ranged from 7,740±280 and 7,015±160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile point styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96)

Late Archaic Period (6,000 to 3,700 B.P.)

The Late Archaic Period in southern New England is divided into two major cultural traditions that appear to have coexisted. They include the Laurentian and Narrow-Stemmed Traditions (Funk 1976; McBride 1984; Ritchie 1969a and b). Artifacts assigned to the Laurentian Tradition include ground stone axes, adzes, gouges, ulus (semi-lunar knives), pestles, atlatl weights, and scrapers. The diagnostic projectile point forms of this time period in southern New England include the Brewerton Eared-Notched, Brewerton Eared and Brewerton Side-Notched varieties (McBride 1984; Ritchie 1969a; Thompson 1969). In general, the stone tool assemblage of the Laurentian Tradition is characterized by flint, felsite, rhyolite and quartzite, while quartz was largely avoided for stone tool production.

In terms of settlement and subsistence patterns, archaeological evidence in southern New England suggests that Laurentian Tradition populations consisted of groups of mobile hunter-gatherers. While a few large Laurentian Tradition occupations have been studied, sites of this age generally encompass less than 500 m^2 (5,383 ft^2). These base camps reflect frequent movements by small groups of people in search of seasonally abundant resources. The overall settlement pattern of the Laurentian Tradition was dispersed in nature, with base camps located in a wide range of microenvironments, including riverine as well as upland zones (McBride 1978, 1984:252). Finally, subsistence strategies of Laurentian Tradition focused on hunting and gathering of wild plants and animals from multiple ecozones.

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228; Wiegand 1978, 1980).

The Terminal Archaic Period (3,700 to 2,700 B.P.)

The Terminal Archaic, which lasted from ca. 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England prehistory. Originally termed the "Transitional Archaic" by Witthoft (1953) and recognized by the introduction of technological innovations, e.g., broadspear projectile points and soapstone bowls, the Terminal Archaic has long posed problems for regional archaeologists. While the Narrow-Stemmed Tradition persisted through the Terminal Archaic and into the Early Woodland Period, the Terminal Archaic is coeval with what appears to be a different technological adaptation, the Susquehanna Tradition (McBride 1984; Ritchie 1969b). The Susquehanna Tradition is recognized in southern New England by the presence of a new stone tool industry that was based on the use of high quality raw materials for stone tool production and a settlement pattern

different from the "coeval" Narrow-Stemmed Tradition.

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points, while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by the use Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

In addition, it was during the late Terminal Archaic that interior cord marked, grit tempered, thick walled ceramics with conoidal (pointed) bases made their initial appearance in the Native American toolkit. These are the first ceramics in the region and they are named Vinette I (Ritchie 1969a; Snow 1980:242); this type of ceramic vessel appears with much more frequency during the ensuing Early Woodland Period. In addition, the adoption and widespread use of soapstone bowls, as well as the implementation subterranean storage, suggests that Terminal Archaic groups were characterized by reduced mobility and longer-term use of established occupation sites (Snow 1980:250).

Finally, while settlement patterns appeared to have changed, Terminal Archaic subsistence patterns were analogous to earlier patterns. The subsistence pattern still was diffuse in nature, and it was scheduled carefully. Typical food remains recovered from sites of this period consist of fragments of white-tailed deer, beaver, turtle, fish and various small mammals. Botanical remains recovered from the site area consisted of *Chenopodium* sp., hickory, butternut and walnut (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

Woodland Period (2,700 to 350 B.P.)

Traditionally, the advent of the Woodland Period in southern New England has been associated with the introduction of pottery; however, as mentioned above, early dates associated with pottery now suggest the presence of Vinette I ceramics appeared toward the end of the preceding Terminal Archaic Period (Ritchie 1969a; McBride 1984). Like the Archaic Period, the Woodland Period has been divided into three subperiods: Early, Middle, and Late Woodland. The various subperiods are discussed below.

Early Woodland Period (ca., 2,700 to 2,000 B.P.)

The Early Woodland Period of the northeastern United States dates from ca. 2,700 to 2,000 B.P. and it has thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper.

Careful archaeological investigations of Early Woodland sites in southern New England have resulted in the recovery of narrow stemmed projectile points in association with ceramic sherds and subsistence remains, including specimens of White-tailed deer, soft and hard-shell clams, and oyster shells (Lavin and Salwen: 1983; McBride 1984:296-297; Pope 1952). McBride (1984) has argued that the combination of the subsistence remains and the recognition of multiple superimposed cultural features at various sites indicates that Early Woodland Period settlement patterns were characterized by multiple re-use of the same sites on a seasonal basis by small co-residential groups.

Middle Woodland Period (2,000 to 1,200 B.P.)

The Middle Woodland Period is marked by an increase in the number of ceramic types and forms utilized (Lizee 1994a), as well as an increase in the amount of exotic lithic raw material used in stone tool manufacture (McBride 1984). The latter suggests that regional exchange networks were established, and that they were used to supply local populations with necessary raw materials (McBride 1984; Snow 1980). The Middle Woodland Period is represented archaeologically by narrow stemmed and Jack's Reef projectile points; increased amounts of exotic raw materials in recovered lithic assemblages, including chert, argillite, jasper, and hornfels; and conoidal ceramic vessels decorated with dentate stamping. Ceramic types indicative of the Middle Woodland Period includes Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

In terms of settlement patterns, the Middle Woodland Period is characterized by the occupation of village sites by large co-residential groups that utilized native plant and animal species for food and raw materials in tool making (George 1997). These sites were the principal place of occupation, and they were positioned close to major river valleys, tidal marshes, estuaries, and the coastline, all of which would have supplied an abundance of plant and animal resources (McBride 1984:309). In addition to villages, numerous temporary and task-specific sites were utilized in the surrounding upland areas, as well as in closer ecozones such as wetlands, estuaries, and floodplains. The use of temporary and task-specific sites to support large village populations indicates that the Middle Woodland Period was characterized by a resource acquisition strategy that can best be termed as logistical collection (McBride 1984:310).

Late Woodland Period (ca., 1,200 to 350 B.P.)

The Late Woodland Period in southern New England dates from ca., 1,200 to 350 B.P., and it is characterized by the earliest evidence for the use of corn in the lower Connecticut River Valley (Bendremer 1993; Bendremer and Dewar 1993; Bendremer et al. 1991; George 1997; McBride 1984); an increase in the frequency of exchange of non-local lithics (Feder 1984; George and Tryon 1996; McBride 1984; Lavin 1984); increased variability in ceramic form, function, surface treatment, and decoration (Lavin 1980, 1986, 1987; Lizee 1994a, 1994b); and a continuation of a trend towards larger, more permanent settlements in riverine, estuarine, and coastal ecozones (Dincauze 1974; McBride 1984; Snow 1980; Wiegand 1983).

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; net sinkers; and celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are more diverse stylistically than their predecessors, with incision, shell stamping, punctation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizee 1994a: 216).

Summary of Connecticut Prehistory

In sum, the prehistory of Connecticut spans from ca. 12,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. For most of the prehistoric era, local Native American groups practiced a subsistence pattern based on a mixed economy of hunting and gathering wild plant and animal resources. It is not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species is available. Further, settlement patterns throughout the prehistoric era shifted from seasonal occupations of small co-residential groups to large aggregations of people in riverine, estuarine, and coastal ecozones. In terms of the region containing the proposed project area, a variety of prehistoric site types may be expected. These range from seasonal camps utilized by Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
HISTORIC OVERVIEW

The proposed project area is located in Brooklyn, Connecticut, which was separated from nearby Canterbury in 1786. This chapter discusses the Native American history of the region, the general history of Brooklyn, and the ownership history of the most historically active portions of the proposed project area.

Native American History

At the time of European contact, the portion of the State of Connecticut containing the proposed project area was inhabited by the Wabbaquassett tribe of Native Americans, which was part a of a loosely aligned confederation of tribes that is often referred to as a single tribe known as the Nipmucks. These Native Americans occupied a wide area, mainly in Massachusetts, but also within parts of northeastern Connecticut. They occupied numerous small villages and employed a subsistence strategy focused on hunting, fishing, and shifting cultivation, which is a typical lifestyle of Native Americans of this time period. Prior to the 1650s, the native residents of this landlocked upland region were largely undisturbed by colonial incursions. During the 1660s and early 1670s, various sales of land were made to English colonists, but by 1675 it appears that Native Americans not only realized the fact that these sales were permanent transfers, but also that it was the intention of the Massachusetts Bay and Connecticut Colony governments to dispossess them of their territory entirely. As a result, many of the Nipmuck tribes' members joined in King Philip's War against the English in 1675 (Connole 2001). After the end of King Philip's War, in 1681, the General Court of Massachusetts Bay appointed a committee to investigate land claims in the Nipmuck Country and buy up any outstanding claims by Indians. The result was the opening the territory to settlement by colonists (Connole 2001).

In addition to this sequence of events, Connecticut historical traditions claim that the Wabbaquassetts, as well as other neighboring groups, were "entirely under the domination of the Mohegans," who sold away all their lands to the English (DeForest 1852:376). The two traditions about the Wabbaquassets' actions in King Philip's War are that they "deserted their homes and threw themselves at the feet of Uncas at Mohegan" and also that while some of them fought against King Philip, others ran off and joined with him (Deforest 1852). The Connecticut legislature recognized the claim of the Mohegan sachem Uncas to the Wabbaquassett territory based on the argument that the Wabbaquassetts were tributaries of the Pequots, whom the Mohegans had conquered nearly 40 years earlier during the Pequot War. When Uncas died in the late seventeenth century, his will resulted in the division much of the vast Mohegan territorial claims between his two sons, Joshua and Owaneco. The latter received all of the Wabbaquassett territory (plus the eastern half of the older Mohegan lands). In 1680 and 1684, however, Owaneco deeded all of this land to magistrate Captain James Fitch (Bushman 1980). As the colonial authorities perceived that the Native Americans' claim to this territory had been cleared by the sale to Fitch, there appear to be no records regarding the identity of any of the natives established there, although they may have continued living in the uncolonized portions for some time.

Seventeenth and Eighteenth Century History of Brooklyn, Connecticut

As noted above, the whole of the Wabbaquassett territory came into the possession of Captain James Fitch by 1684. After buying the rights to the land from Owaneco, Fitch became involved with Captain John Blackwell, a former member of the British Parliament and an exile after the Restoration. In 1686,

the Connecticut legislature granted a township patent (that is, official permission to begin setting up a town) to John Blackwell, Esq., Captain James Fitch, and several others. The patent included the present Town of Pomfret and the northern part of the Town of Brooklyn (Public Records, Volume 3, Page 202 n. 2); however, Blackwell also had purchased directly from Fitch a parcel of 5,075 acres to the south of Mashomoquet Brook in what is now Pomfret and to the north of a line extending westward from the junction of the Quinebaug River and the Five Mile River (where Danielson is located). In 1687, Blackwell secured his own land patent from the Connecticut Colony, confirming his purchase as approximately 5,000 acres to be called "Mortlake." This area extended approximately seven miles to the south from Mashomoquet Brook and six miles from east to west, and it was to become its own town (Bayles 1889). However, the intrusion of the British government into New England affairs, in the form of imposing Governor Edmund Andros upon them, interrupted Blackwell's plans to establish a manor there. And, after the Glorious Revolution of 1688, Blackwell was able to return to England, having never established the new town. The tract remained unorganized until after 1713, when Blackwell's son (John Jr.) sold Mortlake to Jonathan Belcher of Boston. Belcher hired Captain John Chandler to survey the tract, during which Chandler found a single north-south path and the squatter family of Jabez Utter living on the land. The division of the parcel reserved two large estates for Belcher. All of the Mortlake area was in the peculiar legal position of being technically a manor in the English style, rather than simply a town in the traditional New England sense (Larned 1874). This was an unusual situation for Connecticut at this time.

In 1714, the legislature decreed that jurisdiction over the land between the original bounds of the Towns of Pomfret and Canterbury, including Mortlake and some other properties, was to be divided between Pomfret and Canterbury. The Town of Pomfret received all of Mortlake and some land situated to the south of it; however, the area containing Mortlake remained a separate territory with no formal government owned by Jonathan Belcher. In 1728, a committee reviewing the situation of the territory between the original bounds of the Towns of Pomfret and Canterbury recommended that Mortlake's 5,000 acres and seven inhabitants should be joined with the adjacent 8,000 acres and 32 inhabitants should be made into a new town. The Upper House of the legislature rejected the idea as potentially infringing on the powerful Belcher's rights. In 1731, however, the residents of the area succeeded in establishing as a separate ecclesiastical society for religious and church tax purposes. This society was informally called Mortlake (although it only included the southern half of Mortlake). In 1739, the greater part of the Mortlake lands was sold by Jonathan Belcher to Godfrey Malbone of Newport, Rhode Island for £10,500.

Godfrey Malbone also purchased other land in the area, and it appears that, as he was a more accessible person, the unchanged manorial status of the lands was less irritating to the Town of Pomfret. Nonetheless, the existence of Mortlake and its effectively ungoverned – and untaxed – inhabitants remained an issue. In 1751, even its inhabitants (all 20 of them – presumably 20 heads of families) desired the benefits of being part of a town government and petitioned to be annexed to the Town of Pomfret. In 1752, the legislature, claiming that its predecessors surely had never intended for this anomalous situation to exist, merged the territory with the Town of Pomfret, and thus, settled the matter. In addition, the ecclesiastical society was renamed Brooklyn (Larned 1874). In 1769, Godfrey Malbone began work on establishing an Episcopal church there, which he succeeded in doing by 1770. In 1771, a building was erected on land acquired from Azariah Adams, which was located to the south of Malbone's own land (Bayles 1889). During the Revolutionary War, attendance to the church fell off so much that it was closed (Larned 1874).

In 1754, an epidemic of dysentery killed 70 people in the Brooklyn Society, including the minister, who also had some medical training (Larned 1874). The society had built a meetinghouse in 1734, and in

1771 it was replaced with a new and larger building a short distance away. The second meetinghouse boasted a steeple with a clock and the second church bell in the county (Bayles 1889). In the years leading up to the Revolutionary War, the citizens of Windham County generally were in accord with the region's strong sentiments against the British government's policies. In 1774, Brooklyn Parish in particular sent 125 sheep to the relief of the blockaded city of Boston, the task of conveying them being carried out by Israel Putnam, Joseph Holland, and Daniel Tyler Jr. At this time, Godfrey Malbone was still the owner of most of the former Mortlake and other lands, and he was a neighbor of Israel Putnam and also a Tory, as was the Reverend Samuel Peters of the Episcopal Church. Reverend Peters took a public stand against anti-British actions and was run out of town, and by year's end returned to England. Malbone, on the other hand, was verbally outspoken against the rebellion but took no real action against it (rumors outside Pomfret notwithstanding). No action was taken against him during the war (Larned 1874).

At the time of the Lexington Alarm, a large party of men from the county assembled and many went to the Boston area. A rumor went around that the loyalist Malbone had armed his enslaved men, and they were marching on the Town of Killingly. As the preparations for war advanced, Windham County soldiers were organized into the Third Regiment, under Colonel Israel Putnam, Lieutenant-Colonel Experience Storrs, and Major John Durkee. The 10th company was from the Town of Brooklyn, and it was led by Captain Israel Putnam Jr., First Lieutenant Samuel Robinson Jr., Second Lieutenant Amos Avery, and Ensign Caleb Stanley. Throughout the war, soldiers from the county – including General Israel Putnam – were active participants. After the war, Malbone was one of a few Tories allowed to stay in the region; however, he did lose a portion of his property as a consequence of his political views (Larned 1874).

Once the Revolutionary War was over, matters such as the organization of towns returned to the fore, and Brooklyn became a separate municipality. It held its first town meeting in 1786, with Colonel Israel Putnam serving as moderator. Godfrey Malbone, though both a generous and sharp-tongued man, had financial difficulties prior to the end of his life in 1785; one source attributes this in part to his investment in slaves (Larned 1784).

Nineteenth and Twentieth Century History of Brooklyn, Connecticut

In 1816, the Congregational church building in Brooklyn was taken over by the newly Unitarian majority in town, and the Congregationalists eventually had to construct a new chapel in 1821, as well as a larger church a year later in 1832. A Baptist church was organized in town in 1828. At the southeastern corner of the town, where the Plainfield factory village of Wauregan spilled over into Brooklyn, a Roman Catholic Church was built later in 1872. In 1819, in response to petitions to move the county courthouse to a more central location within the county, the legislature agreed that if construction of a courthouse could be independently funded, it would be moved to the Town of Brooklyn, and in 1820 it was. The village thus gained more importance, and acquired a newspaper, bank (the Windham County Bank, chartered 1822), and fire insurance company (Bayles 1889).

In addition, the presence of multiple turnpike roads passing through the town was also cause for early optimism, as the improved transportation routes created by these private companies were expected to increase business. The Norwich and Woodstock Turnpike was incorporated in 1801, and it extended northward from Norwich to Woodstock, passing through the center of Brooklyn on the way. In 1846, the corporation informed the legislature that it was unable to compete with the new Norwich and Worcester Railroad, and the road was made free and the corporation disbanded. In 1825, the "Providence Turnpike" was incorporated to connect a Rhode Island turnpike to Danielson, and in fact it

was built from Brooklyn center, through Danielson. The turnplike extended from Brooklyn to the Rhode Island border; it became a free road in 1866. Finally, in 1826, the Windham and Brooklyn Turnpike was built to connect the center of Windham with the county seat in Brooklyn. In 1845, the corporation took over the existing road from Brooklyn to Danielson. Why it did this when railroads were taking over transportation is unknown, and so is the date of the road's abandonment, although in fact this route is still an important one between the two towns (Wood 1919).

Despite Brooklyn's transportation advantages, the population reflects those of an agricultural town, which did not pass 2,500 residents until 1850 and then lost population again until 1920. In ca., 1812, the town's complement of industrial facilities included one carding machine (for preparing wool), two tanneries, three grist mills, and two sawmills. At that time, the central village of Brooklyn contained approximately 20 houses and two shops. At one point, a cotton mill was built on the Quinebaug River, and a silversmith named Edwin C. Newbury established a shop in town that later developed the manufacture of spectacles, pens, and watch cases. However, for the most part Brooklyn's population relied on agriculture for its livelihood (Bayles 1889).

According to the 1850 industrial census, there were only three manufacturing businesses in town: Quinebaug Mills Company, which made 480,000 yards of cotton cloth with the labor of 20 males and 25 females; a maker of silver spectacles, Edwin Newbury, who employed eight males and one female in making 40,000 pairs; and Colby Cleveland's broom-making business, in which two men made 3,000 brooms (valued at $500, the minimum output value to be included in the census returns) (United States Census 1850). Whatever the local proponents may have hoped for, the acquisition of the courthouse did not yield much benefit to the town. Probably the most important reason for the town's failure to thrive is the fact that when railroads were constructed through the region, all of them bypassed the Town of Brooklyn in favor of the more industrial towns that flanked it on the west and the north.

As of 1932, the town's principal industries were reported as agriculture and cotton textile manufacturing, although this source claims it could be reached by railroad as well – perhaps via Danielson (Connecticut 1932). Brooklyn's population remained below 3,000 residents until 1950, did not double until after 1980, and was still under 8,000 residents as of 2010 (Keegan 2012). In 2000, 2.1 percent of the workers were engaged in agriculture and 2.6 percent in manufacturing, while construction and mining occupied another 7.2 percent. As with the rest of the country, the remainder was employed in one aspect or another of tertiary activities (services, trade, government, finance, and so on). The largest landowners in 2006 were retirement homes and a convention center; the largest employers consisted of a retirement home, the town itself, the Brooklyn Correctional Institute (a juvenile offender facility), and a printing company (CERC 2008). The ongoing rise in population in the Town of Brooklyn from the late twentieth into the twenty-first century is undoubtedly a result of the expansion of suburban residence patterns into regions ever further from regional business centers. Even so, the trend's effects in the Town of Brooklyn are relatively minor when compared to the rest of the State of Connecticut. This slow growth may also be due to the Town's development priorities. Its current Plan of Conservation and Development calls for attention to maintaining its rural, historic, and agricultural character as much as possible, and limiting new commercial, residential, and industrial development to designated areas (Brooklyn 2011).

Project Area History – Town of Brooklyn

The project area along Beechers Road in Brooklyn is situated adjacent to Canterbury Road, also known as Connecticut Route 169, and rests north of the Brooklyn town boarder with Canterbury. The 1856 historic map of the project area shows Blackwell Brook bordering the project area in the east with a

Grist Mill indicated on the brook and the name J. Kendall assigned to a homestead directly south of the indicated mill (Figure 4). According to the History of Windham County "James P. Kendall came here from the South and began the manufacture of yarn" (Lincoln 1920: 216). In the 1869 historic map, the mill is marked "Old Mill" and the J. Kendall homestead is no longer evident. The 1869 historic map attributes the Old Mill as belonging to J. Hyde (Figure 5). John Hyde (1813-1898) appears on the 1870 United States Federal Census as a 57-year-old farmer with a real estate value of $6,329 and a personal estate value of $7,000. Listed as living with Mr. Hyde in the 1870 census was his wife Emily age 42, their children Addie age 12 and Jennie age 6. Also listed is one enslaved African American named Edmond Randolph age 19, born in North Carolina. Though Connecticut had ratified the Fourteenth Amendment on June 30, 1866 it appears that Edmond Randolph is considered in the total value of Mr. Hyde's personal estate on the census. In Lincoln's 1920 commemorative history of Windham County he recounts that John Hyde owned a wagon shop at that location and that the shop was in 1920 "still standing". Lincoln goes on "Nehemiah Hyde manufactured children's carriages here and later the building was used by John Hyde for a wagon shop. It is now owned by John's son, Fred L. Hyde" (Lincoln 1920: 195). John Hyde died in 1898 and is interred in South Cemetery in Brooklyn, CT.

