Docko, Inc. *Serving the waterfront community since 1987*

P.O. Box 421, Mystic, CT 06355 (860) 572-8939 Fax: (860) 572-7569, email: office@docko.com

April 22, 2019

Mr. Dennis Goderre
City of Groton Planning & Zoning Commission
295 Meridian Avenue
Groton, CT 06340

Re: Norman Bloom and Sons, LLC
Site Modifications, 107 Thames St.

Dear Mr. Goderre,

We are transmitting herewith 8 copies of the Application for Site Plan Approval for site modifications for Norman Bloom and Sons, LLC at 107 Thames Street. Enclosed, is the application fee in the amount of $60 for the State fee allow with the following items:

- Coastal site Plan Application Drawing including details of proposed building modifications suitable for Zoning Permit purposes
- Application for Review of Coastal Site Plans
- DEEP Resource Maps
- Location Map
- Photographs of the site of the proposed work

I trust that you will find the application complete and acceptable. I look forward to the opportunity to discuss this with you further in a plan review should you so desire, or at the earliest Zoning Commission Meeting.

Yours truly,
DOCKO, INC.

Keith B. Neilson, P.E.

KBN: cl
Enclosure
CC: Mr. Norman Bloom, Aeros
Mr. Jim Markow, Aeros
File: 19-02-3006 AEROS, 107 THAMES ST

RECEIVED
APR 2 2 2019
CITY OF GROTON CONNECTICUT
ZONING AND BUILDING DEPARTMENT

Municipal Building
295 Meridian Street
Groton, CT 06340
(860) 446-4169
(860) 446-4109 FAX

City of Groton
Planning and Zoning Commission

APPLICATION FOR SITE PLAN APPROVAL

This application must be accompanied by eight (8) copies of the proposed site plan conforming to the City of Groton Zoning Regulations, appropriate fee, supporting documents and other applications and fees as required at least fourteen (14) days prior to a regularly scheduled meeting of the Planning and Zoning Commission in order to be received at that meeting.

Note: In order for this application to be accepted, it must be complete, signed by all appropriate parties and accompanied by all necessary fees and maps and plans

SITE PLAN #

1.Property Location: 107 Thames Street

2.Current Use: Marinas Zoning District: WBR Parcel Size: 0.287

3. Tax Map: 168919 Block: 22 Lot: 7417 PIN: 168919227417 (property ID #)

4.Applicant/Agent: Norman Bloom & Sons, LLC (Name)

Address: 7 Edgewater Place, Norwalk, CT 06855

Phone #: 860-460-4558

5.Owner of Property: Norman Bloom & Sons, LLC (Name)

Address: 7 Edgewater Place, Norwalk, CT 06855

Phone #: 860-460-4558

6.Surveyor/Engineer Information: Docko, Inc. (Name)

Address: 14 Holmes Street, Mystic, CT 06355

Phone #: 860-572-8939

It is hereby requested that Site Plan Approval be granted under the provisions of Section 3.14 of the City of Groton Zoning Regulations that will permit the following: (provide a brief project description including proposed use.)

This project is to restore and cap an existing, longstanding stone seawall, re-grade the existing site to restore a boat yard an access driveway, place 100 CY of crushed stone over 10,000 (+/-) SF for a new yard and driveway surface, install a gabion, concrete block or granite block retaining wall 200 (+/-) CY over 600 (+/-) SF install new water and electrical service utilities, and rebuild a wood pile and timber pier including new bresting dolphins and install a floating dock barge with a hinged ramp to shore for berthing aquaculture facilities.

RECEIVED
APR 22 2019
CITY OF GROTON CONNECTICUT
ZONING AND BUILDING DEPARTMENT

Has an Inland Wetland Application been submitted? Y_____ N ✓ N/A _____
Has a Coastal Site Plan Application been submitted? Y ✓ N_____ N/A _____
Is any portion of the site within a Flood Hazard Area? Y ✓ N_____
Is the site within 500 feet of the City line? Y_____ N ✓
Does the site derive access from a State Road? Y_____ N ✓ (if yes, contact CTDOT)
Has any application been filed previously with any Commission in connection with this parcel?
Y _____ (if yes, please complete following) N ✓

Type of application(s): Coastal Site Plan

Date of application(s): April 22, 2019

The following items are required to be submitted in support of this application:

1. Fee: see fee schedule plus $60.00 State fee paid in full Payable to the City of Groton.
2. Site Plan prepared in accordance with Section 6.6 of the City of Groton Zoning Regulations (8 copies).
3. Floor plans and elevation for proposed or existing structures.

The submission of this application constitutes the property owner's permission for the Commission or its staff to enter the property for the purpose of inspection. I certify to the best of my knowledge that the above information is true and correct and conforms to the Zoning Regulations of the City of Groton.

Applicant Name printed James Bloom

Applicant Signature James Bloom

Date 4/18/19

Owner Name printed James Bloom

Owner Signature James Bloom

Date 4/18/19

CITY OF GROTON
APPLICATION FOR REVIEW OF COASTAL SITE PLANS

Model Coastal Site Plan Review Application

Supplemental Information for Projects Located within the Coastal Boundary*

Refer to Coastal Site Plan application instruction sheet (attached) for sources of information, and general comments pertinent to filling out this application.

NAME OF APPLICANT: Norman Bloom & Sons, LLC
DATE: April 22, 2019

PROJECT ADDRESS OR LOCATION: 107 Thames St.

The following information must be supplied by the applicant, and submitted in addition to, and long with, any application, plans, and date required for approval of the proposed project under the Zoning and/or Subdivision Regulations of this municipality. Attach additional sheets if more space is required.

I. PLANS

A. Project Plan(s)

This application must be accompanied by a plan (or plans) of the entire project indicating:

1. Project location
2. Design of all existing and proposed buildings, structures, and uses
3. All proposed site improvements or alterations
4. Ownership and type of use on adjacent properties

B. Coastal Resources

This application must be accompanied by a plan showing the location of all coastal resources (as defined in C.G.S. Section 22a-93)

The project site is located at 107 Thames Street in Groton Connecticut. This site is approximately 1/2 mile south of the I-95 Goldstar Highway bridge which runs between Groton and New London. The coastal resources at this site include the Thames River which is an Estuarine Embayment, subject to coastal flood hazards of inundation and storm driven waves. The site itself is a fully developed shorefront, a modified bluff, with a full-length stone seawall which has existed for decades, if not more than a century

II. WRITTEN INFORMATION

A. Description of the Proposed Project

Describe the entire project including types of buildings and structures, uses, methods and timing of construction, type and extent of development adjacent to the site. This information should supplement and/or clarify plans in I. – A. above.

This project is to restore and cap an existing, longstanding stone seawall, re-grade the existing site to restore a boat yard and access driveway, place 100 CY of crushed stone over 10,000 (+/-) SF for a new yard and driveway surface, install a gabion, concrete block or granite block retaining wall, 200 (+/-) CY over 600 (+/-) SF, install new water and electrical service utilities, and rebuild a wood pile and timber pier including new bresting dolphins, and install a floating dock barge with a hinged ramp to shore for berthing aquaculture vessels.

*Coastal Boundary maps are on file at the Town Clerk's Office and/or Planning and Zoning Office.B. Description of Coastal Resources

Identify the coastal resources on and contiguous to the site (as shown on the coastal resources map) and describe their condition. This information should supplement and/or clarify the plan in I. B. above.

The site is a modified bluff located on an estuarine embayment exposed to coastal hazards of flood and waves.

C. Assessments of the Suitability of the Project for the Proposed Site and the Capability of the Resources to Accommodate the Proposed Use.

1. Identify any and all coastal resource policies (in C.G.S. Section 22a-92 (b) (2) and printed in CAM Planning Report #30) applicable to the proposed project.

General Resource: A, B and C This site is developed and is being modified to remain a high priority water dependent use. Resource Policies applicable to the site are address in greater detail below.

Coastal Hazard Area: A: The site is exposed to coastal flooding and storm waves.

Developed Shorefront: A: The site is completely developed with a seawall and boat yard facilities.

Shellfish Concentration Area: Parts of New London Harbor are designated as shellfish concentration areas although this site would hardly seem to qualify because of the rock nature of the shallow subtidal shoreline benthos.

Coastal Waters: A: The Thames River and New London Harbor are classified at Estuarine Embayment's.

2. Identify any and all coastal use policies (in C.G.S. Section 22a-92 (b) (1) and printed in CAM Planning Report #30) applicable to the proposed project.

General Development: A: This site has been developed and historically used as a boat yard of high priority water dependent use until the last 15 years during which it has sat idle. That is about to change for the better.

Water Dependent Uses: A, B: The boat yard, and now aquaculture support facilities are high priority water dependent uses.

Ports and Harbors A, B and National Interest Facilities and Resources Policy: B: The Port and Harbors uses and National Interest Facilities issues are commonly addressed in this project. The strategic importance of New London is well known with defense plants and a military base nearly and integrally connected to the economy and world stability. New London is also a regional shipping terminal and hosts two regional ferry transportation facilities. Fishing and shell fishing facilities and operations have been lacking for decades and the project, even as small as it is by comparison will be a vital and much needed step in diversification.

3. Describe how the proposed project is consistent with all of the coastal policies identified in C (1), and (2) above (i.e., describe the extent to which the project complies or conflicts with each policy). Note: If a project conflicts with any policy, the project should be modified to reduce or eliminate the conflict.

This project is fully consistent with the Coastal Area Management plan of the state. The project involves replacing a long-standing recreational boating dock facility with an aquaculture support facility. This project makes use of an existing, long-standing, high-priority water dependent use site, converting the geographical features to accommodate safer and more efficient vehicle access to the work yard bounded by the sea wall along the Thames River. This site, once restored, will provide docking facilities for aquaculture vessels and a means for the crew and support vehicles to reach the site, man the vessels and secure them safely, even during coastal storm conditions, in close proximity to the shellfish beds which they work on a daily basis.

D. Evaluation of the Potential Beneficial and Adverse Impacts of the Project and Description of Proposed Methods to Mitigate Adverse Effects.

1. Identify and describe the potential adverse impacts (as defined C.G.S. Section 22a-93 (15)) and potential beneficial impacts of the project on coastal resources.

Erosion and possible collapse of the sea wall is a potential adverse effect of this project not moving forward. The design of the docking facilities and the upland access yard has been undertaken in accordance with the City of Groton Zoning regulations, best management practices set forth by the State of Connecticut Soil Conservation Service guidelines, and current construction industry standards, in an effort to avoid adverse impacts to the environment and coastal resources at the site or nearby in the Thames River. The beneficial aspects to this project are the reduction of erosion and loss of soils at the site and the stabilization of the existing seawall and dock facilities to be utilized in this high priority, water dependent use.

FOR WATERFRONT PROPERTY ONLY:

2. Is the project a water dependent use as defined in C.G.S. Section 22a-93 (16)? If so, explain why.

This priority project is a high priority water dependent use as defined in CGS Section 22a – 93 (16). The facilities will support landing and berthing of aquaculture vessels at a protected site in the immediate proximity to the shellfish beds located throughout the Thames River and provides enough parking to accommodate the crews.

3. Describe the impacts or effects (either positive or negative) that the project will have on future water dependent uses or development on, and adjacent to this site. (Adverse impacts on future water dependent development opportunities are described in C.G.S. Section 22a-93 (17)).

This project will have no adverse impact on future water dependent uses. The project itself is a high priority water dependent use which will be conducted from a very small site, practically unusable for any other purpose except residential accommodations or a boat yard with limited maintenance facilities for small boat repair and engine work. If, however, a higher priority water dependent use would require this site in the future, the site grading proposed herein, and possibly the rebuilt docking facility, would probably prove beneficial for such a use.

4. Describe the proposed measures to mitigate (reduce or eliminate) any adverse impacts on coastal resources described in D (1) and, if applicable, on future water dependent developments opportunities described in D (3).

The mitigative measures utilized in the design for this project include safer access accommodations, re-grading the site to provide a larger and more usable work area, and ceiling and stabilizing the seawall to make more secure. All of this work can be done without adversely affecting existing coastal resources. The project therefore should also not have any adverse effect on future water dependent uses which might be able to utilize such a limited site.

E. <u>Demonstration of the Acceptability of Remaining or Unmitigated Adverse Impacts on Coastal Resources and Future Water Dependent Uses and Development</u>

1. Describe any adverse impacts that remain after employing all reasonable mitigation measures.

It is not envisioned that there will be any adverse environmental impacts remaining after the completion of the proposed site improvements and these improvements do not appear to require mitigation measures.

2. Explain why these other remaining adverse impacts were not mitigated.

It is not envisioned that there will be any adverse environmental impacts remaining after the completion of the proposed site improvements and these improvements do not appear to require mitigation measures.

