**Final Coastal Site Plan**

**PLPZ 2021 00097**

<table>
<thead>
<tr>
<th></th>
<th>Puckett Residence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location:</strong></td>
<td>47 Edgewater Drive</td>
</tr>
<tr>
<td><strong>Zone:</strong></td>
<td>R-12</td>
</tr>
<tr>
<td><strong>Flood Zone(s):</strong></td>
<td>AE-15, AE-13</td>
</tr>
<tr>
<td><strong>Parcel Size:</strong></td>
<td>7,270 sq. ft. (to mean high water)*</td>
</tr>
</tbody>
</table>

**Zoning Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>Proposed</th>
<th>Allowed/Required*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROSS SQ. FT:</td>
<td>1,475.47</td>
<td>2,272.64</td>
<td>2,290.05 sq. ft.</td>
</tr>
<tr>
<td>FAR:</td>
<td>0.202</td>
<td>0.312</td>
<td>0.315</td>
</tr>
<tr>
<td>FRONT SETBACK:</td>
<td>18.7 ft.</td>
<td>18.7 ft.</td>
<td>25 ft.*</td>
</tr>
<tr>
<td>REAR SETBACK:</td>
<td>&gt;55 ft.</td>
<td>+/-55 ft.</td>
<td>25 ft.*</td>
</tr>
<tr>
<td>SIDE YARD SETBACKS:</td>
<td>not provided</td>
<td>5.9 ft. and 8.1 ft. Total of 14 ft.</td>
<td>5 ft. min. Sum of both not less than 15 ft.*</td>
</tr>
<tr>
<td>BUILDING HEIGHT:</td>
<td>not provided</td>
<td>30 ft. ¼”</td>
<td>35 ft.</td>
</tr>
<tr>
<td># OF STORIES:</td>
<td>not provided</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>GREEN AREA:</td>
<td>not provided</td>
<td>67.5%</td>
<td>55%</td>
</tr>
</tbody>
</table>

* As an undersized lot in the R-12 Zone, the R-7 zone setback requirements apply per Sec. 6-9.

**APPLICATION SUMMARY**

The applicant is seeking Final Coastal Site Plan approval to make additions to, and raise (lift) the existing residential structure at 47 Edgewater Drive to meet the Base Flood Elevation (BFE) of the FEMA FIRM Maps. In addition to the existing dwelling being raised and expanded, the applicant is proposing to construct a new, patio, and associated site improvements to accommodate the higher first floor in the Coastal Overlay Zone. The structure is within 100 ft buffer of coastal resources and is in the AE-15 and AE-13 Flood Zones, and was submitted as an Administrative application for review by Staff but has been referred to the Commission by the Town Planner, post the investigation by the State’s DEEP regarding alleged work/fill in the tidal wetland area (see attached).

**ISSUES/RECOMMENDATIONS**

1. **ZONING**- the ZEO has noted that the proposed setbacks appear to be non-conforming. If the applicant is making use of existing setbacks, that information should be detailed and/or an existing conditions survey provided to explain zoning conformance.

2. **COASTAL OVERLAY** – as amended by the Commission on November 5, 2020, the Commission may require, where appropriate, a vegetated buffer on properties adjacent to coastal resources. The subject application has not details as to the
vegetative planting abutting the coastal resource (tidal wetlands/Greenwich Cove). Abutters to the subject property have raised concerns that the proposed action would adversely impact stormwater and flooding impacts to their properties is approved.

DEPARTMENTS COMMENTS
ZEO - see attached
CONSERVATION -
ENGINEERING - drainage exemption
SEWER -
DEEP - see attached

ZONING
The proposed lift and additions to the current dwelling would appear to increase the gross floor area of the dwelling from 1,475.47 sq. ft. to 2,272.64 sq. ft. through additions to the home and expansion on the second floor. The foundation of the home would be expanded/retrofitted to meet the requirements of Section 6-139.1 for fully enclosed spaces within an AE flood zone as flood venting is proposed. The proposed plans would raise the first floor of the existing dwelling to 16 feet where 14 feet would meet the minimum requirements and comply with Section 6-139.1. The grade plan analysis provided notes that the standard grade plan of Sec. 6-134, is lower than the Flood Zone Grade Plane defined in Sec. 6-139.1(c)(22.1) which permits the applicant to determine their zoning compliance for height and storys from the AE-13 flood zone.

The lot size is 7,270 sq. ft. (above mean high water), is on the north side of Edgewater Drive, and abuts Greenwich Cove to the north. The existing elevations range from 3.4 ft. at the mean high water line, to 10.1 ft. near the front porch of the home. The proposed development would slightly change the grade onsite; all above elevation 7, and predominantly in the area around the foundation of the home and the proposed rear yard patio. The property is located in the R-12 zone but is less than the minimum 12,000 sq. ft. lot area required in the zone. Because the parcel is undersized (7,270 sq. ft.) the applicant may “step down” and utilize the R-7 Zone setbacks per the language of section 6-9. The existing foot print of the home appears to be non-conforming with the required yard setbacks, The ZEO has reviewed the proposal and noted that there is a lack of clarity as to the existing condition and proposed work, at it would appear that the addition(s) to the dwelling may not meet zoning. The applicant should address and/or clarify for the Commission and the ZEO.

COASTAL RESOURCES AND STRUCTURES:
The property is immediately adjacent to Greenwich Cove at the northern property line. The dwelling is entirely within the AE-13 flood zone with a proposed raised, patio and stairs in the rear yard appears to extend into the AE-15 flood zone. Per the amended language of Sec. 6-111, the standards for applications in the Coastal Overlay zone now contains the requirement to, “(6) Include a naturalized vegetated buffer to protect
environmentally sensitive and/or ecologically valuable natural resources such as tidal wetlands, open water, slopes in excess of 25%, coastal bluffs and escarpments, beaches, and dunes. Plantings shall be predominately native species and salt-tolerant. Where appropriate, the Commission may waive this requirement upon a finding that by virtue of the lot size, use, or relationship to and/or character of the coastal resources, the buffer will have no impact on mitigating adverse impacts.”

Staff notes that the proposal does not include any vegetated buffer along the adjacent coastal resource.

All though not required by the regulations, we note that the AE-15 flood zone is coincidental with FEMA’s Limit of Moderate Wave Action (or “LiMWA”). FEMA strongly recommends that structures within the LiMWA be designed to meet the requirements as if they were with a VE flood zone. The State’s DEEP commented on the proposal and noted no comments and considered the proposal a local matter. Subsequent to the DEEP’s memo, it was brought to the State’s attention by a neighbor to the property, alleging fill and/or disturbance of the tidal wetlands below the coastal jurisdiction line of elevation 5.5. The State looked into the matter and provided a report of their findings. The State did note, “In this area, I did see evidence of tidal wetland vegetation mixed with upland weeds. No work appears to have been completed to the shoreline structures as they are both in disrepair. However, the shoreline is not that steep and stable. The property owner has no interest in conducting any work to the shoreline at this time. I did find evidence that under the wetland/upland grasses some gravel pea stone has been placed. However, this is not significant enough of an activity for the Department to take action at this time. The property owner has been cautioned that the placement of any material waterward of the CJL requires prior authorization from the Department.” The matter of the upland work was again referred back to Department Staff.

DRAINAGE

The proposed action represents less than 1,000 sq. ft. of new impervious area and therefore qualifies as a drainage exemption under the Town’s Stormwater Management standards. An under drained permeable terrace system is proposed to be installed to treat stormwater runoff from the increased and new impervious area. The goal of the design is to guarantee a zero increase in peak flow to all points of concern for the 1-25 year storms. The remaining additions will be disconnected via splash pads. The remainder of the site is designed to continue to maintain existing drainage patterns.

Abutting property owners have raised concerns that this elevated terrace with subsurface detention would possibly lead to stormwater issues on their properties as it would appear to hold water, above the elevation of their adjacent property and foundations. They also have raised concerns that the addition of this raised terrace would divert or direct possible flood waters towards their property, adversely impacting them.

APPLICABLE REGULATIONS
Section 6-5 Definitions
Section 6-9 ZONING REGULATIONS AFFECT ALL STRUCTURES AND USES
Section 6-13 Site Plan Approval Required by Planning & Zoning Commission
Section 6-14 Procedure
Section 6-15 Standards
Section 6-111 Coastal Overlay Zone
Section 6-139.1 Flood Hazard Overlay Zone
Section 6-205 Schedule of Required Open Spaces, Limiting Heights And Bulk of Buildings
ZONING ENFORCEMENT

Project No.  PLPZ20210097

Reviewed for Planning and Zoning Commission.

TITLE OF PLAN REVIEWED:  Puckett

LOCATION:  47 Edgewater Drive

PLAN DATE:  

ZONE:  R-12

☑  Ok for Zoning Permit Sign-off with the following revisions:

   The existing dwellings setbacks need to be considered when determining required setbacks. The combined setbacks need to be 15 feet.

☐  Resubmit the following prior to Site Plan/ Subdivision approval:

☐  The subject site plan/subdivision meets the requirements of the Building Zone Regulations, excluding sections 6-15 and 6-17, and is Ok for Zoning Permit Sign-off.

Reviewed by:  Jodi Couture  Date:  6/28/2021

Note:  These comments do not represent Building Inspection Division approval.  Plans subject to review by ZEO at time of building permit application.
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/1/2021 at 11:35 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.
Bianca Dygert
Planner II
Town of Greenwich
Land Use - Planning & Zoning
101 Field Point Road
Greenwich, CT 06830-6463
Ph. (203) 622-7894
Office Fax. (203) 622-3795
Direct Fax. (203) 861-6113
Bianca.Dygert@greenwichct.org

www.greenwichct.gov

-----Original Message-----
From: Gaucher, John [mailto:John.Gaucher@ct.gov]
Sent: Thursday, April 1, 2021 3:24 PM
To: Dygert, Bianca <bianca.dygert@greenwichct.org>
Cc: Leonard D’Andrea <lcd@rvdi.com>
Subject: 47 Edgewater Drive, Puckett CSPR
Importance: Low

[EXTERNAL]

Bianca,

We have reviewed the above-referenced proposal for consistency with Connecticut Coastal Management Act policies and have no comments for Planning & Zoning Commission's consideration. Please let me know if you have any questions or if you need any additional information.

John Gaucher
Environmental Analyst III
Land & Water Resources Division
Bureau of Water Protection and Land Reuse
79 Elm Street
Hartford, CT  06106
Phone 860.424.3660
fax 860.424.4054

CAUTION: This email originated from outside the Town email system. Do not click links or open attachments unless you have verified the sender and know the content is safe.
LaRow, Patrick

From: Zawoy, Kevin <Kevin.Zawoy@ct.gov>
Sent: Wednesday, June 2, 2021 10:53 AM
To: jeffrey.puckett@boehringer-ingelheim.com
Cc: Golembiewski, Brian; LaRow, Patrick
Subject: RE: 47 Edgewater Drive, Old Greenwich CT 06870
Attachments: 2021-4324 47 Edgewater Drive Old Greenwich close.docx
Importance: Low

[EXTERNAL]
Hi Mr. Puckett, please find attached my inspection report which I will forward to the Town. Please feel free to also share this with the Town. Kevin

From: jeffrey.puckett@boehringer-ingelheim.com <jeffrey.puckett@boehringer-ingelheim.com>
Sent: Tuesday, June 1, 2021 6:40 PM
To: Zawoy, Kevin <Kevin.Zawoy@ct.gov>
Subject: RE: 47 Edgewater Drive, Old Greenwich CT 06870

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Hi Kevin, Thanks for the follow-up and update.

Have a nice evening,
Jeff

From: Zawoy, Kevin <Kevin.Zawoy@ct.gov>
Sent: Tuesday, June 1, 2021 4:27 PM
To: Puckett, Jeffrey (HP Com MA) BIP-US-R <jeffrey.puckett@boehringer-ingelheim.com>
Subject: RE: 47 Edgewater Drive, Old Greenwich CT 06870
Importance: Low

CAUTION! Please do not click links or open attachments unless you recognize the sender, this email is from an External Sender (outside Boehringer-Ingelheim)

Hi Jeff, still working on this but should have an answer soon. Kevin

From: jeffrey.puckett@boehringer-ingelheim.com <jeffrey.puckett@boehringer-ingelheim.com>
Sent: Friday, May 21, 2021 5:12 PM
To: Zawoy, Kevin <Kevin.Zawoy@ct.gov>
Cc: rominac80@yahoo.com; jeffreypuck@gmail.com
Subject: 47 Edgewater Drive, Old Greenwich CT 06870

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Hi Kevin,
Thanks for stopping by earlier today. For your reference, please see attached for the CAM package, including the survey, which I referred to in our conversation.

In addition, please send me over all correspondence pertaining to this item so I can better understand the nature of the complaint.

To recap our conversation, some top soil has been brought into the area of question to help facilitate grass growth. In addition, a few bags of pea stone were placed along a path toward the water and around the fire pit. I would also like to mention the loss of the railroad-tie wall in this back corner of the property during Superstorm Sandy has increased erosion in this area.

Please let me know if you have further questions.

Have a nice weekend,

Jeffrey Puckett
47 Edgewater Drive
Old Greenwich, CT 06870

This e-mail is confidential and may also be legally privileged. If you are not the intended recipient please reply to sender, delete the e-mail and do not disclose its contents to any person. Any unauthorized review, use, disclosure, copying or distribution is strictly prohibited. 

**CAUTION:** This email originated from outside the Town email system. Do not click links or open attachments unless you have verified the sender and know the content is safe.
**LAND & WATER RESOURCES DIVISION**

**Complaint Form**

<table>
<thead>
<tr>
<th>Date Complaint Received:</th>
<th>April 28, 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Location:</td>
<td>47 Edgewater Drive</td>
</tr>
<tr>
<td>Activity:</td>
<td>Alleged fill in the wetlands.</td>
</tr>
<tr>
<td>Activity Type:</td>
<td>A. Currently dredging, excavating, or filling below HTL or in tidal wetlands</td>
</tr>
<tr>
<td>Alleged Violator:</td>
<td>Jeff and Romina Puckett</td>
</tr>
<tr>
<td>Town:</td>
<td>Greenwich</td>
</tr>
<tr>
<td>Regulated Area:</td>
<td>Coastal</td>
</tr>
<tr>
<td>Inspection Priority</td>
<td>A = same or next day</td>
</tr>
<tr>
<td></td>
<td>B = 2 weeks</td>
</tr>
<tr>
<td></td>
<td>C = 1 month</td>
</tr>
</tbody>
</table>

Public information not stored in database:

<table>
<thead>
<tr>
<th>Complainant:</th>
<th>Patrick Linskey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number:</td>
<td></td>
</tr>
<tr>
<td>E-mail:</td>
<td><a href="mailto:patrick.linskey@gmail.com">patrick.linskey@gmail.com</a></td>
</tr>
</tbody>
</table>

Upon completing the above information, send form as an e-mail attachment to DEEP.LWRDEnforcement@ct.gov. If the complaint is considered a High Priority (active damage to coastal/water resources) also copy brian.golembiewski@ct.gov.

**Assigned Staff:** Kevin Zawoy  
**Complaint #:** 2021-4324

Once the Complaint Entry Form is completed in Access enter the Complaint # generated by the database above.

<table>
<thead>
<tr>
<th>Inspector:</th>
<th>Kevin Zawoy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Inspection:</td>
<td>5-24-2021</td>
</tr>
<tr>
<td>Finding:</td>
<td>√ VI</td>
</tr>
<tr>
<td></td>
<td>√ NV</td>
</tr>
</tbody>
</table>

Assigned Staff: Record Complaint # and inspection information above and complete the Inspection Report on page 2 (Required). Attach any supplemental information (e.g. labeled photographs) to the double-sided hard copy.

For finding of NV, Staff signs and dates the completed hard copy and forwards it with any attachments to the Enforcement Clerical for data entry and closure.

For finding of VI, Staff completes the Summary and NOV. Staff obtains Supervisor’s signature on the NOV and closes the complaint by signing the hard copy with the NOV issue date. Then forward the entire file to the Enforcement Clerical for processing and closure of the Complaint in Access.

For a finding of a violation (VI) that should not be pursued (NP), consult with the Supervising Analyst prior to closing with NP status.

Status: ✔️ C  
**Date of Closure:** 6-2-2021  
**Analyst’s Signature:** Kevin Zawoy
Site Report:
Description of Site/Activity: The site is a residential property located off a small tidal creek containing tidal wetlands. The shoreline of the property contains some rubble stone and wooden deteriorated materials. Because the rear of the property is low, the CJL is located off a section of the rear yard based upon a recent site survey. In this area, I did see evidence of tidal wetland vegetation mixed with upland weeds. No work appears to have been completed to the shoreline structures as they are both in disrepair. However, the shoreline is not that steep and stable. The property owner has no interest in conducting any work to the shoreline at this time. I did find evidence that under the wetland/upland grasses some gravel pea stone has been placed. However, this is not significant enough of an activity for the Department to take action at this time. The property owner has been cautioned that the placement of any material waterward of the CJL requires prior authorization from the Department.