By the time of the 1934 aerial photograph, it is clear the region was still being used for agricultural purposes with several barns and aerial structures present outside of the project area and north along Beechers Road (Figure 6). It does not appear that Hyde's mill is visible on the aerial though Blackwell Brook does run through the eastern portion of the project parcel. At the time of the 1951 aerial photograph there appears to be moderate reforestation within the project parcel, though distinguished farming parcels appear to still have been in use (Figure 7). The 2004 aerial photograph displays increased forestation sustained in the western portion of the project parcel, while the eastern area near Blackwell Brook remained cleared, likely continued for agricultural use as noted above the town of Brooklyn retained agriculture as an economic industry through to this period. Evidence of suburbanization is visible northeast of the proposed project parcel (Figure 8). Contemporarily, the 2019 aerial photograph displays that the forestation noted in the 2004 aerial photograph has been cleared, and the project parcel appears to be cleared almost entirely west of Blackwell Brook. East of Blackwell Brook there appears to be moderate reforestation; there are no other residential, commercial or agricultural structures within the vicinity of the proposed project parcel (Figure 9).

Conclusion

Though the historical documentary record indicates that there was once a mill within the Project Parcel along Blackwell Brook, it is likely the mill discontinued operations between 1920 and 1935. Evidence of the workings of the mill may be evidence east of Blackwell Brook and in the northeastern corner of the e project parcel; however, this are will not be developed as part of the subdivision.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous cultural resources identified within the vicinity of the proposed project parcel in Brooklyn, Connecticut, including archaeological sites and National/State Register of Historic Places properties/districts (NRHP) (Figures 10 and 11). This discussion provides the comparative data necessary for assessing the results of the current Phase IB cultural resources reconnaissance survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the proposed project parcel are taken into consideration. This review revealed while are 15 previously identified archaeological sites within 0.8 km (0.5 mi) of the proposed project parcel, but no National or State Register of Historic Places properties. The archaeological sites are described below.

Previously Recorded Cultural Resources Within the Vicinity of the Project Area

As mentioned above, a total of 15 previously identified archaeological sites are located within 0.8 km (0.5 mi) of the proposed project parcel. They are discussed in turn below.

Site 19-3

Site 19-3, also known as the POD Site, is located 45.7 m (150 ft) to the east of Route 169 and 91.4 m (300 ft) to the north of the Brooklyn town line. Kevin McBride of Public Archaeology Survey Team, Inc., (PAST) recorded the site in August of 1982 and conducted Phase IB archaeological testing throughout the site area. The survey effort resulted in the collection of 2 quartzite flakes and 1 argillite flake. The size, age, and type of site could not be determined, and it was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Site 19-3 will not be impacted by the proposed Beecher Road development project.

Site 19-4

Site 19-4 was also recorded in August of by 1982 Kevin McBride of PAST. It is located 792.5 m (2,600 ft) to the east of Route 169 and 121.9 m (400 ft) to the west of Blackwell Brook in Brooklyn, Connecticut. PAST tested the site area in 1982 and then conducted a Phase II survey during July of 1983. Cultural material collected from the site area included quartzite chipping debris and quartzite chunks. Site 19-4 was recorded as a temporary encampment from an unknown time period and named the Blackwell Brook Site. It was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Finally, Site 19-4 will not be impacted by the proposed Beecher Road development project.

Site 19-5

Site 19-5 was recorded as the Poison Ivy Site by Kevin McBride of PAST in August of 1982. It is located on the northwest bank of Cold Spring Brook, approxaimately274.3 m (900 ft) to the southwest of Rukstella Road in Brooklyn, Connecticut. PAST conducted Phase I testing at this location in 1982 and subsequent Phase II testing in 1983. Cultural material collected from the site area included quartz, quartzite, and flint flakes; lithic chunks; bifaces; a Brewerton-eared point; a Levanna point; an adze; a uniface; and charred botanical remains. McBride wrote that Site 19-5 is a multicomponent occupation with one component representing a temporary encampment with artifacts from the Laurentian Tradition of the

Late Archaic Period. The other component was described as a seasonal camp dating from the Late Woodland Period. Site 19-5 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted by the proposed Beecher Road development project.

Site 19-6

Site 19-6 is known as the Cat Site or Gluck Site. It is located on the northwest bank of Cold Spring Brook, approximately 274.3 m (900 ft) upstream of the confluence of Cold Spring Brook and Blackwell Brook in Brooklyn, Connecticut. The site was determined to contain two components: one from the Late Archaic Period with artifacts of the Narrow-stemmed and Susquehanna tradition, and one from the Early Woodland Period with a lithic assemblage. Point types included Squibnocket and Snook Kill; flint and argillite chipping debris were also recovered. Three radiocarbon dates were collected from Site 19-6: 3130±90 BP, 3950±60 BP, and 2060±90 BP. Site 19-6 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted by the proposed Beecher Road development project.

Site 19-7

Site 19-7 was recorded as the Baby Site by Kevin McBride of PAST in September of 1982 following Phase I excavation. Phase II excavation followed in June of 1983. The site is located 152.4 m (500 ft) upstream of the confluence of Cold Spring and Blackwell Brook in Brooklyn, Connecticut and on the northwest bank of Cold Spring Brook. Examination of the site area resulted in the recovery of quartzite and flint flakes, chunks, a resharpening flake, a Stark projectile point, and a drill during Phase I, and additional lithic chipping debris and resharpening flakes during Phase II. This site represents a temporary Middle Archaic Period encampment. It was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) and it will not be impacted by the proposed Beecher Road development project.

Site 19-8

Site 19-8 also was identified by PAST in 1982 during Phase I survey of the Eastern Corridor of the Route 6/I-84 Relocation Project. During survey, six Phase I shovel tests were excavated at the site and they produced 11 quartz, 11 quartzite, and 3 flint artifacts, as well as 1 "other" artifact made from an unidentified lithic material. The recovered artifacts included bifacial reduction flakes, bifaces, chunks, a shell fragment, and a single untyped projectile point. Based on the recovery of flint artifacts, PAST assigned the site to the Late Woodland period of Connecticut prehistory. PAST indicated that Site 19-8 required additional investigation prior to construction of the roadway and recommended Phase II National Register of Historic Places testing and evaluation of Site 19-8.

The Phase II investigation of Site 19-8 was completed in 1983 and included the excavation of 63 additional shovel tests throughout the site area. This resulted in the identification of two archaeological components, one dating from the Late Archaic period of Connecticut prehistory and one dating from the Late Woodland period of Connecticut prehistory. The Late Archaic component yielded 138 artifacts, while the Late Woodland period component produced 59 artifacts. Late Archaic cultural material recovered from the site area consisted of bifacial reduction flakes, chunks, bifaces, a hammerstone, a worked cobble, and Brewerton projectile points. It was concluded that the Late Archaic period component of Site 19-8 represented a seasonal camp. Phase II examination of the Late Woodland component resulted in the collection of bifacial reduction flakes, chunks, bifaces, and a second untyped projectile point. In addition, a radiocarbon sample was recovered from an untyped cultural feature; it yielded a date of 450 +/- 130 BP for the occupation. The Late Woodland component was classified as a

temporary camp. PAST did not assess Site 19-8 applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) after the Phase II testing was completed because the roadway construction project was cancelled; however, they did indicate that Phase II examination of the site area revealed that the site contained intact archaeological deposits and "could yield information about prehistoric settlement and subsistence systems." Site 19-8 will not be impacted by the proposed Beecher Road development project.

Site 19-9

Site 19-9 also was identified by PAST in 1982 during Phase I resources reconnaissance survey of the Eastern Corridor of the Route 6/I-84 Relocation Project. During survey, only three shovel tests were excavated at the site. These yielded 7 quartzite artifacts, including bifacial reduction flakes, chunks, and a single Neville projectile point. The recovery of Neville projectile point indicates that the site belongs to the Middle Archaic period of Connecticut prehistory, a rarely identified prehistoric site type. PAST indicated that Site 19-9 required additional examination prior to construction and recommended Phase II National Register of Historic Places testing and evaluation of Site 19-9.

The Phase II investigation of Site 19-9 was completed in 1983 and included the excavation of 41 additional shovel tests spaced at 5 m (16.4 ft) intervals throughout the site area. This resulted in the identification of additional artifacts dating from the Middle Archaic period, including bifacial reduction flakes chunks, bifaces, a drill, and a second Neville projectile point. It was concluded that Site 19-9 period component represented a temporary camp. PAST did not assess Site 19-9 applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) after the Phase II testing was completed because the roadway construction project was cancelled; however, they did indicate that Phase II examination of the site area revealed that the site contained intact archaeological deposits and could yield additional "cultural information." Site 19-9 will not be impacted by the proposed Beecher Road development project.

Site 19-10

Site 19-10 is also known as the First Site and is located in a cornfield on the eastern side of Route 169 in Brooklyn, Connecticut. PAST completed a Phase I walkover survey of the site in July of 1982, during which they identified Site 19-10 and Kevin McBride recorded it. A total of 2 quartzite flakes were surface collected from the site area. The site's age, type, and size were not determined, and Site 19-10 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Site 19-10 will not be impacted by the proposed Beecher Road development project.

Site 19-11

Site 19-11 was identified by PAST in 1982 during Phase I survey of the Eastern Corridor of the Route 6/I-84 Relocation Project. This site yielded a single quartzite flake; however, only one shovel test was in the site area before the landowner asked the survey crew to leave his property. Site 19-11 was not assessed applying the NRHP criteria for evaluation (36 CFR 60.4 [a-d]), and no Phase II testing of the site was performed because landowner permission could not be obtained. It will not be impacted by the proposed Beecher Road development project.

Site 19-12

Site 19-12 was recorded in August of 1982 by Kevin McBride. PAST completed a Phase I survey in that month within the site area. Only examples of bone and calcite chips were recovered; therefore age, type, and size of the site was not determined. Site 19-12 was identified 80 m (262.5 ft) east of Route 169 in Brooklyn, Connecticut. It was not assessed applying the National Register of Historic Places criteria for

evaluation (36 CFR 60.4 [a-d]) and it will not be impacted by the proposed Beecher Road development project.

Site 19-13

Site 19-13, also known as the the A.F. Site, is located 152.4 m (500 ft) to the east of Route 169 in Brooklyn, Connecticut. PAST completed a Phase I survey at this location in August of 1982 and recovered a single quartzite flake from the site area. When Kevin McBride recorded the site later that month, its age, type, and size were listed been determined. In addition, Site 19-13 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted by the proposed Beecher Road development project.

Site 19-15

PAST recorded Site 19-15 during Phase I reconnaissance survey of the Eastern Corridor of the Route 6/I-84 Relocation Project in 1982. During the Phase I survey, nine shovel tests were excavated throughout the site area. They produced 3 quartz and 5 quartzite artifacts, which consisted of re-sharpening flakes, bifacial reduction flakes, a biface, and a quartz chunk. None of the recovered artifacts were temporally diagnostic, and Site 19-15 could not be assigned to a specific prehistoric period. Site 19-15 also was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]), and no Phase II testing of the site was performed at the site. It will not be impacted during the proposed Beecher Road development project.

Site 19-16

PAST also documented Site 19-16 during Phase I survey of the Eastern Corridor of the Route 6/I-84 Relocation Project in 1982. A total of seven shovel tests were excavated throughout the site area during survey. They produced two artifacts, a quartz chunk and a flint biface. Neither of the recovered artifacts was temporally diagnostic. As a result, Site 19-16 could not be assigned to a specific prehistoric period. No Phase II testing of the site area was performed at Site 19-16, and this archaeological resource was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Site 19-16 will not be impacted during the proposed Beecher Road development project.

Site 22-8

Site 22-8, the LaFramboise Site, is located on the east side of Tatnic Brook in Canterbury, Connecticut, approximately 15.2 to 61 m (50 to 200 ft) downstream from the Paradise Lake dam. PAST completed a Phase I survey here in October of 1982, and a Phase II survey here in July of 1983. Archaeologists recovered quartzite, quartz, and flint flakes, chunks, resharpening flakes, bifaces, unifaces, Brewerton projectile points, Narrow-stemmed points, Snook Kill points, and calcined mammal bone. In addition, unspecified cultural features were identified. As a result, Kevin McBride, who recorded the site in October of 1982, identified Site 22-8 as a multicomponent site. The first locus represented a seasonal camp of the Middle Woodland Period while the second locus dated from the Archaic Period. Site 22-8 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted by the proposed Beecher Road development project.

Site 22-14

Site 22-14 was recorded by Kevin McBride of PAST. It contains a standing industrial mill complex, known as the Tatnic Brook Mills, which dates to ca., 1833. No subsurface testing was completed at the site when it was recorded. No other information was recorded on the site form for Site 22-14. It has not been assessed applying the NRHP criteria for evaluation (36 CFR 60.4 [a-d]) and it will not be impacted by the proposed Beecher Road development project.

Summary and Interpretations

The review of the previously identified cultural resources in the vicinity of the proposed project area, combined with the history of the area as described in Chapter IV, indicates that the project region possesses a significant record of prehistoric and historic period occupation and use. The array of prehistoric sites, as well as a single historic site, previously recorded in the project region indicates that more archaeological resources may be identified within the project area.

CHAPTER VI
METHODS

Introduction
This chapter describes the research design and field methodology used to complete the current Phase IB cultural resources reconnaissance survey of the project parcel in Brooklyn, Connecticut. It also includes a discussion of the laboratory methods and the procedures used to process and analyze the recovered cultural material. Finally, the location and point-of-contact for the final facility at which all cultural material, drawings, maps, photographs, and field notes generated during survey will be curated is provided below.

Research Design
The current Phase IB cultural resources reconnaissance survey was designed to identify all prehistoric and historic archaeological resources located within the project parcel. Fieldwork for the project was comprehensive in nature; planning considered the results of each previously completed archaeological survey within the project general area, the distribution of previously recorded archaeological sites located near the proposed project area, and a geological assessment of the study area. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the study area. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation throughout the limits of the study area.

Field Methodology
Following the completion of all background research, the study area was subjected to a Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, mapping, and systematic shovel testing. The field strategy was designed such that the entire study area was examined visually and photographed. The pedestrian survey portion of this investigation included visual reconnaissance of all areas scheduled for impacts by the proposed development project. The field methodology also included subsurface testing of the proposed house, driveway, and septic system locations within the Beecher Road development parcel, during which shovel tests were placed at the proposed corners of each proposed house, at opposite ends of the leach fields, and spaced along proposed driveways and septic lines at 15 meter (49.2 feet) intervals.

During survey, each shovel test measured 50 x 50 cm (19.7 x 19.7 in) in size and each was excavated until the glacially derived C-Horizon was encountered or until large buried objects (e.g., boulders) prevented further excavation. Each shovel test was excavated in 10 cm (3.9 in) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.635 cm (0.25 in) hardware cloth and examined visually for cultural material. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Finally, each shovel test was backfilled immediately upon completion of the archaeological recordation process.

Curation
Following the completion and acceptance of the Final Report of Investigations, all drawings, maps, photographs, and field notes will be curated with:

Dr. Sarah Sportman
Office of Connecticut State Archaeology
Box U-1023
University of Connecticut
Storrs, Connecticut 06269

CHAPTER VII
RESULTS OF THE INVESTIGATION

Introduction

This chapter presents the results of a Phase IB cultural resources reconnaissance survey of the proposed Beecher Road Subdivision in Brooklyn, Connecticut (Figures 1 and 2). The Phase IB investigation was completed on behalf of VBL Properties LLC in August of 2020 by personnel representing Heritage. All fieldwork was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office. The Phase IB cultural resources reconnaissance survey results are presented below.

Results of the Phase IB Cultural Resources Reconnaissance Survey of the Study Area

As discussed in Chapter I of this document, the parcel of land associated with the proposed residential subdivision measures approximately 14.5 acres in size. It is located within former agricultural fields and forested land that is bordered by Beecher Road to the north, Rukstella Road to the east, forested land to the southeast, and agricultural fields to the southwest and west. The neighborhood around the project parcel is rural with residences, mainly single-family, dispersed across the landscape.

The current Phase IB survey effort consisted of pedestrian survey, subsurface testing, and mapping of the project parcel. The subsurface testing regime associated with the Phase IB cultural resources reconnaissance survey resulted in the excavation of 60 of 62 (97 percent) planned shovel tests measuring 50 x 50 cm (19.7 x 19.7 in) in size throughout the areas containing the proposed house, driveway, and septic system locations associated with the Beecher Road subdivision. Despite the files, effort, not prehistoric or historic archaeological materials were identified. Therefore, no additional examination of the project area for the proposed Beecher Road development project is recommended prior to construction.

Finally, the 1854 and 1869 maps of the study region in Figures 4 and 5 depict what was identified historically as a "grist mill" or an "old mill" in the northeastern most portion of the project parcel. Heritage personnel visually inspected this area but found no evidence of the former mill location; this area was heavily overgrown at the time of the visual inspection. It is possible that it was destroyed. Nevertheless, this part of the project parcel will not be impacted by the proposed construction. Should project plans change to include the area at the southwestern edge of the intersection of Beecher Road and Rukstella Road, additional shovel testing would be recommended to test for archaeological resources related to the former mill location.

BIBLIOGRAPHY

Asch, D.L., and N. B. Asch

1985 Prehistoric Plant Cultivation in West-Central Illinois. In *Prehistoric Food Production in North America*, edited by R.I. Ford, pp. 149-203. Museum of Anthropology Anthropological Papers No. 75. University of Michigan, Ann Arbor.

Banks, R.C., R.W. McDiarmid, A.L. Gardner

1987 *Checklist of Vertebrates of the Unites States: The U.S. Territories and Canada.* U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

Barber, J. W.

1837 *Connecticut Historical Collections.* Hanover, N.H., Bibliopola Press; Distributed by the University Press of New England, Storrs, Connecticut.

Barry, Ann P.

1985 "Connecticut Towns and Their Establishment." Hartford, Connecticut: Connecticut State Library, Archives, History, and Genealogy Unit.

Bayles, Richard M.

1889 *History of Windham County, Connecticut.* NY: W. W. Preston.

Bell, Michael

1985 *The Face of Connecticut: People, Geology, and the Land.* State Geological Natural History Survey of Connecticut Department of Environmental Protection.

Bendremer, J.

1993 *Late Woodland Settlement and Subsistence in Eastern Connecticut.* Ph.D. Dissertation, Department of Anthropology, University of Connecticut, Storrs, Connecticut.

Bendremer, J. and R. Dewar

1993 The Advent of Maize Horticulture in New England. In *Corn and Culture in the Prehistoric New World.* Ed. by S. Johannessen and C. Hastorf. Westview Press, Boulder.

Bendremer, J., E. Kellogg and T. Largy

1991 A Grass-Lined Storage Pit and Early Maize Horticulture in Central Connecticut. *North American Archaeologist 12(4):325-349.*

Braun, E.L.

1950 *Deciduous Forests of Eastern North America.* The Free Press.

Brooklyn, Town of and CME Associates, Inc.

2011 *Brooklyn's Plan of Conservation and Development, 2011-2010.* Accessed December 18, 2016. http://www.brooklynct.org/sites/brooklynct/files/file/file/2579-pocd_final11-11.pdf.

Brown, Clair A.
1965 *Louisiana Trees and Shrubs.* Louisiana Forestry Commission Bulletin No. 1. Claitor's Publishing Division, Baton Rouge, Louisiana.

Bushman, Richard L.
1980 From Puritan to Yankee; character and social order in Connecticut, 1690-1765. Harvard University Press, Boston.

Chapman, J., and A.B. Shea
1981 The Archaeobotanical Record: Early Archaic Period to Contact in the Lower Little Tennessee River Valley. *Tennessee Anthropologist* 6(1):61-84.

Coe, Joffre Lanning
1964 The Formative Cultures of the Carolina Piedmont. *Transactions of the American Philosophical Society*, Vol. 54, Part 5. Philadelphia, Pennsylvania.

Connecticut, State of
1932 *State Register and Manual.* Hartford, CT: The State.

Connecticut Department of Environmental Protection (CT DEP)
1970 Connecticut Statewide Aerial Photograph Series. Hartford, Connecticut: Connecticut State Archives.

Connole, Dennis A.
2001 The Indians of the Nipmuck Country in Southern New England, 1630-1750: An Historical Geography.Jefferson, N.C.