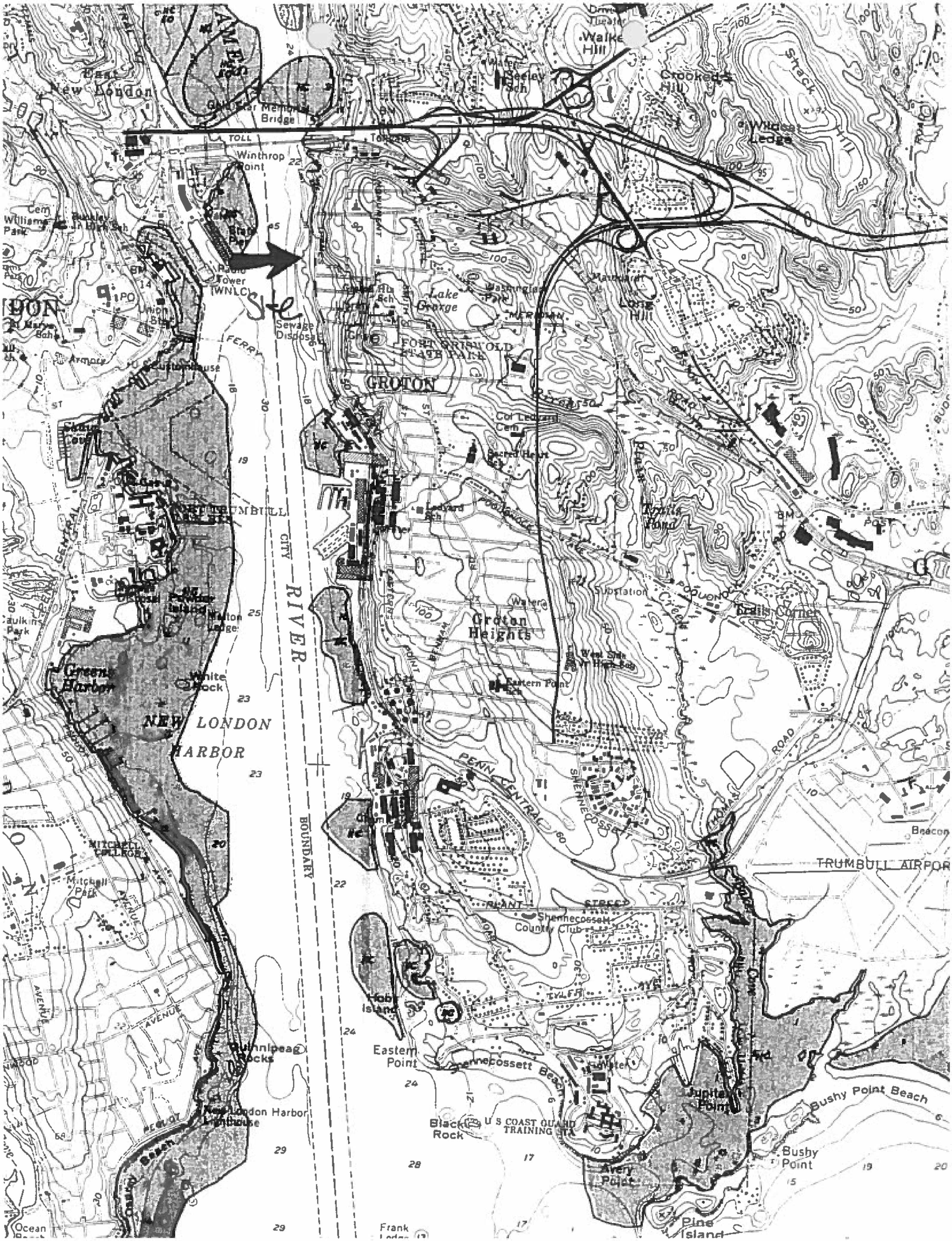
3. Explain why the Commission reviewing this application should find these remaining adverse impacts to be acceptable.

This is a good project, not only consistent with Groton Zoning Regulations, and the City's Plan of Development, and the Thames Street study, but it also makes exceptionally good use of a very limited site, utilizing the area efficiently, retaining and restoring existing degraded features, including the seawall and dock facilities, and supporting a growing aquaculture industry which benefits the community, and the local economy. The project is consistent with the special permit requirements set forth in the zoning regulations and has been welcomed by several members of the neighborhood. This project appears to meet the spirit and the letter of the permitting requirements of the US Army Corps of Engineers, State of Connecticut DEEP and the City of Groton.

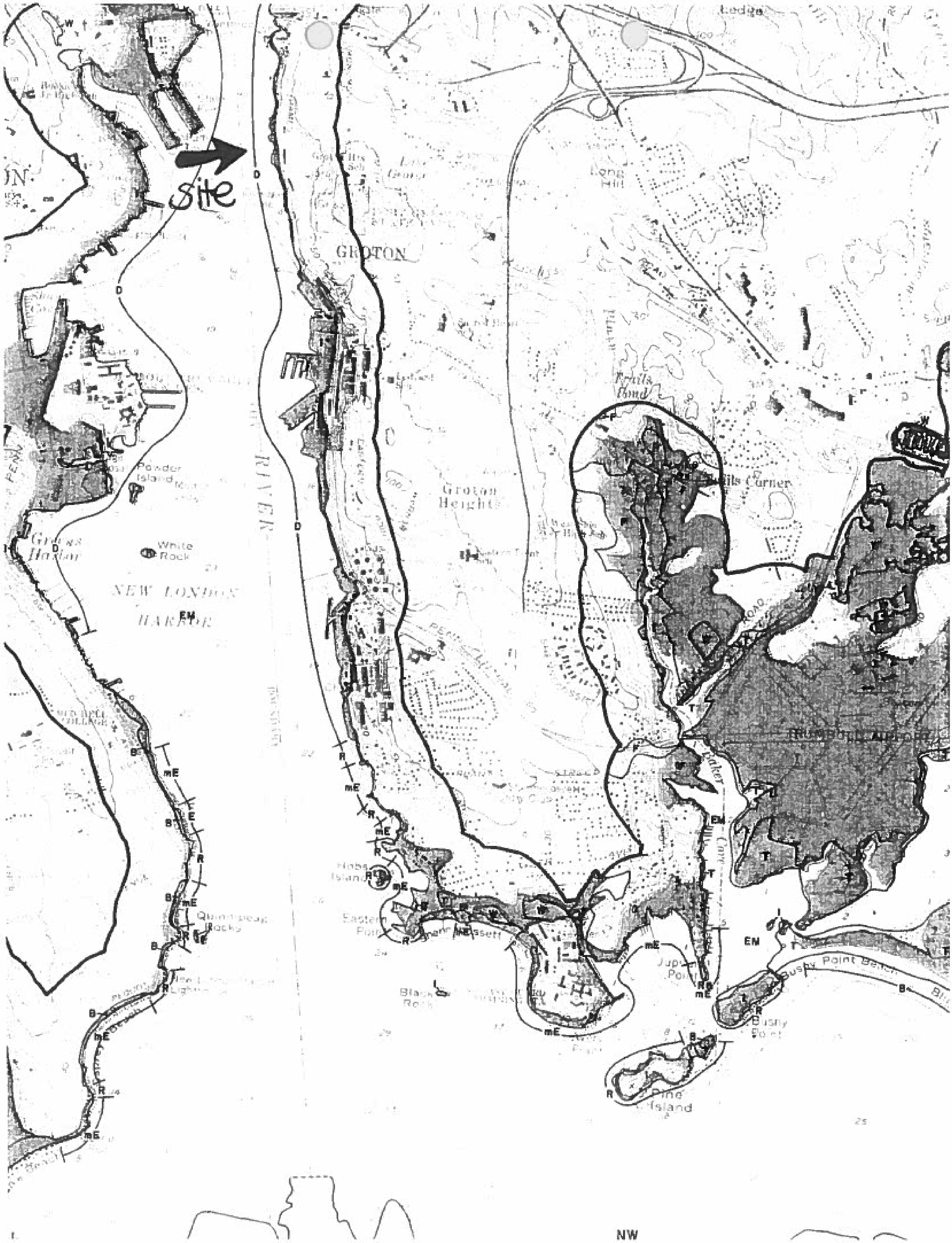
III. SUPPORTING MATERIALS/DOCUMENTATION

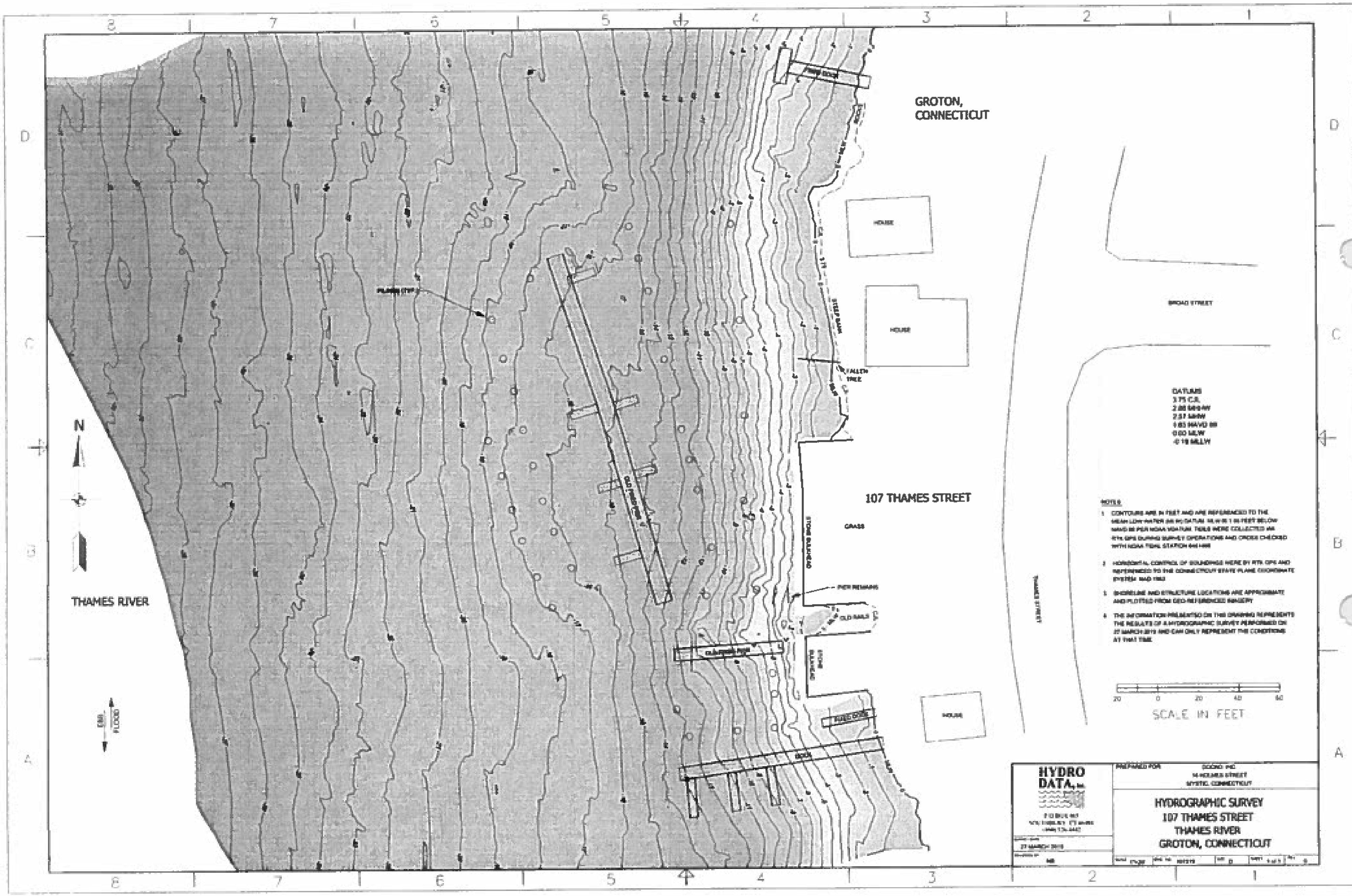
A. The Commission or Board may request the submission of such additional information that it deems necessary in order to reach a decision on the application.

Include any additional information required by the Commission, and list any supplemental materials (plans, reports, etc.) that are being submitted in support of this application.



East New London
Gold Star Memorial Bridge
TOLL
Winthrop Point
Walker Hill
Seeley Sch
Crooked Hill
Shack Hill
Wildcat Ledge
State Pier
Radio Tower (WNLC)
Sewage Disposal
Lake George
Washington Park
Long Hill
FORT GRISWOLD STATE PARK
GROTON
Col Ledyard Cem
Sacred Heart Sch
Ledyard Sch
FERRY
Customhouse
FORT TRUMBULL
Powder Island
Walton Ledge
Greens Harbor
White Rock
NEW LONDON HARBOR
RIVER
CITY BOUNDARY
Groton Heights
Substation
Poquonock
Trails Corner
West Side Jr High Sch
Eastern Point Sch
PENN CENTRAL
Shennecossett
MITCHELL COLLEGE
Mitchell Park
Beacon
TRUMBULL AIRPORT
PLANT STREET
Shennecossett Country Club
TYLER AVE
Quinnipeag Rocks
New London Harbor Lighthouse
Eastern Point
Shennecossett Beach
Black Rock
U S COAST GUARD TRAINING STA
Jupiter Point
Bushy Point Beach
Bushy Point
Avery Point
Pine Island
Ocean Beach


site
Ledge
Long Hill
GROTON
RIVER
Powder Island
White Rock
NEW LONDON HARBOR
Groton Heights
Eastern Point
Bushy Point Beach
Bushy Point
Pine Island
NW


GROTON, CONNECTICUT
HOUSE
HOUSE
HOUSE
BROAD STREET
THAMES STREET
107 THAMES STREET
GRASS
STONE BULKHEAD
PIER REMAINS
OLD RAILS
STEEP BANK
FALLEN TREE
OLD FIXED PIER
DOCK
PILINGS (TYP)
DATUMS
NOTES
SCALE IN FEET
THAMES RIVER
N
EBB
FLOOD
HYDRO DATA, Inc.
PREPARED FOR
HYDROGRAPHIC SURVEY
107 THAMES STREET
THAMES RIVER
GROTON, CONNECTICUT

Docko, Inc. *Serving the waterfront community since 1987*
P.O. Box 421, Mystic, CT 06355 (860) 572-8939 Fax: (860) 572-7569, email: office@docko.com

April 22, 2019

Mr. Dennis Goderre
City of Groton Planning & Zoning Commission
295 Meridian Avenue
Groton, CT 06340

Re: Norman Bloom and Sons, LLC
Site Modifications, 107 Thames St.

Dear Mr.Goderre,

We are transmitting herewith 8 copies of the Application for a Special Permit for site modifications at 107 Thames Street. Enclosed, with the application are 8 copies of the Coastal site plan and the application fee in the amount of $310.00 ($250 fee plus $60 State fee).

I trust that you will find the application complete and acceptable. I look forward to the opportunity to discuss this with you further in a plan review should you so desire, or at the earliest Zoning Commission Meeting.

Yours truly,
DOCKO, INC.

Keith B. Neilson, P.E.

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APR 22 2019
CITY OF GROTON CONNECTICUT
ZONING AND BUILDING DEPARTMENT

KBN: cl
Enclosures
CC: Mr. Norman Bloom, Aeros
Mr. Jim Markow, Aeros
File: 19-02-3006 AEROS, 107 THAMES ST

Municipal Building
295 Meridian Street
Groton, CT 06340
(860) 446-4169
(860) 446-4109 FAX

City of Groton
Planning and Zoning Commission

APPLICATION FOR SPECIAL PERMIT

This application including the proposed site plan in conformance with the City of Groton Zoning Regulations, appropriate fee and supporting documents and other applications as required must be submitted in triplicate at least fourteen (14) days prior to a regularly scheduled meeting of the Planning and Zoning Commission in order to be received at that meeting.
Note: In order for this application to be accepted, it must be complete, signed by all appropriate parties and accompanied by all necessary fees and maps and plans.