Waterbody: Tidal wetlands of Greenwich Cove
Finding based on: ☑ HTL identified ☑ wrack line ☑ vegetation ☐ aerial photos ☐ Other (specify):

Was the activity still in progress? ☑ No ☐ Yes Photos taken? ☐ No ☑ Yes (if yes, label and attach)
If unable to make a finding, indicate reason:

If a violation was identified complete this section.
Action taken on-site: ☐ Field NOV ☐ Stop-work Advisory
Is there a pending application? ☑ No ☐ Yes Application or permit #
Is there a previous permit? ☑ No ☐ Yes Permit Authority: ☑ SDF ☑ TWSD ☑ IWWA

Property Owner: Mailing Address:

Follow up:
☐ Re-inspection required. ☑ Suggested date/tidal cycle for re-inspection: 
☐ Referred to another program (specify): ☑ Copy sent to Town of Greenwich Date referred: 6-2-2021
PERMIT NEED DETERMINATION QUESTIONNAIRE
[This form is NOT an IWWA Application]

PROJECT: Street Address: 47 Edgewater Drive

PARCEL ID #: 06-19-41

Has there ever been an IWWA application for this site? YES [ ] NO [ ]

Activity: (Circle) Addition, Demolition, Deck, Garage, Interior renovations, New residence, Pool, Tennis court, Other (please specify) ______

Will this activity require an addition to the septic system or B/O? YES [ ] NO [ ]

FEE: $65 for reviews requiring a site visit or further in office analysis

Owner's full name [please print] Jeffrey L. Puckett and Romina Puckett

Mailing address: 47 Edgewater Drive

Town: Old Greenwich

Zip: 06870

Authorized Agent's name [please print] Matthew Kivijary for Rocco V. D'Andrea, Inc.

Phone (203) 637 - 1779

Mailing address: 6 Neil Lane

Town: Riverside

Zip: 06878

A PLOT PLAN IS REQUIRED SHOWING THE PROPOSED ACTIVITY IN RED.

IWWA staff will review this questionnaire to determine if regulated activities are associated with the proposal and whether an IWWA permit is required. Do not apply for a Building Permit until this review is complete.

If your project does not require an IWWA permit, we will sign off on this questionnaire, which you will need if you are obtaining permits from other departments.

If an IWWA permit is required, we will supply you with a permit application packet. You must obtain an IWWA permit prior to the commencement of your project. No work may begin until you receive an IWWA permit. The issuance of a building permit alone does not constitute an authorization to proceed.

If you do not receive notice regarding your questionnaire within two weeks of submission, please contact the IWWA office.

As the property owner [ ] or, authorized agent [ ] (check one) I believe that the information I have submitted is correct.

Signature __________________________ Date 3/15/21

If mailing, return completed form.

If a site visit is required, you will be notified and asked to remit a $65 fee (payable to "Town of Greenwich") to the Greenwich Inland Wetlands & Watercourses Agency.

The site visit will not take place until this fee is received.

STAFF NOTES

Office Rev Date 3/15/21 Field Inv Date ________ WET/UC? YES [ ] NO [ ] TIDAL [X]

Action Required? YES [ ] NO [ ]

If yes, DR AR SIA Staff ________

Soils Report Date ________ Author ________ Soils ________

Comments: ________

Fee Received: YES [ ] NO [ ] Comment: N/A

IWWA Questionnaire Revised 9/24/17
SITE PLAN ADMINISTRATIVE FORM

Property Address: 47 Edgewater Drive
Tax Account Number(s): 06-1941/S
Zone(s): R-12
Lot Area: 7,270 SF

Owners Name: Jeffrey and Romina Puckett
Phone: 
Signature: 
Email: romina@go@yahoo.com
Date: 03/09/21

Agent Name: ROCCO V. D'Andrea, Inc.
Phone: (203) 637-1779
Signature: 
Email: lvd@rvdi.com
Date: 3-15-2021

Please select all relevant items below:

- Accessory Apartment, Affordable
- Accessory Apartment, Elderly
- Coastal Site Plan
- Outdoor Dining
- Soil Erosion and Sedimentation
- Special Event/Tent Review
- Utility of Telecommunications Facility
- Other:

Description of Activity or Work Proposed:

Raising of existing dwelling, Construction of a dwelling addition, rear gravel terrace,
and associated site improvements including a drainage system and associated landscaping.

Previous Review/Approvals by P&Z (Date And Number):

Total Building Square Footage (or total site work area):

Present Use: Single-Family Dwelling
Square Footage: 1,696 SF

Proposed Use: Single-Family Dwelling
Square Footage: 2,606 SF

For staff use only:
Reviewed by:
Town Planner:
Asst. Town Planner:
Senior Planner:
Planner:

(2 signatures required - one must be Town Planner as per §6-13; Town Planner may waive full Commission review of small scale projects but require approval of ARC where appropriate.)

See Attached Conditions of Approval

To be completed by P&Z staff only:
Check # 
Check Amount: $
Application # 
PZ Admin App 2018
APPLICATION FOR REVIEW OF COASTAL SITE PLAN

Applicant’s Name: Jeffrey and Romina Puckett  Date: 3-4-21
Address: 47 Edgewater Drive, Old Greenwich
Project Address or Locations: 47 Edgewater Drive, Old Greenwich

The following information must be supplied by the applicant and submitted in addition to, and along with, any application, plans and data required for approval of the proposed project under the zoning and/or subdivision regulation of the municipality. Attach additional sheets if more space is required.

1. 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, and 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 Section 22a-93(7) of the Connecticut Coastal Management Act) on and contiguous to the site.

2. 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 extend of development adjacent to the site. This information should supplement and/or clarify plans in 1(A) above.

   The subject property is located within the "R-12" zone at the intersection of Edgewater Drive and Heusted Drive, and is bordered on 3 sides by residential properties with Greenwich Cove to the north.

   The proposed project includes raising the existing dwelling, as well as the construction of a new addition and various hardscapes. Sedimentation and erosion control measures will be implemented around the development area. Excavation and filling shall be done with mechanical equipment, with work limited to the subject parcel.
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 1(B) above.

The subject parcel is located within coastal flood hazard zone "AE"(EL 15') and Zone "AE"(EL 13'). Coastal resources include regulated tidal wetlands and inter-tidal flats.

C. Assessment 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 use policies (in Section 22a-92(10)(b)(1) of Connecticut Coastal Management Act) applicable to the proposed project.

(A) to manage uses in the coastal boundary through existing municipal planning, zoning and other local regulatory authorities.

(2) Identify and all coastal resource policies (in Section22a-92(10)(b)(2) of Connecticut Coastal Management Act) applicable to the proposed project.

(i) to regulate shoreland use and development in a manner which minimizes adverse impacts upon adjacent coastal systems and resources.

(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, the project should be modified to reduce or eliminate the conflict.

The project conforms to all applicable Greenwich P&Z regulations with respect to development in a CAM area. By conforming to these regulations, the project seeks to minimize adverse impacts to the site and surrounding area.

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 in Section 22a-93(15) of Connecticut Coastal Management Act and potential beneficial impacts of the project on coastal resources.

Runoff from the proposed improvements will be discharged to and treated by the proposed stormwater systems. No negative impacts are expected. Beneficial impacts include the development of the site within the guidelines of CAM regulations.

FOR WATERFRONT PROPERTY ONLY:

(2) Is the project a water dependent use as defined in Section 22a-93(16) OF THE CONNECTICUT Coastal management Act? If, so, explain why.

The project is not a "water dependent use" as defined in Section 22a-93(16).
FOR WATERFRONT PROPERTY ONLY:

(3) Describe the impacts of effects (either positive or negative) that the project will have on future water dependent uses or development on and adjacent to this site as defined in Section 22a-93(17).

The proposed construction will have no impact or effect on "future water dependent uses or development" as defined in Section 22a-93(17).

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

Measures to mitigate adverse impacts include the installation of sedimentation & erosion control measures to minimize impacts from construction activities on the site.

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

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

No adverse impacts remain after employing the proposed mitigation measures.

(2) Explain why these remaining adverse impacts were not mitigated.

N/A

(3) Explain why the commission reviewing this application should find these remaining adverse impacts to acceptable.

N/A
March 3, 2021

Planning and Zoning Commission
Town of Greenwich
101 Field Point Road
Greenwich CT 06830

Re: 47 Edgewater Drive
Greenwich Land Use Applications

To Whom It May Concern,

As owner of the referenced property, I hereby authorize Rocco V. D’Andrea, Inc. to represent my interests in the submission and presentation of an application to the appropriate land-use applications in the Town of Greenwich.

Sincerely,

[Signature]

Jeffrey Pickett

Rocco V. D’Andrea Inc.
March 18, 2021

Re: 47 Edgewater Drive, Greenwich, CT
     Greenwich Assessor Parcel ID # 06-1941/S

Dear Adjacent Property Owner,

We represent Jeffrey and Romina Puckett in filing an application to the Greenwich Planning & Zoning Department seeking permission to construct a dwelling addition, terrace, drainage, and landscaping.

This letter serves as written notice of said application, pursuant to Section 6-111(c)(2) and 6-14(a)(16) of the Greenwich Building Zone Regulations.

If you have any questions concerning the application, please contact our office, or the office of the Planning and Zoning Staff at (203) 622-7894.

Sincerely,

ROCCO V. D'ANDREA, INC.

[Signature]

Leonard C. D'Andrea, PE

LCD:adm
20BK CAM Notice

cc: Planning & Zoning Commission
    Jeffrey and Romina Puckett
AFFIDAVIT

STATE OF CONNECTICUT  )
COUNTY OF FAIRFIELD  ) : GREENWICH

I, Leonard C. D’Andrea, being first duly sworn, do hereby certify that on March 18, 2021, I caused to be mailed, postage prepaid, to those persons whose names are set forth on the certificate of mailing, attached hereto, a copy of the notice attached hereto. Said persons were the record owners, as of March 18, 2021, of property abutting (as said term is defined in Sec. 6-14(a)(14) of the Greenwich Building Zone Regulations), the property belonging to Jeffrey and Romina Puckett, for whom an application has been filed with the Greenwich Planning & Zoning Commission seeking approval to construct a dwelling addition, terrace, drainage, and landscaping.

Leonard C. D’Andrea, PE

Subscribed and sworn to before me on
March 18, 2021

Alicia Melillo
Notary Public
My Commission Expires 4/30/2021
CERTIFICATE OF MAILING
47 Edgewater Drive, Old Greenwich
Tax Acct. #06-1941/S
March 18, 2021

Tax Acct. #06-2968/S
Ibrahim Kara
35 Edgewater Drive
Old Greenwich CT 06870

Tax Acct. #06-2345/S
Brendan Letarte
33 Edgewater Drive
Old Greenwich CT 06870

Tax Acct. #06-1579/S
Patrick F. Linskey, Tr.
45 Edgewater Drive
Old Greenwich CT 06870

Tax Acct. #06-4503/S
Town of Greenwich
Finance Department
101 Field Point Drive
Greenwich CT 06830

Tax Acct. #06-2833/S
Anthony & Nora Giovati
40 Edgewater Drive
Old Greenwich CT 06870

Tax Acct. #06-2693S
Amira Mantoura Nana
37 Edgewater Drive
Old Greenwich CT 06870

Tax Acct. #06-2640/S
Matthew & Kylie Woolf
39 Edgewater Drive
Old Greenwich CT 06870

Tax Acct. #06-1620/S
Barbara J. Ashe
49 Edgewater Drive
Old Greenwich CT 06870

Tax Acct. #06-1640/S
Michael and Shan Brock
51 Edgewater Drive
Old Greenwich CT 06870
## Residential

### Valuation Record

<table>
<thead>
<tr>
<th>Assessment Year</th>
<th>10/01/2015</th>
<th>10/01/2015</th>
<th>10/01/2016</th>
<th>10/01/2017</th>
<th>10/01/2018</th>
<th>10/01/2019</th>
<th>10/01/2020</th>
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</thead>
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<td>2015 Prelim</td>
<td>L 859100</td>
<td>B 128300</td>
<td>T 987400</td>
<td>L 601370</td>
<td>B 89810</td>
<td>T 691180</td>
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<td>2015 Final</td>
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<td>2016 List</td>
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<td>859100</td>
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<tr>
<td>2017 List</td>
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<td>128300</td>
<td>987400</td>
<td>601370</td>
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<td>2018 List</td>
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<tr>
<td>2019 List</td>
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<td>691180</td>
<td>859100</td>
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</table>

### Land Data and Calculations

<table>
<thead>
<tr>
<th>Land Type</th>
<th>Rating</th>
<th>Measured</th>
<th>Effective Frontage</th>
<th>Effective Depth</th>
<th>Base Rate</th>
<th>Adjusted Rate</th>
<th>Extended Value</th>
<th>Influence Factor</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Residential Land</td>
<td>0.1640</td>
<td>1.00</td>
<td>5820121.00</td>
<td>5820121.00</td>
<td>954500</td>
<td>-10%</td>
<td>859100</td>
<td></td>
<td>859100</td>
</tr>
</tbody>
</table>

### Topography:
- Public Utilities: Water, Sewer, Electric
- Street or Road: Neighborhood:
- Zoning: R-12 Single Fam 12,000 sf
- Legal Acres: 0.1640

### Supplemental Cards
- 1 Residential Land
- Rating: 0.1640
- Measured: 1.00
- Effective Frontage: 5820121.00
- Effective Depth: 5820121.00
- Base Rate: 954500
- Adjusted Rate: -10%
- Extended Value: 859100

### Permit Number
- Type: BP16: 16-1485 Central air 100% complete
- Filing Date: I: OLD KITCHEN & BATH, 1 STORY SECTION HAS TILED FLOOR
- Est. Cost: Field Visit: 5820121.00
- Est. SqFt: 5820121.00
- Influence Factor: 954500
- Value: -10%

### TRUE TAX VALUE
- 859100
**PHYSICAL CHARACTERISTICS**

- **Style:** Colonial
- **Occupancy:** Single family
- **Story Height:** 2.0
- **Finished Area:** 1568
- **Attic:** None
- **Basement:** 3/4

**ROOFING**
- **Material:** Asphalt shingles
- **Type:** Gable
- **Framing:** Std for Class
- **Pitch:** Not available

**FLOORING**
- **Slab:** B
- **Sub and joists:** 1.0, 2.0
- **Base Allowance:** B, 1.0, 2.0

**EXTERIOR COVER**
- **Wood Siding:** 1.0, 2.0

**INTERIOR FINISH**
- **Normal for Class:** B, 1.0, 2.0

**ACCOMMODATIONS**
- **Finished Rooms:** 8
- **Bedrooms:** 4
- **Formal Dining Rooms:** 1
- **Fireplaces:** 1

**HEATING AND AIR CONDITIONING**
- **Primary Heat:** Hot water - gas
  - **Lower:** Full Part
  - **Primary:** Lower
  - **Air Cond:** 0 840 728 0

**PLUMBING**
- **3 Fixt. Baths:** 1 3
- **Kit Sink:** 1 1
- **TOTAL:** 4

**REMODELING AND MODERNIZATION**
- **Amount:** Date

---

**SPECIAL FEATURES**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>ID</th>
<th>Use</th>
<th>Stry Const</th>
<th>Hgt</th>
<th>Type</th>
<th>Grade</th>
<th>Year Eff</th>
<th>Const Year Cond</th>
<th>Base/Feat-</th>
<th>Adj</th>
<th>Size or Computed</th>
<th>Phys/Obso/Market %</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>D : BASIC</td>
<td>7420</td>
<td>D</td>
<td>DWELL</td>
<td>0.00</td>
<td>Avg</td>
<td>1937</td>
<td>1937</td>
<td>AV</td>
<td>0.00</td>
<td>Y</td>
<td>0.00</td>
<td>2296</td>
<td>225420</td>
<td>40</td>
</tr>
</tbody>
</table>

**SUMMARY OF IMPROVEMENTS**

- **Construction:**
  - Base Area: 1568
  - Floor Area: 2296
  - Sq Ft: 225420

- **Finished:**
  - Base Area: 1568
  - Floor Area: 2296
  - Sq Ft: 225420

- **Base/Feat-:**
  - Adj | Size or Computed | Phys/Obso/Market % | Value
  - Adj | Comp | Value

---

**Data Collector/Date**
- VM 06/02/2016

**Appraiser/Date**
- TOG 10/01/2015

**Neighborhood**
- Neigh 111060 AV

**Supplemental Cards**
- TOTAL IMPROVEMENT VALUE: 135300
**DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA) CERTIFICATION**

**PRE-CONSTRUCTION**

Property Address: 47 Edgewater Drive  
Tax Account No.: 06-1941/S

Building Permit No.: ________________

**PLANS & DRAINAGE SUMMARY REPORT INFORMATION**

Engineering Firm: Rocco V. D'Andrea, Inc.