Crofut, F. S. M.
1937 *Guide to the History and the Historic Sites of Connecticut.* 2 vols. New Haven, CT: Yale University Press.

Curran, M.L., and D.F. Dincauze
1977 Paleo-Indians and Paleo-Lakes: New Data from the Connecticut Drainage. In *Amerinds and their Paleoenvironments in Northeastern North America.* Annals of the New York Academy of Sciences 288:333-348.

Davis, M.
1969 Climatic changes in southern Connecticut recorded by Pollen deposition at Rogers Lake. *Ecology* 50: 409-422.

De Forest, J. W.
1852 *History of the Indians of Connecticut from the Earliest Known Period to 1850.* Wm. Jas. Hamersley, Hartford, Connecticut.

Dincauze, Dena F.
1974 An Introduction to Archaeology in the Greater Boston Area. *Archaeology of Eastern North America* 2(1):39-67.

1976 *The Neville Site: 8000 Years at Amoskeag.* Peabody Museum Monograph No. 4. Cambridge, Massachusetts.

Dowhan, J.J. and R.J. Craig

1976 *Rare and endangered species of Connecticut and Their Habitats.* State Geological Natural History Survey of Connecticut Department of Environmental Protection, Report of Investigations No. 6.

Fairchild Aerial Surveys

1934 Connecticut Statewide Aerial Photograph Series. Hartford, Connecticut: Connecticut State Archives.

Feder, Kenneth

1984 *Pots, Plants, and People: The Late Woodland Period of Connecticut.* Bulletin of the Archaeological Society of Connecticut 47:99-112.

Fitting, J.E.

1968 *The Spring Creek Site.* In *Contributions to Michigan Archaeology*, pp. 1-78. Anthropological Papers No. 32. Museum of Anthropology, University of Michigan, Ann Arbor.

Ford, R.I.

1985 Patterns of Prehistoric Food Production in North America. In *Prehistoric Food Production in North America*, edited by R.I. Ford, pp. 341-364. Museum of Anthropology Anthropological Papers No. 75. University of Michigan, Ann Arbor.

Fritz, Gayle J.

1990 Multiple Pathways to Farming in Pre-Contact Eastern North America. *Journal of World Prehistory* 4(4):387-435.

Funk, R.E.

1976 *Recent Contributions to Hudson Valley Prehistory.* New York State Museum Memoir 22. Albany.

George, D.

1997 A Long Row to Hoe: The Cultivation of Archaeobotany in Southern New England. *Archaeology of Eastern North America* 25:175 - 190.

George, D. and C. Tryon

1996 *Lithic and Raw Material Procurement and Use at the Late Woodland Period Cooper Site, Lyme, Connecticut.* Paper presented at the joint meeting of the Archaeological Society of Connecticut and the Massachusetts Archaeological Society, Storrs Connecticut

George, D.R., and R. Dewar

1999 Prehistoric Chenopodium in Connecticut: Wild, Weedy, Cultivated, or Domesticated? *Current Northeast Paleoethnobotany*, edited by J. Hart, New York State Museum, Albany, New York.

Gerrard, A.J.
1981 *Soils and Landforms, An Integration of Geomorphology and Pedology*. George Allen & Unwin: London.

Gramly, R. Michael, and Robert E. Funk
1990 What is Known and Not Known About the Human Occupation of the Northeastern United States Until 10,000 B. P. *Archaeology of Eastern North America* 18: 5-32.

Griffin, J.B.
1967 Eastern North America Archaeology: A Summary. *Science* 156(3772):175-191.

Hopkins, F. M., Jr.
1859 *Clark's Map of Litchfield County, Connecticut.* Philadelphia: Richard Clark.

Johannessen, Sissel
1984 Paleoethnobotany. In *American Bottom Archaeology: A Summary of the FAI-270 Project Contribution to the Culture History of the Mississippi River Valley*, edited by Charles J. Bareis and James W. Porter, pp. 197-214. University of Illinois Press, Urbana.

Jones, B.
1997 The Late Paleo-Indian Hidden Creek Site in Southeastern Connecticut. *Archaeology of Eastern North America* 25:45-80.

Keegan, Kristen Noble, comp.
2012 Historical Population Data of Connecticut. Unpublished Excel spreadsheet.

Larned, Ellen. D.
1874 *History of Windham County, Connecticut 1600-1760*. By the author; repr. ed. Pomfret, CT: Swordsmith Productions, 2000.

Lavin, L.
1980 Analysis of Ceramic Vessels from the Ben Hollister Site, Glastonbury, Connecticut. *Bulletin of the Archaeological Society of Connecticut* 43:3-46.

1984 Connecticut Prehistory: A Synthesis of Current Archaeological Investigations. *Archaeological Society of Connecticut Bulletin* 47:5-40.

1986 *Pottery Classification and Cultural Models in Southern New England Prehistory*. North American Archaeologist 7(1):1-12.

1987 The Windsor Ceramic Tradition in Southern New England. *North American Archaeologist* 8(1):23-40.

1988a Coastal Adaptations in Southern New England and Southern New York. *Archaeology of Eastern North America*, Vol.16:101-120.

1988b The Morgan Site, Ricky Hill, Connecticut: A Late Woodland Farming Community in the Connecticut River Valley. *Bulletin of the Archaeological Society of Connecticut* 51:7-20.

Lincoln, Allen B.

1920 A Modern History of Windham County, Connecticut: A Windham County Treasure Book. S. J. Clarke Publishing Company.

Lizee, J.

1994a *Prehistoric Ceramic Sequences and Patterning in southern New England: The Windsor Tradition*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Connecticut, Storrs.

1994b *Cross-Mending Northeastern Ceramic Typologies.* Paper presented at the 1994 Annual Meeting of the Northeastern Anthropological Association, Geneseo, New York.

McBride, K.

1978 Archaic Subsistence in the Lower Connecticut River Valley: Evidence from Woodchuck Knoll. *Man in the Northeast* 15 & 16:124-131.

1983 *Prehistory of the Lower Connecticut River Valley.* Ph.D. Dissertation, Department of Anthropology, University of Connecticut, Storrs, Connecticut.

Moeller, R.

1980 *6-LF-21: A Paleo-Indian Site in Western Connecticut.* American Indian Archaeological Institute, Occasional Papers No. 2.

Niering, W.A., and N.C. Olmstead

1995 *National Audubon Society Field Guide to North American Wildflowers: Eastern Region.* Chanticleer Press, New York.

Pagoulatos, P.

1988 Terminal Archaic Settlement and Subsistence in the Connecticut River Valley. *Man in the Northeast* 35:71-93.

Pease, John C. and John M. Niles

1819 *A Gazetteer of the States of Connecticut and Rhode-Island*. Hartford, Connecticut: William S. Marsh.

Peterson, T. R., and M. McKenny

1968 *Wildflowers of Northeastern and North-Central America.* Houghton Mifflin Company, Boston, Massachusetts.

Pfeiffer, J.

1984 The Late and Terminal Archaic Periods in Connecticut Prehistory. *Bulletin of the Bulletin of the Archaeological Society of Connecticut* 47:73-88.

1986 Dill Farm Locus I: Early and Middle Archaic Components in Southern Connecticut. *Bulletin of the Archaeological Society of Connecticut* 49:19-36.

1990 The Late and Terminal Archaic Periods in Connecticut Prehistory: A Model of Continuity. In *Experiments and Observations on the Archaic of the Middle Atlantic Region.* R. Moeller, ed.

Poirier, D.
1987 *Environmental Review Primer for Connecticut's Archaeological Resources.* Connecticut Historical Commission, State Historic Preservation Office, Hartford, Connecticut.

Pope, G.
1952 Excavation at the Charles Tyler Site. *Bulletin of the Archaeological Society of Connecticut* 26:3-29.

1953 The Pottery Types of Connecticut. *Bulletin of the Archaeological Society of New Haven* 27:3-10.

Ritchie, W.A.
1969a *The Archaeology of New York State*. Garden City: Natural History Press.

1969b *The Archaeology of Martha's Vineyard: A Framework for the Prehistory of Southern New England; A study in Coastal Ecology and Adaptation*. Garden City: Natural History Press

1971 *A Typology and Nomenclature for New York State Projectile Points*. New York State Museum Bulletin Number 384, State Education Department. University of the State of New York, Albany, New York.

Ritchie, W.A., and R.E. Funk
1973 *Aboriginal Settlement Patterns in the Northeast*. New York State Museum Memoir 20. The State Education Department, Albany.

Robinson, P., and Hall, L. M.
1980 Tectonic synthesis of southern New England. In *International Geological Correlation Project, Proceedings, Project 27: The Caledonides in the U.S.A.*: Blacksburg, Virginia, Virginia Polytechnic Institute and State University Department of Geological Sciences Memoir 2, edited by Wones, D.R.

Rouse, I.
1947 Ceramic Traditions and sequences in Connecticut. *Bulletin of the Archaeological Society of Connecticut* 21:10-25.

Salwen, B., and A. Ottesen
1972 Radiocarbon Dates for a Windsor Occupation at the Shantok Cove Site. *Man in the Northeast* 3:8-19.

Shelford, V.E.
1963 *The Ecology of North America*. University of Illinois Press.

Smith, B.D.
1992 *Rivers of Change: Essays on Early Agriculture in Eastern North America.* Smithsonian Institution Press, Washington and London.

Smith, C.
1947 An Outline of the Archaeology of Coastal New York. *Bulletin of the Archaeological Society of Connecticut* 21:2-9.

Snow, D.
1980 *The Archaeology of New England.* Academic Press, New York.

Spiess, Matthias
1934 *Connecticut Circa 1625: Its Indian Trails Villages and Sachemdoms*. [N.p.]: The Connecticut Society of the Colonial Dames of America, Inc.

Swanton, J.R.
1946 *The Indians of the United States.* Smithsonian Institution Bureau of American Ethnology Bulletin 137. Reprinted 1979. Washington, D.C.

Turner, G. M., and M. W. Jacobus
1989 *Connecticut Railroads: An Illustrated History*. Hartford, Connecticut: Connecticut Historical Society.

Tuck, J.A.
1978 Regional Cultural Development, 3,000 B.C., to A.D. 1,000. In *Handbook of North American Indians, Volume 15.* Edited by B. G. Trigger, Smithsonian Institution Press, Washington, D.C.

United States Census
1870 Ninth Census of the United States. Schedule 1 HeritageQuest Online. Ann Arbor, MI: ProQuest LLC.

United States Department of Agriculture (USDA)
1951 Agricultural Stabilization and Conservation Service Aerial Photography for Connecticut. Washington, DC: Collections of the National Archives and Records Administration.

Watson, P.J.
1989 Early Plant Cultivation in the Eastern Woodlands of North America. In Foraging and Farming, edited by D. R. Harris and G. C. Hillman, pp. 555-571. Unwin Hyman, London.

Witthoft, J.
1949 An Outline of Pennsylvania Indian History. Pennsylvania History 16(3):3-15.

1953 Broad Spearpoints and the Transitional Period Cultures. Pennsylvania Archaeologist, 23(1):4-31.

Wood, Frederic J.
1919 *The Turnpikes of New England and Evolution of the Same Through England, Virginia, and Maryland*. Boston: Marshall Jones Company.

Wood, Joseph Sutherland
1997 *The New England Village*. Baltimore: Johns Hopkins University Press.

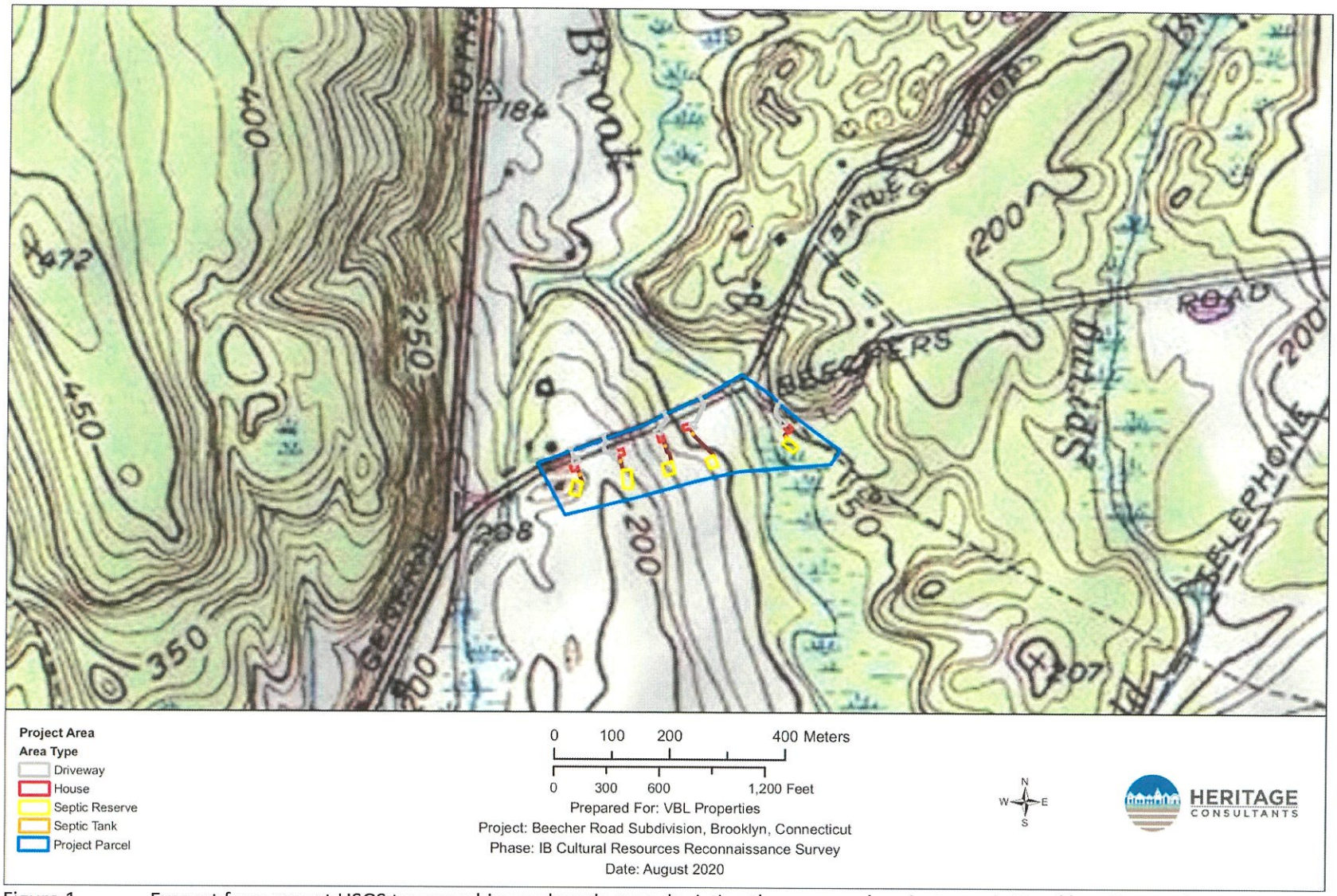


Figure 1. Excerpt from recent USGS topographic quadrangle map depicting the proposed project area in Brooklyn, Connecticut.

Figure 2. Digital map showing excavation plan and shovel test pit placement within the proposed project area in Brooklyn, Connecticut.

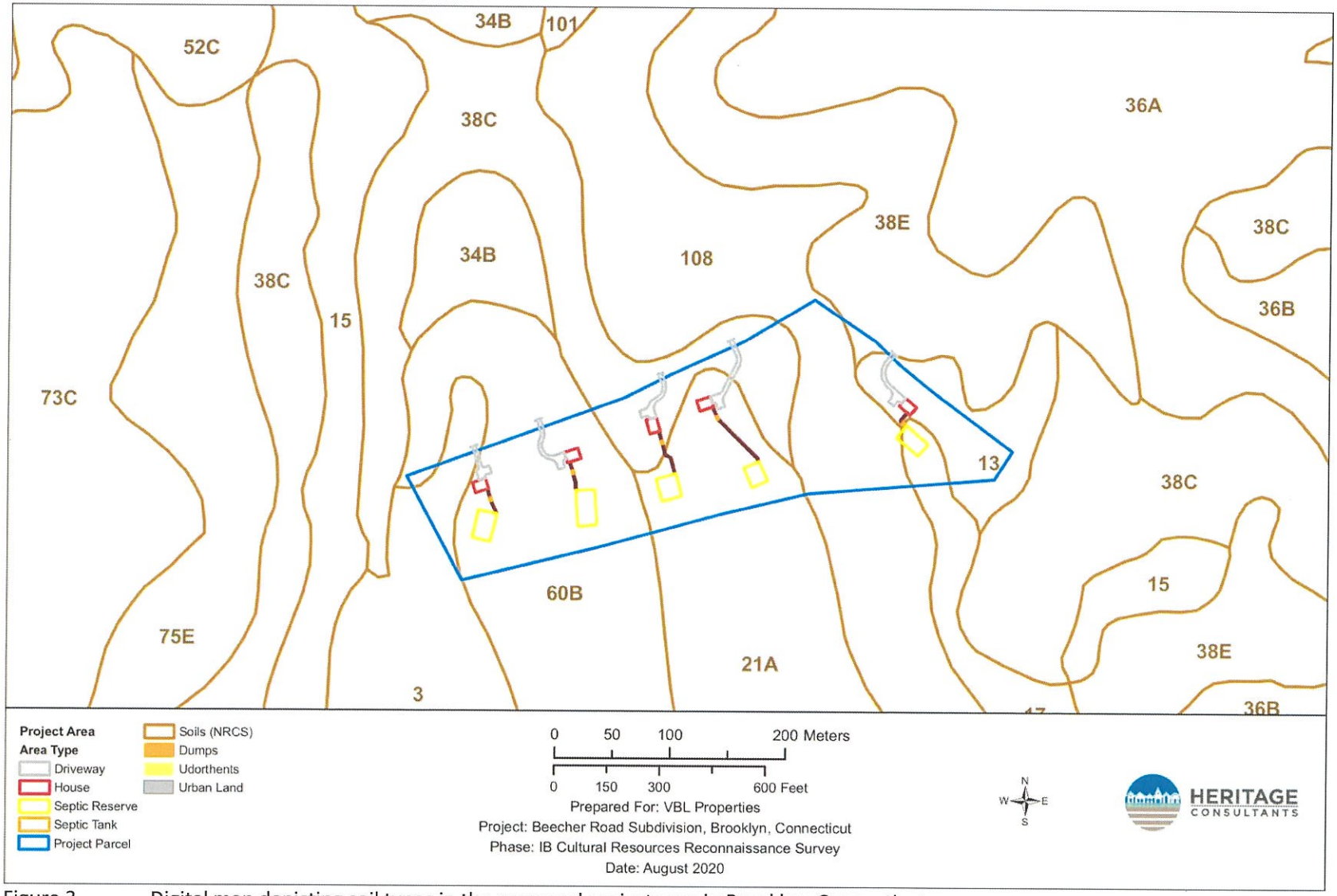


Figure 3. Digital map depicting soil types in the proposed project area in Brooklyn, Connecticut.

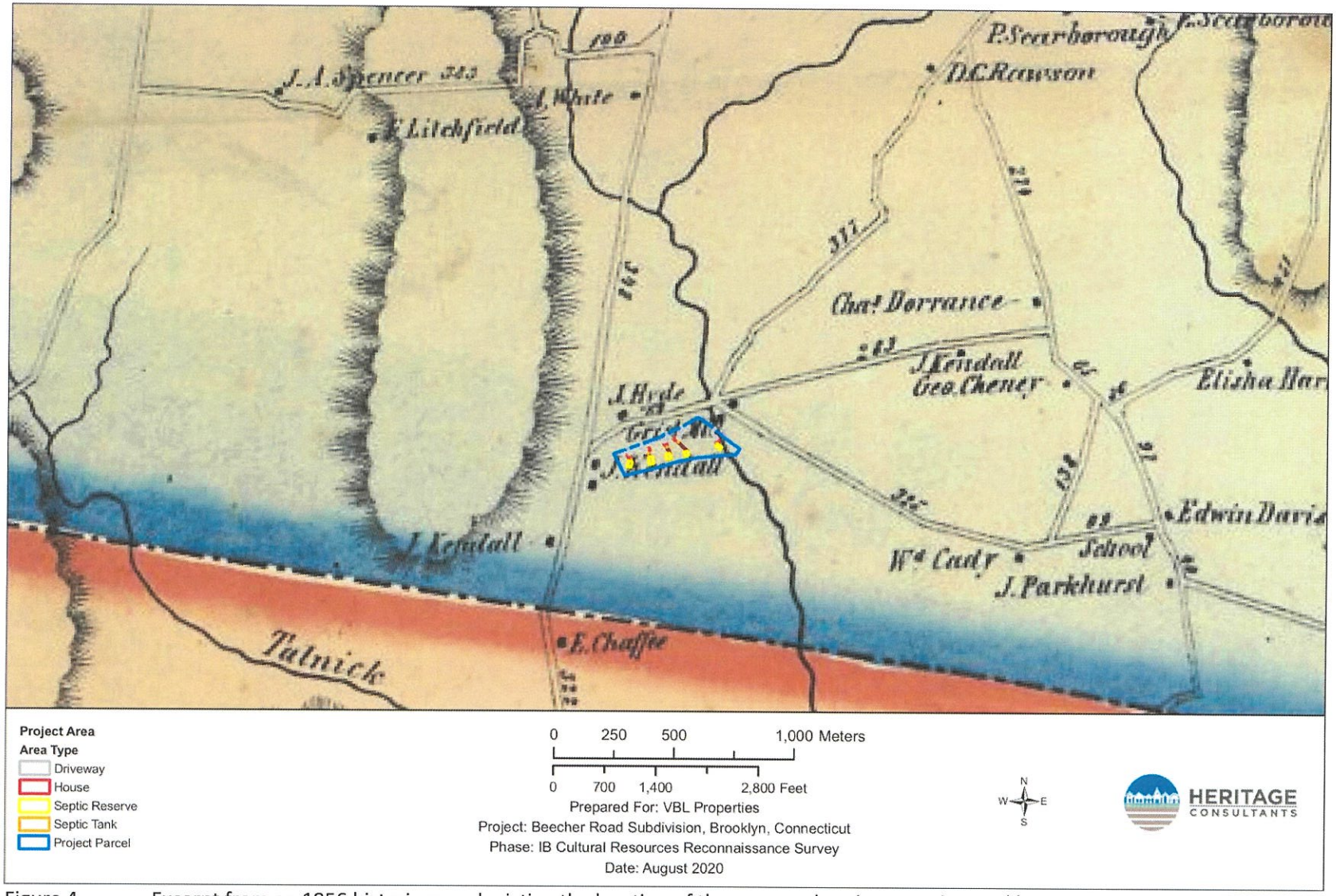


Figure 4. Excerpt from an 1856 historic map depicting the location of the proposed project area in Brooklyn, Connecticut.