SPECIAL PERMIT #

1. Property Location: 107 Thames Street
2. Current Use: Marinas Zoning District: WBR Parcel Size: 0.287
3. Tax Map: 168919 Block: 22 Lot: 7417 PIN: 168919227417 (property ID #)
4. Applicant/Agent: Norman Bloom & Sons, LLC (Name)
   Address: 7 Edgewater Place, Norwalk, CT 06855
   Phone #: 860-460-4558 FAX#: _____
5. Owner of Property: Norman Bloom & Sons, LLC (Name)
   Address: 7 Edgewater Place, Norwalk, CT 06855
   Phone #: 860-460-4558 FAX#: _____
6. Surveyor/Engineer Information: Docko, Inc. (Name)
   Address: 14 Holmes Street, Mystic, CT 06355
   Phone #: 860-572-8939

It is hereby requested that a Special Permit be granted under the provisions of Section 3.14 of the City of Groton Zoning Regulations that will permit the following: (provide a brief project description including the proposed use, impact on traffic patterns, the environment and neighboring properties)

This project is to restore and cap an existing, longstanding stone seawall, re-grade the existing site to restore a boat yard an access driveway, place 100 CY of crushed stone over 10,000 (+/-) SF for a new yard and driveway surface, install a gabion, concrete block or granite block retaining wall 200 (+/-) CY over 600 (+/-) SF install new water and electrical service utilities, and rebuild a wood pile and timber pier including new bresting dolphins and install a floating dock barge with a hinged ramp to shore for berthing aquaculture vessels.

For fill/excavation applications: Fill 300 Cubic Yds. Excavation _____ Cubic Yds.

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CITY OF GROTON CONNECTICUT
ZONING AND BUILDING DEPARTMENT

Has an Inland Wetland Application been submitted? Y________ N ✓ ______ N/A ________
Has a Coastal Site Plan Application been submitted? Y ✓ ______ N________ N/A ________
Is any portion of the site within a Flood Hazard Area? Y ✓ ______ N________
Is the site within 500 feet of the City line? Y________ N ✓ ______
Has any application been filed previously with any Commission in connection with this parcel?
Y ________ (if yes, please complete following) N ✓ ______

Type of application(s): Special Permit Application

Date of application(s): April 18, 2019

The following items are required to be submitted in support of this application:

1. Fee: $250.00 plus $60.00 State fee, Payable to the City of Groton.
2. Site Plan and Site Plan application prepared in accordance with Section 6.6 of the City of Groton Zoning Regulations (8 copies).
3. Floor plans and elevation for proposed or existing structures.
4. A list of all property owners within 200 feet of the parcel, signed and dated by the Applicant.

The submission of this application constitutes the property owner's permission for the Commission or its staff to enter the property for the purpose of inspection. I certify to the best of my knowledge that the above information is true and correct and conforms to the Zoning Regulations of the City of Groton.

Applicant Name printed James Bloom

Applicant Signature James Bloom

Date 4/18/19

Owner Name printed James Bloom

Owner Signature James Bloom

Date 4/18/19

Planner: ________________ Date: ________

Application No.: _____

City of Groton
Department of Planning & Economic Development

Form A: Zoning Permit, Site Plan and Special Permit

Refer to Section 9 Administrative Provisions of the Zoning Regulations for all application procedures in addition to those listed upon this form.

The Form A - Zoning Table must be attached to this form.

District

Zoning District(s): 1. WBR 2. _____

Proposed Use

List the Principal Use(s) you are requesting permits for (See applicable district regulation):

1. Docks for Shellfisheries
2. Yard for aquaculture boat service and repair
3. _____
4. _____

List the Accessory Use(s) you are requesting permits for (See applicable district regulation):

1. Tanks for algae growth
2. _____
3. _____
4. _____

Project Narrative

On the following page describe the proposed project/request being as detailed as possible. The Project narrative helps to establish the use(s) listed above for which the permit will be issued. At minimum, it shall include the following information:

a. Describe the nature of use(s) and associated activities. Be as detailed as possible.
b. Describe all natural resources including but not limited to inland wetlands, flood areas and coastal resources as defined in C.G.S. Section 22a-93
c. Methods, timing, schedule, sequence of construction and staging
d. SF of existing and proposed buildings; Number of stories of buildings/additions
e. Number of employees
f. Description of utilities
g. Number of parcels upon which improvements are proposed
h. Quantity of parking required and proposed and itemized by principal use
i. Hours of operation
j. Number of residential units
k. For mixed use, breakdown by SF of each use and number of residential units
l. *For Special Permits, provide a separate narrative explaining how the application addresses each Special Permit Criteria explained in Section 9.4.D.*

Application No.: _____

City of Groton
Department of Planning & Economic Development

Site Plan and Coastal Area Management Checklist

Minimum Information to be Provided on Plans – See Zoning Regulations Appendices for Additional Requirements

The following lists the anticipated information required at time of application submission. The sequence presented below is the preferred sequence drawings should be presented in the plan set. Each box shall be checked to ensure the information is provided correctly and submitted with the application.

Property Address: 107 Thames Street Applicant Name: Norman Bloom and Sons, LLC

Acknowledgement:
I am the individual responsible for coordinating the preparation of the plans and I acknowledge that the following plans have been prepared in conformance with the *Site Plan & Coastal Area Management Plan Preparation Requirements* and those listed below.

Signature: _____ Printed Name: Mr. James Bloom

☐ 1. **Cover Sheet** containing:
   a. Site Location Map
   b. Project Name
   c. Date of Submission
   d. Name of all professionals with a responsibility in the development of the plans

☐ 2. **Notes** sheet(s) as may be applicable

☐ 3. **Survey Plat** (Conforming to A-2 Standards and signed & sealed by a licensed site surveyor registered to do business in the State of Connecticut). Include the name of abutting property owners and location of intersecting property lines. Separate from existing conditions plan below.

☐ 4. **Topographic Survey** (Conforming to T-2 Standards and may be combined with item 6 below and signed & sealed by a licensed site surveyor registered to do business in the State of Connecticut)

☐ 5. **Site Demolition Plan** showing all existing improvements and vegetation to be removed including limits of sawcut lines and construction fencing.

☐ 6. **Sedimentation and Erosion Control Plan** containing:
   a. Silt fence, hay bales, etc
   b. Temporary sedimentation trap (with supporting calculations)
   c. Stockpile areas
   d. Staging and storage of equipment
   e. Erosion control narrative and sequence of construction
   f. Inspection requirements and schedule
   g. Contact information for individual responsible for ES measures

☐ 7. **Site Layout Plan** depicting all proposed improvements and clearly labeled and corresponding to the applicable construction detail provided; critical dimensions provided for such items as walks, drives, setbacks, parking spaces, etc. to demonstrate code requirements (building and zoning). Plan shall depict the following minimum information:

a. Building locations and decks (including roof overhangs),
b. Walks
c. Fences and Bollards
d. Pavement materials and markings
e. Curbing
f. Parking
g. Handicap parking
h. Handicap ramps
i. Signage (including those used for traffic control)

NOTE: Information depicted on the Site Layout Plan shall be carried forward on each of the subsequent plans listed below.

☐ 8. **Stormwater Management Plan** prepared by a CT licensed Professional Engineer; In addition to information requested in the Zoning Regulations, include the following:

a. **Grading and Drainage Plan(s)** depicting at minimum:
   i. existing and proposed contours at a minimum of 2' intervals;
   ii. spot elevations at high and low points, top and bottom of stairs and ramps, intermediate landings of ramps, top and bottom of all site walls (retaining and free standing);
   iii. all drainage structures, piping (including inverts, size, slope and material), stormwater facilities (above and below ground)
   iv. Finished floor elevations of all structures
   v. Location and base flood elevation of all Special Flood Hazard Areas
b. **Stormwater report** with supporting calculations (pre and post: quantity and quality)
c. **Construction details** of all materials and techniques used to control stormwater.

☐ 9. **Utility Plan** showing all proposed electrical, telecommunications, fiber optics, sanitary sewer, water, transformers, and other above and below grade utilities, including those to remain.

☐ 10. **Landscape Plan, Tree Survey, Tree Protection Plan** depicting location of all plant material and protection measures and shall include all proposed and existing features to remain, below and above grade utility improvements, signage and lighting in order to confirm no conflicts exist with proposed landscape materials. Plan shall also include a Landscape Schedule, provide on each landscape plan when more than one is needed, and contain the following information:

a. Plant Code or Symbol
b. Scientific Name
c. Common Name
d. Size at time of planting using American Nursery & Landscape Association standard size nomenclature
e. Method of planting (i.e. container grown, balled and burlapped, etc)
f. Notes as may be applicable to plant species

☐ 11. **Lighting Plan** depicting the location of all exterior lighting, including those mounted on the exterior of a building. Provide lighting details and product cuts to demonstrate compliance with the zoning regulations. Lighting may be combined with the Site Layout Plan or Landscape Plan

as long as legibility is not affected.

☐ 12. **Photometric Plan** prepared by a licensed professional engineer depicting foot candles on the ground and demonstrating conformance with the zoning regulations. This plan must be separate from all other plans.

☐ 13. **Building Floor Plans** with clearly labeled space/room uses, provide critical dimensions, location of windows, exterior and interior doorways, utility and storage rooms, location of utilities entering the building.

☐ 14. **Building Elevations** (Including existing buildings with additions) depicting all exterior improvements and accurately illustrating roof lines and wall height.

☐ 15. **Construction details** depicting the methods and means of installation of major site improvements

☐ 16. **Additional items** that may be required by staff include:

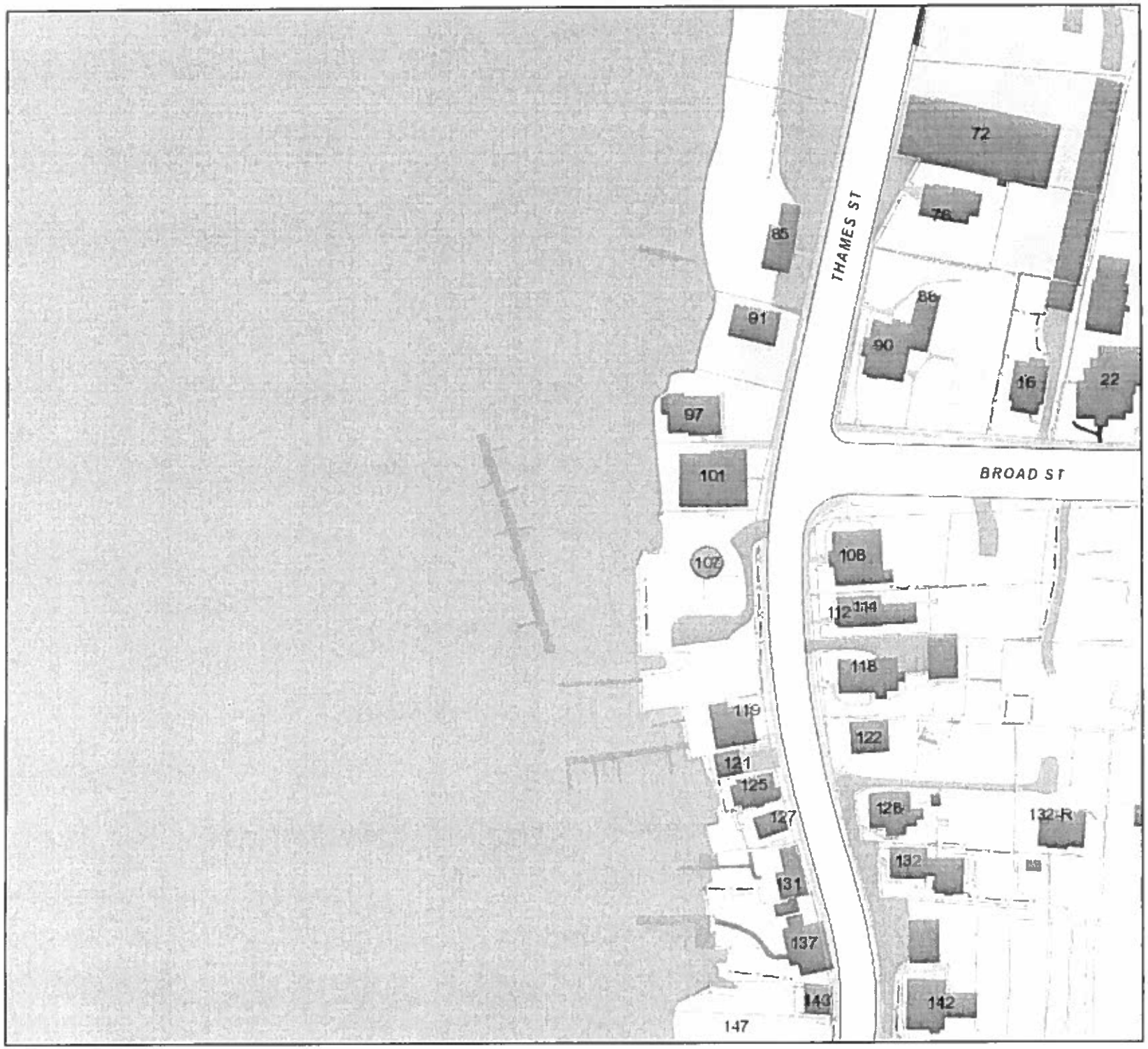
a. Traffic report
b. Environmental reports
c. Architectural product samples
d. Noise study
e. Structural analysis
f. Geotechnical reports
g. Illustrative renderings
h. Other supporting information found necessary by staff or the commission

City of Groton, CT
Department of Planning & Economic Development

Form A - Zoning Table

NOTE: Attach this form to the end of Form A Application and provide upon submitted site plan.