Design Plans Date: 3/15/2021  
Drainage Report Date: 3/9/2021

**PROPERTY INFORMATION FOR DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Existing Conditions (SF)</th>
<th>Proposed Conditions (SF)</th>
<th>Disconnected</th>
<th>Directly Connected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Impervious Area</td>
<td>1,696.00</td>
<td>2,536.00</td>
<td>1,672.00</td>
<td>864.00</td>
</tr>
</tbody>
</table>

1. Impervious surfaces include but are not limited to roofs (including green roofs), buildings, houses, walks, patios, walls, tennis/sport courts (all surface types must be counted), landscape ponds, pools, paved streets/drives/parking areas constructed with concrete, asphalt, compacted dirt, gravel, or permeable pavements.

2. All impervious surfaces that are directed to stormwater BMPs that meet the water quality volume (WQV) standard will be considered disconnected impervious cover. Acceptable stormwater BMPs are Biotreatment (infiltrating/filtering), Constructed Stormwater Wetlands, Extended Dry Detention Basins (infiltration required), Gravel Wetlands, Constructed Wet Stormwater Ponds, Sand/Organic Filters (sand filters, tree filters, stormwater planters, etc.), Infiltration Systems (drywells, Culverts, etc.), Permeable Pavement Areas (infiltrating/filtering), Green Roofs, and Disconnected Impervious Area (must meet all the standards under Simple Disconnection on page 44 and 45 of the Drainage Manual).

3. Subtract the Total Disconnected Impervious Area Under Proposed Conditions (SF) from the Total Impervious Area Under Proposed Conditions (SF).

**Engineer’s Signature:**  
Date: 3/15/21

**Engineer’s Seal:**
DRAINAGE SUMMARY STATEMENT

For

47 Edgewater Drive
Greenwich, Connecticut

Prepared For

Jeffrey and Romina Puckett

March 9, 2021

Leonard C. D’Andrea, PE
CT License No. 14869
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- Conclusion  

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- Watershed Map – Proposed Conditions  
- USDA Soil Delineation Map  
- FEMA Flood Map  

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- Town of Greenwich Exemption Forms  
- HydroCAD Summary Table  
- Runoff Volume & Retention System Design Calculations  
- HydroCAD Analysis – Existing Conditions  
- HydroCAD Analysis – Proposed Conditions  
- Pipe Conveyance Calculations  

Exhibit A  
Exhibit B  
Exhibit C  
Exhibit D  
Appendix A  
Appendix B  
Appendix C  
Appendix D  
Appendix E  
Appendix F
Project Summary

The client is proposing to redevelop 47 Edgewater Drive in Greenwich, CT. The lot is located on the north side of Edgewater Drive, at the intersection with Heusted Drive. The property lies within the “R-12” Zone and has a total area of 7,270 square feet.

Currently the parcel supports a dwelling, asphalt driveway, a wooden deck, and various walkways and hardscapes. The site gently slopes from a high point located at the dwelling.

The proposed development will alter the amount of impervious cover on the site from 1,696 square feet to 2,606 square feet (+910). The proposed development results in less than 1,000 sq. ft. of new impervious coverage, thus the improvements are conditionally exempt from the Town of Greenwich stormwater management standards (refer to Appendix A for Exemption forms).

An under drained permeable terrace system will be installed to treat stormwater runoff from the new impervious area, and to ensure a zero increase in peak flow to all points of concert for the 1-25 year design storms. The remaining additions will be disconnected via splash pads. The proposed mitigation measures have been designed to meet the criteria specified per the Conditional Exemption for projects increasing impervious coverage between 500 and 1,000 square feet (Refer to calculations in Appendix C). The remainder of the site will continue to maintain existing drainage patterns.

For a depiction of the site and the proposed development, refer to a set of plans prepared by Rocco V. D’Andrea, Inc. entitled “Final Site Plan Review Set”.

Conclusion

The proposed increase in impervious coverage is less than 1,000 sq. ft., thus the improvements are conditionally exempt from the Town of Greenwich stormwater management standards (refer to Appendix A for Exemption forms). The proposed mitigation measures will help to reduce the effects of site disturbance and new impervious surfaces within the onsite watersheds and points of concern. Therefore, it is our opinion that the proposed design will result in an improved property that will not cause any adverse impacts to the neighboring properties or the Town of Greenwich roadway drainage system.
Exhibits “A” & “B”

Watershed Maps
Existing & Proposed Conditions
Exhibit “C”

USDA Soil Delineation Map
### MAP LEGEND

**Soils**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Water Features**
- Streams and Canals

**Transportation**
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Soil Rating Polygons**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Soil Rating Lines**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Soil Rating Points**
- A
- A/D
- B
- B/D

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

**Source of Map:** Natural Resources Conservation Service
**Web Soil Survey URL:**
**Coordinate System:** Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

**Soil Survey Area:** State of Connecticut
**Survey Area Date:** Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

**Date(s) aerial images were photographed:** Jul 21, 2014—Aug 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
Hydrologic Soil Group

<table>
<thead>
<tr>
<th>Map unit symbol</th>
<th>Map unit name</th>
<th>Rating</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>Westbrook mucky peat, low salt</td>
<td>A/D</td>
<td>0.1</td>
<td>24.7%</td>
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<tr>
<td>250B</td>
<td>Sutton-Urbane land complex, 0 to 8 percent slopes</td>
<td>B/D</td>
<td>0.2</td>
<td>75.3%</td>
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<tr>
<td>Totals for Area of Interest</td>
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<td></td>
<td>0.2</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well-drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well-drained or well-drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious materials. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.
Exhibit “D”

FEMA Flood Map
National Flood Hazard Layer FIRMette

Legend

SPECIAL FLOOD HAZARD AREAS
- 0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile.
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee, See Notes, Table 2
- Area with Flood Risk due to Levee, See Notes, Table 2

NO SOIL Area of Minimal Flood Hazard Zone A

Effective LOSAR

OTHER AREAS
- Area of Undetermined Flood Hazard Zone C
- Area of Floodplain

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

20.3 Cross Sections with 1% Annual Chance Water Surface Elevation
17.4 Coastal Transect
10 Base Flood Elevation Line (BFE)
7 Limit of Study
4Jurisdiction Boundary

OTHER FEATURES
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

Digital Data Available
No Digital Data Available
Unmapped

MAP PANELS
The pin displayed on the map is an approximate point selected by the user and does not restate an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map source complies with FEMA's base map accuracy standards.

The flood hazard information is derived directly from the authoritative NFHI web services provided by FEMA. This map was exported on 9/6/2013, 1:26:54 PM and does not reflect changes or amendments subsequent to this date and time. The NFHI and effective information may change or become superseded by new data over time.

This map image is void if one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective data. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.
Appendix “A”

Town of Greenwich
Exemption Forms
Town of Greenwich
Department of Public Works - Engineering Division
Town Hall - 101 Field Point Road, Greenwich, CT 06836-2540
Phone 203-622-7767 - Fax 203-622-7747

STORMWATER MANAGEMENT STANDARDS – DRAINAGE REPORT EXEMPTION

Project Name: Residential Improvements

Project Address: 47 Edgewater Drive, Old Greenwich

Project Lot Number(s): 21

Property Owner(s): Jeffrey and Romina Puckett

Tax Account Number(s): 06-1941/S Zone(s): R-12 Lot Area: 7,270 S.F.

1. Check all that apply to the proposed project:
   - [ ] This is a new development or redevelopment project,
   - [ ] The project will result in an increased amount of stormwater runoff and/or water pollutants flowing from a parcel of land (prior to the application of stormwater BMPs),
   - [ ] The project will alter the drainage characteristics of a parcel of land (prior to the application of stormwater BMPs).

Categorical Exemptions:

2. Does the proposed project meet one of the following categorical exemptions? Check all that apply:
   - [ ] Normal maintenance and improvement of land in agricultural use (as defined by Connecticut General Statutes), provided such activity conforms to acceptable management practices for pollution control approved by the Connecticut Department of Energy and Environmental Protection and the Greenwich Inland Wetlands and Watercourses Commission. This exemption does not apply to construction activities that are not directly related to the farming or agricultural operation.
   - [ ] Routine maintenance of existing landscaping, gardens (excluding structural modifications to stormwater BMPs including rain gardens) or lawn areas including those maintained by the Town of Greenwich Parks and Recreation Department and Board of Education.
   - [ ] Resurfacing of an existing impervious area on a non-residential lot such as repaving an existing parking lot or drive with no increase in impervious cover.
   - [ ] Routine maintenance to existing town roads that is performed to maintain the original width, line, grade, hydraulic capacity, or original purpose of the roadway.
   - [ ] Customary cemetery management.
   - [ ] Emergency repairs to any stormwater management facility or practice that poses a threat to public health or safety, or as deemed necessary by the approving authority.
   - [ ] Any emergency activity that is immediately necessary for the protection of life, property, or the environment, as determined by the approving authority.
   - [ ] Repair of an existing septic system.
   - [ ] Construction of utilities (gas, water, electric, telephone, etc.) other than drainage, which will not permanently alter terrain, ground cover, or drainage patterns.
   - [ ] Repair or replacement of an existing roof of a single-family dwelling.
   - [ ] Construction of a second (or higher) floor addition on an existing building.
   - [ ] Construction of a maximum 12 foot x 12 foot shed. The construction must include the installation of a 1 foot wide x 1 foot deep crushed stone trench along the sides of the shed that discharge the roof runoff.
   - [ ] The repair of an existing wood, composite, or plastic deck with no proposed enlargement of the deck surface.
The reconstruction or construction of a wood, composite, or plastic deck with the decking boards spaced at least 3/16 of an inch and a pervious surface below the deck. The pervious area below the deck must have the soil tilled 12 to 16 inches and finished with grass seed, sod, or crushed stone. The minimum depth for the crushed stone is 4 inches. A site plan showing the proposed location of the deck and construction details for the deck must be submitted.

The construction of any fence that will not alter existing terrain or drainage patterns.

If so, the Greenwich Stormwater Management Standards shall not apply, and submittal of a Stormwater Management Report is not required. However, application of the standards is still strongly encouraged.

OWNERS' CERTIFICATION

Owners' Name: Jeffrey and Romina Puckett

Street Address: 47 Edgewater Drive
City: Old Greenwich
State: CT
Zip: 06870

Phone
FAX

Owners' Signature
Date

CONTRACTOR'S CERTIFICATION

Company Name

Street Address
City
State
Zip

Phone
FAX

Contractor's Signature
Date
Conditional Exemptions Requiring Certification from a Professional Engineer:

4. For projects adding between 500 and 1,000 square feet of impervious surfaces:
The project design, including the proposed drainage design, if any, will not have an adverse effect on offsite properties or offsite drainage infrastructure, as certified by a professional engineer.

At least one of the following measures shall be implemented on the project site to help mitigate the effects of site disturbance and new impervious surfaces within its on site watershed and point of concern:

- □ Disconnection of roof down spouts that meet the Simple Disconnection standards in the Town of Greenwich Drainage Manual February 2012 as amended
- □ A zero increase in peak flow to all points of concern for the 1, 2, 5, 10, and 25-year design storms
- □ The runoff volume from the new impervious surfaces shall be infiltrated for the 10-year design storm
- □ Constructing a bioretention area for the Water Quality Volume of the contributing watershed of the project area. The design standards in the Town of Greenwich Drainage Manual February 2012 as amended must be met
- □ Creating a buffer with a length greater than or equal to the length of the project area and a minimum width of 10 feet planted as a meadow
- □ Restoring a riparian buffer (may require IWWA permit)

At least one of the following measures shall be implemented on the project site using LID or conventional stormwater BMPs to help mitigate the effects of site disturbance and new impervious surfaces:

- □ A zero increase in peak flow to all points of concern for the 1, 2, 5, 10, and 25-year design storms
- □ The runoff volume from the new impervious surfaces shall be infiltrated for the 10-year design storm

For projects that meet the above criteria, the project proponent shall submit Pages 1, 2, 4, 5, and 8 of this exemption request form and all computations and any additional drainage documents (Soil Evaluation Test Results, Watershed Maps, Etc.), in lieu of a Stormwater Management Report. The application of the Greenwich Stormwater Management Standards is still strongly encouraged.

For projects that meet the above criteria, the project proponent needs to submit construction plans as required on the Checklist for Projects Submitting a Stormwater Management Standards – Drainage Report Exemption – Form CL-101.

For projects that meet the above criteria, the project proponent needs to submit the items on the Checklist for Operations and Maintenance Plan Report – Form CL-104.

For projects that meet the above criteria, the project proponent needs to submit the Certificate of Occupancy documents on the Checklist for Projects Submitting a Stormwater Management Standards – Drainage Report Exemption – Form CL-101.

Residential teardowns are not exempt unless the project meets the Conditional Residential Teardown Exemption Requirements.

Commercial teardowns are not exempt.

PROFESSIONAL ENGINEER

Company Name: Rocco V. D'Andrea, Inc.

Street Address: 6 Neil Lane
City: Riverside State: CT Zip: 06878

Phone: 203-637-1779 FAX: 203-637-1770

Professional Engineer's Name: Leonard C. D'Andrea
PROFESSIONAL - EXEMPTION CERTIFICATION

I hereby declare that the proposed project will add the following amount of impervious surfaces to the project site (check the box that applies):

■ 0 to 500 square feet (conditionally exempt with Professional Engineer's Certification)
■ 500 to 1,000 square feet (conditionally exempt with Professional Engineer's Certification)

It is my professional opinion that the project design, including the proposed drainage system, if any, will not have an adverse effect on offsite properties or offsite drainage infrastructure.

I further declare that at least one of the following measures shall be implemented on the project site to help mitigate the effects of site disturbance and new impervious cover for 0 to 1,000 square feet (check all that apply):

■ Disconnection of roof downspouts that meet the Simple Disconnection standards in the Town of Greenwich Drainage Manual February 2012 as amended
■ A zero increase in peak flow to all points of concern for the 1, 2, 5, 10, and 25-year design storms
■ The runoff volume from the new impervious surfaces shall be infiltrated for the 10-year design storm
■ Constructing a bioretention area for the Water Quality Volume of the contributing watershed of the project area. The design standards in the Town of Greenwich Drainage Manual February 2012 as amended must be met
■ Creating a buffer with a length greater than or equal to the length of the project area and a minimum width of 10 feet planted as a meadow
■ Restoring a riparian buffer (may require IWQA permit)

I further declare that at least one of the following measures shall be implemented on the project site to help mitigate the effects of site disturbance and new impervious cover for 500 to 1,000 square feet (check all that apply):

■ A zero increase in peak flow to all points of concern for the 1, 2, 5, 10, and 25-year design storms
■ The runoff volume from the new impervious surfaces shall be infiltrated for the 10-year design storm

Professional Engineer's Signature: [Signature]
Date: 3-9-21

[Seal]
IMPERVIOUS AREA WORKSHEET

This worksheet shall be used to quantify impervious surfaces\(^1\) associated with existing and proposed construction on your site. Please complete columns 1, 2, and 3 below listing the first floor or ground level square footage of each existing or proposed structure or site amenity. Each point of concern shall use a separate worksheet.

**POINT OF CONCERN**

<table>
<thead>
<tr>
<th>POINT OF CONCERN</th>
<th>(1) Existing Conditions</th>
<th>(2) Proposed Conditions</th>
<th>(3) Proposed New Impervious Surfaces</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Impervious Surfaces</td>
<td>Impervious Surfaces</td>
<td>Impervious Surfaces</td>
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<tr>
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<td>(sq ft)</td>
<td>(sq ft)</td>
<td>(sq ft)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[Column 2 minus column 1]</td>
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<td>House/Buildings</td>
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<td>850</td>
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<tr>
<td>Driveways</td>
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<td>Sidewalks/Paths</td>
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<td>Swimming Pool</td>
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<td>Patios</td>
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<td>355</td>
<td>294</td>
</tr>
<tr>
<td>Tennis Court/Sport Court</td>
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<td>0</td>
<td></td>
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<td>Other</td>
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<td>0</td>
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<tr>
<td>TOTALS:</td>
<td>1696</td>
<td>2536</td>
<td>840</td>
</tr>
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</table>

\(^{1}\) Refer to the glossary in the Town of Greenwich Drainage Manual for a definition of “impervious surface.”
Appendix “B”

HydroCAD Summary Table
HydroCAD Summary
Puckett
47 Edgewater Drive, Greenwich, CT
Project ID: 20BK

<table>
<thead>
<tr>
<th>POC</th>
<th>1 Year Storm</th>
<th>2 Year Storm</th>
<th>5 Year Storm</th>
<th>10 Year Storm</th>
<th>25 Year Storm</th>
<th>50 Year Storm</th>
<th>100 year Storm</th>
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<td>qe (ft³/s)</td>
<td>qe (ft³/s)</td>
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<td>qe (ft³/s)</td>
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Table 1: Comparison of Existing and Proposed Peak Flow Rates for all Points of Concern.