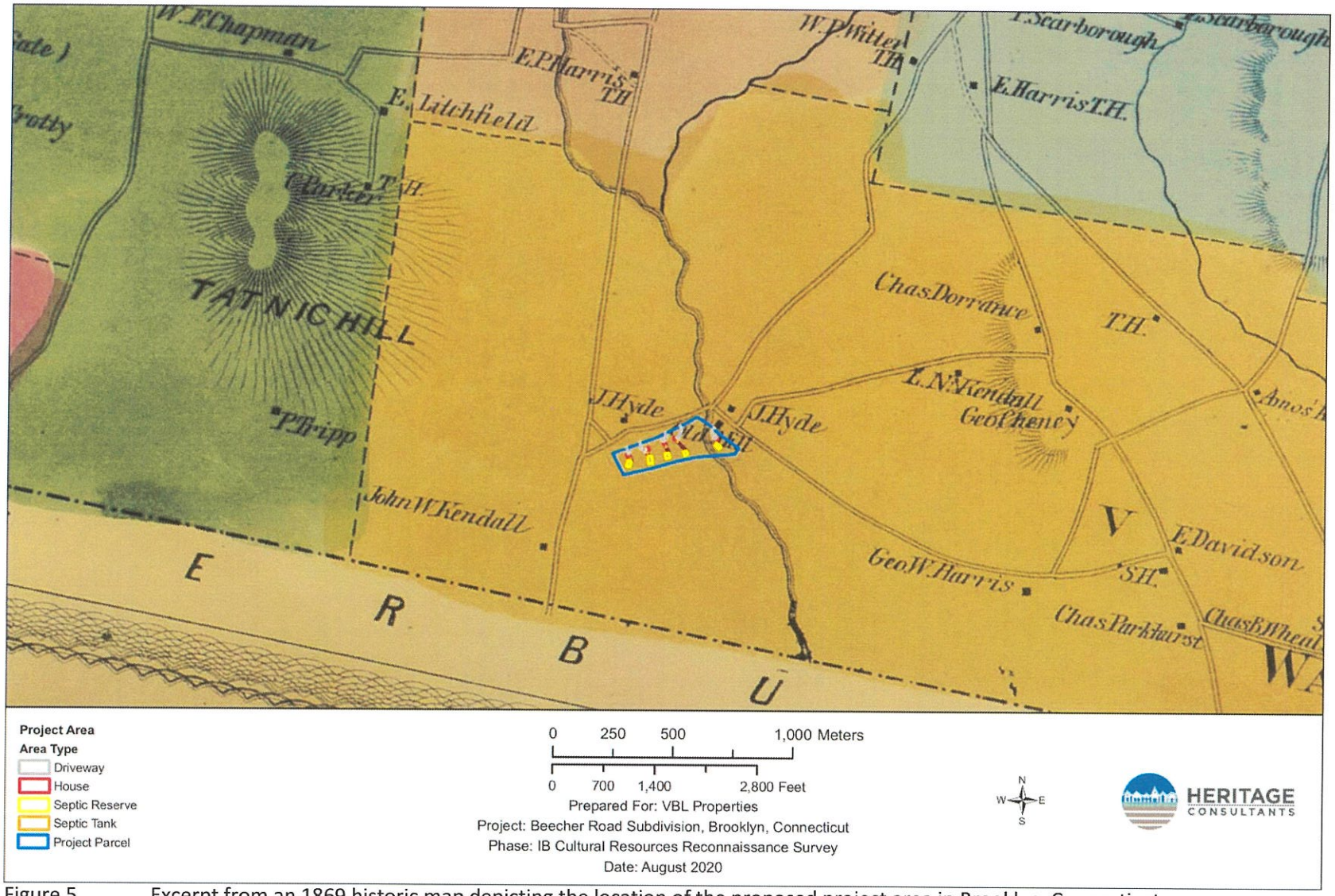


Figure 5. Excerpt from an 1869 historic map depicting the location of the proposed project area in Brooklyn, Connecticut.

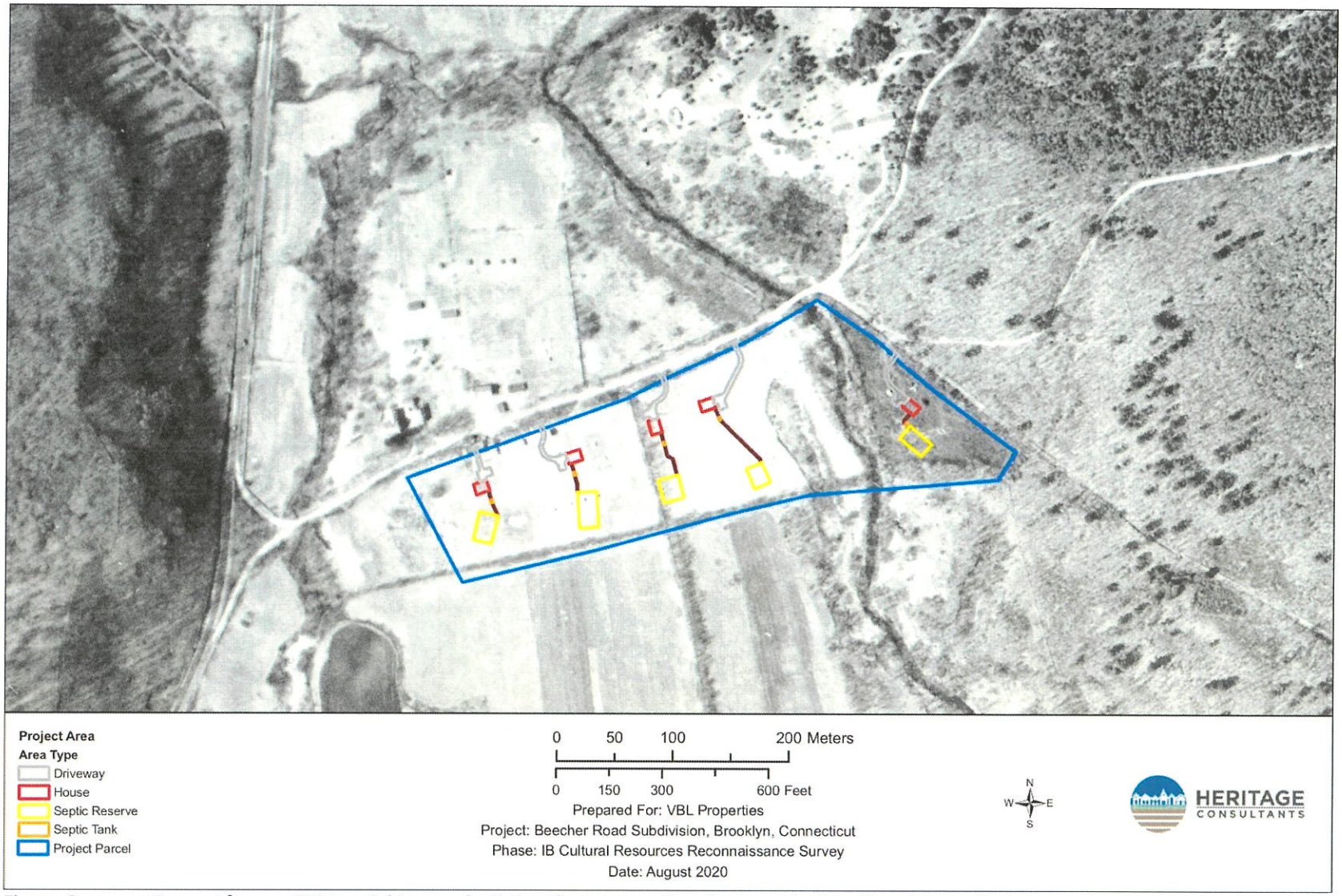


Figure 6. Excerpt from a 1934 aerial image depicting the proposed project area in Brooklyn, Connecticut.

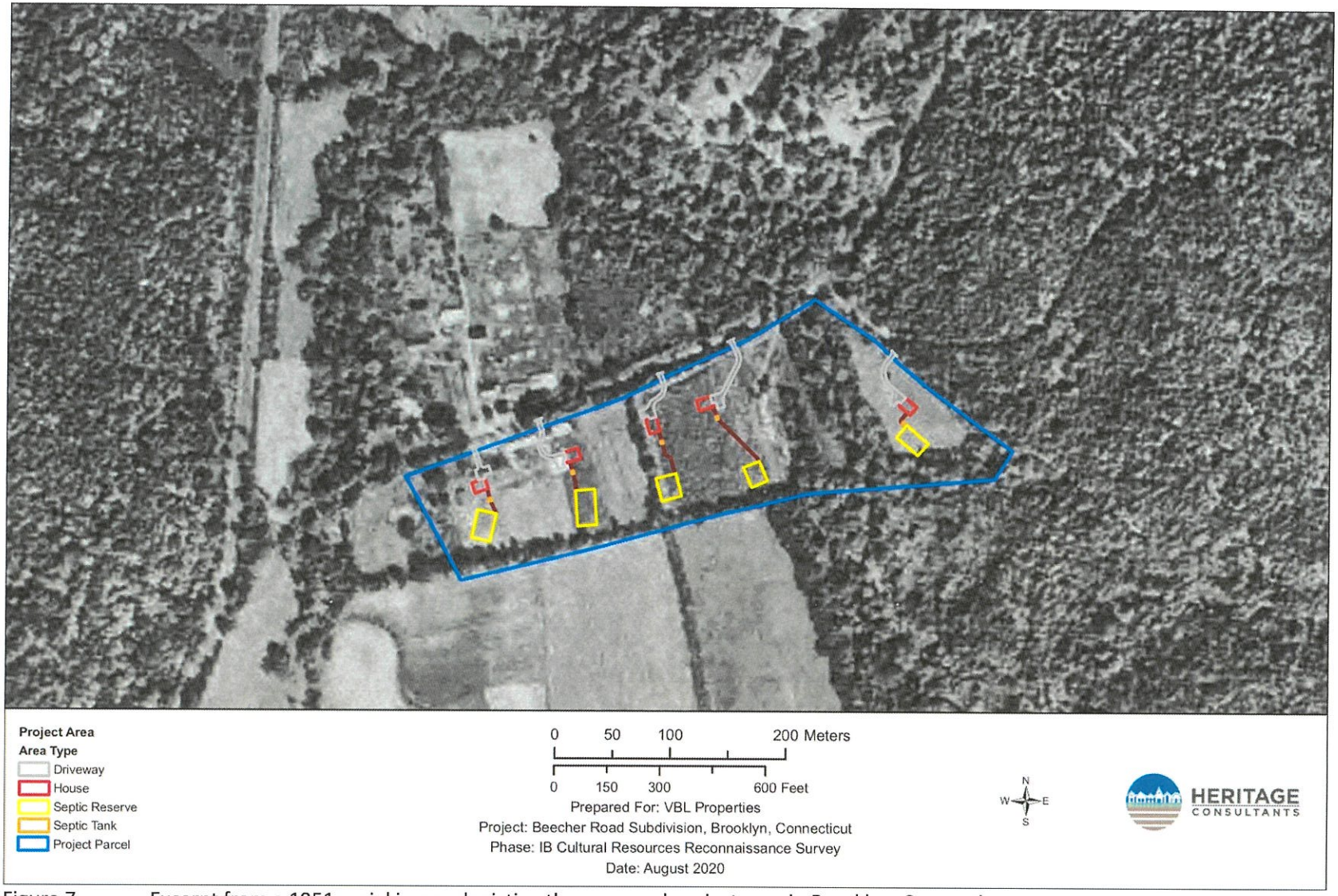


Figure 7. Excerpt from a 1951 aerial image depicting the proposed project area in Brooklyn, Connecticut.

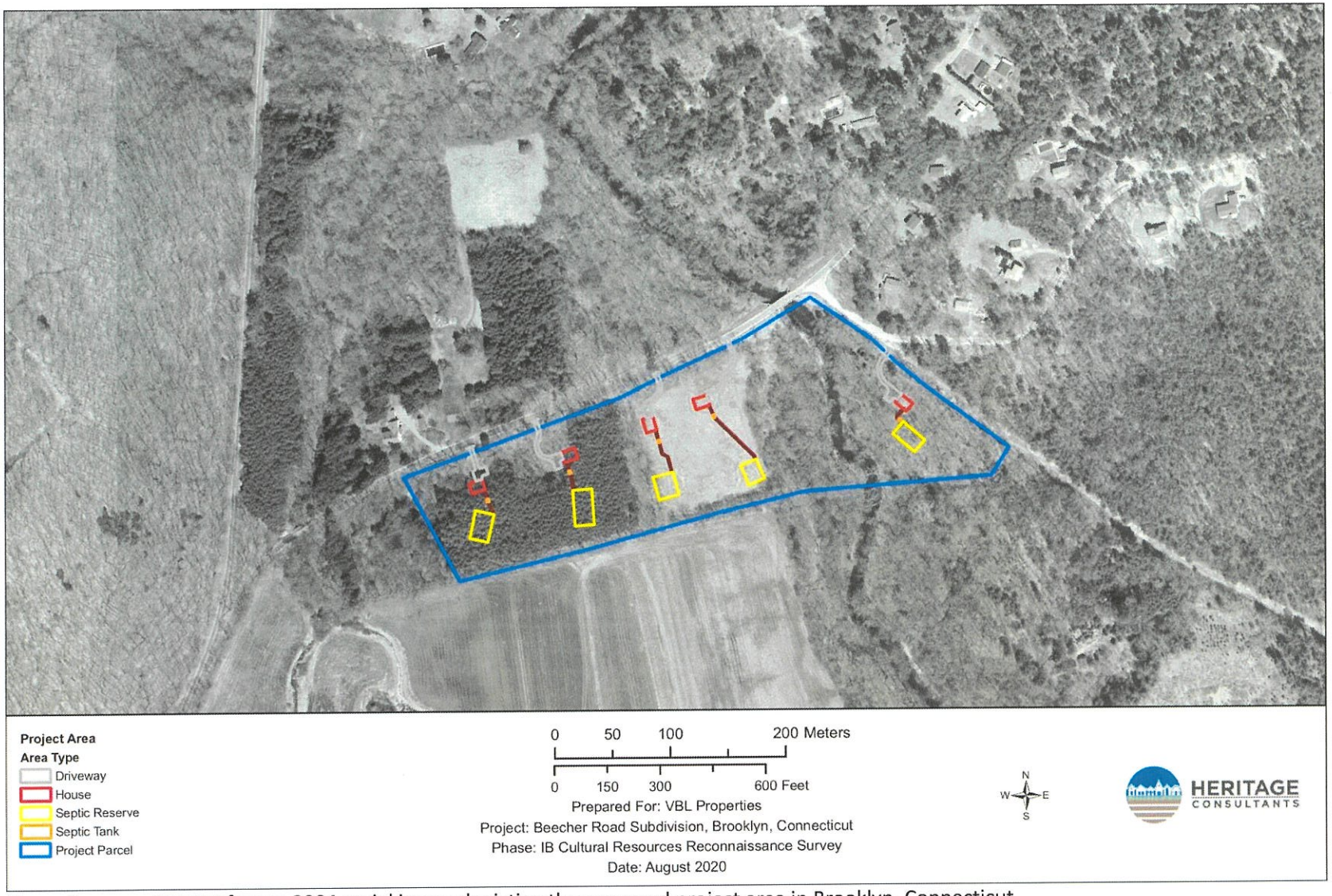


Figure 8. Excerpt from a 2004 aerial image depicting the proposed project area in Brooklyn, Connecticut.

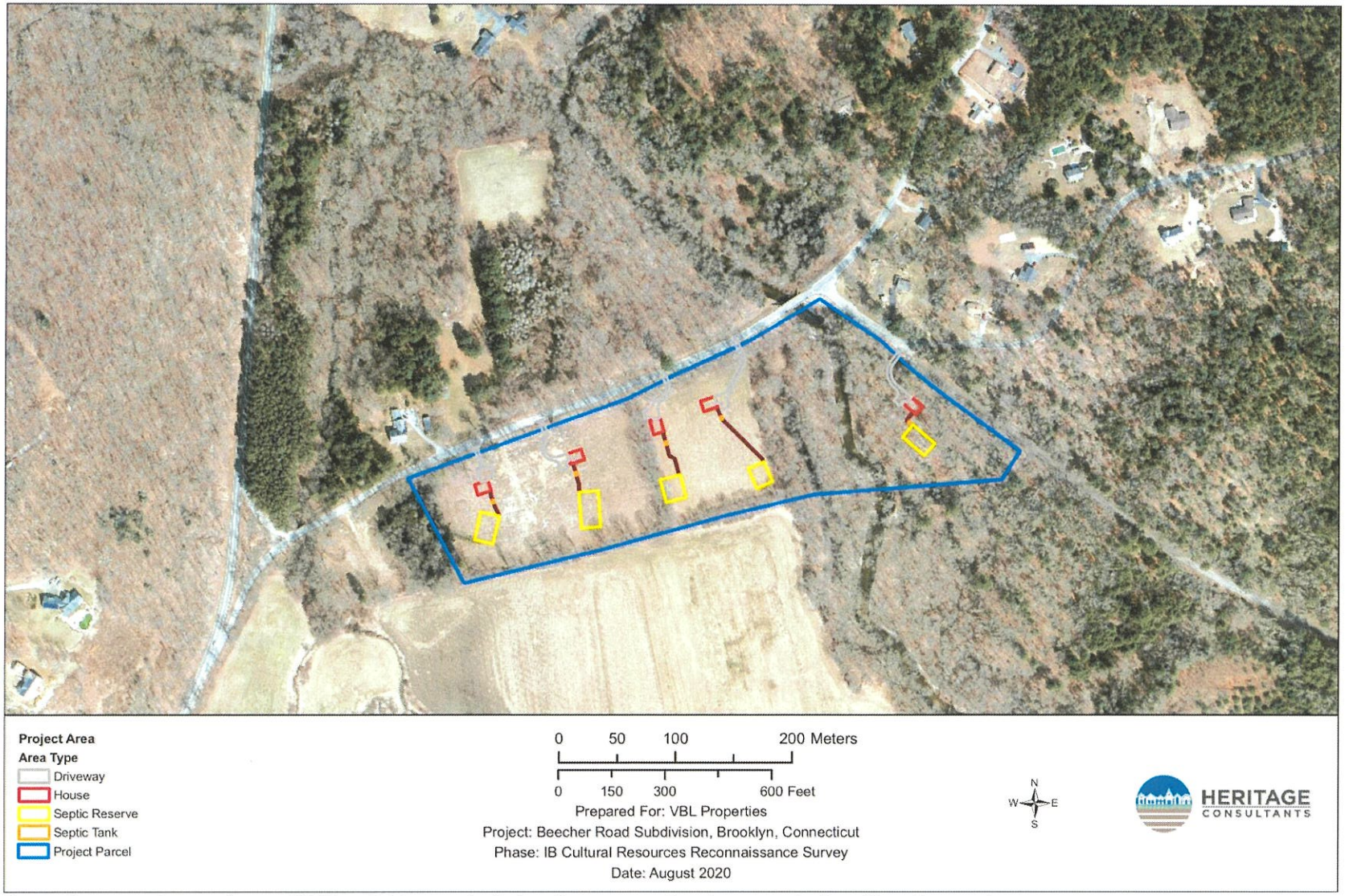


Figure 9. Excerpt from a 2019 aerial image depicting the proposed project area in Brooklyn, Connecticut.