Item		Required	Proposed
Lot Area		4,000 SF	13,600 SF
Lot Width		40 FT	141 FT (+/-)
Front Yard Setback (Min)		10 FT	No Building
Front Yard Setback (Max)			
Side Yard Setback N/S		10 FT	No Building
Side Yard Setback E/W			
Rear Yard Setback		20 FT	No Building
Building Coverage		50%	No Building
Building Height		25 FT	No Building
Building Width		40% of Width	No Building
Total Impervious Coverage			10%
Existing Impervious Coverage		20% (+/-)	
Parking Provided (mixed uses complete below)		2 Existing	6
Use 1:			
Use 2:			
Use 3:			



Town of Groton

GIS Map

N
W E
S

1 inch = 104 feet

Date: November 06, 2018

Disclaimer

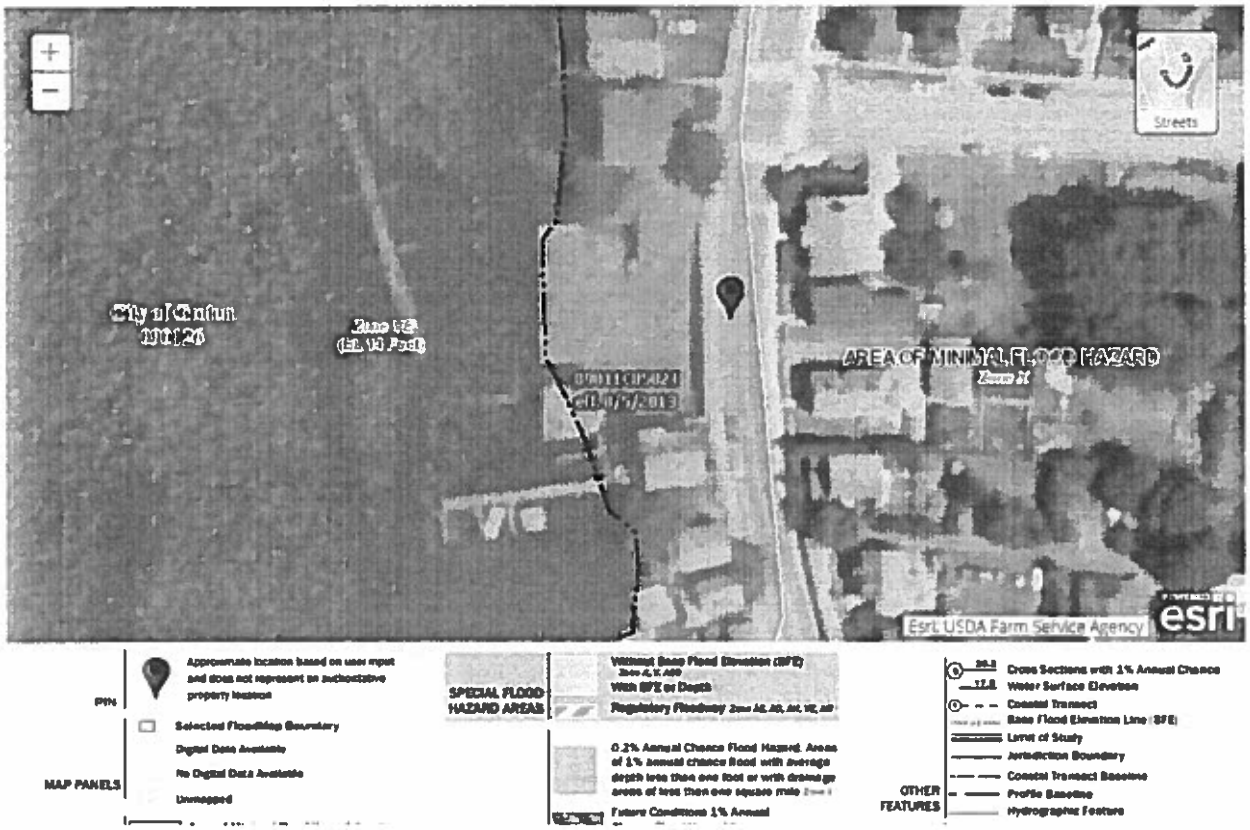
Map Created using Town of Groton GIS Viewer


THAMES
Riverside Park
Winthrop Sch
East New London
Gold Star Memorial Bridge
Bethel Cem
Drive-in Theater
Seely Sch
INTERCHANGE 86
INTERCHANGE 85
INTERCHANGE 87
Crooked S Hill
Wildcat Ledge
Shack Hill
Light
Winthrop Point
State Pier
site
Williams Park
Courthouse
City Hall
Radio Tower
Armory
U S Customhouse
Fire Sta
Lake George
Groton Hts Sch
Library
Mon
Long Hill
Marquardt 2
Calvary Temple Ch
Sewage Disposal
FORT GRISWOLD STATE PARK
GROTON
Col Ledyard Cem
Col Ledyard Sch
Birch
Plain
Sacred Heart Sch
Trailer Park
Trails Pond
Shaw Cove
FORT TRUMBULL USN RES
Lights
RIVER
Sewage Disposal
Trails Corner
Powder Island
Groton Heights
BIRCH PLAIN CREEK (Open Space)
West Side Jr High Sch
Caulkins Park
Greens Harbor
White Rock
Hog Back
NEW LONDON HARBOR
Eastern Point Sch
Golf Course
Beacon
Radio Tower
MITCHELL COLLEGE
Mitchell Park
Nathan Hale Sch
Fire Sta
Hobs Island
Eastern Point
Shennecossett Beach
UNIVERSITY OF CONNECTICUT (SOUTHEASTERN BRANCH)
Quinnipeag Rocks
New London Harbor Lighthouse
Black Rock
Jupiter Point
Gaging Sta
Sewage Disposal
Avery Point
Bushy Point
Osprey Beach
Baker Cove
GROTON CORPORATE
NEW LONDON CORPORATE
BOUN

Norm Bloom & Son, LLC

Aeros Oysters

107 Thames Street, Groton, Connecticut



NOTES TO USERS

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

ZONE A

ZONE AE

ZONE AH

ZONE AO

ZONE AR

ZONE A99

ZONE V

ZONE VE

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X

OTHER AREAS

ZONE X

ZONE D

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

MAP SCALE 1" = 500'

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0982J

FIRM

FLOOD INSURANCE RA

NEW LONDON CO
CONNECTICUT
(ALL JURISDICTIONS)