<table>
<thead>
<tr>
<th>POC</th>
<th>1 Year Storm</th>
<th>2 Year Storm</th>
<th>5 Year Storm</th>
<th>10 Year Storm</th>
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<th>50 Year Storm</th>
<th>100 year Storm</th>
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<td></td>
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<td>v0 (c/f)</td>
<td>v0 (c/f)</td>
<td>v0 (c/f)</td>
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<td>v0 (c/f)</td>
<td>v0 (c/f)</td>
<td>v0 (c/f)</td>
</tr>
</tbody>
</table>

Table 2: Comparison of Existing and Proposed Runoff Volumes for all Points of Concern.
Appendix “C”

Runoff Volume & Retention
System Design Calculations
Groundwater Recharge Volume

Site Information

- Existing Impervious Cover = 1,696 ft³
- Proposed Impervious Cover = 2,536 ft³
- Net Increase = 840 ft²

GRV = F x I

Where:

- GRV = Groundwater recharge volume
- F = Target depth factor = 0.10 inches
- I = Net increase in impervious area

GRV = 7.0 ft³

Runoff Reduction Volume: POC A

1-Year Storm Runoff Data at POC

- Pre-development runoff volume = 239 ft³
- Post-development runoff volume = 239 ft³

RRV = Vₚₒₛₜ - Vₚᵣₑ

Where:

- RRV = Runoff reduction volume
- Vₚᵣₑ = 1-year pre-development runoff volume
- Vₚₒₛₜ = 1-year post-development runoff volume (No BMPs)

RRV = 0 ft³

Runoff Reduction Volume: POC B

1-Year Storm Runoff Data at POC

- Pre-development runoff volume = 624 ft³
- Post-development runoff volume = 733 ft³

RRV = Vₚₒₛₜ - Vₚᵣₑ

Where:

- RRV = Runoff reduction volume
- Vₚᵣₑ = 1-year pre-development runoff volume
- Vₚₒₛₜ = 1-year post-development runoff volume (No BMPs)

RRV = 109 ft³
Water Quality Volume: 1S

Watershed Data

- Watershed Area (A) = 1,513 ft²
- Impervious Cover = 864 ft²
- Pervious Cover = 649 ft²
- % Impervious = 57.1%
- % Pervious = 42.9%
- Impervious Coefficient = 0.95
- Pervious Coefficient = 0.20
- Runoff Coefficient (R) = 0.63

\[ WQV = \frac{1}{12} \cdot R \cdot A \]

Where:
- \( R \) = Runoff Coefficient (R)
- \( A \) = Watershed Area (A)

\[ WQV = 79.2 \text{ ft}^3 \]

*Free release to POC A, no collection media provided.

Water Quality Volume: 2S

Watershed Data

- Watershed Area (A) = 4,777 ft²
- Impervious Cover = 1,057 ft²
- Pervious Cover = 3,720 ft²
- % Impervious = 22.1%
- % Pervious = 77.9%
- Impervious Coefficient = 0.95
- Pervious Coefficient = 0.20
- Runoff Coefficient (R) = 0.37

\[ WQV = \frac{1}{12} \cdot R \cdot A \]

Where:
- \( R \) = Runoff Coefficient (R)
- \( A \) = Watershed Area (A)

\[ WQV = 145.7 \text{ ft}^3 \]

*Directed to splash pads; simple disconnection.

Water Quality Volume: 3S

Watershed Data

- Watershed Area (A) = 980 ft²
- Impervious Cover = 615 ft²
- Pervious Cover = 365 ft²
- % Impervious = 62.8%
- % Pervious = 37.2%
- Impervious Coefficient = 0.95
- Pervious Coefficient = 0.20
- Runoff Coefficient (R) = 0.67

\[ WQV = \frac{1}{12} \cdot R \cdot A \]

Where:
- \( R \) = Runoff Coefficient (R)
- \( A \) = Watershed Area (A)

\[ WQV = 54.8 \text{ ft}^3 \]

*Directed to gravel patio.
Proposed BMP’s:
To meet the requirements of Stormwater Management Standards 4 (Runoff Volume Reduction and Groundwater Recharge), 5 (Peak Flow Control), and 6 (Pollutant Reduction) of Section 3 of the Town of Greenwich Drainage Manual, we are proposing the following structural BMP systems:

Retention System #1: Gravel Patio
Retention System #1 will consist of a porous gravel patio and was designed to filter runoff from 3S and provide LID water quality treatment and infiltration.

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Total Water Quality Storage Volume</td>
<td>156 ft³</td>
</tr>
<tr>
<td>1-Year Runoff Reduction Volume</td>
<td>158 ft³</td>
</tr>
<tr>
<td>Total WQV Received</td>
<td>54.8 ft³</td>
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</tbody>
</table>

Rocco V. D’Andrea, Inc
**TSS Removal Rates:**
Stormwater BMPs shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).

**Treatment Train #1:** Porous Patio

\[ R = A + B - \frac{(A \cdot B)}{100} \]

*Where:*

- \( R \) = Total TSS Removal Rate
- \( A \) = TSS Removal Rate for Retention System #1 = 80%
- \( B \) = TSS Removal Rate for Retention System #2 = 0%

\[ R = 80\% \quad \text{TSS Requirement Satisfied} \]
BMP Drawdown Calculations:
Infiltration structures must be able to drain fully within 72 hours.

Retention System #1: Gravel Patio

\[ t_{\text{drawdown}} = \frac{DV}{kA} \]

Where:

- \( DV \) = Design Volume = 158 ft\(^3\)
- \( k \) = Infiltration Rate = 0.09 inches/hr
- \( A \) = Bottom Area = 350 ft\(^2\)

\[ t_{\text{drawdown}} = 60.2 \text{ hours} \]

Drawdown Requirement Satisfied
### Drainage Calculations Summary:

#### Groundwater Recharge Volume Check:

<table>
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<tr>
<th>Requirement</th>
<th>Value</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Groundwater Recharge Volume Required</td>
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<td></td>
</tr>
<tr>
<td>Total 1-Year Storage Provided On Site</td>
<td>158 ft³</td>
<td>GRV Satisfied</td>
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#### Point of Concern: A

<table>
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<th>Requirement</th>
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<tbody>
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<td>Runoff Reduction Volume Required at POC</td>
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<td></td>
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<tr>
<td>1-Year Storage Provided at POC</td>
<td>0 ft³</td>
<td>RRV Satisfied</td>
</tr>
<tr>
<td>Water Quality Volume Required at POC</td>
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<td></td>
</tr>
<tr>
<td>Required 60% LID Volume</td>
<td>0.0 ft³</td>
<td></td>
</tr>
<tr>
<td>Total Storage Provided at POC</td>
<td>0 ft³</td>
<td>WQV Satisfied</td>
</tr>
<tr>
<td>LID Storage Provided at POC</td>
<td>0.0 ft³</td>
<td>LID Satisfied</td>
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#### Point of Concern: B

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</tr>
<tr>
<td>1-Year Storage Provided at POC</td>
<td>158 ft³</td>
<td>RRV Satisfied</td>
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<tr>
<td>Water Quality Volume Required at POC</td>
<td>0 ft³</td>
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<tr>
<td>Required 60% LID Volume</td>
<td>0.0 ft³</td>
<td></td>
</tr>
<tr>
<td>Total Storage Provided at POC</td>
<td>0 ft³</td>
<td>WQV Satisfied</td>
</tr>
<tr>
<td>LID Storage Provided at POC</td>
<td>0.0 ft³</td>
<td>LID Satisfied</td>
</tr>
</tbody>
</table>
Appendix “D”

HydroCAD Analysis – Existing Conditions
47 Edgewater Drive EX 0

Front Lawn & Roof

POC A (Edgewater Drive)

Rear Lawn & Roof

POC B (Greenwich Cove)

<table>
<thead>
<tr>
<th>Area (sq-ft)</th>
<th>CN</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>5,574</td>
<td>80</td>
<td>&gt;75% Grass cover. Good, HSG D (1S, 2S)</td>
</tr>
<tr>
<td>284</td>
<td>98</td>
<td>Paved parking, HSG D (1S)</td>
</tr>
<tr>
<td>876</td>
<td>98</td>
<td>Roofs, HSG D (1S, 2S)</td>
</tr>
<tr>
<td>536</td>
<td>98</td>
<td>Unconnected pavement, HSG D (1S, 2S)</td>
</tr>
<tr>
<td>7,270</td>
<td>84</td>
<td>TOTAL AREA</td>
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Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 660 cf, Depth= 5.24"

Runoff by SCS TR-20 method, UI=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.40"

<table>
<thead>
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<th>Area (sf)</th>
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<th>Description</th>
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<tr>
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<td>409</td>
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<tr>
<td>294</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>171</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
</tr>
<tr>
<td>1,513</td>
<td>90</td>
<td>Weighted Average</td>
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<tr>
<td>649</td>
<td>92</td>
<td>42.69% Pervious Area</td>
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<td>864</td>
<td>98</td>
<td>57.11% Impervious Area</td>
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<tr>
<td>171</td>
<td>98</td>
<td>Unconnected</td>
</tr>
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</table>

Tc = Length (min) Slope (feet) Velocity (ft/sec) Capacity (cfs) Description

5.0 = 7.2 0.0358 0.22 Sheet Flow, Lawn
Grass: Short m=0.150 P2%= 3.40"

Subcatchment 1S: Front Lawn & Roof

Type III 24-hr 25-Year Rainfall=6.40"
Runoff Area=1,513 sf
Runoff Volume=660 cf
Runoff Depth=5.24"
Tc=5.0 min CN=80

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.64 cfs @ 12.10 hrs, Volume= 2,090 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UI=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.40"

<table>
<thead>
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<th>Area (sf)</th>
<th>CN</th>
<th>Adj</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>4,825</td>
<td>60</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
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<tr>
<td>467</td>
<td>98</td>
<td>Roofs, HSG D</td>
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<tr>
<td>0</td>
<td>98</td>
<td>Paved parking, HSG D</td>
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</tr>
<tr>
<td>365</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
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<tr>
<td>5,757</td>
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<td>82</td>
<td>Weighted Average, UI Adjusted</td>
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<td>4,925</td>
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<td>80.55% Pervious Area</td>
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<tr>
<td>832</td>
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<td>14.40% Impervious Area</td>
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<tr>
<td>365</td>
<td>98</td>
<td>43.87% Unconnected</td>
<td></td>
</tr>
</tbody>
</table>

Tc = Length (min) Slope (feet) Velocity (ft/sec) Capacity (cfs) Description

5.0 = 7.2 0.0358 0.22 Sheet Flow, Lawn
Grass: Short m=0.150 P2%= 3.40"

Subcatchment 2S: Rear Lawn & Roof

Type III 24-hr 25-Year Rainfall=6.40"
Runoff Area=5,757 sf
Runoff Volume=2,090 cf
Runoff Depth=4.36"
Flow Length=95'
Slope=0.0358 "
Tc=7.2 min
UI Adjusted CN=82
Time span = 0.00-36.00 hrs, crit = 0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Star-Ind method - Pond routing by Dyn-Star-Ind method

Subcatchment 1S: Front Lawn & Roof
Runoff Area = 1.513 sf, 57.11% Impervious
Runoff Depth = 1.89" Tc = 5.0 min
Volume = 239 cf

Subcatchment 2S: Rear Lawn & Roof
Runoff Area = 5.757 sf, 14.45% Impervious
Runoff Depth = 1.30" Flow Length = 95' Tc = 7.2 min
Volume = 624 cf

Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.08 cfs @ 12.07 hrs, Volume = 239 cf, Depth = 1.89"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, crit = 0.01 hrs
Type III 24-hr 1-Year Rainfall = 2.90"*

<table>
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<th>Area (sf)</th>
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<tbody>
<tr>
<td>649</td>
<td>60</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
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<tr>
<td>409</td>
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<tr>
<td>364</td>
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<tr>
<td>1,513</td>
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<tr>
<td>649</td>
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<tr>
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<tr>
<td>171</td>
<td>19.76% Unconnected</td>
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Tc: 7.2 min

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<tbody>
<tr>
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Direct Entry

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.19 cfs @ 12.11 hrs, Volume = 624 cf, Depth = 1.30"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, crit = 0.01 hrs
Type III 24-hr 1-Year Rainfall = 2.90"*

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<tr>
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<tr>
<td>0</td>
<td>98</td>
<td>Paved parking, HSG D</td>
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<tr>
<td>365</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
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<tr>
<td>5,757</td>
<td>82</td>
<td>Weighted Average, Ul Adjusted</td>
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<tr>
<td>4,025</td>
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<td>85.55% Impervious Area</td>
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<tr>
<td>832</td>
<td>14.45% Impervious Area</td>
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<tr>
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<td>43.87% Unconnected</td>
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Tc: 7.2 min

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<tr>
<td>7.2</td>
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Sheet Flow, Lawn Grass: Short n = 0.150 P2 = 3.40*

Summary for Link 3L: POC A (Edgewater Drive)

Inflow Area = 1.513 sf, 57.11% Impervious, Inflow Depth = 1.89" for 1-Year event
Inflow = 0.08 cfs @ 12.07 hrs, Volume = 239 cf
Primary = 0.08 cfs @ 12.07 hrs, Volume = 239 cf, Attenuation = 0%, Lag = 0.0 min
Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, crit = 0.01 hrs
Summary for Link 4L: POC B (Greenwich Cove)

Inflow Area = 5,757 sf, 14.45% Impervious, Inflow Depth = 1.30" for 1-Year event
Inflow = 0.19 cfs @ 12.11 hrs, Volume = 624 cf
Primary = 0.19 cfs @ 12.11 hrs, Volume = 624 cf, Attenu= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link 3L: POC A (Edgewater Drive)

Inflow=0.10 cfs 297 cf
Primary=0.10 cfs 297 cf

Link 4L: POC B (Greenwich Cove)

Inflow=0.25 cfs 816 cf
Primary=0.25 cfs 816 cf
Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 297 cf, Depth= 2.35" 
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs 
Type III 24-hr 2-Year Rainfall=3.40" 

<table>
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<th>Area (sf)</th>
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<tbody>
<tr>
<td>649</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
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<tr>
<td>409</td>
<td>98</td>
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<td>254</td>
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<td>Paved parking, HSG D</td>
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<tr>
<td>171</td>
<td>98</td>
<td>Uncounected pavement, HSG D</td>
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</tbody>
</table>

1,513   90  Weighted Average 
649  42.69% Pervious Area 
864  57.11% Impervious Area 
171  16.79% Uncounected 

Tc Length Slope Velocity Capacity Description 
(min) (feet) (ft/ft) (ft/sec) (cfs) Direct Entry, 

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.25 cfs @ 12.11 hrs, Volume= 816 cf, Depth= 1.76" 
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs 
Type III 24-hr 2-Year Rainfall=3.40" 

<table>
<thead>
<tr>
<th>Area (sf)</th>
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<th>Adj</th>
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<tr>
<td>467</td>
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<td>Roofs, HSG D</td>
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<td>0</td>
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<tr>
<td>365</td>
<td>98</td>
<td>Uncounected pavement, HSG D</td>
<td></td>
</tr>
</tbody>
</table>

5,757   83  Weighted Average, UI Adjusted 
4,925   85.53% Pervious Area 
832  14.45% Impervious Area 
365  43.87% Uncounected 

Tc Length Slope Velocity Capacity Description 
(min) (feet) (ft/ft) (ft/sec) (cfs) Sheet Flow, Lawn Grass: Short n= 0.150 P2= 3.40" 

Summary for Link 3L: POC A (Edgewater Drive)

Inflow Area = 1,513 sf, 57.11% Impervious, Inflow Depth = 2.35" for 2-Year event 
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 297 cf 
Primary = 0.10 cfs @ 12.07 hrs, Volume= 297 cf, Attan= 0%, Lag= 0.0 min 

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.13 cfs @ 12.07 hrs, Volume = 404 cf, Depth = 3.20".

Runoff by SCS TR-20 method, UI=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type III 24-hr 5-Year Rainfall = 4.30".

<table>
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<tbody>
<tr>
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<tr>
<td>600</td>
<td>98</td>
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<tr>
<td>284</td>
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<tr>
<td>171</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
<td></td>
</tr>
</tbody>
</table>

| Weighted Average | 1,576 | 42.66% Pervious Area |
| 864     | 57.11% Impervious Area |
| 171     | 19.77% Unconnected |

Tc = 5.0, Direct Entry.

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.37 cfs @ 12.10 hrs, Volume = 1,181 cf, Depth = 2.46".

Runoff by SCS TR-20 method, UI=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type II 24-hr 5-Year Rainfall = 4.30".

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<td>98</td>
<td>Roofs, HSG D</td>
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</tr>
<tr>
<td>365</td>
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<td>Paved parking, HSG D</td>
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</tr>
<tr>
<td>172</td>
<td>82</td>
<td>Unconnected pavement, HSG D</td>
<td></td>
</tr>
</tbody>
</table>

| Weighted Average, UI Adjusted | 4,925 | 65.55% Pervious Area |
| 832     | 14.46% Impervious Area |
| 365     | 43.87% Unconnected |

Tc = 7.2, Slope = 0.0356, Velocity = 0.22 ft/sec, Capacity = 520 cfs.
Sheet Flow, Lawn Grass: Short m = 0.150 P2 = 3.40".