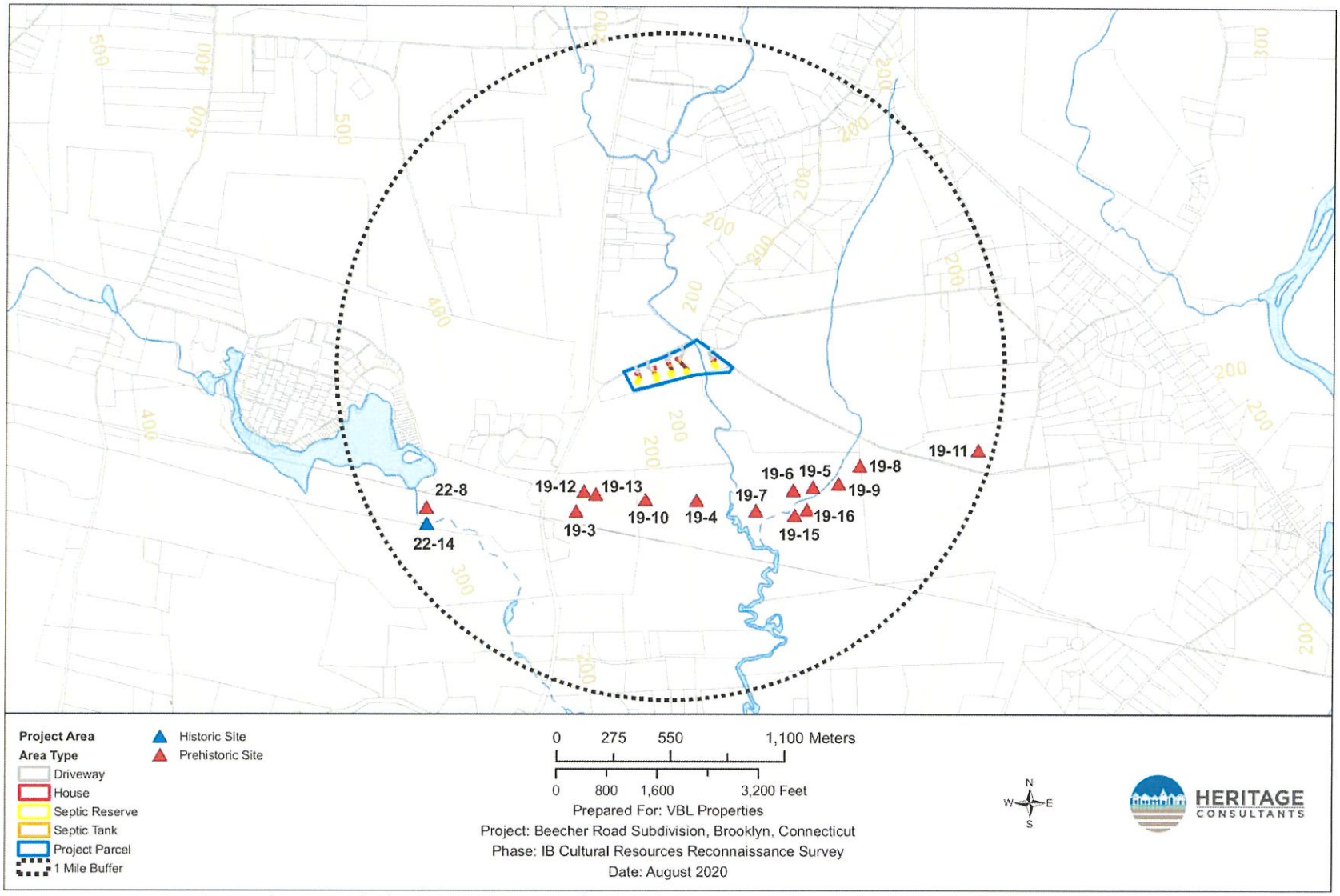


Figure 10. Digital map depicting the locations of previously identified archaeological sites properties in the vicinity of the proposed project area in Brooklyn, Connecticut.

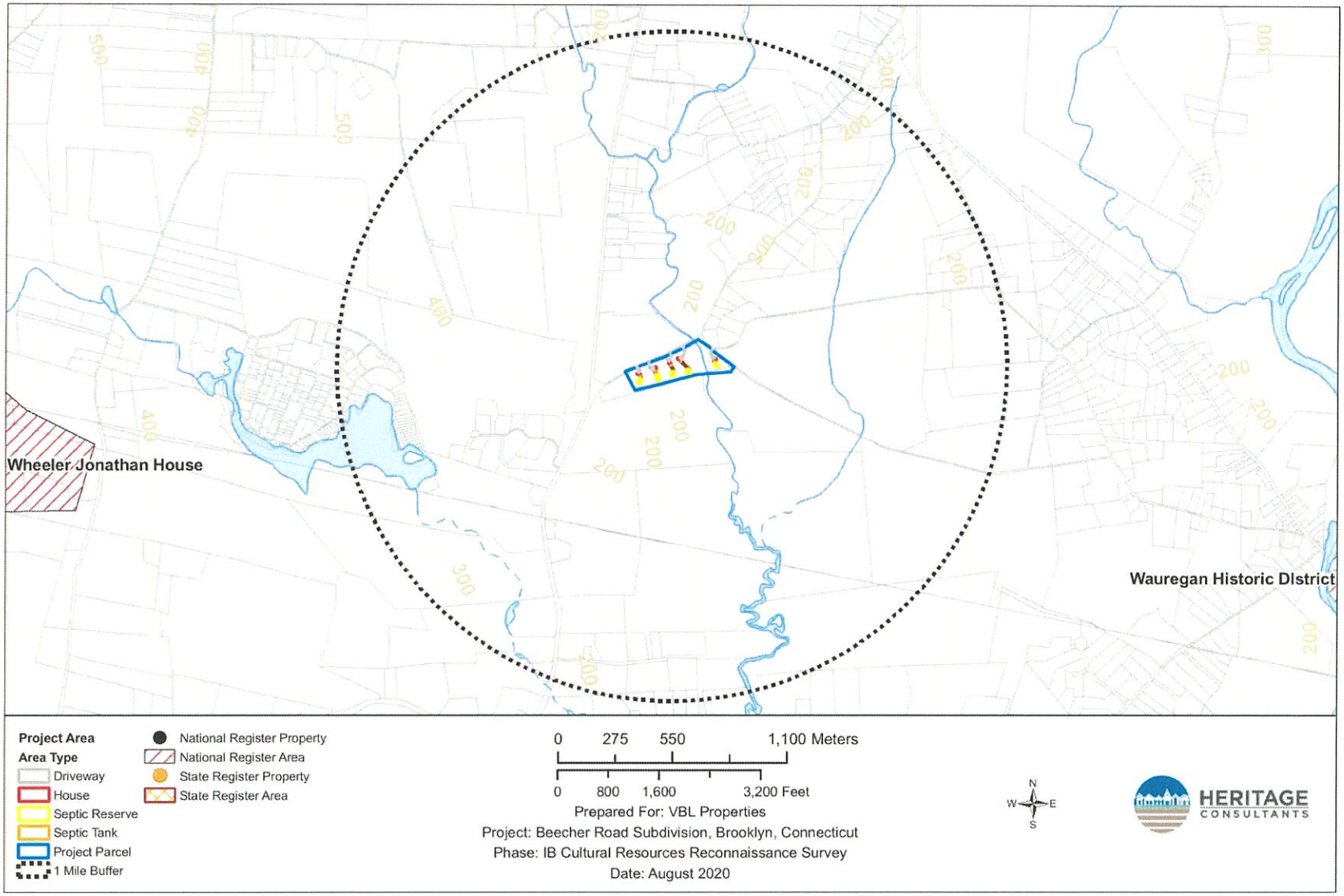


Figure 11. Digital map depicting the locations of previously identified National and State Register of Historic Places properties in the vicinity of the proposed project area in Brooklyn, Connecticut.

Figure 12. Overview photo of the project parcel facing east from the western portion.

Figure 13. Overview photo of the project parcel facing west from the eastern portion.

SUBDIVISION APPLICATION

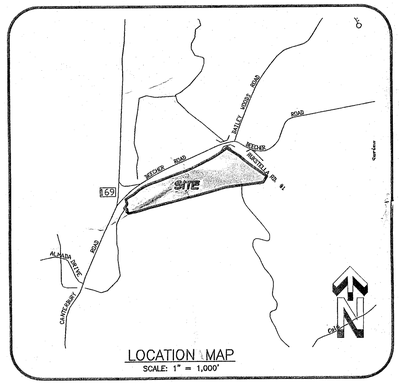
PROPOSED 5 LOT SUBDIVISION

PREPARED FOR

VBL Properties LLC

Beecher Road
Brooklyn, Connecticut

June 4, 2020



PREPARED BY

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

CLA Engineers, Inc.
CIVIL • STRUCTURAL • SURVEYING
317 Main Street Norwich, Connecticut
(860) 886-1966 Fax (860) 886-9165
e-mail: cla@claengineers.com

INDEX OF DRAWINGS

APPROVED BY THE BROOKLYN
INLAND WETLANDS COMMISSION

CHAIRMAN DATE

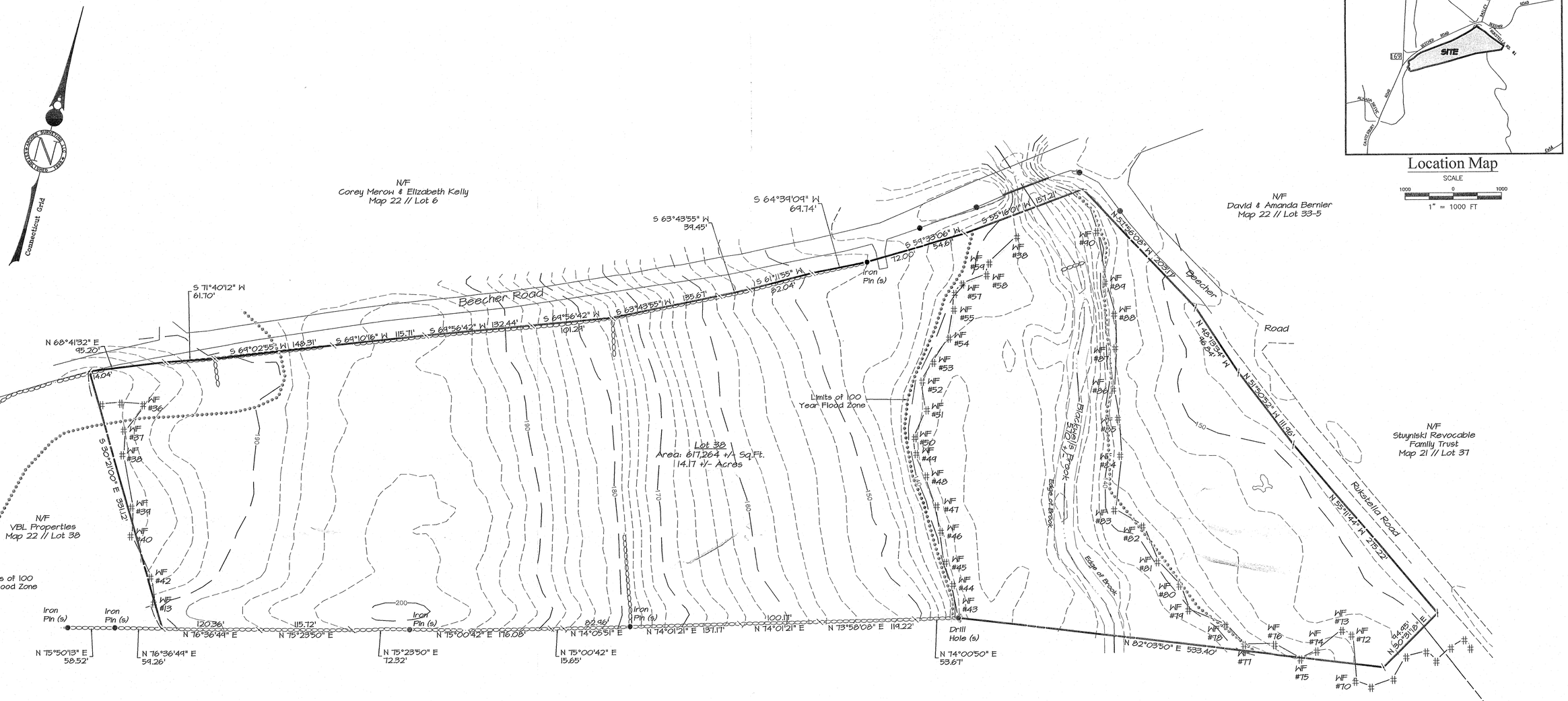
Expiration date per section 22A-42A of the Connecticut General Statutes. Date: _____

APPROVED BY THE BROOKLYN
PLANNING AND ZONING COMMISSION

CHAIRMAN DATE

Expiration date per section 8.26C of the Connecticut General Statutes. Date: _____

RECEIVED
NOV 2 3 2020



LEGEND

- PROPERTY LINE
- EASEMENT
- STONEWALL
- STONEWALL REMAINS
- EXISTING TREELINE
- 100 YEAR FLOOD LINE
- SILT FENCE
- EXISTING INDEX CONTOUR
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WETLANDS FLAG
- BUILDING SETBACK
- IRON PIN FOUND
- DRILL HOLE FOUND
- IRON PIN SET
- DRILL HOLE SET
- FENCE POST
- PERCOLATION TEST
- TEST PIT
- PROPERTY POINT
- UTILITY POLE (CL&P 1645)
- TREE WITH FENCE

Map References

1. Prepared for the Town of Stratford, Rukstella Road, Brooklyn, Conn., Scale: 1"=100', Date May 29, 1986, Prepared by: David Marnicki

2. Lot Division Plan, Prepared for River Junction Estates, LLC, Showing Parcel "D-1", Rukstella Road, Brooklyn, Connecticut, Date: Jan. 2011, Prepared by: Messler & Associates

3. Town of Brooklyn, Map showing land to be aquired for the State Highway Purposes from Homer Beecher on the Brooklyn Canterbury Road, Scale: 1"=20', Date Oct. 1929

4. Division of Property, "First Time Split", Prepared for: VBL Properties LLC, Beecher Road, Brooklyn, Connecticut, Prepared by: Archer Surveying LLC

Notes

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Section 20-300b-20 and the "Standards for Surveys and Maps in State of Connecticut" as adopted by the Connecticut Associations of Land Surveyors, Inc. on September 26, 1996

- This Survey conforms to a Class "A2" Horizontal Accuracy
  Class "T2" Vertical Accuracy
- Survey Type: Subdivision Plan
- Boundary Determination: Resurvey on Existing Boundary
  Original on Proposed Boundary
- Intent: 5 Lot Subdivision

2. Total Area of Subdivision = 14.17 Acres

3. Zone = RA

4. Owner / Applicant = VBL Properties LLC
   8 Finn Lane, Plainfield, CT 06374

5. Parcel is shown as Lot #38 on Assessor's Map #22

6. This Subdivision does include land areas within the Federal Emergency Management Agency's 100 year flood hazard area, as shown on Firm Map 090164 0008 A, Panel 8 of 10, Effective Date: Jan. 3, 1985

7. Wetlands shown were flagged in the field by John Ianni, Certified Soil Scientist in April 2018

8. There are not Known endangered species or species of special concern on the subject property per the December 2006 Natural Diversity Data Base Mapping

9. Parcel does not lie within an aquifer protection area

10. The Subdivision Regulations of the Town of Brooklyn are a part of this plan. Approval of this plan is contingent on completion of the requirements of said regulations, excepting any variances or modifications are on file in the office of the commission.

11. North orientation, bearings and coordinate values shown are based on North American Datum of 1983 (NAD83)

12. Passive Solar Energy techniques were considered in the design of the subdivision

REVISIONS	
7/10	Added 100yr Flood

To My Knowledge and Belief this Map is substantially Correct as noted hereon.

STATE OF CONNECTICUT — PAUL M. ARCHER — No. 70013 — LICENSED LAND SURVEYOR

Paul M. Archer LLS #70013 — 11-18-2020 Date

No Certification is expressed or implied unless this map bears the embossed seal of the land surveyor whose signature appears hereon.

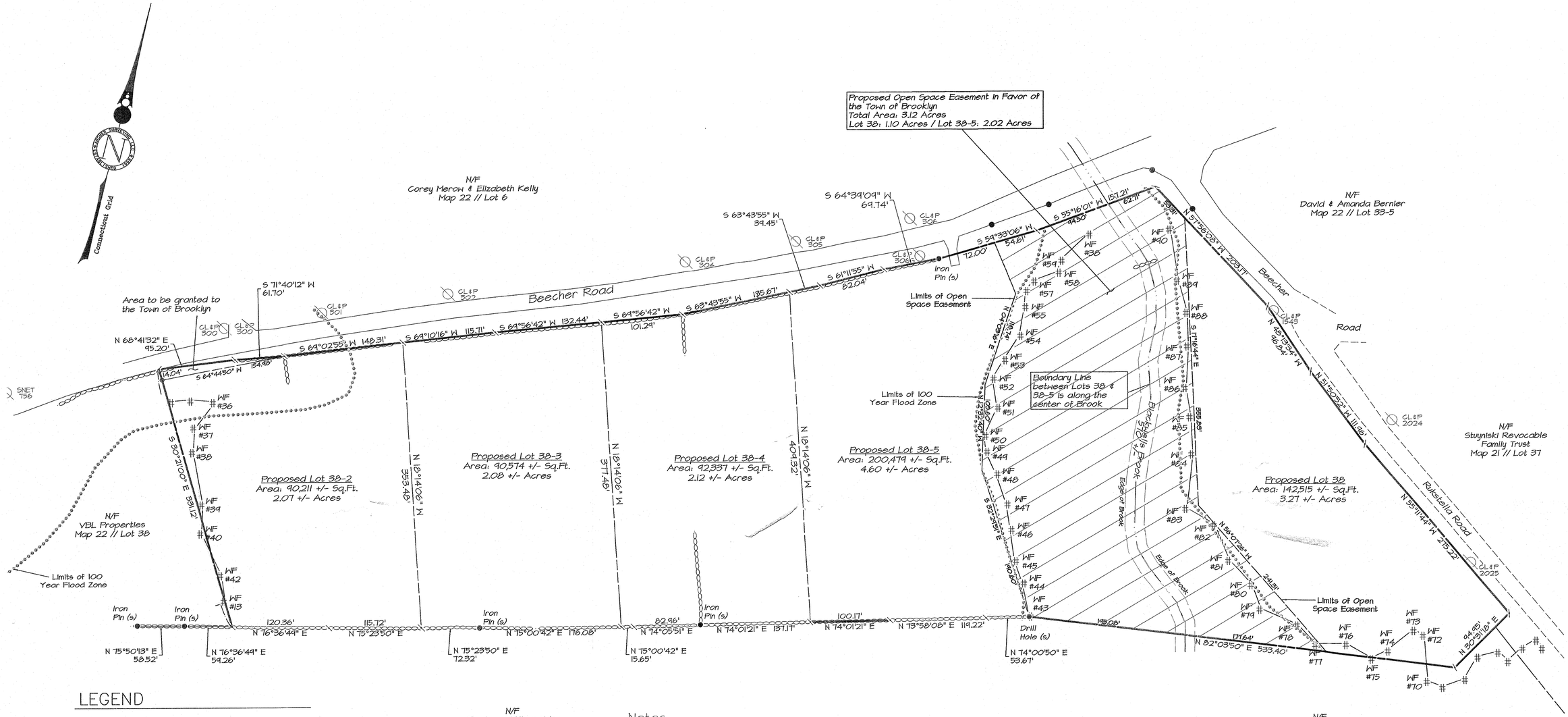
Existing Condition Plan

Prepared For:
VBL Properties LLC
Beecher Road
Brooklyn, Connecticut

DRAWING SCALE: 1"=60' (0 30 60 120)

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

Sheet No.	Project No.	Date:
2 OF 9	1500	June 4, 2020



LEGEND

- PROPERTY LINE
- EASEMENT
- STONEWALL
- STONEWALL REMAINS
- EXISTING TREELINE
- 100 YEAR FLOOD LINE
- SILT FENCE
- 100 EXISTING INDEX CONTOUR
- 100 EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- WETLANDS FLAG
- BUILDING SETBACK
- IRON PIN FOUND
- DRILL HOLE FOUND
- IRON PIN SET
- DRILL HOLE SET
- FENCE POST
- PERCOLATION TEST
- TEST PIT
- PROPERTY POINT
- CL&P 1645 UTILITY POLE
- TREE WITH FENCE

N/F
Charles & William Tyler
Map 21 // Lot 1

N/F
Town of Brooklyn
Map 21 // Lot 8

Notes

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Section 20-300b-20 and the "Standards for Surveys and Maps in State of Connecticut" as adopted by the Connecticut Associations of Land Surveyors, Inc. on September 26, 1996
   - This Survey conforms to a Class "A2" Horizontal Accuracy
   - Survey Type: Subdivision Plan
   - Boundary Determination: Resurvey on Existing Boundary
     Original on Proposed Boundary
   - Intent: 5 Lot Subdivision
2. Total Area of Subdivision = 14.17 Acres
3. Zone = RA
4. Owner / Applicant = VBL Properties LLC
   8 Finn Lane, Plainfield, CT 06374
5. Parcel is shown as Lot #38 on Assessor's Map #22
6. This Subdivision does include land areas within the Federal Emergency Management Agency's 100 year flood hazard area, as shown on Firm Map 090164 0008 A, Panel 8 of 10, Effective Date: Jan. 3, 1985
7. Wetlands shown were flagged in the field by John Ianni, Certified Soil Scientist in April 2018, Field Verified by Robert Russo, and field located by Archer Surveying LLC
8. There are not known endangered species or species of special concern on the subject property per the December 2006 Natural Diversity Data Base Mapping
9. Parcel does not lie within an aquifer protection area
10. The Subdivision Regulations of the Town of Brooklyn are a part of this plan. Approval of this plan is contingent on completion of the requirements of said regulations, excepting any variances or modifications are on file in the office of the commission.
11. North orientation, bearings and coordinate values shown are based on North American Datum of 1983 (NAD83)
12. Passive Solar Energy techniques were considered in the design of the subdivision

To My Knowledge and Belief, this Map is substantially Correct as noted hereon.