PANEL 982 OF 554

(SEE MAP INDEX FOR FIRM PA

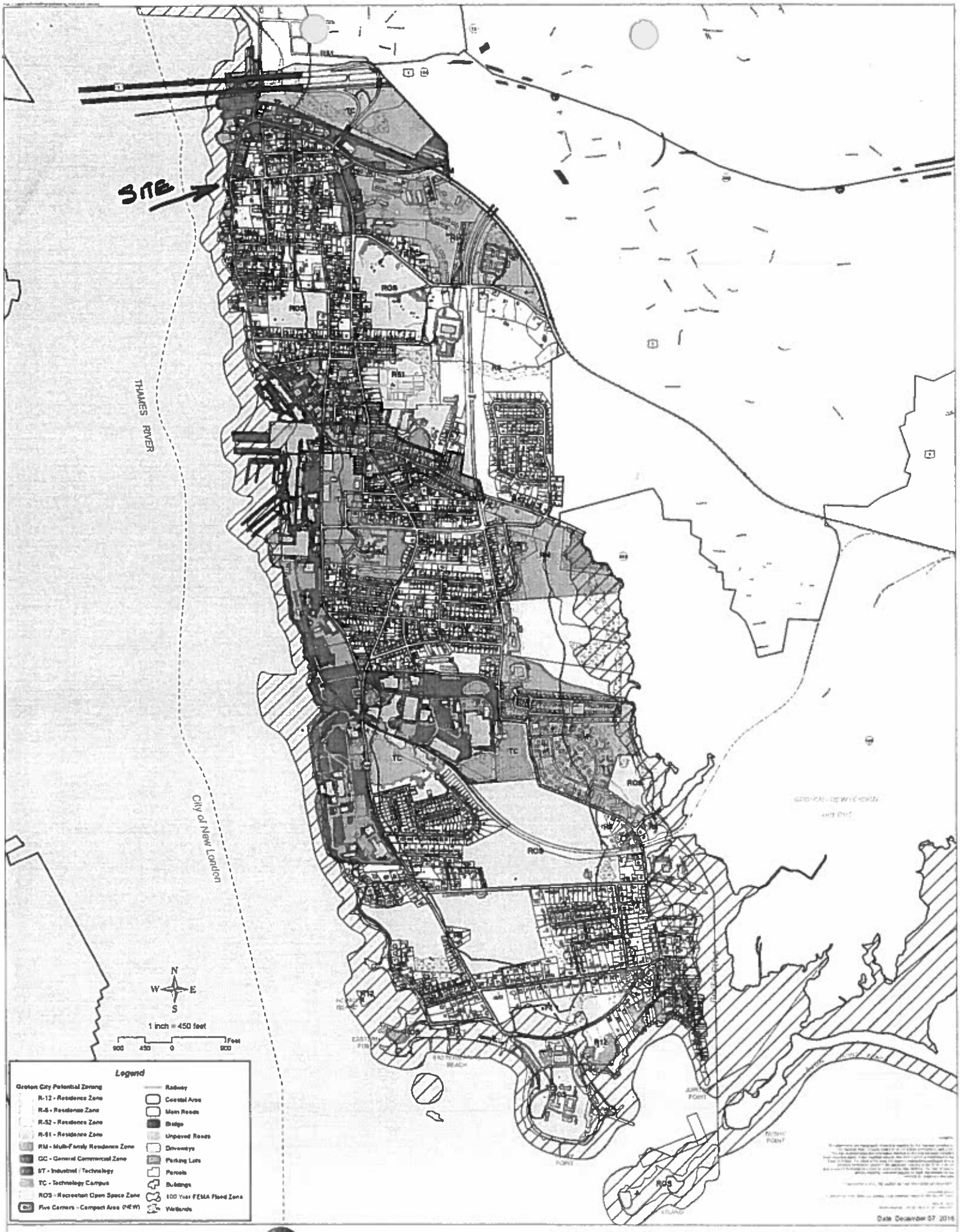
CONTAINS

COMMUNITY	NUMBER

Notice to User: The Map Number should be used when placing

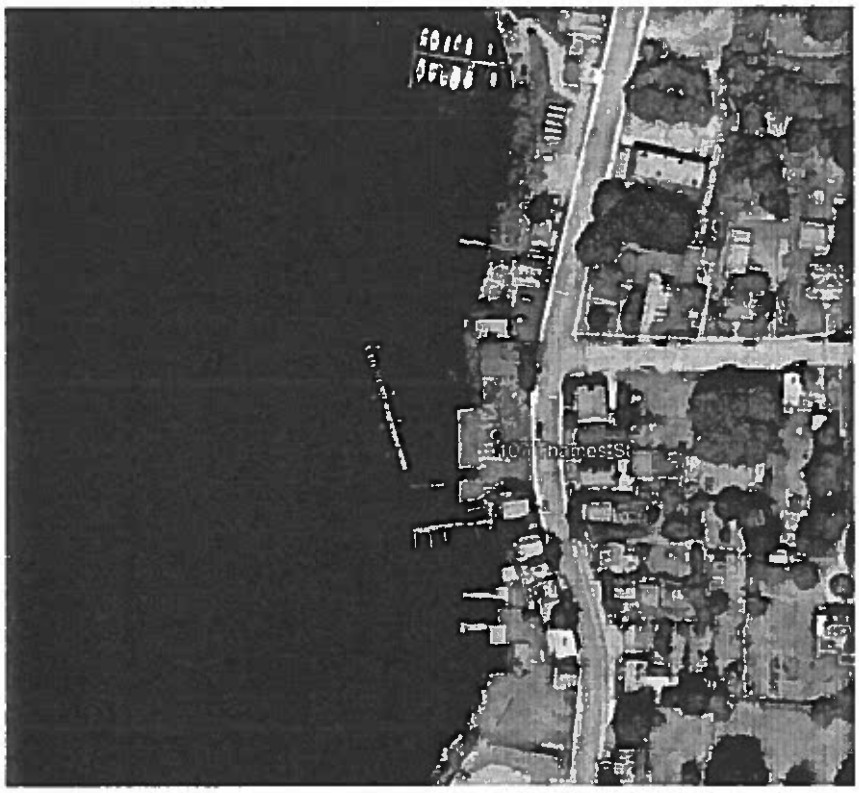
Community Number shown a

MAI
09
MAI
AUGU



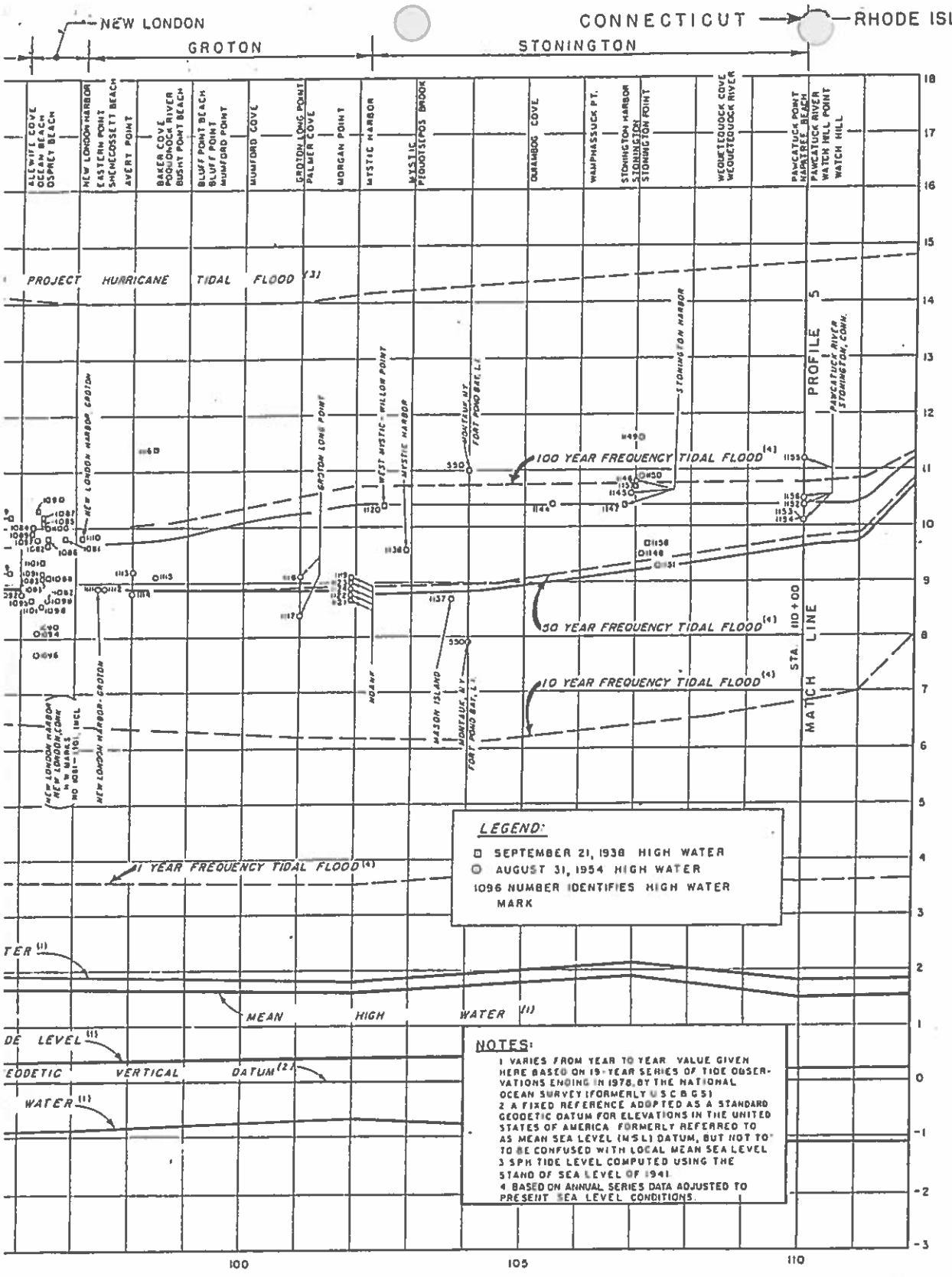
Current Groton City Zoning

107 Thames Street, Groton, CT



TIDAL FLOOD PROFILE

CITY OF GROTON



NEW ENGLAND COASTLINE
TIDAL FLOOD SURVEY

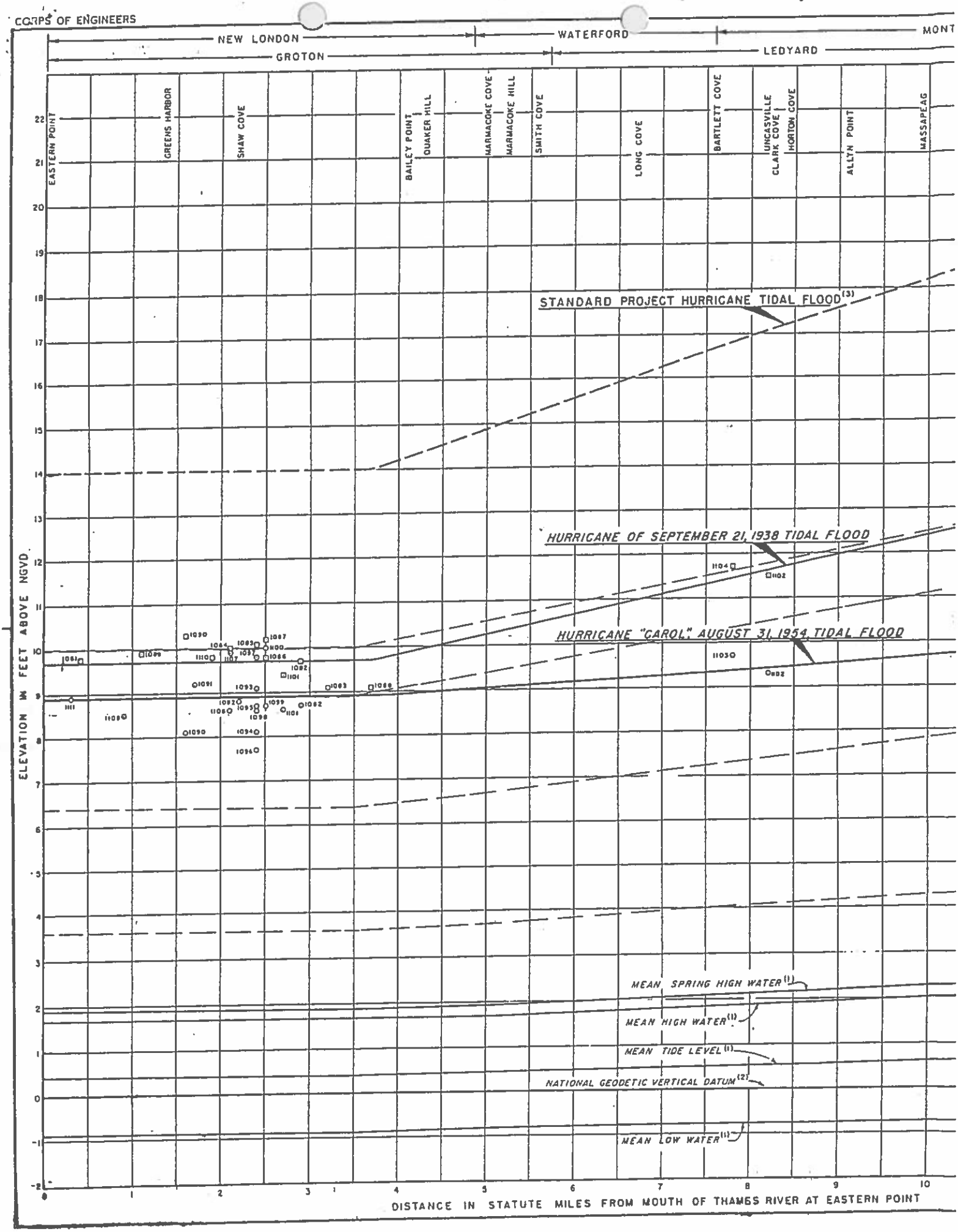
TIDAL FLOOD PROFILE NO. 4

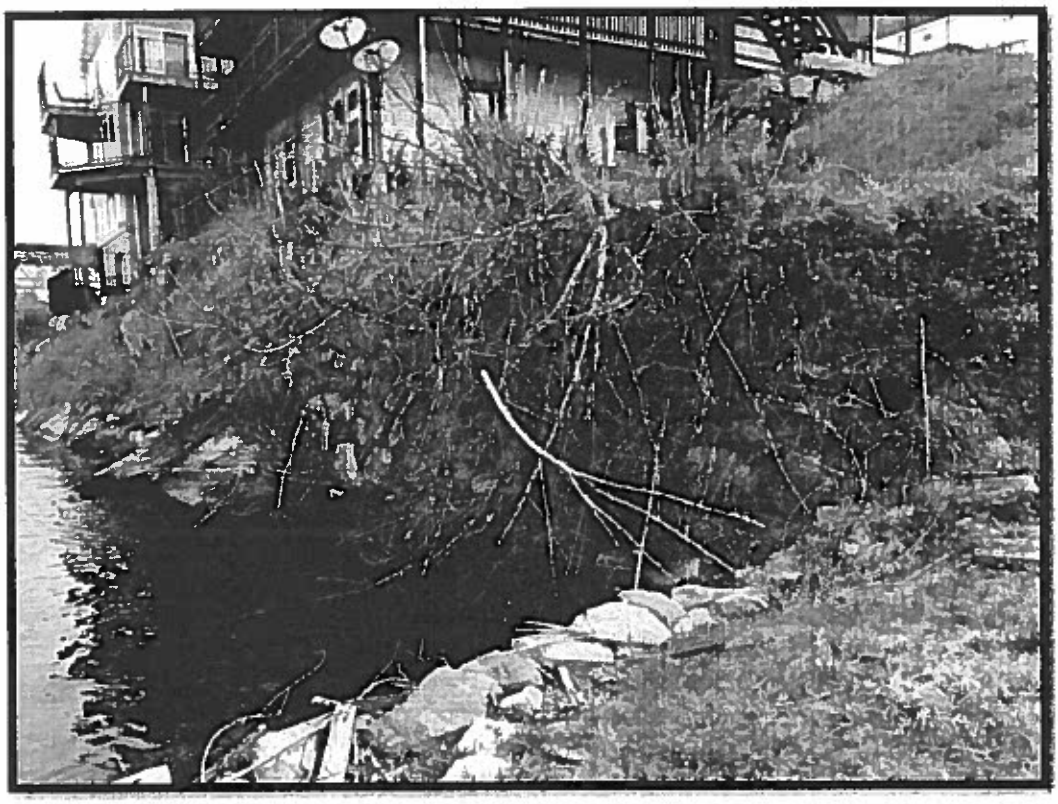
OLD LYME, CONN, TO
STONINGTON, CONN.

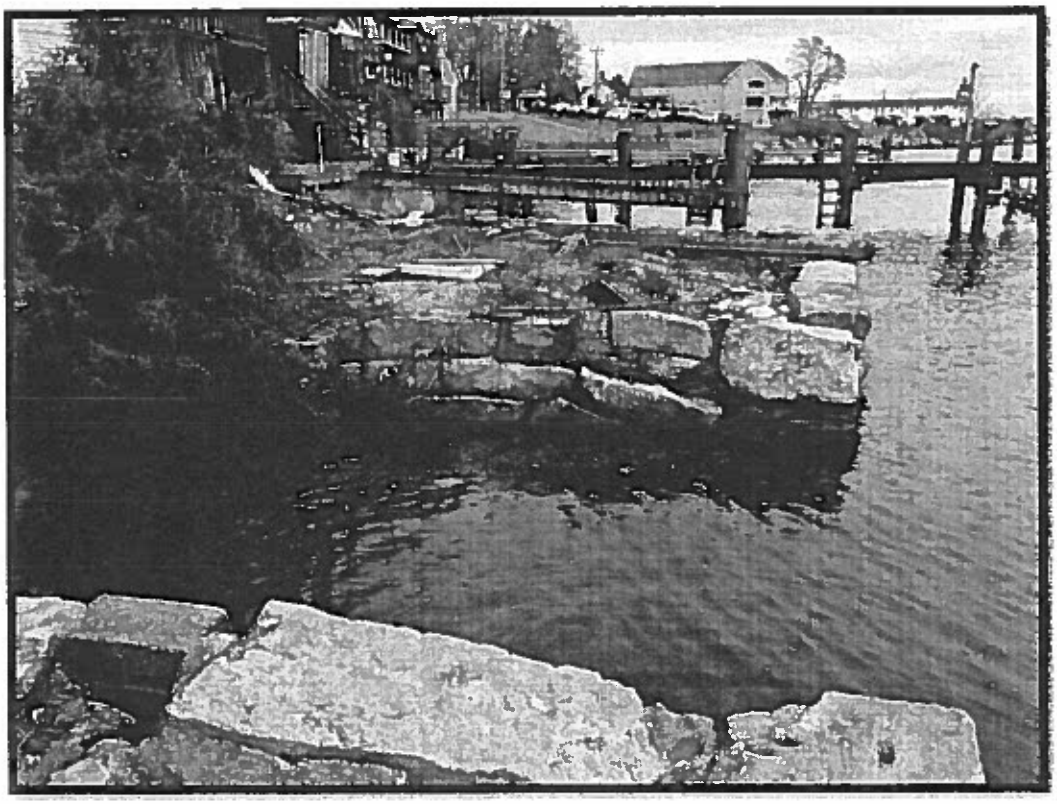
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS
SEPTEMBER 1988

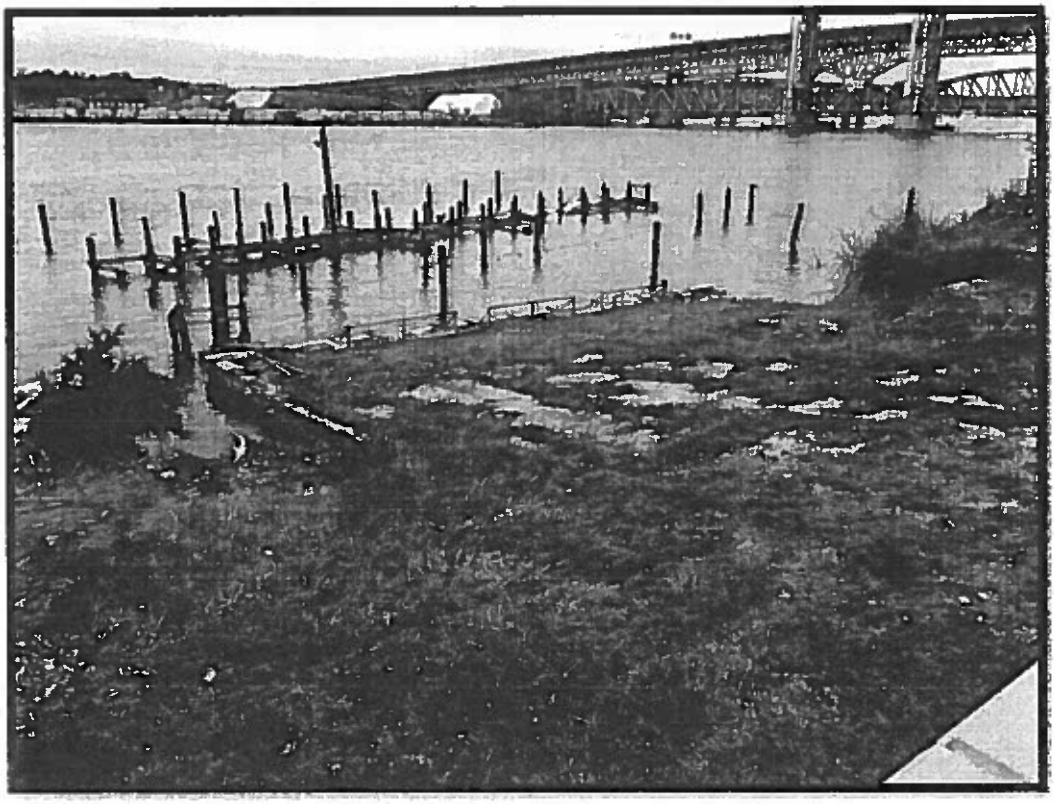
PLATE C-

CORPS OF ENGINEERS









PROJECT NARRATIVE

PROJECT NARRATIVE FOR
WATERFRONT PROPERTY RESTORATION
SITE PLAN/COASTAL SITE PLAN & SPECIAL PERMIT APPLICATION

AEROS CULTURED OYSTERS
OWNER: NORMAN BLOOM AND SONS, LLC
107 THAMES STREET
GROTON, CONNECTICUT

APRIL 12, 2019

GENERAL INFORMATION

In accordance with Section 6.62.1, by reference from Section 6.51 and Section 3.0 of the Zoning Regulations, the applicant, Aeros Cultured Oysters, and Norman Bloom & Sons, LLC, owner of the site, submits this written statement of the proposed use for the restoration of facilities on property at 107 Thames Street. The site is shown as Lot #7417 on Map #1689 (18) on Thames Street in the Waterfront Business Residence Zone (WBR).