Summary for Link 3L: POC A (Edgewater Drive)

Inflow Area = 1,576 sf, 57.11% Impervious, Inflow Depth = 3.20" for 5-Year event.
Inflow = 0.13 cfs @ 12.07 hrs, Volume = 404 cf.
Primary inflow = 0.13 cfs @ 12.07 hrs, Volume = 404 cf, Attch = 0%, Lag = 0.0 min.
Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs.
Summary for Link 4L: POC B (Greenwich Cove)

Inflow Area = 5,757 sf, 14.45% impervious, Inflow Depth = 2.46" for 5-Year event
Inflow = 0.37 cfs @ 12.10 hrs, Volume = 1,181 cf
Primary = 0.37 cfs @ 12.10 hrs, Volume = 1,181 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, d= 0.01 hrs
Summary for Subcatchment 1S: Front Lawn & Roof

<table>
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<tr>
<th>Area (ft²)</th>
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<tr>
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<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>264</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>171</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
</tr>
</tbody>
</table>

Summary by SCS TR-20 method, UH=S=CS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.10"

Runoff = 0.16 cfs @ 12.07 hrs, Volume= 501 ft³, Depth= 3.97"

Summary for Link 4L: POC B (Greenwich Cove)

Inflow Area = 5.75 ft², 14.45% Impervious, Inflow Depth = 3.17" for 10-Year event
Inflow = 0.47 cfs @ 12.10 hrs, Volume= 1,520 ft³
Primary = 0.47 cfs @ 12.10 hrs, Volume= 1,520 ft³, Attenuation= 0%, Lags= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 2S: Rear Lawn & Roof

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<td>98</td>
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<tr>
<td>0</td>
<td>98</td>
<td>Paved parking, HSG D</td>
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<tr>
<td>365</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
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</tbody>
</table>

Summary by SCS TR-20 method, UH=S=CS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.10"

Runoff = 0.47 cfs @ 12.10 hrs, Volume= 1,520 ft³, Depth= 3.17"

Summary for Link 3L: POC A (Edgewater Drive)

Inflow Area = 1,513 ft², 57.11% Impervious, Inflow Depth = 3.97" for 10-Year event
Inflow = 0.16 cfs @ 12.07 hrs, Volume= 501 ft³
Primary = 0.16 cfs @ 12.07 hrs, Volume= 501 ft³, Attenuation= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Time span = 0.00-36.00 hrs, dt = 0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted CN
Reach routing by Dyn-Star-IInd method - Pond routing by Dyn-Star-IInd method

Subcatchment 1S: Front Lawn & Roof
Runoff Area = 1,513 sf, 57.11% Impervious, Runoff Depth = 5.24"
Tc = 5.0 min, CN = 90, Runoff = 0.21 cfs, 660 cfs

Subcatchment 2S: Rear Lawn & Roof
Runoff Area = 5,757 sf, 14.45% Impervious, Runoff Depth = 4.36"
Flow Length = 95', Slope = 0.0358 Y, Tc = 7.2 min, UI Adjusted CN = 82, Runoff = 0.84 cfs, 2,090 cfs

Link 3L: POC A (Edgewater Drive)
Inflow = 0.21 cfs, 660 cfs
Primary = 0.21 cfs, 660 cfs

Link 4L: POC B (Greenwich Cove)
Inflow = 0.84 cfs, 2,090 cfs
Primary = 0.84 cfs, 2,090 cfs

Summary for Subcatchment 1S: Front Lawn & Roof
Runoff = 0.21 cfs @ 12.07 hrs, Volume = 660 cfs, Depth = 5.24"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type III 24-hr 25-Year Rainfall = 6.40" 

<table>
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<tbody>
<tr>
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<tr>
<td>1,513</td>
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<td>Weighted Average</td>
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<td>42.89% Pervious Area</td>
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<tr>
<td>864</td>
<td>57.11% Impervious Area</td>
<td></td>
</tr>
<tr>
<td>171</td>
<td>19.79% Unconnected</td>
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</tbody>
</table>

To | Length | Slope | Velocity | Capacity | Description |
---|--------|-------|----------|----------|-------------|
min | (feet) | (ft/ft) | (ft/sec) | (cfs)    |             |
5.0 |        | 0.0358 | 0.22     |          | Direct Entry, |

Summary for Subcatchment 2S: Rear Lawn & Roof
Runoff = 0.84 cfs @ 12.10 hrs, Volume = 2,090 cfs, Depth = 4.36"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type III 24-hr 25-Year Rainfall = 6.40" 

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</tr>
<tr>
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<td>Roofs, HSG D</td>
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<td>467</td>
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<td>5,757</td>
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<td>Weighted Average, UI Adjusted</td>
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</tr>
<tr>
<td>385</td>
<td>43.87% Unconnected</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To | Length | Slope | Velocity | Capacity | Description |
---|--------|-------|----------|----------|-------------|
(min) | (feet) | (ft/ft) | (ft/sec) | (cfs)    |             |
7.2 | 96     | 0.3358 | 0.22     |          | Sheet Flow, Lawn |
Grass, Short = 0.150, P2= 3.42"

Summary for Link 3L: POC A (Edgewater Drive)
Inflow Area = 1,513 sf, 57.11% impervious, Inflow Depth = 5.24" for 25-Year event
Inflow = 0.21 cfs @ 12.07 hrs, Volume = 660 cfs
Primary = 0.21 cfs @ 12.07 hrs, Volume = 660 cfs, Atten = 0%, Lag = 0.0 min
Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Summary for Link 4L: POC B (Greenwich Cove)

Inflow Area = 5,757 sf, 14.45% Impervious, Inflow Depth = 4.36" for 25-Year event
Inflow = 0.94 cfs @ 12.10 hrs, Volume = 2,090 cf
Primary = 0.64 cfs @ 12.10 hrs, Volume = 2,090 cf, Atten% 6%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

Time span = 0.00-36.00 hrs, dt = 0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH = SCS, Weighted-CN
Reach routing by Dyn-Star-Ind method - Pond routing by Dyn-Star-Ind method

Subcatchment 1S: Front Lawn & Roof
Runoff Area = 1,513 sf 57.11% Impervious Runoff Depth = 6.41"
Tc = 6.0 min CN = 90 Runoff = 0.25 cfs 808 cf

Subcatchment 2S: Rear Lawn & Roof
Runoff Area = 5,757 sf 14.45% Impervious Runoff Depth = 6.48"
Flow Length = 65' Slope = 0.03584' Tc = 7.2 min UI Adjusted CN = 82 Runoff = 0.80 cfs 2,629 cf

Link 3L: POC A (Edgewater Drive)
Inflow = 0.25 cfs 808 cf
Primary = 0.25 cfs 808 cf

Link 4L: POC B (Greenwich Cove)
Inflow = 0.80 cfs 2,629 cf
Primary = 0.80 cfs 2,629 cf
Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.25 cfs @ 12.07 hrs, Volume = 806 cf, Depth = 6.41"

Runoff by SCS TR-20 method, UH = SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs Type III 24-hr 50-Year Rainfall = 7.60"

<table>
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<tbody>
<tr>
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<td>&gt;75% Grass cover, Good, HSG D</td>
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<tr>
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</tr>
<tr>
<td>171</td>
<td>96</td>
<td>Unconnected pavement, HSG D</td>
</tr>
</tbody>
</table>

1,513 90 Weighted Average
649 42.9% Pervious Area
664 57.11% Impervious Area
171 19.79% Unconnected

To Length | Slope | Velocity | Capacity | Description
----------|-------|----------|----------|-------------------
5.0       |       |          |          | Direct Entry,

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.80 cfs @ 12.16 hrs, Volume = 2,629 cf, Depth = 5.48"

Runoff by SCS TR-20 method, UH = SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs Type III 24-hr 50-Year Rainfall = 7.60"

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<tr>
<td>385</td>
<td>98</td>
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<td>Unconnected pavement, HSG D</td>
</tr>
</tbody>
</table>

5,737 82 Weighted Average, U1 Adjusted
4,026 85.55% Pervious Area
632 14.45% Impervious Area
385 43.67% Unconnected

To Length | Slope | Velocity | Capacity | Description
----------|-------|----------|----------|-------------------
7.2       | 0.0358| 0.22     |          | Sheet Flow, Lawn  |

Summary for Link 4L: POC B (Greenwich Cove)

Inflow Area = 5,757 sf, 14.45% Impervious, Inflow Depth = 5.48" for 50-Year event
Inflow = 0.80 cfs @ 12.16 hrs, Volume = 2,629 cf
Primary = 0.80 cfs @ 12.16 hrs, Volume = 2,629 cf, Attenuation = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

Summary for Link 5L: POC A (Edgewater Drive)

Inflow Area = 1,513 sf, 57.11% Impervious, Inflow Depth = 6.41" for 50-Year event
Inflow = 0.25 cfs @ 12.07 hrs, Volume = 808 cf
Primary = 0.25 cfs @ 12.07 hrs, Volume = 808 cf, Attenuation = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Time span: 00.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dym-Store-Ind method - Pond routing by Dym-Store-Ind method

Subcatchment 1S: Front Lawn & Roof
Runoff Area = 1,513 sf, 57.11% Impervious, Runoff Depth = 7.89".
Tc = 5.0 min, CN = 90, Runoff = 0.31 cfs, 995 cf.

Subcatchment 2S: Rear Lawn & Roof
Runoff Area = 5,175 sf, 14.45% Impervious, Runoff Depth = 5.91".
Flow Length = 90', Slope = 0.03587', Tc = 7.2 min, UI Adjusted CN = 82, Runoff = 1.00 cfs, 3,315 cf.

Link 3L: POC A (Edgewater Drive)
Inflow = 0.31 cfs, 995 cf.
Primary = 0.31 cfs, 995 cf.

Link 4L: POC B (Greenwich Cove)
Inflow = 1.00 cfs, 3,315 cf.
Primary = 1.00 cfs, 3,315 cf.

**Summary for Subcatchment 1S: Front Lawn & Roof**
Runoff = 0.31 cfs, 12.07 hrs, Volume = 995 cf, Depth = 7.89"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type III 24-hr 100-Year Rainfall = 9.10".

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>649</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
</tr>
<tr>
<td>409</td>
<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>284</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>171</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
</tr>
<tr>
<td>1,513</td>
<td>90</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>649</td>
<td>98</td>
<td>42.89% Pervious Area</td>
</tr>
<tr>
<td>284</td>
<td>98</td>
<td>57.11% Impervious Area</td>
</tr>
<tr>
<td>171</td>
<td>98</td>
<td>19.79% Unconnected</td>
</tr>
</tbody>
</table>

Tc, Length, Slope, Velocity, Capacity, Description

5.0 Direct Entry.

**Summary for Subcatchment 2S: Rear Lawn & Roof**
Runoff = 1.00 cfs, 12.10 hrs, Volume = 3,315 cf, Depth = 6.91"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type III 24-hr 100-Year Rainfall = 9.10"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Adj</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,925</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
<td></td>
</tr>
<tr>
<td>467</td>
<td>98</td>
<td>Roofs, HSG D</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>98</td>
<td>Paved parking, HSG D</td>
<td></td>
</tr>
<tr>
<td>365</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
<td></td>
</tr>
<tr>
<td>5,175</td>
<td>82</td>
<td>Weighted Average, UI Adjusted</td>
<td></td>
</tr>
<tr>
<td>4,925</td>
<td>80</td>
<td>&gt;55% Pervious Area</td>
<td></td>
</tr>
<tr>
<td>832</td>
<td>98</td>
<td>14.46% Impervious Area</td>
<td></td>
</tr>
<tr>
<td>365</td>
<td>98</td>
<td>43.8% Unconnected</td>
<td></td>
</tr>
</tbody>
</table>

Tc, Length, Slope, Velocity, Capacity, Description

7.2 96 0.0359 0.22 Sheet Flow, Lawn
Grass, Short n = 0.150, P2 = 3.40".

**Summary for Link 3L: POC A (Edgewater Drive)**

Inflow Area = 1,513 sf, 57.11% Impervious, Inflow Depth = 7.89" for 100-Year event
Inflow = 0.31 cfs, 12.07 hrs, Volume = 995 cf.
Primary = 0.31 cfs, 12.07 hrs, Volume = 995 cf, Atten = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs.
## Summary for Link 4L: POC B (Greenwich Cove)

- **Inflow Area**: 5,757 sf, 14.45% Impervious, Inflow Depth = 8.91" for 100-Year event
- **Inflow**: 1.00 cfs @ 12.10 hrs, Volume = 3,315 cf
- **Primary**: 1.00 cfs @ 12.10 hrs, Volume = 3,315 cf, Atten = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Appendix “E”

HydroCAD Analysis –
Proposed Conditions
47 Edgewater Drive PRO 0

1S
Front Lawn & Roof

3S
Patio

2S
Rear Lawn & Roof

5L
POC A (Edgewater Drive)

4P
Gravel Patio

6L
POC B (Greenwich Cove)

Area Listing (all nodes)

<table>
<thead>
<tr>
<th>Area (sq ft)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,734</td>
<td>80</td>
<td>&gt;75% Grass cover, Roof, HSG D (15, 2S, 3S)</td>
</tr>
<tr>
<td>264</td>
<td>98</td>
<td>Paved parking, HSG D (1S)</td>
</tr>
<tr>
<td>1,726</td>
<td>98</td>
<td>Roofs, HSG D (1S, 2S, 3S)</td>
</tr>
<tr>
<td>526</td>
<td>98</td>
<td>Unconnected pavement, HSG D (1S, 3S)</td>
</tr>
<tr>
<td>7,270</td>
<td>96</td>
<td>TOTAL AREA</td>
</tr>
</tbody>
</table>
### Summary for Subcatchment 1S: Front Lawn & Roof

- **Runoff** = 0.21 cfs @ 12.07 hrs, **Volume** = 660 cf, **Depth** = 5.24" 
- **Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span** = 0.00-36.00 hrs, **Tc** = 0.01 hrs 
- **Type III 24-hr 25-Year Rainfall** = 6.40" 

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>649</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
</tr>
<tr>
<td>409</td>
<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>284</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>171</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
</tr>
<tr>
<td>1.513</td>
<td>90</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>649</td>
<td>42.69%</td>
<td>Pervious Area</td>
</tr>
<tr>
<td>864</td>
<td>57.11%</td>
<td>Impervious Area</td>
</tr>
<tr>
<td>171</td>
<td>19.70%</td>
<td>Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc</th>
<th>Length (ft)</th>
<th>Slope (%)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (ft^3/cf)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>120</td>
<td>0.0358</td>
<td>0.22</td>
<td>0.22</td>
<td>Sheet Flow, Lawn</td>
</tr>
</tbody>
</table>

#### Type III 24-hr 25-Year Rainfall = 6.40" 
- **Runoff Area** = 1,513 sf 
- **Runoff Volume** = 660 cf 
- **Runoff Depth** = 5.24" 
- **Tc** = 5.0 min 
- **CN** = 90

---

### Summary for Subcatchment 2S: Rear Lawn & Roof

- **Runoff** = 0.55 cfs @ 12.10 hrs, **Volume** = 1,820 cf, **Depth** = 4.57" 
- **Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span** = 0.00-36.00 hrs, **Tc** = 0.01 hrs 
- **Type III 24-hr 25-Year Rainfall** = 6.40" 

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,720</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
</tr>
<tr>
<td>1,057</td>
<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>0</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>0</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
</tr>
<tr>
<td>4,777</td>
<td>84</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>3,720</td>
<td>77.87%</td>
<td>Pervious Area</td>
</tr>
<tr>
<td>1,057</td>
<td>22.13%</td>
<td>Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc</th>
<th>Length (ft)</th>
<th>Slope (%)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (ft^3/cf)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2</td>
<td>96</td>
<td>0.0358</td>
<td>0.22</td>
<td>0.22</td>
<td>Sheet Flow, Lawn</td>
</tr>
</tbody>
</table>

#### Type III 24-hr 25-Year Rainfall = 6.40" 
- **Runoff Area** = 4,777 sf 
- **Runoff Volume** = 1,820 cf 
- **Runoff Depth** = 4.57" 
- **Flow Length** = 95' 
- **Slope** = 0.0358"/ft 
- **Tc** = 7.2 min 
- **CN** = 84
### Summary for Subcatchment 3S: Patio

Runoff = 0.14 cfs @ 12.07 hrs, Volume = 437 cf, Depth = 5.35".

Runoff by SCS TR-20 method, UI=SCS, Weighted-CN, Time Span = 0.00-38.00 hrs, dt = 0.01 hrs.