STATE OF CONNECTICUT — PAUL M. ARCHER — No. 7013 — LICENSED LAND SURVEYOR

Paul M. Archer LLS #16018 — 11-18-2020 Date

No Certification is expressed or implied unless this map bears the embossed seal of the land surveyor whose signature appears hereon.

REVISIONS	
08-04-20	Located Centerline of Brook
11-02-20	Revised Lots 38-5 & 38 / Open Space

Subdivision Plan

"Proposed 5 Lots"

Prepared For:
VBL Properties LLC
Beecher Road
Brooklyn, Connecticut

DRAWING SCALE: 1"=60' (0 30 60 120)

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

Sheet No.	Project No.	Date:
3 OF 9	1500	June 2020

ARCHER Surveying LLC

CONCEPT SEPTIC SYSTEM DESIGN

LOT 38–2
PRIMARY LEACHING AREA
3 BEDROOM RESIDENCE
PERCOLATION RATE: 13 MIN./INCH (NDDH FILE #18000188)
LEACHING AREA REQUIRED: 675 SF

USE TRADITIONAL TRENCH
EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF
REQUIRED LENGTH = 675 SF / 3 SF/LF = 225 LF

MLSS CALCULATION
HYDRAULIC FACTORS
DEPTH TO RESTRICTIVE LAYER = 27"
SLOPE = 5.1%
HYDRAULIC FACTOR (HF) = 30
FLOW FACTOR (FF) = 1.5
PERCOLATION FACTOR (PF) = 1.25 (10.1 TO 20.0 MIN./INCH)
MLSS REQUIRED: 30 x 1.5 x 1.25 = 56.25 LF

PROPOSED SYSTEM
USE 3 ROWS OF 75 LF
LEACHING AREA PROVIDED = 675 SF

RESERVE LEACHING AREA
USE SAME AS PRIMARY SYSTEM

LOT 38–3
PRIMARY LEACHING AREA
3 BEDROOM RESIDENCE
PERCOLATION RATE: 14 MIN./INCH (NDDH FILE #18000188)
LEACHING AREA REQUIRED: 675 SF

USE TRADITIONAL TRENCH
EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF
REQUIRED LENGTH = 675 SF / 3 SF/LF = 225 LF

MLSS CALCULATION
HYDRAULIC FACTORS
DEPTH TO RESTRICTIVE LAYER = 21"
SLOPE = 3.3%
HYDRAULIC FACTOR (HF) = 48
FLOW FACTOR (FF) = 1.5
PERCOLATION FACTOR (PF) = 1.25 (10.1 TO 20.0 MIN./INCH)
MLSS REQUIRED: 48 x 1.5 x 1.25 = 90 LF

PROPOSED SYSTEM
USE 3 ROWS OF 90 LF
LEACHING AREA PROVIDED = 810 SF

RESERVE LEACHING AREA
USE SAME AS PRIMARY SYSTEM

LOT 38–4
PRIMARY LEACHING AREA
3 BEDROOM RESIDENCE
PERCOLATION RATE: 10 MIN./INCH (NDDH FILE #18000188)
LEACHING AREA REQUIRED: 495 SF

USE TRADITIONAL TRENCH
EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF
REQUIRED LENGTH = 495 SF / 3 SF/LF = 165 LF

MLSS CALCULATION
HYDRAULIC FACTORS
DEPTH TO RESTRICTIVE LAYER = 23"
SLOPE = 10.2%
HYDRAULIC FACTOR (HF) = 26
FLOW FACTOR (FF) = 1.5
PERCOLATION FACTOR (PF) = 1.00 (UP TO 10.0 MIN./INCH)
MLSS REQUIRED: 26 x 1.5 x 1.00 = 39 LF

PROPOSED SYSTEM
USE 3 ROWS OF 80 LF
LEACHING AREA PROVIDED = 540 SF

RESERVE LEACHING AREA
USE SAME AS PRIMARY SYSTEM

SELECT FILL SPECIFICATION

SELECT FILL PLACED WITHIN AND ADJACENT TO LEACHING SYSTEM AREAS SHALL BE COMPRISED OF CLEAN SAND, OR SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES. THE SELECT FILL SHALL MEET THE FOLLOWING REQUIREMENTS PER THE CONNECTICUT PUBLIC HEALTH CODE FOR USE WITHIN THE LEACHING AREA:

1. THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THE THREE (3) INCH SLEEVE.
2. UP TO 45% OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED ON THE #4 SLEEVE (THIS IS THE GRAVEL PORTION OF THE SAMPLE).
3. THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REWEIGHED AND THE SIEVE ANALYSIS STARTED.
4. THE REMAINING SAMPLE SHALL MEET THE FOLLOWING CRITERIA:

	PERCENT PASSING	
SIEVE SIZE	WET SIEVE	DRY SIEVE
#4	100	100
#10	70–100	70–100
#40	10–50*	10–75
#100	0–20	0–5
#200	0–5	0–2.5

* PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO NO GREATER THAN 75 IF THE PERCENT PASSING THE #100 SIEVE DOES NOT EXCEED 10 AND THE #200 SIEVE DOES NOT EXCEED 5.

SEPTIC NOTES

1. PROPOSED SEPTIC SYSTEM TO BE STAKED IN THE FIELD BY A LAND SURVEYOR LICENSED IN THE STATE OF CONNECTICUT.
2. A BENCHMARK SHALL BE SET WITHIN 10'–15' OF THE PROPOSED SEPTIC SYSTEM PRIOR TO CONSTRUCTION.
3. ALL WORK AND MATERIAL (SEPTIC TANK, DISTRIBUTION BOX, PIPE) SHALL CONFORM TO THE CONNECTICUT PUBLIC HEALTH CODE REGULATIONS AND STANDARDS FOR SUBSURFACE SEWAGE DISPOSAL SYSTEM.
4. SEWER LINE FROM FOUNDATION WALL TO SEPTIC TANK SHALL BE 4" SCHEDULE 40 PVC – ASTM D 1785 AND JOINTS PER HEALTH DEPT. CODE. PIPE FROM SEPTIC TANK TO DISTRIBUTION LINES SHALL BE 4" SOLID PVC CONFORMING TO STMD–3034 AND SDR–35.
5. SYSTEMS SHALL BE SET LEVEL FOR ENTIRE LENGTH AND HAVE A CENTER TO CENTER SPACING AS CALLED FOR IN THE CONNECTICUT PUBLIC HEALTH CODE. THERE ARE PRESENTLY NO KNOWN WATER WELLS WITHIN 75' OF THE PROPOSED SEPTIC SYSTEMS.
6. CLEAR AND GRUB THE AREA WHERE THE SEPTIC SYSTEMS AND HOUSES ARE TO BE CONSTRUCTED. ALL TOPSOIL IS TO BE STRIPPED AND STOCKPILED FOR FUTURE USE.
7. ALL FILL MATERIAL SHALL BE CLEAN EARTH FREE OF STUMPS, ORGANICS, CONSTRUCTION DEBRIS AND TOPSOIL.
8. TOPSOIL SHALL BE RE–APPLIED OVER ALL FILL AREAS AND ALL DISTURBED AREAS TO PROVIDE A MINIMUM DEPTH OF FOUR INCHES IN ACCORDANCE WITH THE SLOPE STABILIZATION DETAILS..

PERCOLATION DATA
PERC # 2A - DEPTH 31"

TIME	READING (INCHES)
9:33	6.75
9:49	10.0
10:19	13.0
10:39	14.5

PERCOLATION RATE > 13.3 MIN./IN.

NOTES:
PERCOLATION TEST PERFORMED ON 5/17/2018
PERFORMED BY Terre Bombard

PERCOLATION DATA
PERC # 3A - DEPTH 29"

TIME	READING (INCHES)
9:35	5.75
9:56	10.0
10:11	14.5
10:46	17.0

PERCOLATION RATE > 14 MIN./IN.

NOTES:
PERCOLATION TEST PERFORMED ON 5/17/2018
PERFORMED BY Terre Bombard

PERCOLATION DATA
PERC # 4A - DEPTH 26"

TIME	READING (INCHES)
10:23	3.0
10:48	9.5
10:58	11.0
11:08	12.0

PERCOLATION RATE > 10 MIN./IN.

NOTES:
PERCOLATION TEST PERFORMED ON 5/17/2018
PERFORMED BY Terre Bombard

DEEP TP DATA / SOIL DESCRIPTIONS

PERFORMED BY: Terre Bombard
WITNESSED BY: Northeast District Department of Health DATE: March 20, 2018

TP: 2A	
0"-11" TOPSOIL 11"-30" Very Fine Sandy Loam 30"-40" Medium Sand 40"-69" Compact Gray Loamy Sand/Mottled	
MOTTLES:	40"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

TP: 2B	
0"-14" TOPSOIL 14"-32" Fine Loamy Sand 32"-75" Gray very Fine Loamy Sand /Mottled	
MOTTLES:	27"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

TP: 3A	
0"-7" TOPSOIL 7"-21" Very fine Sandy Loam 21"-38" Gray Compact Very Fine Sandy Loam 38"-73" Hardpan	
MOTTLES:	21"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

TP: 3B	
0"-8" TOPSOIL 8"-30" Fine Loamy Sand 30"-45" Gray Medium Sand 30"-45" Hardpan	
MOTTLES:	45"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

TP: 4A	
0"-8" TOPSOIL 8"-37" Fine Sandy Loam 37"-60" Gray Compact Sandy Pan	
MOTTLES:	NO
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	37"

TP: 4B	
0"-8" TOPSOIL 8"-23" Loamy Sand 23"-37" Gray very Fine Loamy Sand 37"-66" Gray Compact Very Fine Sand/Coarse	
MOTTLES:	37"
GROUNDWATER:	64"
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

LEGEND

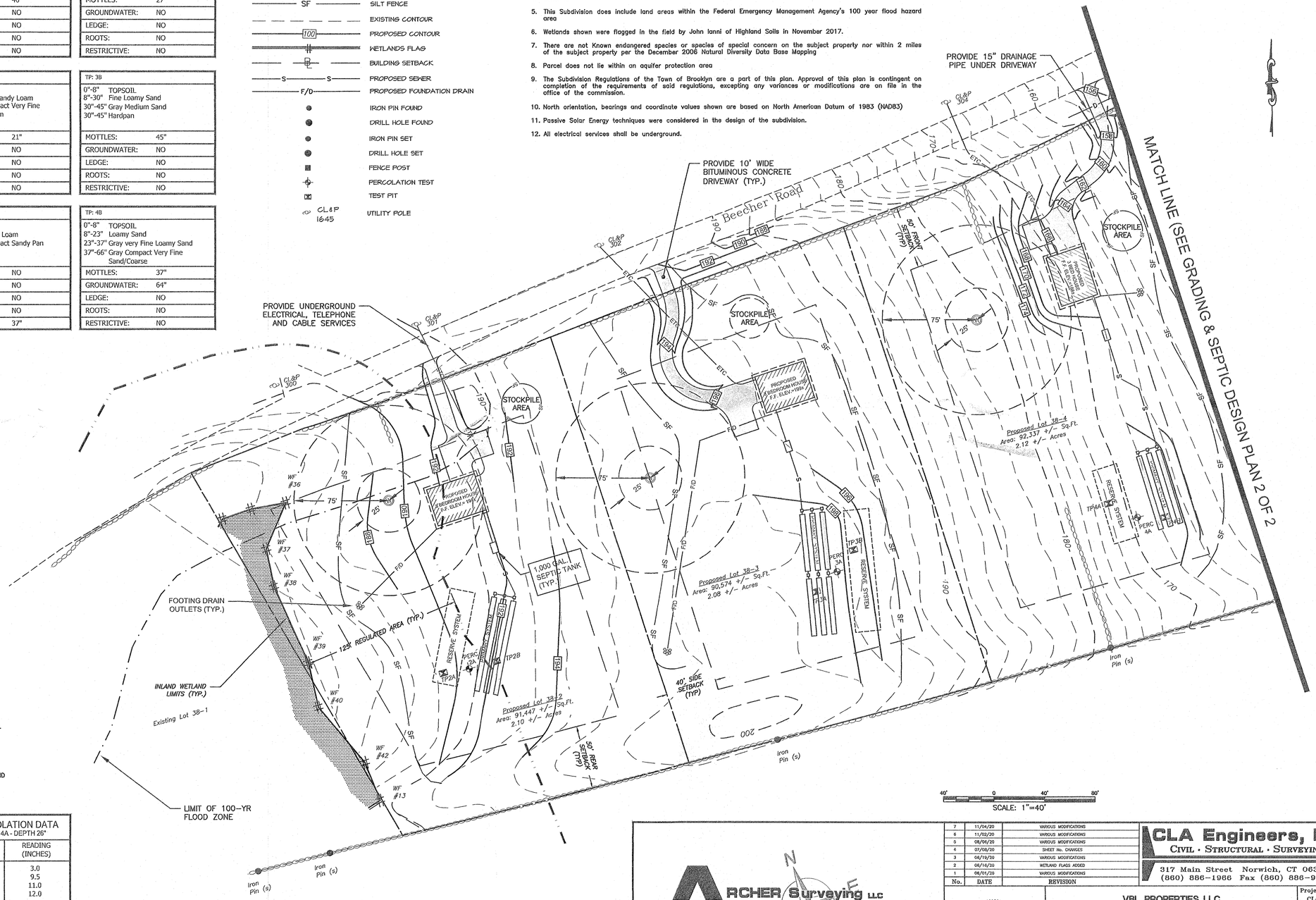
- PROPERTY LINE
- EASEMENT
- STONEWALL
- STONEWALL REMAINS
- EXISTING TREELINE
- PROPOSED CLEARING LIMITS
- SF — SILT FENCE
- EXISTING CONTOUR
- 100 — PROPOSED CONTOUR
- WETLANDS FLAG
- BUILDING SETBACK
- S — S — PROPOSED SEWER
- F/D — PROPOSED FOUNDATION DRAIN
- IRON PIN FOUND
- DRILL HOLE FOUND
- IRON PIN SET
- DRILL HOLE SET
- FENCE POST
- PERCOLATION TEST
- TEST PIT
- CL&P 1645 — UTILITY POLE

Notes

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Section 20–300b–20 and the "Standards for Surveys and Maps in State of Connecticut" as adopted by the Connecticut Associations of Land Surveyors, Inc. on September 26, 1996
   - This Survey conforms to a Class "C" Horizontal Accuracy
   - This Survey conforms to a Class "T–2" Vertical Accuracy
   - Survey Type: Site Development Plan
   - Boundary Determination: Resurvey
   - Intent: 5 Lot Subdivision
2. Parcels shown as 38 on Assessors Tax Map 22 of the Brooklyn Assessors Office
3. Property is owned by: VBL Properties, LLC
4. Zone: RA
5. This Subdivision does include land areas within the Federal Emergency Management Agency's 100 year flood hazard area
6. Wetlands shown were flagged in the field by John Ianni of Highland Soils in November 2017.
7. There are not Known endangered species or species of special concern on the subject property nor within 2 miles of the subject property per the December 2006 Natural Diversity Data Base Mapping
8. Parcel does not lie within an aquifer protection area
9. The Subdivision Regulations of the Town of Brooklyn are a part of this plan. Approval of this plan is contingent on completion of the requirements of said regulations, excepting any variances or modifications are on file in the office of the commission.
10. North orientation, bearings and coordinate values shown are based on North American Datum of 1983 (NAD83)
11. Passive Solar Energy techniques were considered in the design of the subdivision.
12. All electrical services shall be underground.

Map References

1. Prepared for the Town of Stratford, Rukstella Road, Brooklyn, Conn., Scale: 1"=100', Date May 29, 1986, Prepared by: David Marnicki
2. Lot Division Plan, Prepared for River Junction Estates, LLC, Showing Parcel "D–1", Rukstella Road, Brooklyn, Connecticut, Date: Jan. 2011, Prepared by: Messier & Associates
3. Town of Brooklyn, Map showing land to be aquired for the State Highway Purposes from Homer Beecher on the Brooklyn Canterbury Road, Scale: 1"=20', Date Oct. 1929



No.	DATE	REVISION
7	11/04/20	VARIOUS MODIFICATIONS
6	11/02/20	VARIOUS MODIFICATIONS
5	08/06/20	VARIOUS MODIFICATIONS
4	07/08/20	SHEET No. CHANGES
3	06/19/20	VARIOUS MODIFICATIONS
2	06/16/20	WETLAND FLAGS ADDED
1	06/01/20	VARIOUS MODIFICATIONS

CLA Engineers, Inc.
CIVIL • STRUCTURAL • SURVEYING
317 Main Street Norwich, CT 06360
(860) 886–1966 Fax (860) 886–9165

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779–2240

STATE OF CONNECTICUT — ROBERT A. DESTEFANO — LICENSED PROFESSIONAL ENGINEER

VBL PROPERTIES LLC

PROPOSED 5 LOT SUBDIVISION
BEECHER ROAD & RUKSTELLA ROAD
BROOKLYN CT

GRADING & SEPTIC DESIGN PLAN 1 OF 2

Project No. CLA–6382
Proj. Engineer D.H.
Date: 03/18/20
Sheet No. 4 of 9

CLA

Notes

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Section 20–300b–20 and the "Standards for Surveys and Maps in State of Connecticut" as adopted by the Connecticut Associations of Land Surveyors, Inc. on September 26, 1996
   - This Survey conforms to a Class "C" Horizontal Accuracy
   - This Survey conforms to a Class "T–2" Vertical Accuracy
   - Survey Type: Site Development Plan
   - Boundary Determination: Resurvey
   - Intent: 5 Lot Subdivision
2. Parcels shown as 38 on Assessors Tax Map 22 of the Brooklyn Assessors Office
3. Property is owned by: VBL Properties, LLC
4. Zone: RA
5. This Subdivision does include land areas within the Federal Emergency Management Agency's 100 year flood hazard area
6. Wetlands shown were flagged in the field by John Ianni of Highland Soils in November 2017.
7. There are not Known endangered species or species of special concern on the subject property nor within 2 miles of the subject property per the December 2006 Natural Diversity Data Base Mapping
8. Parcel does not lie within an aquifer protection area
9. The Subdivision Regulations of the Town of Brooklyn are a part of this plan. Approval of this plan is contingent on completion of the requirements of said regulations, excepting any variances or modifications are on file in the office of the commission.
10. North orientation, bearings and coordinate values shown are based on North American Datum of 1983 (NAD83)
11. Passive Solar Energy techniques were considered in the design of the subdivision.
12. All electrical services shall be underground.