This project is to restore and cap an existing, longstanding stone seawall, regrade the existing site to restore a boat yard and access driveway, place 100 CY of crushed stone over 10,000 (+/-) SF for a new yard and driveway surface, install a gabion, concrete block or granite block retaining wall, 200 (+/-) CY over 600 (+/-) SF, install new water and electrical service utilities, and rebuild a wood pile and timber pier including new bresting dolphins and install a floating dock barge with a hinged ramp to shore for berthing aquaculture vessels.

The purpose of the Waterfront Business Residence District is to encourage a mixture of land uses that will enhance the unique qualities of the Thames Street area with emphasis on waterfront access and water-dependent and related uses and retention of the historic character and scale of the "Groton Bank". This site was a boat yard uniquely fitted with a marine railway for hauling boats and a fixed wood pile and timber pier to accommodate up to 20 boats of up to 50-foot lengths.

Orientation of development toward the Thames River is a primary consideration in the Zone District with preservation of views from public access to the riverfront. Water-dependent uses are specifically encouraged to located along the river as primary uses. This is not an open space or recreation zone and no such development is proposed. It will be a working aquaculture yard support facility. That notwithstanding, the views from the sidewalk behind the seawall will be preserved.

Zoning regulations section 3.14 set forth special permit uses in the WBR Zone, which include:

F: Boat docks, slips, piers and wharves for vessels engaged in ... fishery or shell fishery activities

G: A yard for building, storing, repairing, selling, or servicing boats which may included the following as an accessory use: office for the sale of marine equipment or products, dockside facilities for dispensing fuel, restroom and laundry facilities to serve overnight patrons. Furthermore, adequate lanes must be provided to allow access and egress throughout the yard for fire trucks.

Aeros seeks to regrade the site to improve access to and use of the property. Aeros plans to rebuild the dock facility to adapt and make it usable for aquaculture vessels and purposes. DEEP and US ACOE permits are being pursued for this work. A copy of the A-2 Boundary Survey for the site is attached. The proposed use is authorized by Section 3.14 of the Zoning Regulations. There are no planned occupiable structures (buildings) in this project, only a fence at the north edge of the property, a gate, and an interior retaining wall of gabions, or blocks (concrete or granite). There will be some accessory uses and activities on the site to include operation of tanks to grow algae. The 6-12 tanks have been depicted to be on the ground immediately behind the seawall. The tanks are approximately 8 feet in diameter and 6 feet high with PVC piping to provide fresh water flow from the river and discharge the circulated water back in to the river. This algae growth function is currently in use at the Noank Shellfish Cooperative and is being coordinated with the CT DEEP at this time. Attached are water quality analysis data sheets compiled for the Noank operation which the DEEP has reviewed and were found to be acceptable as demonstrating minimal or negligible changes to river water quality in Noank. This site development plan represents a balance between existing site characteristics and planned accommodation of aquaculture vessels and equipment, even including some shore side algae growth tanks (six to twelve). The upper site parking area will have a 10-foot buffer with a fence and dune type grass or bayberry bush plantings. The site is tight but will allow for parking of a half dozen vehicles on the site, which is more than enough, historically, for demand of aquaculture vessel manning.

SIGNIFICANT PHYSICAL FEATURES

This site consists of urban land (udorthent soil characteristics) where 85% of the surface is covered by streets, parking lots, and/or buildings (formerly). Most of the original soils underlying this property have been altered by excavation or covered by fill. There are no wooded areas and no recognizable landmarks or geological features with the exception of the Thames River. Dock changes are proposed in the river and into the lift well. There are no inland wetlands on the site nor are there visible inland wetlands within 100 feet of the property boundary as indicated on the plan. The tidal wetlands boundary in this case would be the watercourse, the face of the seawalls and the ordinary high-water line, and soil scientist Richard Snarski has conducted a site evaluation to verify the absence of wetlands.

The most significant feature of this site is the vista and the waterfront seawall and dock facility. The sidewalk view of the Thames River and the port facilities of New London are

uncommon at this site and will not be altered. Of the 14(+/-) LF of site frontage on the river, the upper parking area uses up only 25 feet. This leaves more than 80% of the site open for the public to enjoy the view from the sidewalk along Thames Street.

The site has open exposure to the southwest and waves, storm-driven or otherwise, which travel up the harbor. Even the normal fetch for wind-driven waves will generate wave heights of two feet, and thus, there is a constant threat of wave damage to the seawall requiring repair of the seawall and its base. As a means of protecting the site while making the best use of work yard area, the yard will be covered with crushed stone, sloping slightly to the west for sheet flow drainage, and a cap will be placed along the top of the stone wall to bolster the protection and minimize erosion or sedimentation of this waterfront site. The back side of the seawall will be revealed, joints moarted, sealed with geotextile fabric and then back filled. The seawall will be capped with concrete or granite and pinned to the existing seawall structurer to provide lateral support.

PARKING AND TRAFFIC DESIGN- SECTION 4.3

There will be only one driveway access point. The parking requirements for the site are based on the number of slips, which is number 6 or the actual number of employees or staff which will board and operate vessels from this site and that number will number six as well.

The driveway and the vehicle operations area will be surfaced with crushed stone. Only the entryway apron will be paved.

It is anticipated that only six parking places will be utilized by employees and crew at nominal demand.

No truck loading bays are required, and six parking spaces are laid out on the site. Two parking places are on the north side of the lot at the upper entrance area and four along the gabion/block wall, below street level, on the west side of the gabion wall. The parking spaces are 9-FT by 20-FT.

Two spaces are shown at the upper level area. The spaces have been laid out to be 25 feet from the Mean High-Water line.

No handicapped parking spaces are required or provided.

No truck loading bays are required.

SIGNS SECTION 4

There will be no signs installed for this operation.

DRAINAGE

Virtually all drainage on and adjacent to the site is sheet flow and is absorbed into the ground or runs off the west edge of the site into the Thames River. Construction of the improvements will decrease the area of impervious surface on the site slightly and flatten the yard gradients. Runoff will still be directed into the west edge of this site. It is planned that the site will have a surface of crushed stone (or grass or vegetation on the northerly terrace) to diminish runoff velocities, minimize the chance of erosion and maximize the potential for infiltration of rainfall into the ground. No detention is considered necessary or appropriate due to the site's proximity to the river, and no impact on existing or adjacent municipal facilities or properties is expected as a result of this development. Drainage calculations have been prepared for the proposed site modifications.

FLOOD ZONE CONSIDERATIONS SECTION 4.7

The site is located in and adjacent to the Coastal Flood Hazard Zone identified in the FIRM (Flood Insurance Rate Map) for the City of Groton. The site is in Zone VE and the Flood Zone elevation is 14. As a result of this determination, the electrical and water service utility pedestal will require special flood construction techniques. The walls of the pedestal will be designed to withstand hydrostatic and dynamic flooding forces, and the finished top elevation will be 15 feet NAVD. In addition, the grounds will be surfaced with crush stone to minimize erosive forces on the surface due to rainfall runoff or wave splash-over. Trade permit applications will demonstrate compliance with building code provisions appropriate to construction in the VE zone so as to minimize the possibility of flood damage. Utilities will enter the site above flood elevation northeasterly corner and serve the lower level of the yard from above so as to maintain minimum susceptibility to damage due to flooding. In addition, a black flow prevention device will be incorporated into the water service for the docks to assure that saltwater cannot backflow through the municipal water system from this site. New utilities construction will be anchored to a slab and/or a concrete pedestal with spread footing to prevent under mining from wave scour or floatation, collapse, or lateral movement of the structure due to flooding conditions. An application for modifications to shorefront protection structures and the modified docks will be submitted to the Department of Energy and Environmental Protection Land and Water Resources Division as necessary for construction of proposed improvements to the stone seawall and construct a replacement dock facility.

The project site is not a Flood Plain Area and is not a Floodway. As demonstrated in the U. S. Army Corps of Engineers Tidal Flood Profile 4, Plate C9 and C10 attached, it is clear that flooding in New London Harbor is attributed to the source of flooding which is Long Island Sound. This is evident by comparing Plates C9 and C10 showing the uniform flood elevations out in Long

Island Sound and consistently all the way north to Winthrop Point beneath the Gold Star Highway bridge. It is therefore clear that no matter how much regrading in the floodplain is changed by new construction, the elevation of water level in the harbor would not be affected. The volume of the site regrading represents less than 300cy in the flood plain compared to the volume of the Thames River at its normal tide elevations and south of Winthrop Point to the New London Ledge Lighthouse, which is about 3 miles long by 1 mile wide. This represents less than 0.015 percent. In view of these considerations, this project will have no impact on the flood characteristics of the Thames River and will not represent an obstruction to river flows during flooding conditions. Clearly the site regrading does not constitute a flood or erosion control structure. The seawall or the site internal retaining walls do not alter the flow of flood waters or correct any erosion problems; there are none at the site. Flood elevations will not be raised because of this development.

UTILITIES

The property previously accommodated a small office/residential structure with a ¾-inch water line, 6-inch gravity sewer, and electrical utilities. While a new 600-amp electrical service will be provided, a new 2-inch water line and the existing gravity sewer connection into the municipal system are not to be abandoned, though they will be rebuilt to meet current separation standards. All utilities will come into the site at the northeasterly corner as shown on the plan. This project is being coordinated with Groton Utilities for initial review and design considerations and modified per their recommendations.

Utilities will come into the site underground. The finished elevation on the pedestal is about 15 feet (+/-), whereas the flood elevation is 14 feet NAVD. Utility services and hose spigots will be therefore flood-proofed as stipulated in the zoning regulations. Details for a positive backflow prevention device are included in the details.

COASTAL ZONE CONSIDERATION

This site is located in a Coastal Zone dictated by the Coastal Management Act of 1980 and under the purview of review of the CT DEEP Land and Water Resources Division. The site is characterized as a modified bluff located along an estuarine embayment (New London Harbor/Thames River) subject to coastal hazard of flooding and waves. There are no shellfish resources right at the site and no tidal wetland or submerged aquatic vegetation along the shoreline in the shallow subtidal waters. The features of the site which warrant consideration in this project are covered in detail in the attached Coastal Zone Management Review Worksheet.

The purpose of this project is basically redevelopment of an underutilized and neglected site. The proposed functions are to utilize the rebuilt docks to support access for aquaculture vessels, a water-dependent use. This project is compliant with Coastal Zone policies, as well as the zoning regulations, because it makes use of existing developed shorefront for water-dependent use and non-water-dependent uses do not restrict future water-dependent uses or opportunities

from being utilized on the site. There is no new encroachment on navigation, and there is no impact on sensitive environmental features associated with New London Harbor.

The shoreline is subject to flood hazards associated with New London Harbor, including both water elevation and waves. No special flood proofing or structural requirements are incumbent for a building since there is no building on the site. No fill per se has been added to the site as preparation for the yard work area. The only fill required will be crushed stone surface material for the access drive, work area, and parking spaces and the blocks for the retaining wall.

The project will neaten up the site and the neighborhood consistent with various plans for the development of the City of Groton and the Zoning Regulations. In the review of the project conducted over the past few weeks, there was support for the project by most of the neighbors and the municipal agencies and staff reviewing the project.

There will be no adverse impact on water flow and circulation or sediment transport, and there will be no impact on boating in the river or navigational issues. The proposed dock facilities will replace existing dock structures in a similar configuration, utilizing slightly different shaped and sized piers to provide berthing for the aquaculture vessels.

The marine railway well will serve as the point of original for the pier in order to allow for the dock access. This scheme has been discussed with the DEEP Land and Water Resources staff, and a Structures and Dredging permit application is in the final stages of preparation. The proposed scope of work has been considered generally consistent with standards and criteria utilized by the Land and Water Resources Division under a Certificate of Permission. It is anticipated that this permit application will be issued in the very near future.

This shoreline is located approximately 650 feet from the municipal boundary with the City of New London, however, the north end of the pier will be approximately 500 feet from the municipal boundary and may require simultaneous coordination with the City's planning and development agencies.

In summary, this project has been developed in close coordination with municipal staff and state agencies to assure compliance with published standards and criteria for development approval. It makes use of an existing run-down site and will restore it to functional stature with minimal improvements and reduce the blemish of aesthetics of the neighborhood. The proposed site modifications therefore comply with pertinent criteria without any known or foreseeable significant or adverse impacts. Coastal Resource Maps published by the DEEP are included as attachments to this narrative.

CONSTRUCTION METHODOLOGY

The existing pavement will be pulverized and along with miscellaneous fill and rocks onsite will be used to fill in the hole left by the basement of the building which formerly stood at this site.

The existing grades on the site will be altered to the extent necessary to match the proposed grades. No fill will be place in the lift well.

As the grade is altered to conform to the proposed driveway gradients leading to the south easterly corner of the yard gabions, concrete blocks or stone, backed by geotextile fabric will be placed, angled back into the slop progressively with height, for soil retention. The ground behind the seawall will be excavated, the wall will be packed with mortar from behind, geo textile fabric placed, concrete or preferable 3/8 inch crushed stone will be placed and rammed to fill crevices and cavities and then a covering of gravel and 1 ¼ inch (DOT spec) crushed stone filled up to the top of the new seawall cap. This crushed stone will be basically dustless after the first rainfall.

The utilities will be rerun to the utility pedestal underground and in conduit to facilitate access in the event that maintenance is required. There will be a disconnect on the pedestal or in an electrical service hand hole or vault and an isolation valve for water service onsite near the street. Service lines will run underground from these disconnect points to the utility pedestal in the yard.

Grading and block walls will continue progressively to reach finished grades and gradients.

There will be no plantings.

The dock facility will be demolished and removed by barge.

The new dock facility will be built from a barge, starting with driving new piles in bents spaced roughly at 10-foot intervals with bracing piles within the pier framing. A cap, probably 10 x 10 or similar timbers will be placed across the top of piles in each bent, pinned and trimmed. New deck stringers will be attached, utility conduits placed in between and attached to the stringers, and the capped piles awaiting utility installation. Finally, the decking will be attached. All of these timbers will be heavy duty.