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>365</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
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<td>260</td>
<td>98</td>
<td>Roofs, HSG D</td>
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<tr>
<td>0</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>355</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
</tr>
<tr>
<td>980</td>
<td>91</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>365</td>
<td>37%</td>
<td>25% Previous Area</td>
</tr>
<tr>
<td>615</td>
<td>62%</td>
<td>25% Impervious Area</td>
</tr>
<tr>
<td>355</td>
<td>57%</td>
<td>25% Unconnected</td>
</tr>
</tbody>
</table>

Tc = 5.0 min, Direct Entry.

### Subcatchment 3S: Patio

**Type III 24-hr 25-Year Rainfall=6.40"**

Runoff Area = 980 sf
Runoff Volume = 437 cf
Runoff Depth = 5.35"

Tc = 5.0 min
CN = 91

---

### Summary for Pond 4P: Gravel Patio

Inflow Area = 980 sf, 62.76% Impervious, Inflow Depth = 5.35" for 25-Year event.

Inflow = 0.14 cfs @ 12.07 hrs, Volume = 437 cf.

Outflow = 0.10 cfs @ 12.14 hrs, Volume = 281 cf, Attenuation = 29%, Lag = 1.1 min.

Primary = 0.10 cfs @ 12.14 hrs, Volume = 281 cf.

Routing by Dyn-Savr method, Time Span = 0.00-38.00 hrs, dt = 0.01 hrs.
Peak Elev = 10.02' @ 12.14 hrs, Surf.Area = 354 sf, Storage = 187 cf.

Plug Flow detention time = 193.0 min calculated for 281 cf (64% of inflow).
Center-of-Mass det. time = 94.1 min (672.3 - 778.1).

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avel</th>
<th>Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>262 cf</td>
<td>Total</td>
<td>Available Storage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Device Routing

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>9.50&quot;</td>
<td>40&quot; Round Culvert (L = 6.0')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kc = 0.500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inlet/Outlet Inv = 9.80 / 7.10&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S = 0.400 Y &quot;C&quot; = 0.900</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ne = 0.011 PVC, smooth interior, Flow Area = 0.058 sf</td>
</tr>
</tbody>
</table>

Primary Outflow Max = 0.10 cfs @ 12.14 hrs, HW = 10.02', TW = 0.00' (Dynamic Tailwater).
L = 14 Culvert (Inlet Controls 0.10 cfs @ 1.61 fps).
Pond 4P: Gravel Patio

Inflow Area=980 sf
Peak Elev=10.02'
Storage=187 cf
4.0''

Round Culvert
n=0.011
L=6.0'
S=0.4500 '/'

Summary for Link 5L: POC A (Edgewater Drive)

Inflow Area = 1,513 sf, 57.11% Impervious, Inflow Depth = 5.24'' for 25-Year event
Inflow = 0.21 cfs @ 12.07 hrs, Volume = 660 cf
Primary = 0.21 cfs @ 12.07 hrs, Volume = 660 cf, Alter 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Summary for Link 6L: POC B (Greenwich Cove)

**Inflow Area = 5,757 sf**
- 29.04% impervious, Inflow Depth = 4.38" for 25-Year event
- Inflow = 0.64 cfs @ 12.11 hrs, Volume = 2,101 cf
- Primary = 0.64 cfs @ 12.11 hrs, V = 2,101 cf, Att = 0%, L = 0.0 min

**Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs**

**Inflow Area = 5,757 sf**
Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.08 cfs @ 12.07 hrs, Volume = 239 cf, Depth = 1.89".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span=0.00-36.00 hrs, dt=0.01 hrs.
Type III 24-hr 1-Year Rainfall=2.90".

<table>
<thead>
<tr>
<th>Area (af)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>649</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
</tr>
<tr>
<td>409</td>
<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>284</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>171</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
</tr>
</tbody>
</table>

1,513 90 Weighted Average

<table>
<thead>
<tr>
<th>To (min)</th>
<th>Length (feet)</th>
<th>Slope (°)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td></td>
<td></td>
<td></td>
<td>0.08 cfs</td>
<td>Direct Entry,</td>
</tr>
</tbody>
</table>

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.18 cfs @ 12.11 hrs, Volume = 571 cf, Depth = 1.43".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span=0.00-36.00 hrs, dt=0.01 hrs.
Type III 24-hr 1-Year Rainfall=2.90".

<table>
<thead>
<tr>
<th>Area (af)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,720</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
</tr>
<tr>
<td>1,057</td>
<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>0</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>0</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
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</table>

4,777 94 Weighted Average

<table>
<thead>
<tr>
<th>To (min)</th>
<th>Length (feet)</th>
<th>Slope (°)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2</td>
<td>95</td>
<td>0.0038</td>
<td>0.22</td>
<td>0.18 cfs</td>
<td>Sheet Flow, Lawn Grass</td>
</tr>
</tbody>
</table>

Summary for Subcatchment 3S: Patio

Runoff = 0.05 cfs @ 12.07 hrs, Volume = 182 cf, Depth = 1.98".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span=0.00-36.00 hrs, dt=0.01 hrs.
Type III 24-hr 1-Year Rainfall=2.90".

<table>
<thead>
<tr>
<th>To (min)</th>
<th>Length (feet)</th>
<th>Slope (°)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
</table>
### Summary for Pond 4P: Gravel Patio

- **Inflow Area**: 960 sf, 62.76% impervious, Inflow Depth = 1.86" for 1-Year event
- **Inflow**: 0.05 cfs @ 12.07 hrs, Volume = 162 cf
- **Outflow**: 0.00 cfs @ 23.52 hrs, Volume = 6 cf
- **Primary**: 0.00 cfs @ 23.52 hrs, Volume = 6 cf

Routing by Dyn-Stor-Ink method; Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

Peak Elev = 9.81' @ 23.52 hrs

Surface Area = 354 sf, Storage = 158 cf

Plug-Flow detention time = 32.20 min calculated for 6 cf (3% of inflow)

Center-of-Vaiss det. time = 636.6 min (1.4419 - 805.3)

### Volume

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>8.70'</td>
<td>212 cf</td>
<td>No. 2 Stone (Prismatic) Listed below (Recalc)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>531 cf Overall x 40.0% Voids</td>
</tr>
<tr>
<td>#2</td>
<td>10.20'</td>
<td>32 cf</td>
<td>No. 57 Stone (Prismatic) Listed below (Recalc)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>106 cf Overall x 30.0% Voids</td>
</tr>
<tr>
<td>#3</td>
<td>10.50'</td>
<td>18 cf</td>
<td>Pia Stone/Pavers (Prismatic) Listed below (Recalc)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>177 cf Overall x 10.0% Voids</td>
</tr>
</tbody>
</table>

262 cf Total Available Storage

### Elevation

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Surf Area</th>
<th>Inc.Store</th>
<th>Cum.Store</th>
</tr>
</thead>
<tbody>
<tr>
<td>(feet)</td>
<td>(sq-ft)</td>
<td>(cubic-ft)</td>
<td>(cubic-ft)</td>
</tr>
<tr>
<td>6.70</td>
<td>354</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10.20</td>
<td>354</td>
<td>521</td>
<td>521</td>
</tr>
</tbody>
</table>

### Summary for Link 5L: POC A (Edgewater Drive)

- **Inflow Area**: 1,513 sf, 57.11% impervious, Inflow Depth = 1.89" for 1-Year event
- **Inflow**: 0.08 cfs @ 12.07 hrs, Volume = 293 cf
- **Primary**: 0.08 cfs @ 12.07 hrs, Volume = 293 cf, Attenu = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

### Summary for Link 6L: POC B (Greenwich Cove)

- **Inflow Area**: 5,757 sf, 29.04% impervious, Inflow Depth = 1.20" for 1-Year event
- **Inflow**: 0.18 cfs @ 12.11 hrs, Volume = 577 cf
- **Primary**: 0.18 cfs @ 12.11 hrs, Volume = 577 cf, Attenu = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Time span=0.00-30.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method. UH=SCS, Weighted-CN
Reach routing by Dyn-Star-Ind method - Pond routing by Dyn-Star-Ind method

Subcatchment 1S: Front Lawn & Roof
- Runoff Area=1,513 sf, 57.11% Impervious, Runoff Depth=2.35" 
  Tc=5.0 min, CN=90, Runoff=0.10 cfs, 297 cf

Subcatchment 2S: Rear Lawn & Roof
- Runoff Area=4,777 sf, 22.13% Impervious, Runoff Depth=1.85" 
  Flow Length=95 ft, Slope=0.0358, Ten=7.2 min, CN=84, Runoff=0.23 cfs, 737 cf

Subcatchment 3S: Patio
- Runoff Area=960 sf, 62.76% Impervious, Runoff Depth=2.45" 
  Tc=5.0 min, CN=61, Runoff=0.07 cfs, 200 cf

Pond 4P: Gravel Patio
- Peak Elev=9.83', Storage=169 cf, inflow=0.07 cfs, 200 cf 
  4.0' Round Culvert n=0.011, L=9.0', S=0.4500', Outflow=0.00 cfs, 44 cf

Link 5L: POC A (Edgewater Drive)
- Inflow=0.10 cfs, 287 cf 
  Primary=0.10 cfs, 297 cf

Link 6L: POC B (Greenwich Cove)
- Inflow=0.23 cfs, 781 cf 
  Primary=0.23 cfs, 781 cf

---

Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.10 cfs @ 12.07 hrs, Volume=297 cf, Depth=2.35"

Runoff by SCS TR-20 method. UH=SCS, Weighted-CN, Time Span=0.00-30.00 hrs, dt=0.01 hrs
Type II 24-hr 2-Year Rainfall=3.40"

Area (sf) | CN | Description
---|---|---
846 | 80 | >75% Grass cover, Good, HSG D
408 | 98 | Roofs, HSG D
284 | 98 | Paved parking, HSG D
171 | 98 | Unconnected pavement, HSG D
1,513 | 90 | Weighted Average
949 | 42.69% PerVIOUS Area
964 | 57.11% Impervious Area
171 | 19.79% Unconnected

Tc | Length | Slope | Velocity | Capacity | Description
---|---|---|---|---|---
5.0 |  |  |  |  | Direct Entry,

---

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.23 cfs @ 12.10 hrs, Volume=737 cf, Depth=1.85"

Runoff by SCS TR-20 method. UH=SCS, Weighted-CN. Time Span=0.00-30.00 hrs, dt=0.01 hrs
Type II 24-hr 2-Year Rainfall=3.40"

Area (sf) | CN | Description
---|---|---
3,720 | 80 | >75% Grass cover, Good, HSG D
1,567 | 98 | Roofs, HSG D
0 | 98 | Paved parking, HSG D
0 | 98 | Unconnected pavement, HSG D
4,777 | 84 | Weighted Average
3,720 | 77.57% PerVIOUS Area
1,057 | 22.13% Impervious Area

Tc | Length | Slope | Velocity | Capacity | Description
---|---|---|---|---|---
7.2 | 95 | 0.0358 | 0.22 | Sheet Flow, Lawn 
Grass: Short r=0.150 P=3.40"

---

Summary for Subcatchment 3S: Patio

Runoff = 0.07 cfs @ 12.07 hrs, Volume=200 cf, Depth=2.45"

Runoff by SCS TR-20 method. UH=SCS, Weighted-CN, Time Span=0.00-30.00 hrs, dt=0.01 hrs
Type II 24-hr 2-Year Rainfall=3.40"
Summary for Pond 4P: Gravel Patio

Inflow Area = 980 sf, 62.76% Impervious, Inflow Depth = 2.45" for 2-Year event

Inflow = 0.07 cf @ 12.07 hrs, Volume = 200 cf

Primary = 0.00 cf @ 15.43 hrs, Volume = 44 cf, Attain = 96%, Lag = 201.5 min

Routing by Dyn-Stor-Ind method, Time Span = 0.00-38.00 hrs, dt = 0.01 hrs
Peak Elev = 9.83' @ 15.43 hrs, Surf Area = 354 sf, Storage = 160 cf

Plug-Flow detention time = 465.0 min calculated for 44 cf (22% of inflow)

Center-of-Mass det. time = 205.5 min (1.1248 - 796.3)

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<thead>
<tr>
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<th>Storage</th>
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<tr>
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<tr>
<td>#3 10.50'</td>
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<tr>
<td>10.20</td>
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<tr>
<td>10.50</td>
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Summary for Link 5L: POC A (Edgewater Drive)

Inflow Area = 1,513 sf, 57.11% Impervious, Inflow Depth = 2.35" for 2-Year event

Inflow = 0.10 cf @ 12.07 hrs, Volume = 227 cf

Primary = 0.10 cf @ 12.07 hrs, Volume = 297 cf, Attain = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

Summary for Link 6L: POC B (Greenwich Cove)

Inflow Area = 5,757 sf, 20.04% Impervious, Inflow Depth = 1.63" for 2-Year event

Inflow = 0.23 cf @ 12.10 hrs, Volume = 781 cf

Primary = 0.23 cf @ 12.10 hrs, Volume = 781 cf, Attain = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.13 cfs @ 12.07 hrs, Volume = 404 cfs, Depth = 3.20".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs.

Type III 24-hr 5-Year Rainfall = 4.30".

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.32 cfs @ 12.10 hrs, Volume = 1,050 cfs, Depth = 2.84".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs.

Type III 24-hr 5-Year Rainfall = 4.30".

Summary for Subcatchment 3S: Patio

Runoff = 0.09 cfs @ 12.07 hrs, Volume = 270 cfs, Depth = 3.31".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs.

Type III 24-hr 5-Year Rainfall = 4.30".
### Summary for Pond 4P: Gravel Patio

**Inflow Area** = 0.08 ac, 62.76% Impervious, Inflow Depth = 3.31" for 5-Year event

Inflow = 0.01 cfs @ 12.59 hrs, Volume = 114 cfs, Atten = 87%, Lag = 31.1 min

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dtr = 0.01 hrs

**Peak Elevation** = 9.87" @ 12.59 hrs, Surf. Area = 354 sf, Storage = 165 cf

Plug-Flow detention time = 293.9 min calculated for 144 cf (42% of inflow)

Center-of-Mass det. time = 11.3 min (Case 2 - 791.0 )

### Volume Invert Avail Storage Storage Description

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<td>32</td>
<td>No. 57 Stone (Prismatic) Listed below (Recalc)</td>
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<td></td>
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<td>108 cf Overall x 30.0% Voids</td>
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<td>Pea Stone/Pavers (Prismatic) Listed below (Recalc)</td>
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202 cf Total Available Storage

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<tr>
<td>10.50</td>
<td>354</td>
<td>106</td>
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</table>

### Summary for Link 5L: POC A (Edgewater Drive)

**Inflow Area** = 1,213 ac, 57.11% Impervious, Inflow Depth = 3.20" for 5-Year event

Inflow = 0.13 cfs @ 12.07 hrs, Volume = 404 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dtr = 0.01 hrs

**Peak Elevation** = 9.87" @ 12.59 hrs, Surf. Area = 354 sf, Storage = 165 cf

Plug-Flow detention time = 293.9 min calculated for 144 cf (42% of inflow)

Center-of-Mass det. time = 11.3 min (Case 2 - 791.0 )

### Volume Invert Avail Storage Storage Description

<table>
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202 cf Total Available Storage

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### Summary for Link 6L: POC B (Greenwich Cove)

**Inflow Area** = 5,757 ac, 29.04% Impervious, Inflow Depth = 2.43" for 5-Year event

Inflow = 0.32 cfs @ 12.10 hrs, Volume = 1,164 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dtr = 0.01 hrs

**Peak Elevation** = 9.87" @ 12.59 hrs, Surf. Area = 354 sf, Storage = 165 cf

Plug-Flow detention time = 293.9 min calculated for 144 cf (42% of inflow)

Center-of-Mass det. time = 11.3 min (Case 2 - 791.0 )

### Volume Invert Avail Storage Storage Description

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202 cf Total Available Storage

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<td>(sq ft)</td>
<td>(cubic feet)</td>
<td>(cubic feet)</td>
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<tr>
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<td>354</td>
<td>106</td>
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</tr>
<tr>
<td>11.00</td>
<td>354</td>
<td>177</td>
<td>177</td>
</tr>
</tbody>
</table>
Runoff = 0.16 cfs @ 12.07 hrs, Volume = 501 cft, Depth = 3.97".

Runoff by SCS TR-20 method, U/I=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.10"

Runoff Area 880 sf, Impervious Runoff Depth 4.08" Tc=5.0 min, CN=91 Runoff=0.11 cfs 333 cft

Pond 4P: Gravel Patio
Peak Elev=9.02 Storage=174 cft Inflow=0.11 cfs 333 cft
4.0" Round Culvert n=0.011 L=6.0' S=0.4500' Outflow=0.04 cfs 177 cft

To: Length (ft) Slope Velocity (ft/sec) Capacity (cfs)
5.0 Direct Entry.