Map References

1. Prepared for the Town of Stratford, Rukstella Road, Brooklyn, Conn., Scale: 1"=100', Date May 29, 1986, Prepared by: David Marnicki
2. Lot Division Plan, Prepared for River Junction Estates, LLC, Showing Parcel "D–1", Rukstella Road, Brooklyn, Connecticut, Date: Jan. 2011, Prepared by: Messier & Associates
3. Town of Brooklyn, Map showing land to be aquired for the State Highway Purposes from Homer Beecher on the Brooklyn Canterbury Road, Scale: 1"=20', Date Oct. 1929

PERCOLATION DATA PERC # 5A - DEPTH 27"	
TIME	READING (INCHES)
10:30	5.5
10:51	8.5
11:06	14.0
PERCOLATION RATE > 7 MIN./IN.	
NOTES: PERCOLATION TEST PERFORMED ON 5/17/2018 PERFORMED BY Terre Bombard	

PERCOLATION DATA PERC # A - DEPTH 35"	
TIME	READING (INCHES)
10:57	5.0
11:05	9.5
11:15	12.5
11:27	14.75
11:35	16.0
PERCOLATION RATE > 6.4 MIN./IN.	
NOTES: PERCOLATION TEST PERFORMED ON 3/23/2018 PERFORMED BY Terre Bombard	

DEEP TP DATA / SOIL DESCRIPTIONS

PERFORMED BY: Terre Bombard

WITNESSED BY: Northeast District Department of Health DATE: March 20, 2018

TP: 5A	
0"-7"	TOPSOIL
7"-28"	Loamy Sand
28"-61"	Gray Very Fine Loamy Sand/Mottled
MOTTLES:	28"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	NO

TP: 5B	
0"-12"	TOPSOIL
12"-38"	Loamy Sand
38"-75"	Gray Compact Very Fine Loamy Sand
MOTTLES:	38"
GROUNDWATER:	69"
LEDGE:	NO
ROOTS:	NO
RESTRICTIVE:	37"

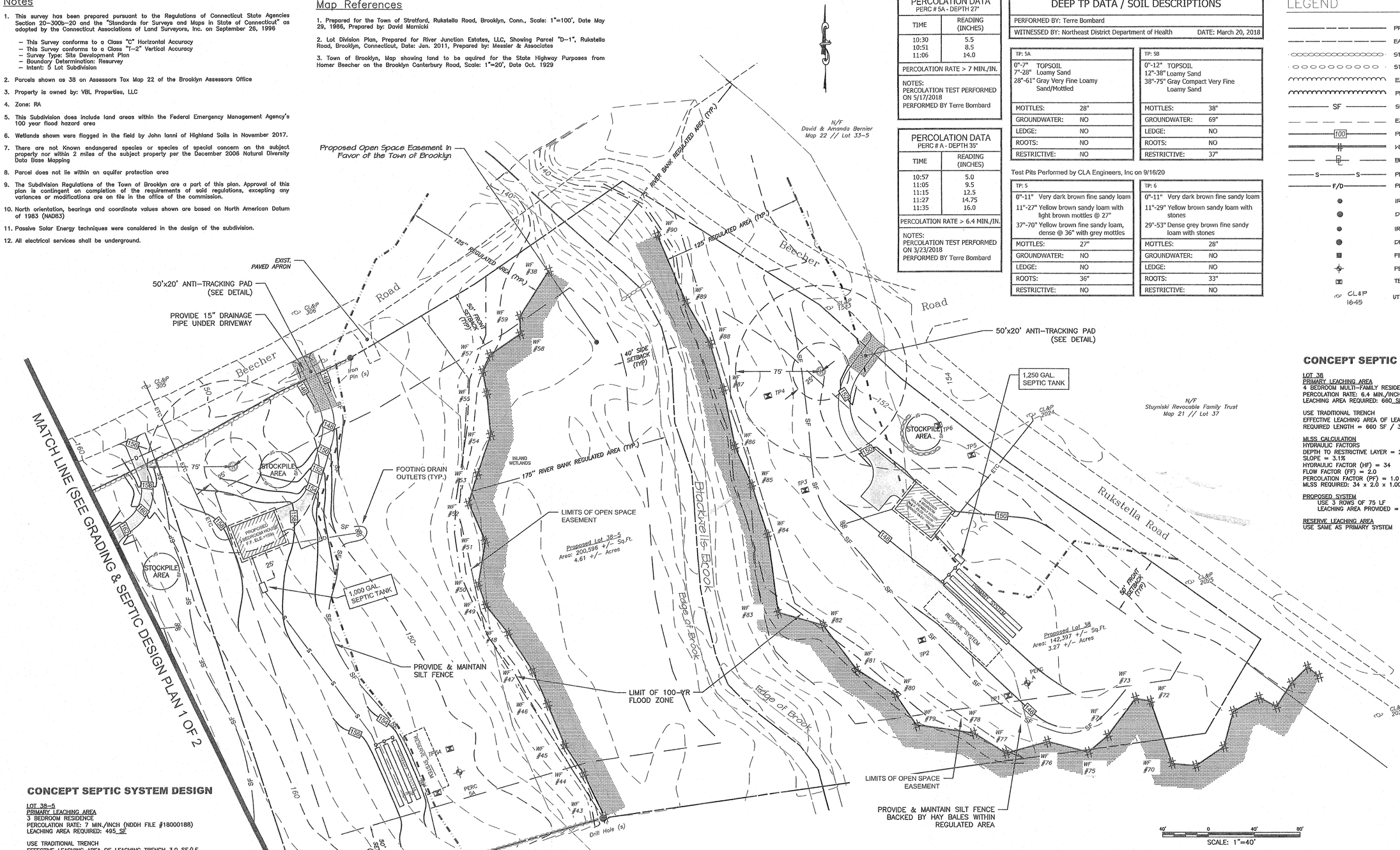
Test Pits Performed by CLA Engineers, Inc on 9/16/20

TP: 5	
0"-11"	Very dark brown fine sandy loam
11"-27"	Yellow brown sandy loam with light brown mottles @ 27"
37"-70"	Yellow brown fine sandy loam, dense @ 36" with grey mottles
MOTTLES:	27"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	36"
RESTRICTIVE:	NO

TP: 6	
0"-11"	Very dark brown fine sandy loam
11"-29"	Yellow brown sandy loam with stones
29"-53"	Dense grey brown fine sandy loam with stones
MOTTLES:	28"
GROUNDWATER:	NO
LEDGE:	NO
ROOTS:	33"
RESTRICTIVE:	NO

LEGEND

- PROPERTY LINE
- EASEMENT
- STONEWALL
- STONEWALL REMAINS
- EXISTING TREELINE
- PROPOSED CLEARING LIMITS
- SF — SILT FENCE
- EXISTING CONTOUR
- 100 — PROPOSED CONTOUR
- WETLANDS FLAG
- BUILDING SETBACK
- S — PROPOSED SEWER
- F/D — PROPOSED FOUNDATION DRAIN
- IRON PIN FOUND
- DRILL HOLE FOUND
- IRON PIN SET
- DRILL HOLE SET
- FENCE POST
- PERCOLATION TEST
- TEST PIT
- CL&P 1645 — UTILITY POLE



CONCEPT SEPTIC SYSTEM DESIGN

LOT 38–5
PRIMARY LEACHING AREA
3 BEDROOM RESIDENCE
PERCOLATION RATE: 7 MIN./INCH (NDDH FILE #18000188)
LEACHING AREA REQUIRED: 495 SF

USE TRADITIONAL TRENCH
EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF
REQUIRED LENGTH = 495 SF / 3 SF/LF = 165 LF

MLSS CALCULATION
HYDRAULIC FACTORS
DEPTH TO RESTRICTIVE LAYER = 28"
SLOPE = 6.1%
HYDRAULIC FACTOR (HF) = 28
FLOW FACTOR (FF) = 1.5
PERCOLATION FACTOR (PF) = 1.00 (UP TO 10.0 MIN./INCH)
MLSS REQUIRED: 28 x 1.5 x 1.00 = 42 LF

PROPOSED SYSTEM
USE 3 ROWS OF 55 LF
LEACHING AREA PROVIDED = 495 SF

RESERVE LEACHING AREA
USE SAME AS PRIMARY SYSTEM

CONCEPT SEPTIC SYSTEM DESIGN

LOT 38
PRIMARY LEACHING AREA
4 BEDROOM MULTI-FAMILY RESIDENCE
PERCOLATION RATE: 6.4 MIN./INCH (NDDH FILE #18000188)
LEACHING AREA REQUIRED: 660 SF

USE TRADITIONAL TRENCH
EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF
REQUIRED LENGTH = 660 SF / 3 SF/LF = 220 LF

MLSS CALCULATION
HYDRAULIC FACTORS
DEPTH TO RESTRICTIVE LAYER = 27"
SLOPE = 3.1%
HYDRAULIC FACTOR (HF) = 34
FLOW FACTOR (FF) = 2.0
PERCOLATION FACTOR (PF) = 1.0 (UP TO 10.0 MIN./INCH)
MLSS REQUIRED: 34 x 2.0 x 1.00 = 68 LF

PROPOSED SYSTEM
USE 3 ROWS OF 75 LF
LEACHING AREA PROVIDED = 675 SF

RESERVE LEACHING AREA
USE SAME AS PRIMARY SYSTEM

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

No.	DATE	REVISION
7	11/04/20	VARIOUS MODIFICATIONS
6	11/02/20	VARIOUS MODIFICATIONS
5	08/06/20	VARIOUS MODIFICATIONS
4	07/08/20	SHEET No. CHANGES
3	06/15/20	VARIOUS MODIFICATIONS
2	06/16/20	WETLAND FLAGS ADDED
1	05/01/20	VARIOUS MODIFICATIONS

CLA Engineers, Inc.
CIVIL · STRUCTURAL · SURVEYING
317 Main Street Norwich, CT 06360
(860) 886-1966 Fax (860) 886-9165

STATE OF CONNECTICUT · ROBERT A. OSBORNE · 18732 · LICENSED PROFESSIONAL ENGINEER

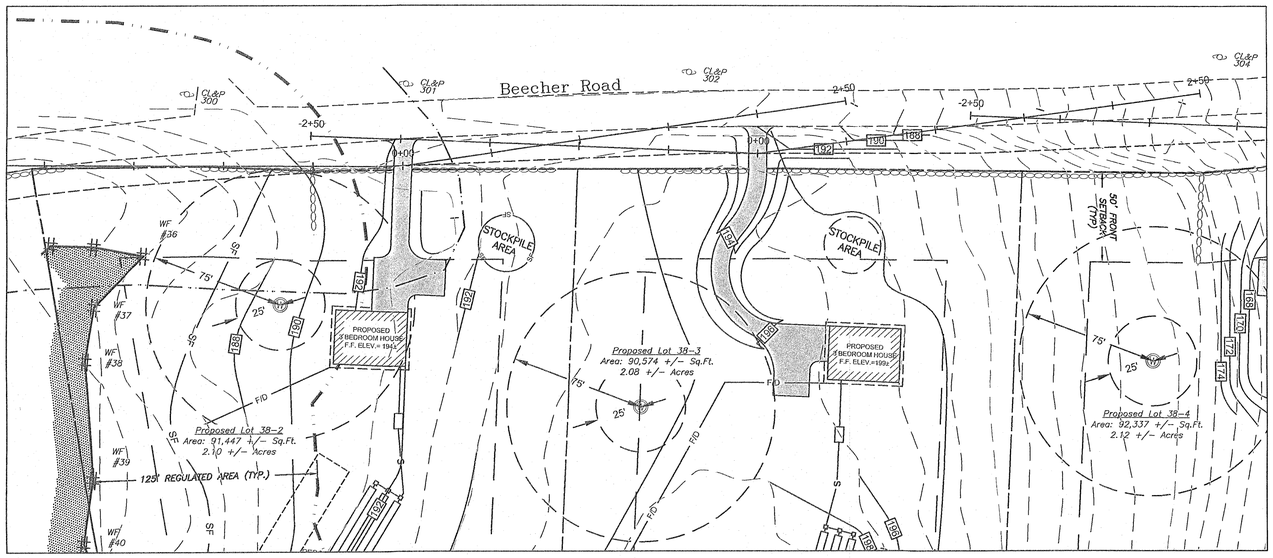
VBL PROPERTIES LLC

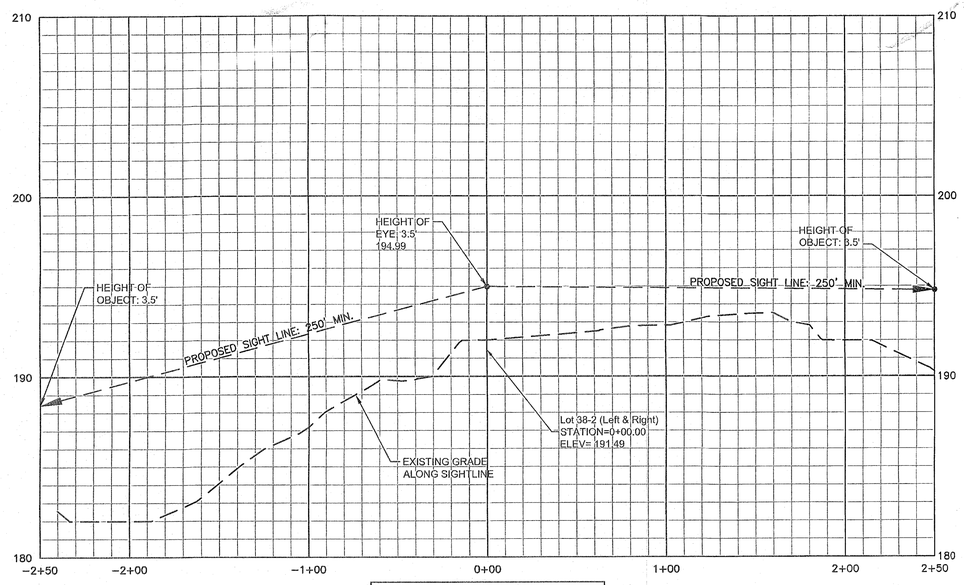
PROPOSED 5 LOT SUBDIVISION
BEECHER ROAD & RUKSTELLA ROAD
BROOKLYN CT

GRADING & SEPTIC DESIGN PLAN 2 OF 2

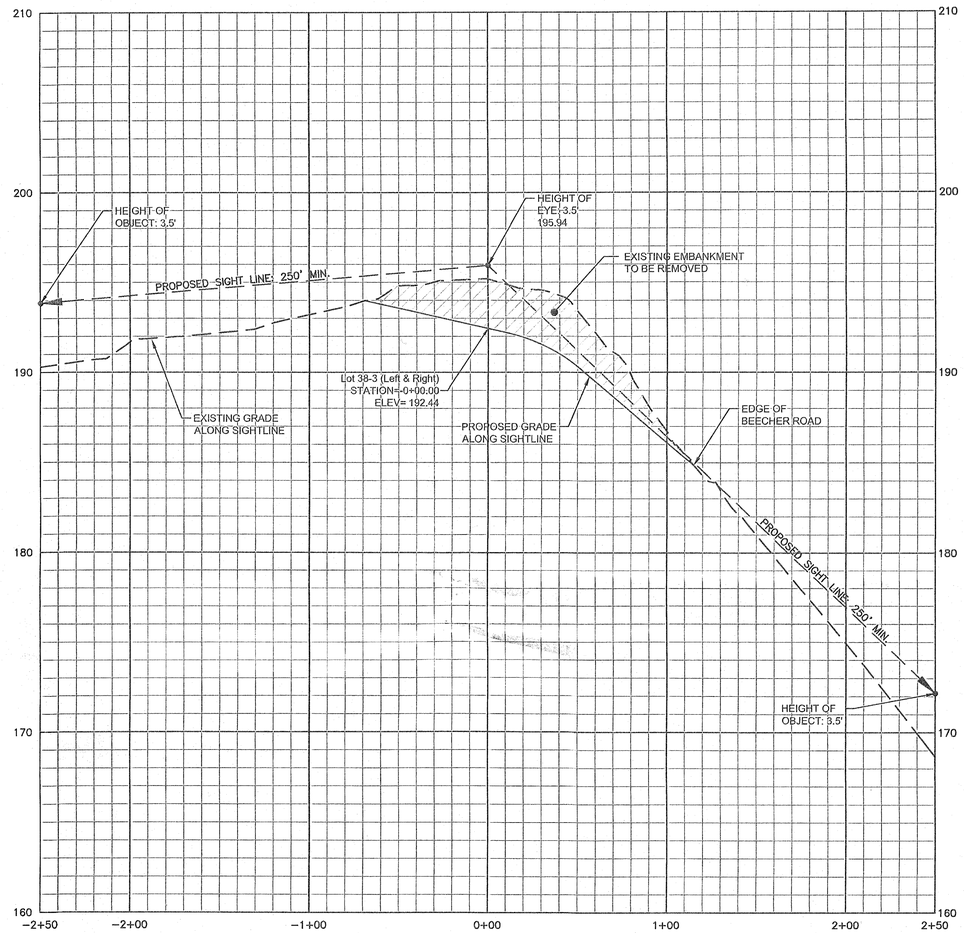
Project No. CLA-6382
Proj. Engineer D.H.
Date: 03/18/20
Sheet No. 5 of 9

CLA





Driveway Lot 38-2 (Left & Right)
Horiz. Scale: 1" = 40'
Vert. Scale: 1" = 4'



Driveway Lot 38-3 (Left & Right)
Horiz. Scale: 1" = 40'
Vert. Scale: 1" = 4'

To My Knowledge and Belief this Map is substantially Correct as noted hereon.

Robert A. DeLuca, P.E. #18756 Date

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

No.	DATE	REVISION
7	11/04/20	VARIOUS MODIFICATIONS
6	11/02/20	VARIOUS MODIFICATIONS
5	09/09/20	VARIOUS MODIFICATIONS
4	07/08/20	SHEET No. CHANGES
3	06/19/20	VARIOUS MODIFICATIONS
2	06/16/20	WETLAND FLAGS ADDED
1	05/01/20	VARIOUS MODIFICATIONS

CLA Engineers, Inc.
CIVIL · STRUCTURAL · SURVEYING
317 Main Street Norwich, CT 06360
(860) 886-1966 Fax (860) 886-9165

STATE OF CONNECTICUT ROBERT A. DELUCA 18756 REGISTERED PROFESSIONAL ENGINEER

VBL PROPERTIES LLC

PROPOSED 5 LOT SUBDIVISION
BEECHER ROAD & RUKSTELLA ROAD
BROOKLYN CT

DRIVEWAY SIGHTLINE PLAN & PROFILE

Project No. CLA-6382
Proj. Engineer D.H.
Date: 03/18/20
Sheet No. 6 of 9

CLA

EROSION & SEDIMENTATION CONTROL NARRATIVE

1. THE EROSION & SEDIMENTATION CONTROL PLAN AND DETAILS HAVE BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEP.
2. THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL MEASURES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROVIDED SILT FENCE, STONE CHECK DAMS AND/OR OTHER EROSION CONTROL MEASURES AS NEEDED OR DIRECTED BY THE ENGINEER OR TOWN STAFF TO ADEQUATELY PREVENT SEDIMENT TRANSPORT.
3. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SITE DISTURBANCE.
4. THE CONTRACTOR SHALL INSPECT, REPAIR AND/OR REPLACE EROSION CONTROL MEASURES EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT. SEDIMENT DEPOSITS MUST BE REMOVED WHEN WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
5. STAKED HAY BALE SILT BARRIERS OR SILT FENCE SHALL BE INSTALLED AROUND ANY TEMPORARY STOCKPILE AREAS. TEMPORARY VEGETATIVE COVER MAY BE REQUIRED (SEE NOTE).
6. INLET SEDIMENTATION CONTROL DEVICES SHALL BE INSTALLED UNDER THE GRATES OF ALL NEW CATCH BASINS AT THE TIME OF INSTALLATION, AND UNDER THE GRATES OF EXISTING CATCH BASINS IN THE CONSTRUCTION AREA.
7. CONTINUOUS DUST CONTROL USING WATER, CALCIUM CHLORIDE OR APPROVED EQUAL SHALL BE PROVIDED FOR ALL EARTH STOCKPILES, EARTH PILED ALONG EXCAVATIONS, SURFACES OF BACKFILLED TRENCHES AND GRAVELED ROADWAY SURFACES.
8. IF DEWATERING IS NECESSARY DURING ANY TIME OF CONSTRUCTION A CLEAR WATER DISCHARGE SHALL BE PROVIDED AS SHOWN IN THE HAY–BALE BARRIER DEWATERING DETAIL OR ALTERNATE METHOD PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
9. ALL DISTURBED AREAS SHALL BE RESTORED PER THE SLOPE STABILIZATION AND PERMANENT VEGETATION DETAILS. ALL DISTURBED AREAS THAT ARE SLOPED LESS THAN THREE HORIZONTAL TO ONE VERTICAL (3:1) SLOPE SHALL BE LOAMED, SEEDED, FERTILIZED AND MULCHED PER THE PERMANENT VEGETATIVE COVER SPECIFICATIONS. EROSION CONTROL MATTING SHALL BE PROVIDED ON ALL DISTURBED AREAS THAT ARE SLOPED MORE THAN THREE HORIZONTAL TO ONE VERTICAL (3:1).
10. IF FINAL SEEDING OF DISTURBED AREAS IS NOT TO BE COMPLETED BEFORE OCTOBER 15, THE CONTRACTOR SHALL PROVIDE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY PERMANENT SEEDING.
11. WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISHED GRADED SHALL BE COMPLETED PRIOR TO OCTOBER 15.
12. ANY EROSION WHICH OCCURS WITHIN THE DISTURBED AREAS SHALL BE IMMEDIATELY REPAIRED AND STABILIZED. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT SHALL BE RETURNED TO THE SITE. POST SEEDING, INTERCEPTED SEDIMENT, IF ANY, SHALL BE DISPOSED OF IN A MANNER APPROVED BY THE TOWN AND ENGINEER.
13. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL VEGETATION IS RE–ESTABLISHED OR SLOPES ARE STABILIZED AND REMOVAL IS APPROVED BY THE TOWN.
14. UNFORESEEN PROBLEMS WHICH ARE ENCOUNTERED IN THE FIELD SHALL BE SOLVED ACCORDING TO THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEP.
15. THE CONTRACTOR SHALL PROVIDE THE NAME AND EMERGENCY CONTACT INFORMATION FOR THE PROJECT PERSONNEL RESPONSIBLE FOR EROSION AND SEDIMENTATION CONTROLS PRIOR TO THE START OF CONSTRUCTION.