Rails, blocking will be added as finishing touches. The utility panel and transformer will be installed in the deck as shown in the drawing. This bend in the pier will also be where the deck

width changes. The fork lift will still be able to reach the far northerly end of the pier but such access will generally terminate at the bend.

Wave boards for chop attenuation will be built onto the south side of the pier. These boards will have a bottom tip elevation of 1 foot below MLW. The boards will top out at 3 feet above MLW.

Lights and power posts will be installed at intervals throughout the pier. There will be pile or post mounted louvered lights aimed down to illuminate the deck. Site lighting will be basically ground level bollard lights near the seawall and the retaining wall and along the entry drive at the back side of the retaining wall.

The new dolphins will be built on the west face of the pier for accommodating the vessels. Two dolphins will also be installed on the inside of the pier. A barge will be installed just off the face of the seawall with a hinged ramp to shore to accommodate the smaller vessels.

SEDIMENTATION AND EROSION CONTROLS

For the most part the project will be a cut and fill job. Materials excavated from the middle of the property will be redistributed to the driveway regrading and raising the grade behind the seawall slightly.

The hole left by the demolition of the old building on this site will also be filled in. The old pavement may have to be pulverized, then hauled or buried in the basement hole of the old building.

The staging and stock piling area will be the main yard with E&S silt fencing, sand bags or haybales around the down hill (westerly, northerly and southerly) edges and around the railway well.

The equipment staging area will be toward the southerly edge of the lower yard.

VARIANCES

No variances are required or requested.

SPECIAL PERMIT PERFORMANCE STANDARDS

The proposed yard regrading, retaining walls and rebuilt boat dock facilities will not create any danger; injurious, noxious or otherwise objectionable, fire, explosive or other hazards, noise or vibrations, smoke, dust, odor or other form of air pollution, heat, cold, dampness, electromagnetic or other substance condition or element in such a manner or such amount to adversely affect reasonable use of the surrounding area or adjoining premises.

In accordance with Section 4.56 of the Performance Standard Regulations the following should be considered:

a) This site and use will not generate smoke, flash or other dust, gases, odors, fumes, and dust-producing substances nor will any such substances be discharged or emitted into the open air;
b) There will be no storage of explosive materials and the storage space will be built in accordance with all building codes;
c) There will be no significant generation of heat at this site due to proposed use. Heat emitted at lot lines by this facility will not exceed the temperatures tolerable to plant or animal life.
d) No activities which emit radioactivity or electromagnetic disturbance will be conducted at this site.
e) The maximum sound pressure levels radiated at this site due to the use as an aquaculture facility will not exceed values tolerable for a residential neighborhood. This development will generate less noise than normal traffic on Thames Street.
f) Vibrations will not be generated as a result of the use of this site as an aquaculture facility.
g) The lights will be mounted and located on the pier and grounds and will be aimed down so as not to shed glare on adjacent properties.
h) No discharge of any material of such quantity, nature, or temperature so as to contaminate water or land or otherwise cause the emission of dangerous or objectionable elements will result from this use as an aquaculture facility. The sewage connections will be capped. Storm water runoff will be in accordance with stipulations for drainage previously addressed.

SUMMARY

Aquaculture vessel accommodation is an ideal use of this site. The site has been designed to be in keeping with the historical significance of this waterfront parcel as a boatyard and has been minimized in height and size to the practical area requirements of the boat access operations, lighting and site access. The proposed improvements will be in harmony with the purposes and intentions of the regulations and consistent with the coastal zone management program of the State. The use is consistent with zoning requirements and adjacent uses abutting the parcel and represents reasonable development of the site which has been underutilized and neglected for many years. Its development is not perceived to be detrimental to the public welfare or the public use of public land trust lands and the water, but rather will be an asset to the community, diverse and yet consistent with the historic nature of shoreline communities.

Due consideration has been given to priorities and goals set forth in the City Plan of Development as well as the 1982 Thames Street Study. The dock and site restoration of this project is a water-dependent use with relatively little traffic generation potential and utilizes historically

appropriate aesthetics to promote the seacoast village theme. Based on these factors, this project is consistent with zoning regulations and approval is respectfully requested.

Submitted By,
DOCKO, INC.

Keith B. Neilson, P.E.

DRAINAGE ANALYSIS

DRAINAGE ANALYSIS
PROPERTY OF AEROS CULTURED OYSTERS
107 THAMES STREET, GROTON, CT

The existing site, Parcel 7417, is approximately 1/3 acre in size, a partially paved parking area with a terraced, moderate to steeply sloped cross-section. It starts at Thames Street with a sidewalk and vertical stone wall, paved driveway with a variable width transition embankment of compacted, partially vegetated soil, pavement, and unpaved but highly compacted bare and turfed gravel, sloping at 10% to the west to a stone seawall. The actual transverse distance across the proposed development site is only 100 feet, more or less, although the drainage distance can be twice that on the existing pavement. Velocities on the compacted gravel and asphalt pavements are relatively quick. Rivulets on the pavement are frequent because of the grass intrusion, but the longest time of concentration (TC) is on the south property line overgrown area. Analysis of several different water runoff routings indicate that a time of concentration is approximately 5 minutes. The drainage for the site to be developed represents a relatively small area, less than 2 acres, and therefore use of the Rational Method is appropriate.

The weighted runoff coefficient C for existing conditions is based on the following approximations obtained from the CDT SCS Erosion and Sediment Control Handbook.

Large paved area 25 to 30 years of age, 3,600 (+/-) SF	C=0.7
Existing bare to lightly turfed compacted gravel, moderately sloped, 6,000 (+/-) SF	C=0.6
Steeply sloped, vegetated bank and landscaping 3,000 (+/-) SF	C=0.2
Slightly to moderately crushed stone 1,000 (+/-) SF	C=0.3

The total area of the site is approximately 13,600 SF or 0.31 acres with the following areas allotted to the above categories of land.

Crushed Stone	1,000 (+/-) SF
Pavement	3,600 (+/-) SF
Bare to lightly-turfed compacted gravel	6,000 (+/-) SF
Steeply sloped vegetated bank	3,000 (+/-) SF
	13,600 (+/-) SF

The weighted runoff coefficient is then:

Crushed Stone	1,000 (+/-) SF x 0.30 =	300 SF
Pavement	3,600 (+/-) SF x 0.7 =	2,520 SF
Compact Gravel	6,000 (+/-) SF x 0.60 =	3,600 SF
Vegetated Bank	3,000 (+/-) SF x 0.20 =	600 SF
Total Area	13,600	7,020 SF

Effective Runoff Coefficient CEF = 7,020/13,600 = 0.516. Say CEF 0.52.

The rainfall intensity for the time of concentration T_c of less than 5 minutes, using Figure 9-4 and a 25-year storm, is 7.8 inches per hour. Thus, the rate of rainfall runoff Q25 for this undeveloped site is:

$Q_{25} = C_{EF} \times I \times A$
$= 0.52 \times 7.8 \times 0.31$
$= 1.257$ CFS Say 1.3 CFS

The best management practice for developing small sites along the shore is frequently to encourage sheet flow through a buffer; the historical condition has been to allow surface runoff directly overboard. To minimize pollution by sediments or ground contaminants, thus keeping the discharge as clean as possible and slow down the flow velocities, the site will be surfaced with crushed stone and have an infiltration point behind the seawall. This site development plan utilizes both of these approaches.

The longest time of concentration for the developed site is the same as the existing site and it appears that this path will still take less than five minutes, although it will be difficult to judge since the water will be flowing through the uniform crushed stone surface but it will not be as likely to focus in rivulets. The 25-year storm rainfall intensity for Figure 9-4 for a 5-minute duration is still approximately 7.8 inches per hour.

The weighted runoff coefficient for the developed site is based on the following:

New Crushed Stone Surface	12,000 (+/-) SF x 0.3 =	3,600 SF
Landscaping	1,600 (+/-) SF x 0.2 =	320 SF
	13,600	3,920 SF

C_{EF} = 3,920 SF/13,600 SF = 0.0288 Say 0.3

Based on these factors, the anticipated rainfall runoff for the developed site will be:

$Q_{25} = C_{EF} \times i_{25} \times A$
$= 0.30 \times 7.8 \times 0.31$
$= 0.725$ Say 0.80 CFS

This is roughly 2/3 of the current site runoff rate and should result in a reduction in total runoff from the site and all of it filtered through the crushed stone and finally the ground behind the seawall.

This runoff will follow sheet flow across the site for the most part and percolate into the harbor. Water flowing off the site is filtered through crushed stones. This should promote improved water quality in the harbor and, although of admittedly small consequence, it should be considered as a favorable factor in the Site Plan review. Flood elevations in the river will not be affected by these flows because the flood elevations are based on tidal flooding conditions in Long Island Sound as shown in the U. S. ACOE Tidal Flood Profile (attached).

CONCLUSION

The decrease in runoff is approximately 0.4 CFS, an almost indistinguishable decrease in an already small amount of runoff. No detention is appropriate because of the relatively small flows and the site's proximity to the harbor. The first inch of rainfall is supposed to be retained on the site and will be in the crushed stone infiltration strip between the proposed worksite and the seawall. No on-site drainage structures are recommended.

Submitted By,
DOCKO, INC.

Keith B. Neilson, P.E

Figure 9-2 - Values of Runoff Coefficient (C) for Rational Formula

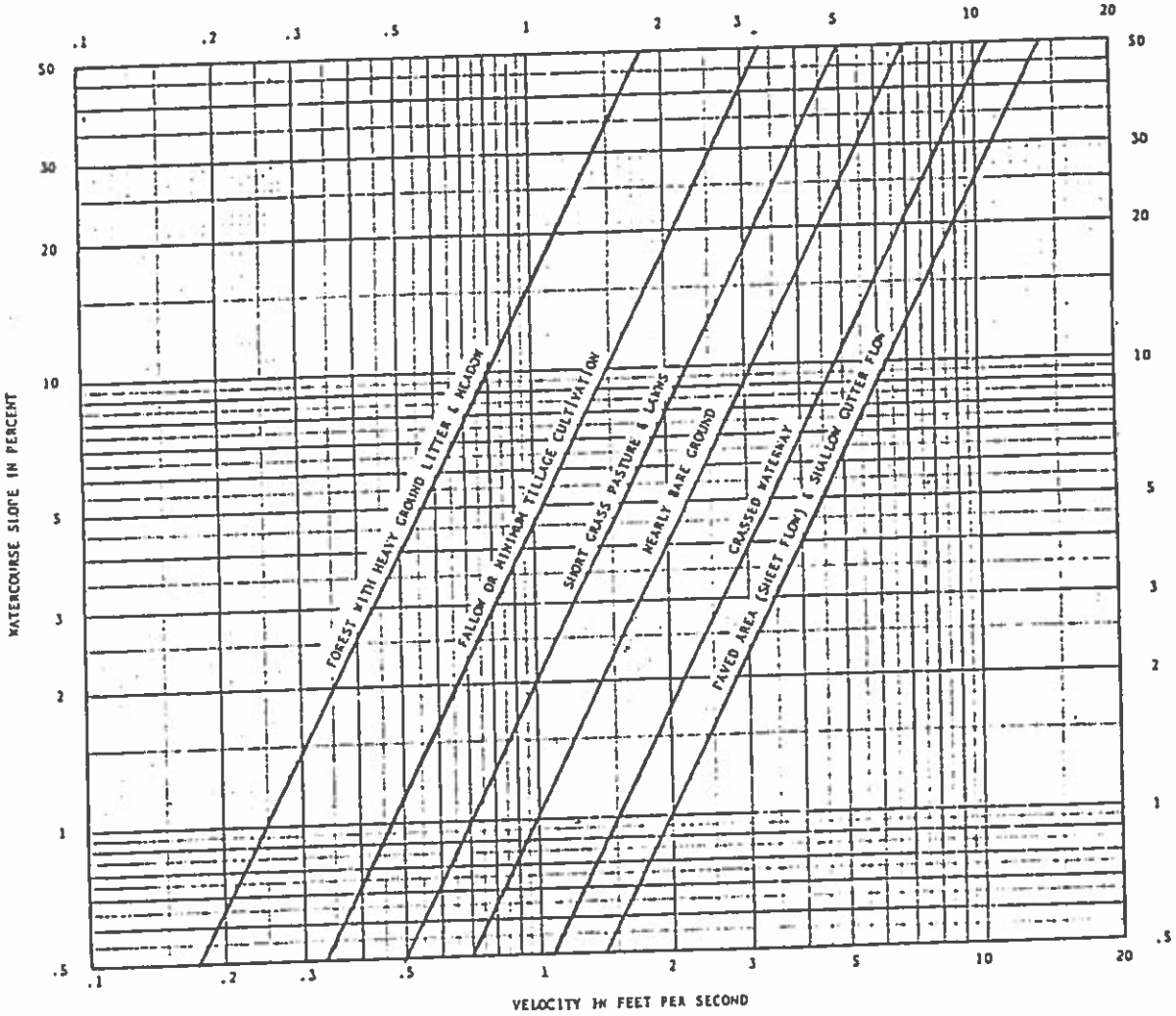
Land use	C
Business:	
Downtown areas	0.70-0.95
Neighborhood areas	0.50-0.70
Residential:	
Single-family areas	0.30-0.50
Multi units, detached	0.40-0.60
Multi units, attached	0.60-0.75
Suburban	0.25-0.40
Industrial:	
Light areas	0.50-0.80
Heavy areas	0.60-0.90
Parks, cemeteries	0.10-0.25
Playgrounds	0.20-0.35
Railroad yard areas	0.20-0.40
Unimproved areas	0.10-0.30
Streets:	
Asphaltic	0.70-0.95
Concrete	0.80-0.95
Brick	0.70-0.85
Drives and walks	0.75-0.85
Roofs	0.75-0.95

Land use	C
Lawns:	
Sandy soil, flat, 2%	0.05-0.10
Sandy soil, average, 2-7%	0.10-0.15
Sandy soil, steep, 7%	0.15-0.20
Heavy soil, flat, 2%	0.13-0.17
Heavy soil, average, 2-7%	0.18-0.22
Heavy soil, steep, 7 %	0.25-0.35
Agricultural land:	
Bare packed soil	
Smooth	0.30-0.60
Rough	0.20-0.50
Cultivated rows	
Heavy soil no crop	0.30-0.60
Heavy soil with crop	0.20-0.50
Sandy soil no crop	0.20-0.40
Sandy soil with crop	0.10-0.25
Pasture	
Heavy soil	0.15-0.45
Sandy soil	0.05-0.25
Woodlands	0.05-0.25

Note: The designer must use judgement to select the appropriate C value within the range. Generally, larger areas with permeable soils, flat slopes and dense vegetation should have lowest (C) values. Smaller areas with dense soils, moderate to steep slopes, and sparce vegetation should be assigned highest (C) values.