Runoff = 0.41 cfs @ 12.10 hrs, Volume = 1,338 cft, Depth = 3.36"

Runoff by SCS TR-20 method, U/I=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.10"

Area (sf) CN Description
3,720 80 >75% Grass cover, Good, HSG D
1,057 98 Roofs, HSG D
0 98 Paved parking, HSG D
0 98 Unconnected pavement, HSG D
4,777 84 Weighted Average
3,720 77.67% Pervious Area
1,057 22.33% Impervious Area
To: Length (ft) Slope Velocity (ft/sec) Capacity (cfs)
7.2 95 0.0368 0.22 Sheet Flow, Lawn
Grass Short n=0.150 P2= 3.40"

Runoff = 0.11 cfs @ 12.07 hrs, Volume = 333 cft, Depth = 4.08"

Runoff by SCS TR-20 method, U/I=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.10"
Summary for Pond 4P: Gravel Patio

Inflow Area = 960 sf, 62.76% Impervious, Inflow Depth = 4.08" for 10-Year event

Inflow = 0.11 cfs @ 12.07 hrs, Volume = 333 cf

Outflow = 0.04 cfs @ 12.32 hrs, Volume = 177 cf

Primary = 0.04 cfs @ 12.32 hrs, Volume = 177 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-38.00 hrs, dt = 0.01 hrs
Peak Elevation = 9.93' @ 12.32 hrs
Surf Area = 354 sf, Storage = 174 cf

Plug-Flow detention time = 238.0 min calculated for 177 cf (53% of inflow)
Center-of-Mass det. time = 124.9 min (910.2 - 785.3)

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<td>Storage Description</td>
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<tr>
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<td>No. 57 Stone (Prismatic) Listed below (Recalc)</td>
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<tr>
<td>#3</td>
<td>10.50'</td>
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<td>Pea Stone/Pavers (Prismatic) Listed below (Recalc)</td>
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262 cf Total Available Storage

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20BK_Appendix_E_PRO_0_Greenwich
Prepared by RVDI
Printed 3/15/2021
HydroCAD®: 10.00-25  s/n 06481 © 2019 HydroCAD Software Solutions LLC
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Summary for Link 5L: POC A (Edgewater Drive)

Inflow Area = 1,512 sf, 57.11% Impervious, Inflow Depth = 3.97" for 10-Year event
Inflow = 0.16 cfs @ 12.07 hrs, Volume = 501 cf
Primary = 0.16 cfs @ 12.07 hrs, Volume = 501 cf, Attenuation = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

Summary for Link 6L: POC B (Greenwich Cove)

Inflow Area = 5,757 sf, 29.04% Impervious, Inflow Depth = 3.16" for 10-Year event
Inflow = 0.41 cfs @ 12.10 hrs, Volume = 1,516 cf
Primary = 0.41 cfs @ 12.10 hrs, Volume = 1,516 cf, Attenuation = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.21 cfs @ 12.07 hrs, Volume = 660 cf, Depth = 1.54" 
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, d= 0.01 hrs

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.54 cfs @ 12.10 hrs, Volume = 1,620 cf, Depth = 4.57" 
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, d= 0.01 hrs

Summary for Subcatchment 3S: Patio

Runoff = 0.14 cfs @ 12.07 hrs, Volume = 437 cf, Depth = 5.35" 
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, d= 0.01 hrs
### Summary for Pond 4P: Gravel Patio

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<tr>
<th>Inflow</th>
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<td>Outflow</td>
<td>0.14 cfs @ 12.07 hrs, Volume= 437 cf</td>
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<tr>
<td>Primary</td>
<td>0.10 cfs @ 12.14 hrs, Volume= 281 cf, Attenuation 26%, Lag= 4.2 min</td>
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Routing by Dyn-Stor-ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elevation= 10.02' @ 12.14 hrs Surf.Area= 354 sf Storage= 187 cf

Plug-Flow detention time= 193.0 min; calculated for 281 cf (64%) of inflow.
Center-of-Mass det. time= 84.1 min (78.3 - 77.8)

#### Storage Description

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<td>#3</td>
<td>10.50'</td>
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<td>177</td>
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</tbody>
</table>

### Summary for Link 5L: POC A (Edgewater Drive)

| Inflow Area = 1,513 sf, 57.11% Impervious, Inflow Depth = 5.24" for 25-Year event |
| Inflow = 0.21 cfs @ 12.07 hrs, Volume= 660 cf |
| Primary = 0.21 cfs @ 12.07 hrs, Volume= 660 cf, Attenuation 0%, Lag= 0.0 min |

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

### Summary for Link 6L: POC B (Greenwich Cove)

| Inflow Area = 5,757 sf, 29.04% Impervious, Inflow Depth = 4.36" for 25-Year event |
| Inflow = 0.64 cfs @ 12.11 hrs, Volume= 2,101 cf |
| Primary = 0.64 cfs @ 12.11 hrs, Volume= 2,101 cf, Attenuation 0%, Lag= 0.0 min |

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
### Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.25 cfs at 12.07 hrs, Volume = 808 cfs, Depth = 6.41".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

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<tr>
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<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
</tr>
<tr>
<td>409</td>
<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>284</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>171</td>
<td>96</td>
<td>Unconnected pavement, HSG D</td>
</tr>
<tr>
<td>1,513</td>
<td>90</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>649</td>
<td>98</td>
<td>42.89% Pervious Area</td>
</tr>
<tr>
<td>864</td>
<td>57.11% Impervious Area</td>
<td></td>
</tr>
<tr>
<td>171</td>
<td>96</td>
<td>19.39% Unconnected</td>
</tr>
</tbody>
</table>

Tc | Length | Slope | Velocity | Capacity | Description
---|--------|-------|----------|----------|-------------
5.0 | Direct Entry |

### Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.69 cfs @ 12.10 hrs, Volume = 2,274 cfs, Depth = 5.71".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,720</td>
<td>80</td>
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<tr>
<td>1,057</td>
<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>0</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>0</td>
<td>98</td>
<td>Unconnected pavement, HSG D</td>
</tr>
<tr>
<td>4,777</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>3,720</td>
<td>77.87% Pervious Area</td>
<td></td>
</tr>
<tr>
<td>1,057</td>
<td>22.13% Impervious Area</td>
<td></td>
</tr>
</tbody>
</table>

Tc | Length | Slope | Velocity | Capacity | Description
---|--------|-------|----------|----------|-------------
7.2 | 95 | 0.0358 | 0.22 | Sheet Flow, Lawn Grass: Short n = 0.150 P2 = 3.40" |

### Summary for Subcatchment 3S: Patio

Runoff = 0.17 cfs @ 12.07 hrs, Volume = 533 cfs, Depth = 6.53".

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tc | Length | Slope | Velocity | Capacity | Description
---|--------|-------|----------|----------|-------------
7.2 | 95 | 0.0358 | 0.22 | Sheet Flow, Lawn Grass: Short n = 0.150 P2 = 3.40" |
Summary for Pond 4P: Gravel Patio

Inflow Area = 990 sf, 62.76% Impervious, Inflow Depth = 6.53" for 50-Year event
Inflow = 0.17 cfs @ 12.07 hrs, Volume = 533 cf
Outflow = 0.14 cfs @ 12.12 hrs, Volume = 377 cf, Attain = 14%, Lag = 2.7 min
Primary = 0.14 cfs @ 12.12 hrs, Volume = 377 cf

Routing by Dyn-Stor-Ind method, Time Span = 00-36.00 hrs, dt = 0.01 hrs
Peak Elev = 10.08' @ 12.12 hrs
Surf Area = 354 sq ft, Storage = 196 cf

Plug Flow detention time = 172.5 min calculated for 377 cf (71% of inflow)
Center-of-Mass det. time = 61.5 min (354.6 - 773.1)

Volume | Invert | Avail | Storage | Storage Description
--- | --- | --- | --- | ---
#1 | 8.70' | 212 cf | | No. 2 Stone (Prismatic) Listed below (Recalc) 531 cf Overall x 40.0% Voids
#2 | 10.20' | 32 cf | | No. 57 Stone (Prismatic) Listed below (Recalc) 166 cf Overall x 30.0% Voids
#3 | 10.50' | 18 cf | | Pea Stone/Pavers (Prismatic) Listed below (Recalc) 177 cf Overall x 10.0% Voids

Total Available Storage = 262 cf

Elevation (feet) | Surf Area (sq-ft) | Inc. Store (cubic-feet) | Cum. Store (cubic-feet)
--- | --- | --- | ---
8.70 | 354 | 0 | 0
10.20 | 354 | 531 | 531
10.50 | 354 | 106 | 106
11.00 | 354 | 177 | 177
Summary for Subcatchment 1S: Front Lawn & Roof

Runoff = 0.31 cfs @ 12.07 hrs, Volume = 995 cf, Depth = 7.89".

Runoff by SCS TR-20 method, Uh=SCS, Weighted-CN, Time Span=0.00-36.00 hrs, dt=0.01 hrs
Type III 24-hr 100-Year Rainfall=9.10".

Area (ft²) CN Description
649 80 Grass cover, Good, HSG D
409 98 Roofs, HSG D
281 98 Paved parking, HSG D
171 98 Unconnected pavement, HSG D

1,513 90 Weighted Average
649 42.99% Pervious Area
574 57.11% Impervious Area
171 19.79% Unconnected

Tc (min) Length (ft) Slope Velocity (ft/sec) Capacity (cf) Description
5.0 50

Direct Entry,

Summary for Subcatchment 2S: Rear Lawn & Roof

Runoff = 0.85 cfs @ 12.10 hrs, Volume = 2,849 cf, Depth = 7.16".

Runoff by SCS TR-20 method, Uh=SCS, Weighted-CN, Time Span=0.00-36.00 hrs, dt=0.01 hrs
Type III 24-hr 100-Year Rainfall=9.10".

Area (ft²) CN Description
3,720 80 Grass cover, Good, HSG D
1,057 98 Roofs, HSG D
0 98 Paved parking, HSG D
0 98 Unconnected pavement, HSG D

4,777 94 Weighted Average
3,720 77.67% Pervious Area
1,057 22.33% Impervious Area

Tc (min) Length (ft) Slope Velocity (ft/sec) Description
7.2 95 0.0358 0.22 Sheet Flow, Lawn

Summary for Subcatchment 3S: Patio

Runoff = 0.20 cfs @ 12.07 hrs, Volume = 654 cf, Depth = 8.01".

Runoff by SCS TR-20 method, Uh=SCS, Weighted-CN, Time Span=0.00-36.00 hrs, dt=0.01 hrs
Type III 24-hr 100-Year Rainfall=9.10".
Summary for Pond 4P: Gravel Patio

Inflow Area = 980 sq ft, 62.76% Impervious, Inflow Depth = 8.01 in for 100-Year event
Inflow = 0.20 cfs @ 12.07 hrs, Volume = 654 cfs
Outflow = 0.17 cfs @ 12.12 hrs, Volume = 498 cfs, Atten = 16%, Lag = 2.8 min
Primary = 0.17 cfs @ 12.12 hrs, Volume = 498 cfs

Routing by Det-Stor-Ind method, Time Span = 0.00-35.00 hrs, dt = 0.01 hrs
Peak Elev = 10.13' @ 12.12 hrs, Surf Area = 364 sq ft, Storage = 203 cfs

Plug-Flow detention time = 155.4 min calculated for 498 cfs (76% of inflow)
Center-of-Mass det. time = 72.8 min (841.0 - 758.1)

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<th>Volume</th>
<th>Invert</th>
<th>Available Storage</th>
<th>Storage Description</th>
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<tbody>
<tr>
<td>#1</td>
<td>8.70'</td>
<td>212 cfs</td>
<td>No. 2 Stone (Prismatic) Listed below (Recalc)</td>
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<td></td>
<td></td>
<td>531 cfs</td>
<td>Overall x 40.0% Void</td>
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<tr>
<td>#2</td>
<td>10.20'</td>
<td>32 cfs</td>
<td>No. 57 Stone (Prismatic) Listed below (Recalc)</td>
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<tr>
<td></td>
<td></td>
<td>106 cfs</td>
<td>Overall x 30.0% Void</td>
</tr>
<tr>
<td>#3</td>
<td>10.50'</td>
<td>18 cfs</td>
<td>Pea Stone/Pavers (Prismatic) Listed below (Recalc)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>177 cfs</td>
<td>Overall x 10.0% Void</td>
</tr>
</tbody>
</table>

262 cfm Total Available Storage

<table>
<thead>
<tr>
<th>Elevator</th>
<th>Surf Area</th>
<th>Inc. Store</th>
<th>Cum. Store</th>
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<td>(feet)</td>
<td>(sq-ft)</td>
<td>(cubic-ft)</td>
<td>(cubic-ft)</td>
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<tr>
<td>8.70</td>
<td>354</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10.20</td>
<td>354</td>
<td>531</td>
<td>531</td>
</tr>
<tr>
<td>10.50</td>
<td>354</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>11.00</td>
<td>354</td>
<td>177</td>
<td>177</td>
</tr>
<tr>
<td>Elevation (feet)</td>
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<td>----------------------</td>
</tr>
<tr>
<td>8.70</td>
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<td>147</td>
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<td>8.72</td>
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<td>8.76</td>
<td>8</td>
<td>9.80</td>
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<td>8.78</td>
<td>11</td>
<td>9.82</td>
<td>159</td>
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<td>14</td>
<td>9.84</td>
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<td>8.88</td>
<td>25</td>
<td>9.92</td>
<td>173</td>
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<td>8.90</td>
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<tr>
<td>8.92</td>
<td>31</td>
<td>9.96</td>
<td>178</td>
</tr>
</tbody>
</table>
Appendix "F"

Pipe Conveyance Calculations
The following is a summary of the computations performed to design the proposed storm drainage system drain sizes. The proposed watershed flows were taken from the results of the HyrdoCAD storm drainage analysis performed on the site. Refer to Appendix “E” for HydroCAD model input data, computations, and results. Refer to Exhibit “B” for a depiction of the proposed on-site watershed areas. HydroCAD runoff computations are based on the 25-year design storm frequency event. Culvert conveyance computations are based on the Manning’s Equation.

### Watershed Analysis Results

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Area (S.F.)</th>
<th>Impervious Area (S.F.)</th>
<th>CN</th>
<th>25-Year Peak Flow Rate (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1S</td>
<td>1,513</td>
<td>864</td>
<td>90.0</td>
<td>0.21</td>
</tr>
<tr>
<td>2S</td>
<td>5,757</td>
<td>1,742</td>
<td>85.0</td>
<td>0.55</td>
</tr>
<tr>
<td>3S</td>
<td>980</td>
<td>615</td>
<td>91.0</td>
<td>0.14</td>
</tr>
<tr>
<td>4P</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.10</td>
</tr>
</tbody>
</table>

### Culvert Capacity Summary Table

Maximum pipe capacities were calculated using the Manning equation for full flow conditions. The proposed pipe information, 25-year peak design flows, and corresponding maximum capacities are summarized in the following table. Refer to the Development Plan for pipe and structure locations. All pipes have been sized to convey the flow rates for at least the 25-year design storm frequency event.

<table>
<thead>
<tr>
<th>Pipe #</th>
<th>Diameter (inches)</th>
<th>Roughness (n)</th>
<th>Slope (%)</th>
<th>Contributing Watershed</th>
<th>25-Year Peak Design Flow (cfs)</th>
<th>Max Capacity (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>0.011</td>
<td>45.0%</td>
<td>4P</td>
<td>0.10</td>
<td>1.51</td>
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</tbody>
</table>
**WINDOW SCHEDULE**

<table>
<thead>
<tr>
<th>SYM</th>
<th>MFG</th>
<th>MODEL#</th>
<th>R.O. SIZE</th>
<th>QTY</th>
<th>OPERATION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>3/4&quot; FD</td>
<td>&quot;J&quot;</td>
<td>2-1/2&quot; x 6-3/8&quot;</td>
<td>1</td>
<td>NEW LOCATED</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>3/4&quot; FD</td>
<td>&quot;J&quot;</td>
<td>2-1/2&quot; x 6-3/8&quot;</td>
<td>1</td>
<td>NEW LOCATED</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>3/4&quot; FD</td>
<td>&quot;J&quot;</td>
<td>2-1/2&quot; x 6-3/8&quot;</td>
<td>1</td>
<td>NEW LOCATED</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>3/4&quot; FD</td>
<td>&quot;J&quot;</td>
<td>2-1/2&quot; x 6-3/8&quot;</td>
<td>1</td>
<td>NEW LOCATED</td>
<td></td>
</tr>
</tbody>
</table>

**FRENCH DOOR SCHEDULE**

<table>
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<tr>
<th>SYM</th>
<th>MFG</th>
<th>MODEL#</th>
<th>R.O. SIZE</th>
<th>QTY</th>
<th>OPERATION</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>01</td>
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<td>&quot;J&quot;</td>
<td>2-1/2&quot; x 6-3/8&quot;</td>
<td>1</td>
<td>NEW LOCATED</td>
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<tr>
<td>02</td>
<td>3/4&quot; FD</td>
<td>&quot;J&quot;</td>
<td>2-1/2&quot; x 6-3/8&quot;</td>
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<td>NEW LOCATED</td>
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<tr>
<td>03</td>
<td>3/4&quot; FD</td>
<td>&quot;J&quot;</td>
<td>2-1/2&quot; x 6-3/8&quot;</td>
<td>1</td>
<td>NEW LOCATED</td>
<td></td>
</tr>
</tbody>
</table>

**FRENCH DOOR NOTES**

- ANDREWS ADD SERIES - INSTALLED TO SPACING AS MUST MATCH TYPICAL TO MATCH EXISTING - NORTHERN LOUIS GLASS - LAMINATED 3/4" - GLASSS MUST MATCH TYPICAL TO MATCH EXISTING - J毕业 COLOR - SEE ELEVATION FOR FRENCH VENTS & BAND - UNCOIL TO VERIFY ALL TEMPERED GLASS

**RIGHT ELEVATION**

1/4"=1'-0"

**LEFT ELEVATION**

1/4"=1'-0"
Upon discussion of the above 47 Edgewater P&Z application with Patrick LaRow we learned that it is an administrative application that would, after review with the appropriate agencies, be decided by P&Z Department staff. However, the application can have a serious impact on our properties and we would like the full Planning & Zoning Commission to review it for these reasons:

- In July 2020, prior to the application submission, a possible Coastal Wetlands violation involving incremental filling and bulkhead modification was reported to the P&Z Department and was referred to CT DEEP; it understandably was stalled by Covid 19 and the DEEP review was revived by P&Z staff when the application was filed.
- The application is for an addition (with dwelling elevation) that requires a sizable Shoreline Flood and Erosion Control Structure located mid-backyard in the FEMA AE 13 and 15 zones on the property bordering a saltwater marsh and watercourse. The likely erosion and hydrostatic impact of the structure on our properties is worrisome.
- Storms Sandy and Irene caused significant damage to our properties, to the Edgewater Drive neighborhood and to Town of Greenwich assets.