NOTE: THE CONTRACTOR SHALL CONTINUALLY STORE THE FOLLOWING MATERIALS ONSITE DURING CONSTRUCTION TO MEET UNEXPECTED EROSION NEEDS

* 100 LF OF SILT FENCE
* 10 HAY BALES
* 10 CY OF WOOD CHIPS OR CRUSHED STONE

TEMPORARY VEGETATIVE COVER

A TEMPORARY SEEDING OF RYE GRASS WILL BE COMPLETED WITHIN 15 DAYS OF THE FORMATION OF STOCKPILES. IF THE SOIL IN THE STOCKPILES HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS IT SHALL BE LOOSENED TO A DEPTH OF 2 INCHES BEFORE THE FERTILIZER, LIME AND SEED IS APPLIED. 10–10–10 FERTILIZER AT A RATE OF 7.5 POUNDS PER 1000 S.F. LIMESTONE AT A RATE OF 90 LBS. PER 1000 S.F. SHALL BE USED. RYE GRASS APPLIED AT A RATE OF 1 LB. PER 1000 S.F. SHALL PROVIDE THE TEMPORARY VEGETATIVE COVER. STRAW FREE FROM WEEDS AND COARSE MATTER SHALL BE USED AT A RATE OF 70–90 LBS. PER 1000 S.F. AS A TEMPORARY MULCH. APPLY MULCH AND DRIVE TRACKED EQUIPMENT UP AND DOWN SLOPE OVER ENTIRE SURFACE SO CLEAT MARKS ARE PARALLEL TO THE CONTOURS.

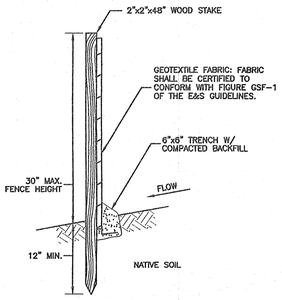
PERMANENT VEGETATIVE COVER

TOPSOIL WILL BE REPLACED ONCE THE EXCAVATIONS HAVE BEEN COMPLETED AND THE SLOPES ARE GRADED AS SHOWN ON THE PLANS. PROVIDE SLOPE PROTECTION AS CALLED FOR ON THE PLANS AND DETAILS. TOPSOIL SHALL BE SPREAD AT A MINIMUM COMPACTED DEPTH OF 4 INCHES. ONCE THE TOPSOIL HAS BEEN SPREAD, ALL STONES TWO INCHES OR LARGER IN ANY DIMENSION WILL BE REMOVED AS WELL AS DEBRIS.

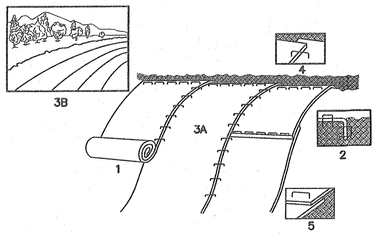
- APPLY AGRICULTURAL GROUND LIMESTONE AT THE RATE OF TWO TONS PER ACRE OR 100 LBS. PER 1000 S.F.
- APPLY 10–10–10 FERTILIZER OR EQUIVALENT AT A RATE OF 300 LBS. PER ACRE OR 7.5 LBS. PER 1000 S.F.
- WORK LIMESTONE AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES.
- INSPECT SEEDBED BEFORE SEEDING.
- IF TRAFFIC HAS COMPACTED THE SOIL, RETILL COMPACTED AREAS.
- APPLY THE FOLLOWING GRASS SEED MIX:

TYPICAL SEED MIXTURE

ALL DISTURBED AREAS	LBS./ACRE	LBS./1000 S.F.
KENTUCKY BLUEGRASS	20	0.45
CREEPING RED FESCUE	20	0.45
PERENNIAL RYEGRASS	5	0.10
	45	1.00



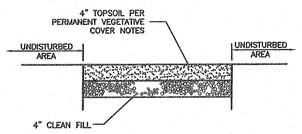
SILT FENCE SECTION
NOT TO SCALE



1. PROVIDE 4" THICKNESS OF TOPSOIL OVER CLEAN FILL. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED MIX PER PERMANENT VEGETATIVE COVER NOTES. (SHALL BE PAID FOR AT THE UNIT PRICE FOR LOAM, SEED, FERTILIZE & MULCH)
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP x 6" WIDE TRENCH, BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKET (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.

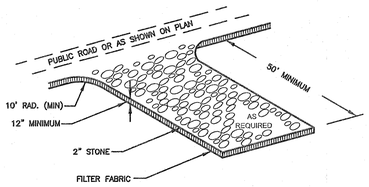
NOTE: ALL PERMANENT EROSION CONTROL BLANKETS ARE TO BE NORTH AMERICAN GREEN ECNET C125BN OR APPROVED EQUAL.

EROSION CONTROL MATTING DETAIL
(FOR 3:1 SLOPES OR GREATER)

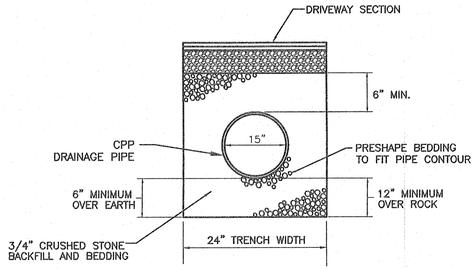


TYPICAL LOAM & SEED SECTION DETAIL
(FOR ALL DISTURBED AREAS)

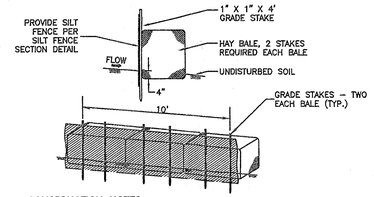
SLOPE STABILIZATION DETAILS
NOT TO SCALE



ANTI-TRACKING PAD DETAIL
NOT TO SCALE

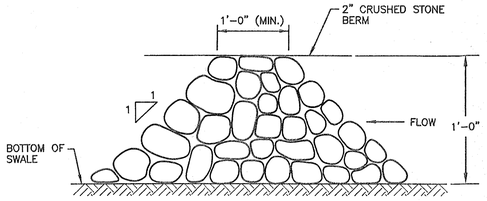


DRAINAGE PIPE BEDDING DETAIL
NOT TO SCALE

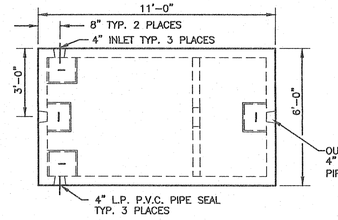


CONSTRUCTION NOTES:
1. SILT FENCE FILTER CLOTH TO BE SECURELY FASTENED TO GRADE STAKE WITH STAPLES, 6" ON CENTER.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN ONE ANOTHER THEY SHALL OVERLAP BY 6" AND BE FOLDED.
3. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.

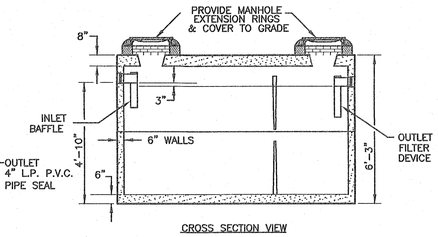
HAY BALE/SILT FENCE
EROSION PROTECTION
NOT TO SCALE



STONE CHECK DAM
NOT TO SCALE

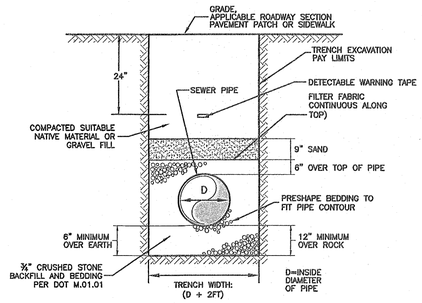


PLAN VIEW



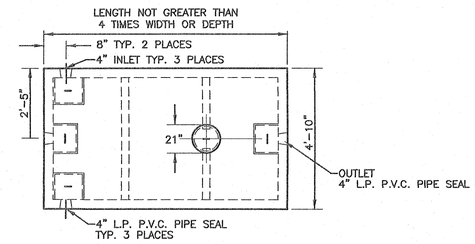
CROSS SECTION VIEW

1,250 GALLON SEPTIC TANK
NOT TO SCALE

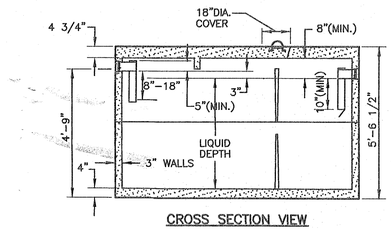


NOTES:
1. D=INSIDE DIAMETER OF PIPE.
2. TRENCH WIDTHS NOTED ARE SET TO ESTABLISH PAY LIMITS ONLY.
3. ALL EXCAVATIONS MUST MEET OSHA STANDARDS.
4. CONTRACTOR TO PROVIDE COMPACTION ON ALL TRENCH BACKFILLS. EXCAVATIONS AND PAVEMENT BASES TO NOT LESS THAN 95% OF THE DRY DENSITY FOR THAT MATERIAL.

TRENCH DETAIL: SANITARY SEWER PIPE
NOT TO SCALE

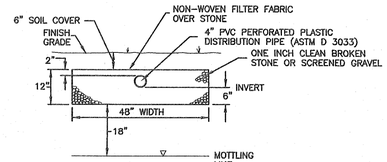


PLAN VIEW

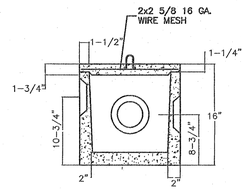


CROSS SECTION VIEW

1,000 GALLON SEPTIC TANK
NOT TO SCALE



12" x 48" LEACHING TRENCH
NOT TO SCALE



STANDARD D-BOX
NOT TO SCALE

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779–2240

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7	11/04/20	VARIOUS MODIFICATIONS
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STATE OF CONNECTICUT · ROBERT A. DESISTO · 18978 · REGISTERED PROFESSIONAL ENGINEER

VBL PROPERTIES LLC

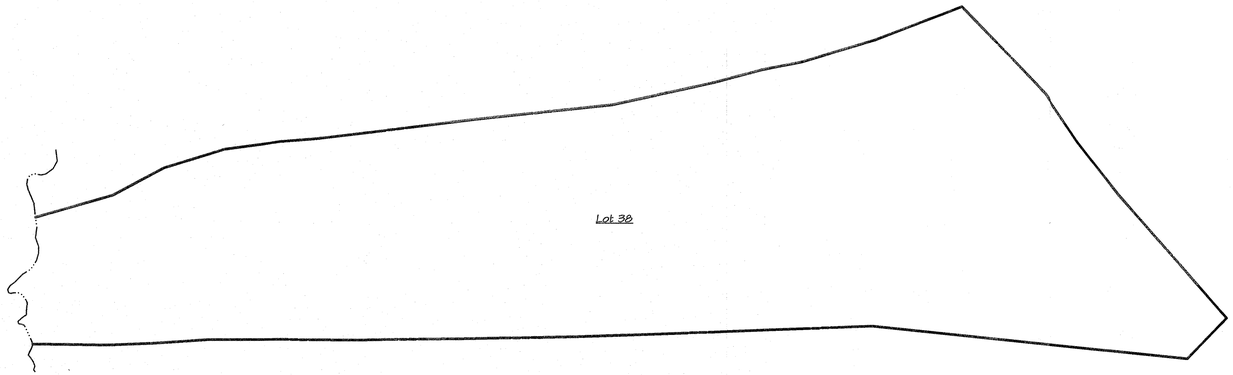
PROPOSED 5 LOT SUBDIVISION
BEECHER ROAD & RUKSTELLA ROAD
BROOKLYN CT

CONSTRUCTION DETAILS

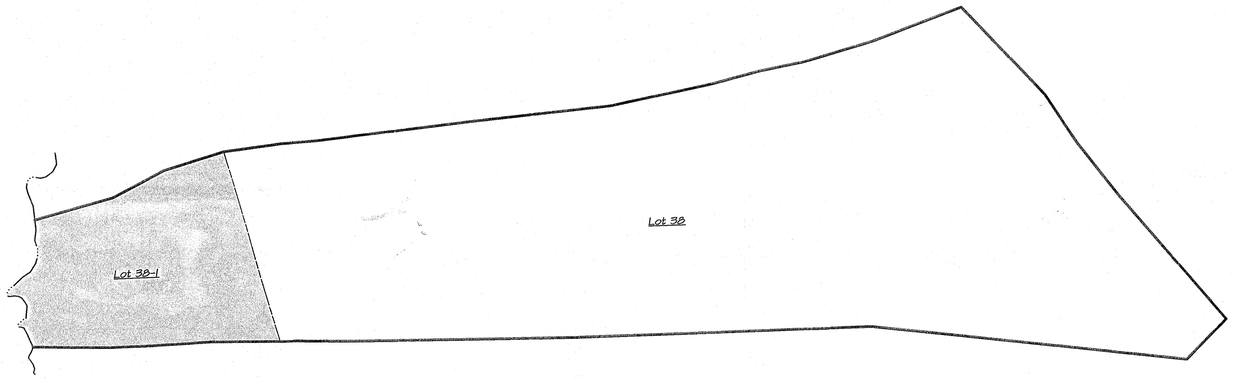
Project No. CLA–6382
Proj. Engineer D.H.
Date: 03/18/20
Sheet No. 7 of 9

CLA

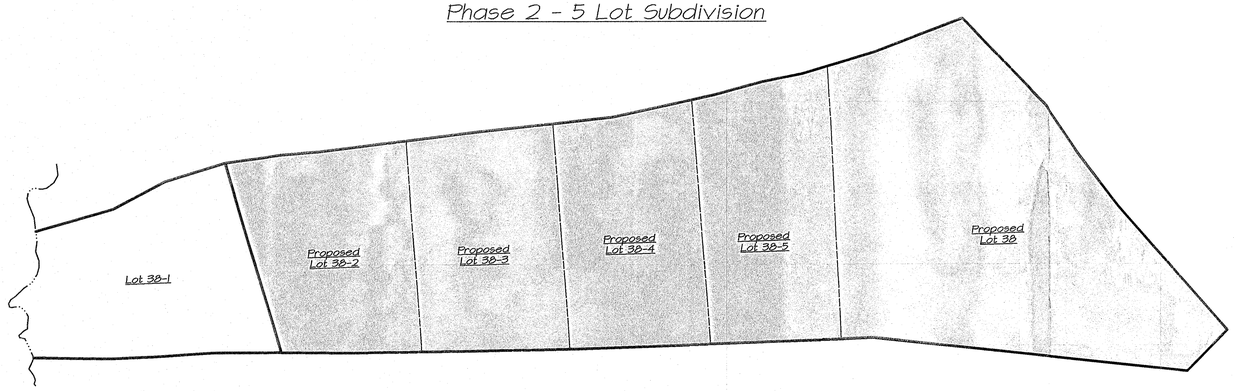
Original Tract



Phase 1 - Free Split



Phase 2 - 5 Lot Subdivision



Grantor	Grantee	Date	Vol. / Pg.
	Paul Ashworth	September 1992	129 / 87
Paul Ashworth	Bruce Ashworth & Judith Mullaney	September 1993	142 / 211
Bruce Ashworth & Judith Mullaney	Judith Mullaney Trust	January 1999	204 / 263
Judith Mullaney Trust	VBL Properties LLC	October 2016	583 / 259

History Plan

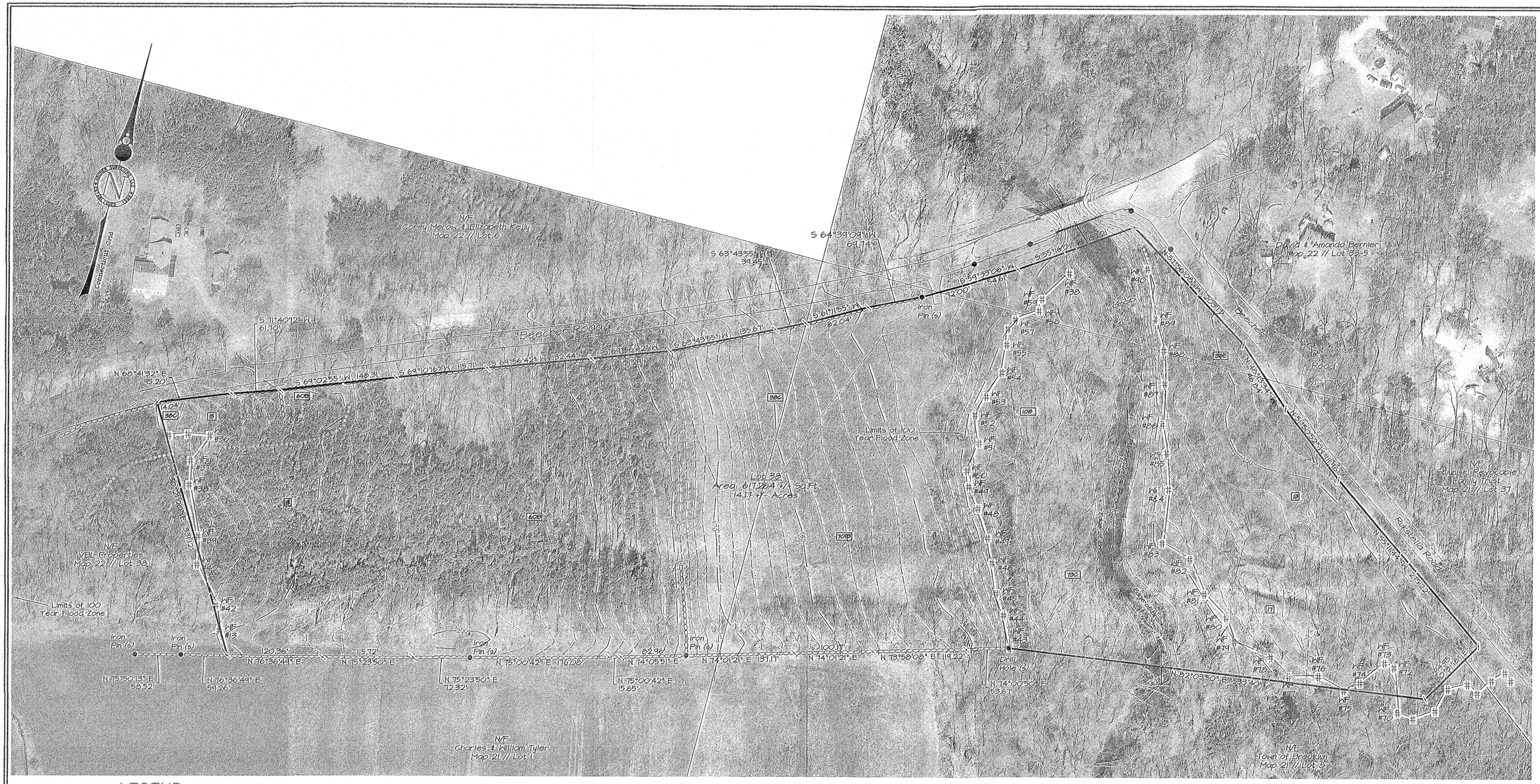
"Proposed 5 Lot Subdivision"

Prepared For:

VBL Properties LLC
Beecher Road
Brooklyn, Connecticut

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

Sheet No.	Project No.	Date:
8 OF 9	1500	June 2020



LEGEND

- PROPERTY LINE
- EASEMENT
- STONEWALL
- STONEWALL REMAINS
- EXISTING TREELINE
- 100 YEAR FLOOD LINE
- SILT FENCE
- EXISTING INDEX CONTOUR
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WETLANDS FLAG
- BUILDING SETBACK
- IRON PIN FOUND
- DRILL HOLE FOUND
- IRON PIN SET
- DRILL HOLE SET
- FENCE POST
- PERCOLATION TEST
- TEST PIT
- PROPERTY POINT
- UTILITY POLE
- TREE WITH FENCE

Soil Data	
3	Ridgebury, Leicester and Whitman soils, 0 to 8 percent slopes, Extremely stony
13	Wapole sandy loam, 0 to 3 percent slopes
15	Scarboro Muck, 0 to 3 percent Slopes
17	Timakwa and Natchaug soils, 0 to 2 percent slopes
38C	Hinckley Loam sand, 3 to 15 percent slopes
38E	Hinckley Loamy Sand, 15 to 45 percent slopes
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes
108	Saco Silt Loam
701B	Ninigret Fine sandy Loam, 3 to 8 Percent slopes

To My Knowledge and Belief this Map is substantially Correct as noted hereon.

Paul M. Archer LLS #10013 Date

Site Analysis Plan

Prepared For:
VBL Properties LLC
Beecher Road
Brooklyn, Connecticut

DRAWING SCALE: 1"=60' (0 30 60 120)

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

Sheet No.	Project No.	Date:
9 OF 9	1500	June 4, 2020

ARCHER Surveying LLC