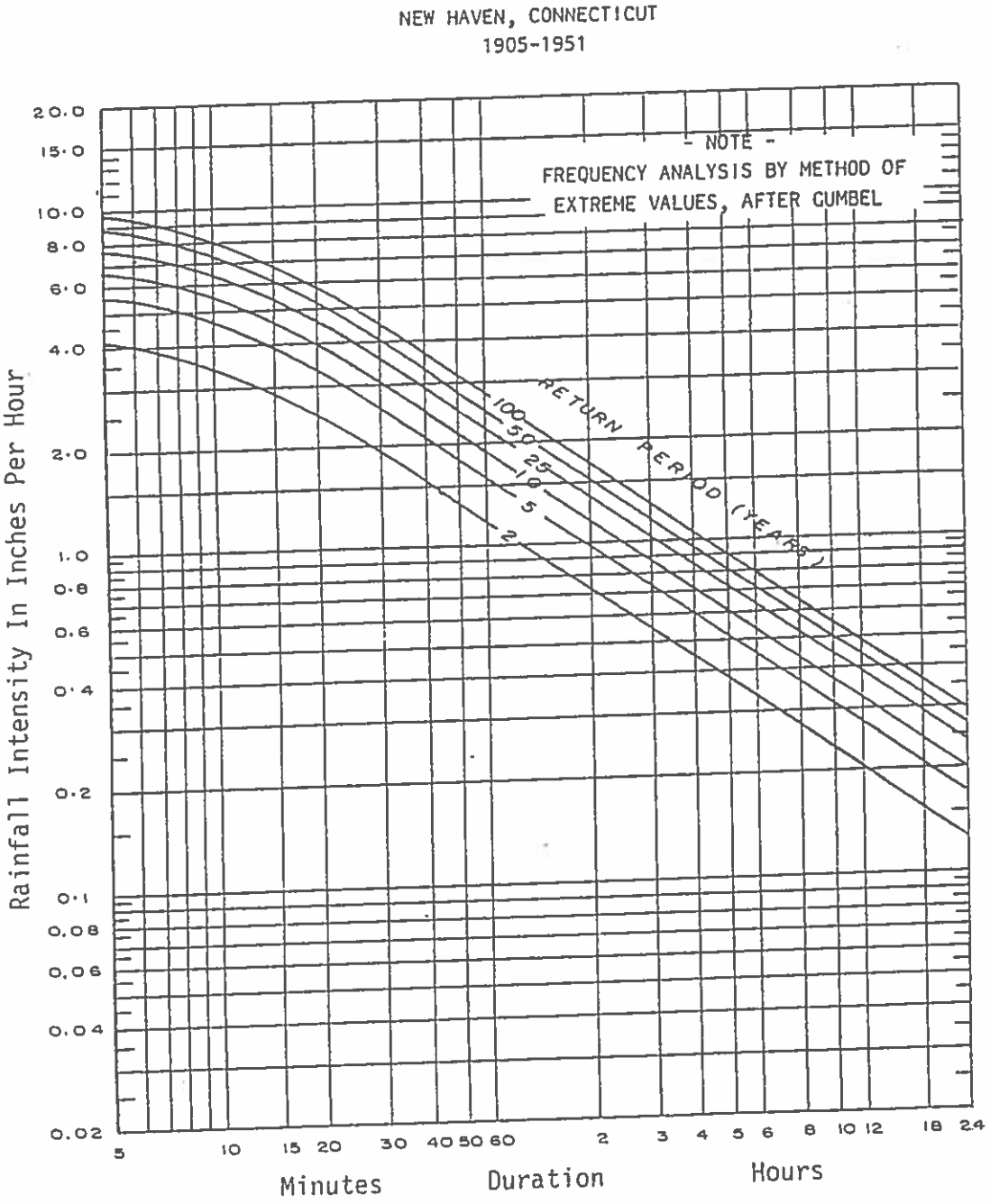
Source: Virginia Erosion and Sediment Control Handbook, 1980. Virginia Soil and Water Conservation Commission.

Figure 9-3 - Velocities for Upland Method of Estimating Tc

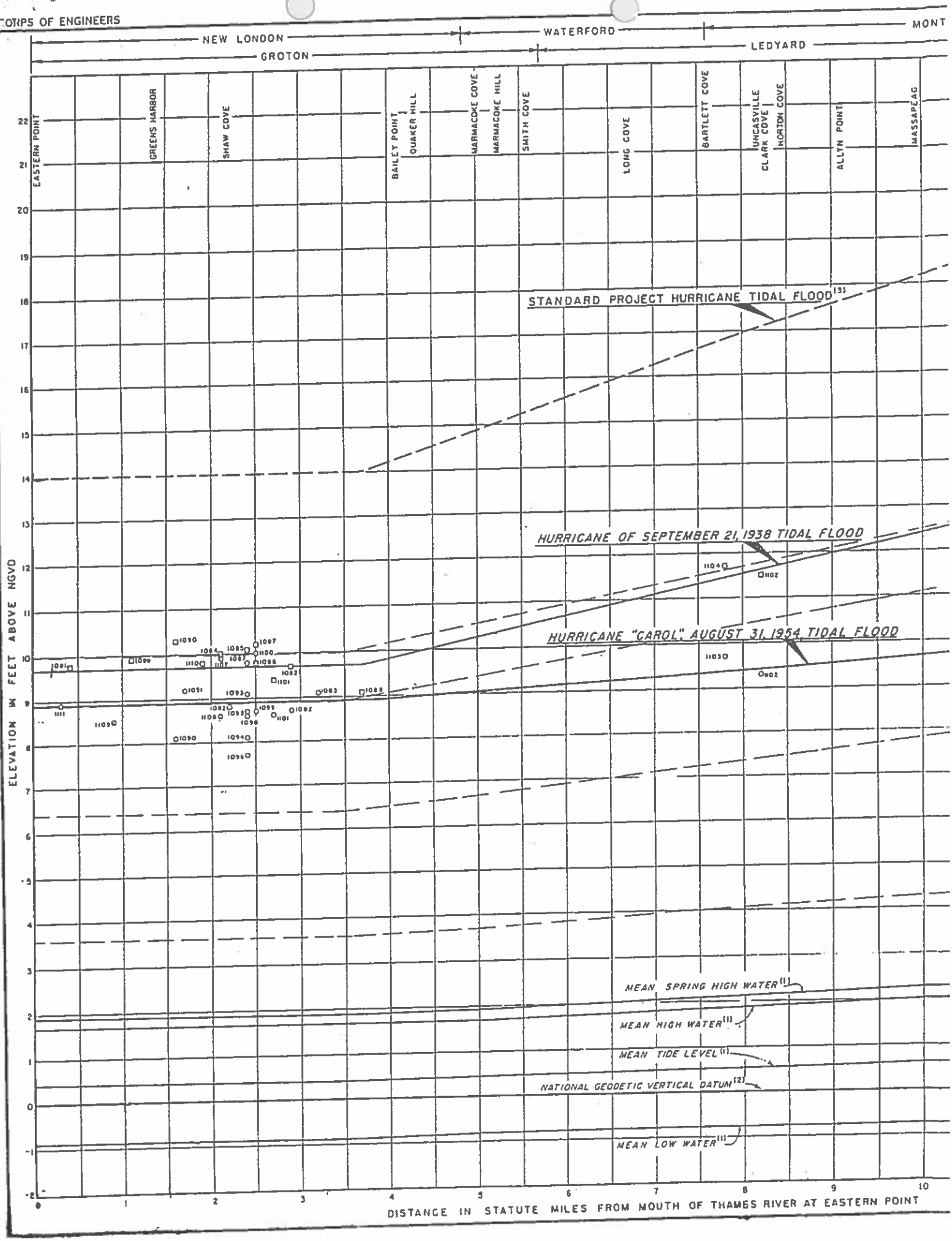


Source: U.S. Department of Agriculture, SCS, Urban Hydrology for Small Watersheds, Technical Release Number 55, Washington, DC.

Figure 9-4 - Rainfall Frequency-Intensity-Duration Chart



Source: Connecticut Department of Transportation, Wethersfield, Connecticut.


NEW LONDON
GROTON
WATERFORD
LEDYARD
MONT
EASTERN POINT
GREENS HARBOR
SHAW COVE
BAILEY POINT
QUAKER HILL
NARRAGANSETT COVE
MARRAGANSETT HILL
SMITH COVE
LONG COVE
BARTLETT COVE
UNCASVILLE
CLARK COVE
HORTON COVE
ALLYN POINT
MASSAPEAG
STANDARD PROJECT HURRICANE TIDAL FLOOD(3)
HURRICANE OF SEPTEMBER 21, 1938 TIDAL FLOOD
HURRICANE "CAROL," AUGUST 31, 1954, TIDAL FLOOD
MEAN SPRING HIGH WATER(1)
MEAN HIGH WATER(1)
MEAN TIDE LEVEL(1)
NATIONAL GEODETIC VERTICAL DATUM(2)
MEAN LOW WATER(1)
ELEVATION IN FEET ABOVE NGVD
DISTANCE IN STATUTE MILES FROM MOUTH OF THAMES RIVER AT EASTERN POINT

PHOENIX
Environmental Laboratories, Inc.

Monday, November 26, 2018

Attn: Keith B. Neilson, P.E.
Docko, Inc.
14 Holmes Street, P.O. Box 421
Mystic, CT 06355

Project ID: NOANK COOP, AEROS OYSTERS
Sample ID#s: CB99653 - CB99654

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 26, 2018

FOR: Attn: Keith B. Neilson, P.E.
Docko, Inc.
14 Holmes Street, P.O. Box 421
Mystic, CT 06355

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		11/15/18	14:35
Location Code:	DOCKO	Received by:	SW	11/16/18	16:00
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCB99653
Phoenix ID: CB99653

Project ID: NOANK COOP, AEROS OYSTERS
Client ID: NC/AO 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Copper	< 0.013	0.013	mg/L	5	11/20/18	EK	E200.7
Lead	< 0.005	0.005	mg/L	5	11/20/18	EK	E200.7
Zinc	0.016	0.010	mg/L	5	11/20/18	EK	E200.7
B.O.D./5 day	14	3.9	mg/L	3	11/16/18 16:30	RVM/RM	SM5210B-11
Chlorine Residual	< 0.02	0.02	mg/L	1	11/16/18 18:17	O	SM4500Cl-G-00
C.O.D.	542	20	mg/L	2	11/19/18	MSF	SM5220D-11
Ammonia as Nitrogen	0.36	0.25	mg/L	5	11/21/18	KDB	E350.1
Nitrite-N	0.012	0.010	mg/L	1	11/16/18 21:36	TB	E353.2
Nitrate-N	0.14	0.02	mg/L	1	11/16/18 21:36	TB	E353.2
Oil and Grease by EPA 1664A	< 1.4	1.4	mg/L	1	11/19/18	MSF	E1664A
pH	7.69	1.00	pH Units	1	11/16/18 22:50	RR/EG	SM4500-H B-11
Nitrogen Tot Kjeldahl	1.71	0.50	mg/L	5	11/21/18	KDB	E351.1
Total Phosphate as PO4	1.32	0.03	mg/L	1	11/19/18	MI	SM4500PE-11
O&G, Non-polar Material	< 1.4	1.4	mg/L	1	11/19/18	MSF	E1664A
Total Suspended Solids	15	5.0	mg/L	1	11/19/18	MM/KDB	SM2540D-11
Total Metals Digestion	Completed				11/19/18	AG	

Project ID: NOANK COOP, AEROS OYSTERS
Client ID: NC/AO 1

Phoenix I.D.: CB99653

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
November 26, 2018
Reviewed and Released by: Helen Geoghegan, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 26, 2018

FOR: Attn: Keith B. Neilson, P.E.
Docko, Inc.
14 Holmes Street, P.O. Box 421
Mystic, CT 06355

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		11/15/18	14:40
Location Code:	DOCKO	Received by:	SW	11/16/18	16:00
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCB99653
Phoenix ID: CB99654

Project ID: NOANK COOP, AEROS OYSTERS
Client ID: NC/AO 2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Copper	< 0.013	0.013	mg/L	5	11/20/18	EK	E200.7
Lead	< 0.005	0.005	mg/L	5	11/20/18	EK	E200.7
Zinc	0.033	0.010	mg/L	5	11/20/18	EK	E200.7
B.O.D./5 day	< 4.0	4.0	mg/L	2	11/16/18 16:30	RVM/RM	SM5210B-11
Chlorine Residual	< 0.02	0.02	mg/L	1	11/16/18 18:18	O	SM4500Cl-G-00
C.O.D.	559	20	mg/L	2	11/19/18	MSF	SM5220D-11
Ammonia as Nitrogen	0.12	0.10	mg/L	2	11/21/18	KDB	E350.1
Nitrite-N	0.013	0.010	mg/L	1	11/16/18 21:44	TB	E353.2
Nitrate-N	0.10	0.02	mg/L	1	11/16/18 21:44	TB	E353.2
Oil and Grease by EPA 1664A	< 1.4	1.4	mg/L	1	11/19/18	MSF	E1664A
pH	7.77	1.00	pH Units	1	11/16/18 22:52	RR/EG	SM4500-H B-11
Nitrogen Tot Kjeldahl	0.34	0.20	mg/L	2	11/21/18	KDB	E351.1
Total Phosphate as PO4	0.10	0.03	mg/L	1	11/19/18	MI	SM4500PE-11
O&G, Non-polar Material	< 1.4	1.4	mg/L	1	11/19/18	MSF	E1664A
Total Suspended Solids	< 5.0	5.0	mg/L	1	11/19/18	MM/KDB	SM2540D-11
Total Metals Digestion	Completed				11/19/18	AG	

Project ID: NOANK COOP, AEROS OYSTERS
Client ID: NC/AO 2

Phoenix I.D.: CB99654

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 26, 2018
Reviewed and Released by: Helen Geoghegan, Project Manager