A powerpoint presentation is attached that details these concerns.

Our objective is that the Commission review the 47 Edgewater application in the context of these comments and questions taking into account the various Town, State and Federal regulations. We are not attorneys or engineers and have not viewed the application documents from those perspectives. We are residents and taxpayers. We expect that the Commission will take our comments and questions seriously, review them, and inform us regarding its conclusions.

If you have questions please call or email Patrick (203 832 4536). Thanks in advance for the help.

Barbara Ashe
49 Edgewater Drive

Patrick & Janet Linskey
45 Edgewater Drive
47 Edgewater
Application
Comments

PLLZ 2021 00097 JEFFREY & ROMINA PUCKETT 47 EDGEWATER DRIVE OLD GREENWICH CT 06870

Commenters: Barbara Ashe, 49 Edgewater; Patrick and Janet Linskey, 45 Edgewater
Our objective: The Town P&Z Commission and CT DEEP review the 47 Edgewater application in the context of the following comments and questions taking into consideration the applicable Town, State and Federal regulations.
47 Edgewater Application Context

• Concerned about erosion impacts on our properties from previous fill around and modifications of a creosote bulkhead, increased and higher velocity stormwater runoff, tidal flooding, and the shoreline flood and erosion control structure (ECS) that is proposed to be constructed in the Coastal Overlay Zone. (see next 2 slides; sketch conflicts with boundary in application document)

• Application For Review of Coastal Site Plan is not complete (e.g., deteriorating bulkhead not included as coastal resource) and vague (e.g., true diminishment of permeable surface on a small lot is not recognized). Most importantly, the construction of the sizable ECS’s impermeability mitigation function and hydrostatic impacts on abutting properties is not detailed. Its design effectively moves the 47 Edgewater permeability problem to the adjoining properties by reducing their stormwater processing capacity.

• Since the terrace-capped ECS will be about 9’-10’ above grade (more than the height of a fence) there is a need for landscaping to provide erosion control, privacy shielding and noise abatement. Landscaping and terrace lighting is not addressed.
47 & 45 Edgewater High Tides

Left – Sandy Storm Surge 10.29.12

Right -- Taken from 45 deck; note higher water now channeled onto 45 during a typical spring tide
45 Edgewater – Irene Storm Flood

Taken from 45 Edgewater
August 28, 2011
45-49 Edgewater Greenwich GIS and Vicinity Sketch

Both documents included in Rocco V. D'Andrea, Inc submitted to ToG for Linskey Variance Appeal 9.28.88
Comment #1 – previously installed fill in lower yard and modifications of a creosote bulkhead

- On 6.2.20 the Linskeys expressed their concern to the Pucketts (documented in a 7.11.20 phone call and email to P&Z staff) that the unpermitted work done incrementally on and around their tidal wetlands bulkhead was having erosion and flooding impact on their property.

- The Pucketts are aware that by adding fill across the back of their yard and increasing the height of the bulkhead, the North side of their property is higher than the upstream riparian buffer and is diverting stormwater to the Linskey’s property.

- There is no indication in the documents that these concerns have been or will be addressed. *The bulkhead does not appear in the application drawings as a coastal resource*; access for any remediation will be difficult should the proposed ECS discussed in 2 and 3 below be built. (photos next slide)

The Linskeys request that the application review not be finalized until this unpermitted (Inland / Coastal Wetlands and CT DEEP) work is resolved.
47 Edgewater Bulkhead Photos

Stones and gravel fill incrementally added to rear yard and bulkhead area
Comment #2 – hydrostatic and erosion impacts on our properties from increased, and higher velocity, stormwater runoff and tidal flooding caused by diminished permeability and a new erosion control structure

• The Drainage Summary Statement and Plan states that the “development will alter the amount of impervious cover on the site from 1,696 square feet to 2,606 square feet (+910)...results in less than 1,000 sq.ft. of new impervious coverage, thus the improvements are conditionally exempt from the Town of Greenwich stormwater management standards.” This is a request for a drainage exemption from P&Z review. This is not a minor difference. It is a 54% increase of impervious surface (a material amount) with mitigation being an elevated “reservoir” having a permeable bottom and sides designed to send the water onto the neighbor’s property using their stormwater processing capacity to mitigate the applicant’s mitigation problems while exacerbating the neighbor’s flooding problem in storms. (See 3, below). The Architectural and Development Plans have a minimal illustration of the structure labelled as a stone reservoir, rip rap and splash pads.

• The Drainage Statement includes the above noted private, engineered stormwater management structure composed of gravel, patios, a terrace containing various PVC pipes, but provides no specific description or diagram. There is no indication that the structure complies with the Town’s EPA MS4 Permit. The requested drainage exemption would allow further disturbance in an area that has been assessed as impaired by CT DEEP and included in the CT 2016 list of impaired waterbodies.

• The Drainage Statement and other application documents do not show the drainpipe that runs from the depicted Town of Greenwich catch basin along the 47/49 property line into Greenwich Cove. The previous 49 owner erected a stone wall inside their property line to prevent harm to the drainpipe. Care should be taken that it is not damaged during construction exacerbating existing storm and flood water erosion issues.

Approval of the provisional drainage exemption application will have a substantial negative hydrostatic pressure effect on our properties and needs to be reviewed by Town Coastal Wetlands and CT DEEP to protect our properties and to determine whether it complies with the surface water requirements of the Federal Clean Water Act.

6/30/2021
Comment #3 - proposed shoreline flood and erosion control structure

• As described in #2, the application shows a large mound straddling the Coastal Overlay Zone Line (FEMA AE 13'/15'; approx. 50% on each side). This new ECS is a permeable mitigation structure (340 sq. ft at top, comprised of gravel, undefined volume of fill, stone, piping, pavers and other materials; plans do not specify the foundation type) having an elevation of 10'7" and is 34' long by 22' wide. Roof runoff will enter via roof drain inlets (shown in Development Plan) and discharged in the raised East side yard. It discharges onto soil described as Grade D low salt mucky peat. Because, per #1 above, the 45 Edgewater property is now lower at the side and back than 47 Edgewater, it will collect this additional water as the sizable structure increases the hydrostatic pressure on abutting properties. (see next slide for scale of structure on the property)

• It should be noted that during Hurricane Irene and Superstorm Sandy, Edgewater Drive received flood water from all sides including bubbling upwards from the storm drain in the 47 Edgewater driveway; the nearby Heusted Drive sewer pump station was inundated and rebuilt. Our properties are also impacted by additional stormwater from the newly-built Old Greenwich Drainage System. Additional ground water infiltration due to hydrostatic pressure, not surface water inundation, caused the 45 and 47 basement flooding during those storms. Any increase in the hydrostatic pressure from the proposed ECS is a hazard.

• The ECS and its accompanying fill appears to be subject to FEMA and Coastal Boundary ECS and fill restrictions. (photo next slide)

The CAM Application for Review of Coastal Site Plan: This application is not complete (e.g., deteriorating bulkhead not included as coastal resource) and vague (e.g., true diminishment of permeable surface on a small lot is not recognized). It does not consider the addition of various forms of fill, and the new structure’s function as an ECS. There is no comment re landscaping described in the application to provide erosion control, privacy shielding and noise abatement from the proposed terrace space and no treatment of hydrostatic pressure impacts on other properties.
47 Edgewater Erosion Control Structure

Left -- Cones indicate width of N end of ECS mound in mid-yard FEMA AE zones

Elevation of ECS is close to 10’ at cones as proposed in the application

Right – for idea of ECS scale MoMA sculpture is 11’

Landscape and sound shielding is not proposed for either side of the ECS
Questions – Erosion Control Structure

• How does the proposed privately owned engineered stormwater and erosion control structure meet the Town's requirements regarding its EPA Municipal Separate Storm Sewer System (MS4) Permit in an area that drains into a body of water assessed as impaired by CT DEEP? Wouldn’t a non-structural solution better meet the MS4 permit specifications?

• The rates and flows of surface and ground water onto adjacent properties affecting the hydrostatic pressure and ground water under worst case situations are not addressed. Why does the Drainage Plan analysis not take this into account as regards adjacent neighbors? Does it set a precedent for future coastline development? Since the ECS uses neighbor's stormwater mitigation capacity (because water does not respect property lines) the effect on neighbors' properties must be explained.

• The AE zones are tidal. Has this been considered in the proposed ECS siting? What will be the effects of this structure from sea level rise, increased storm intensity and more storms of higher intensity? How much will it impact the local water table?

• How often and by whom will the private structure be monitored, managed, maintained, cleaned, etc.?

• Landscaping references are minimal in the application. Since the ECS will be close to 10’ above grade (higher than a fence), will landscaping (trees) be installed to supplement erosion control, privacy shielding and noise abatement from the proposed terrace space in the middle of the backyard. Will the ECS have lighting at the terrace level?
Questions - Dwelling Plans

• The existing office room and powder room on the East side of the dwelling is independent from the current foundation and is supported by pilings. How will it be integrated in the new foundation?

• Will the two elevated East-facing air conditioning units have any sound and “view” buffers? Will they meet Town noise ordinances? The current single York unit, located at grade level, emits a noisy metallic sound when it is operating.

• Is the Town or the homeowner liable for any damage to the above noted storm drainage pipe that traverses the properties?
Requests

1. Pucketts remediate, via the appropriate permit, the currently unpermitted backyard fill and bulkhead work prior to further consideration of the application. There are three options: a. replace, b. retain/repair/maintain, c. remove and establish CT DEEP specified plantings.

2. Review the front yard elevated masonry and grading facing 49 to ensure that it conforms with zoning regulations.

3. Erosion and Permeability Review
   • Ensure that Coastal Area Management and the CT DEEP-administered US EPA MS4 Permit requirements are considered.
   • Review the Coastal Site Plan Application. As noted previously, the property is in the Coastal Management Area and the project will include various forms of fill as well as the new proposed structure (called a “terrace” and stone foundation in plans) which functions as a shoreline flood and erosion control structure (ECS).
   • Drainage Statement Plan Analysis ambiguities. Slides 9 & 10, above provide context.

4. Review the calculation of the FAR measurements:
   • to ensure they include the office room and bathroom on first floor
   • as regards the ECS, which has a foundation and access steps, as an independent structure

5. Review the greenspace calculation to ensure it follows the 55% requirement.

Based on the above, please deny this application as it is submitted.

6/30/2021
Patrick Linskey
From: Patrick Linskey <patrick.linskey@gmail.com>
Sent: Wednesday, May 19, 2021 1:41 PM
To: Zawoy, Kevin; LaRow, Patrick; Gaucher, John
Subject: Fwd: Abutting Neighbor Gradually Raising Grade & Fortifying Seawall
Attachments: Apr 27, 2015 Mowing Photo.JPG; Oct 26, 2011.JPG; GoogMap 45&47Edgewater 20-06-02..pdf

[EXTERNAL]

-------- Forwarded message --------
From: Patrick Linskey <patrick.linskey@gmail.com>
Date: Sat, Jul 11, 2020 at 12:59 PM
Subject: Abutting Neighbor Gradually Raising Grade & Fortifying Seawall
To: LaRow, Patrick <Patrick.LaRow@greenwichct.org>
Cc: Jan Linskey <janlinskey@mac.com>

Patrick --

RE: Puckett property, 47 Edgewater Drive, Old Greenwich, CT 06870

We are writing to express concerns relating to neighbors incrementally filling in the lower portion of their backyard and elevating an old seawall. These actions are impacting our property by causing increased flooding. Both properties drain into the tidal creek and marsh that is adjacent to our lots. Since they are applying for a town permit for improvements, we would like the grade changes and seawall modifications to be remediated during this process.

The previous owners had an existing wooden seawall in deteriorating condition. Storm tides would regularly breach it. In the northeast corner of their property and next to our property was a garden compost area that was low enough for moon tides to enter their yard.

The wooden seawall has been reinforced with wood and metal. Its height has been built up with wood, gravel, logs, large stones and soil and is the same height of a newly installed raised kayak storage area in the northwest corner. The low compost area (northeast corner) has been filled with gravel and soil and is now above the grade of our yard, impeding the natural tidal flow.

Attached are photos that show changes over time. We are not sure of our rights in this situation and would like this to be resolved before a permit is issued rather than after the fact when we would have limited recourse.

Thank you,
Patrick Linskey & Jan Linskey
45 Edgewater Drive 06870
203 832 4536
CONTAION: This email originated from outside the Town email system. Do not click links or open attachments unless you have verified the sender and know the content is safe.
LaRow, Patrick

From: Patrick Linskey <patrick.linskey@gmail.com>
Sent: Wednesday, May 19, 2021 1:38 PM
To: Zawoy, Kevin
Cc: LaRow, Patrick; Gaucher, John
Subject: Re: 47 Edgewater Drive, Old Greenwich, complaint
Attachments: Apr 26 2017.pdf

Kevin -

Thank you for your email. I will forward the July 11, 2020 communication (Abutting Neighbor Gradually Raising Grade & Fortifying Seawall) with Patrick LaRow in which I described the incremental bulkhead modification and filling that took place over time. It includes 3 photos that depict that work. In addition to those, I have attached a photo taken April 26, 2017 that shows what appears to be bulkhead stonework in progress. At the time we did not know the extent of our neighbor's plans which includes dwelling addition and an erosion control structure in the backyard. He assured us then that he would stop the fill and modifications and that his architect would include any remediation in a "green sheet" for the Town.

The bulkhead and fill situation has been causing additional flooding on our property and the construction of a proposed additional barrier will add to the unnatural diversion of even more stormwater. I will also forward an email dated April 27, 2021 (Comments: PLLPZ 2021 00097 PUCKETT 47 EDGEWATER DRIVE OLD GREENWICH CT 06870) in which we are asking the Greenwich Planning & Zoning Commission to include DEEP in a review of the 47 Edgewater application. A powerpoint document is attached to it which outlines our comments relating to the stormwater and erosion mitigation that is proposed in the application. It includes additional photos. We do not know if your department will also be involved in this review. If not, please let me know whom we should contact in this regard.

You and your team are welcome to access the bulkhead from our yard to view some of the added gravel on the northeast side at low tide (boots are recommended) whether we are home or not (now that we are vaccinated, we are making plans to visit relatives). You will also be able to see that the grade level modifications and fill are now obscured by new grass and plantings on the bulkhead in the yard as well as a kayak storage area covering fill in the northwest corner.

Patrick Linskey
45 Edgewater Drive, Old Greenwich CT 06870
203 832 4536

On Tue, May 18, 2021 at 11:41 AM Zawoy, Kevin <Kevin.Zawoy@ct.gov> wrote:
Hi Mr. Linskey, I am an inspector for the Department's Land & Water Resources Division looking into your complaint. I have not yet made it out to the site but have determined that there are no existing permits for any modifications to the seawall along the shoreline of the property. I have also reviewed Departmental aerial photographs but do not see any obvious filling or seawall modifications. I was wondering if you had any on the ground photographs of any filling or seawall modifications. I am planning on inspecting the site shortly. Please let me know if you have any additional questions. Kevin
CAUTION: This email originated from outside the Town email system. Do not click links or open attachments unless you have verified the sender and know the content is safe.