### FINAL SITE PLAN and SPECIAL PERMIT
**PLPZ 2020 00347**

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>100 East Putnam Avenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZONE(S):</td>
<td>LBR-2 and PRIOZ</td>
</tr>
<tr>
<td>PARCEL SIZE:</td>
<td>33,077 sq. ft.</td>
</tr>
</tbody>
</table>

### ZONING STATISTICS

<table>
<thead>
<tr>
<th>EXISTING</th>
<th>PROPOSED</th>
<th>PERMITTED/REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross Floor Area:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial:</td>
<td>2,581 sq. ft.</td>
<td>28,214.02 sq. ft.</td>
</tr>
<tr>
<td>Residential:</td>
<td>NA</td>
<td>3,831 sq. ft.</td>
</tr>
<tr>
<td><strong>Floor Area Ratio:</strong></td>
<td>0.078</td>
<td>0.863</td>
</tr>
<tr>
<td><strong>Parking Spaces:</strong></td>
<td>35</td>
<td>49 +2 ADA</td>
</tr>
<tr>
<td><strong>Number of Dwelling Units:</strong></td>
<td>NA</td>
<td>22</td>
</tr>
<tr>
<td><strong>Number of MID units:</strong></td>
<td>NA</td>
<td>5</td>
</tr>
<tr>
<td><strong>Number of bedrooms:</strong></td>
<td>NA</td>
<td>8 One-BR</td>
</tr>
<tr>
<td><strong>Number of Stories:</strong></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Building Height:</strong></td>
<td>15 ft.</td>
<td>32.1 ft.</td>
</tr>
<tr>
<td><strong>Building Area Coverage:</strong></td>
<td>7% (2,488 sq. ft.)</td>
<td>45.6% ***</td>
</tr>
<tr>
<td><strong>Lot Coverage:</strong></td>
<td>72.4% (23,958 sq. ft.)</td>
<td>80.8% ***</td>
</tr>
<tr>
<td><strong>Setbacks:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front:</td>
<td>25.55 ft. to EPA lot line</td>
<td>10.9 ft.</td>
</tr>
<tr>
<td>40 ft. to Taylor Dr. Lot Line</td>
<td></td>
<td>10.12 ft.</td>
</tr>
<tr>
<td>Side:</td>
<td>33.34 ft.</td>
<td>6.83 ft.</td>
</tr>
<tr>
<td>Rear:</td>
<td>130 ft.</td>
<td>46.17 ft.</td>
</tr>
</tbody>
</table>

*A waiver may be granted per Sec. 6-110(g)(6)  ** A waiver of maximum coverage may be granted per Sec. 6-110(g)(5)  *** From prior plans, no new information provided.

### STAFF REPORT UPDATE:
This application was last before the Commission at the 1/5/2021 Meeting. At that time the Commission chose to not take action and have the applicant address outstanding comments.
related to sewer and traffic. The applicant has responded to the Commission’s traffic consultant’s comments from their Traffic Engineer, site engineer, and Architectural team. The applicant has also provided a draft declaration of restrictions and draft marketing plan in satisfaction of the special permit requirements for Moderate Income Unit developments. Lastly, the Sewer Division has been able to evaluate the flow rates and date provided related to the potential sewer output of this project and noted that they have been satisfactorily addressed and while the note a comments for the “P&Z Phase”, the content of that comment notes that the system is Cos Cob may require work in the future, and while this development does not create a capacity concern, future developments connecting to this system may require capital improvements before additional capacity could be added to the system.

The following is an updated staff report.

**APPLICATION SUMMARY:**
The applicant is requesting final site plan and special permit approval, to construct a mixed use, Moderate Income Housing Development of three (3) stories with twenty-two (22) units where five (5) of the units (20% of the total) would be “Moderate Income” units as described in Section 6-110 of the Greenwich Building Zone Regulations; 3,861 sq. ft. of commercial space, and parking for 49 vehicles plus 2 ADA parking spaces on a 33,077 sq. ft. property located at 100 East Putnam Avenue in the LBR-2 and PRIOZ zones.

Access to the site is proposed to be a, two-way, curb-cut onto Taylor Drive. The existing curb cut onto East Putnam Avenue would be closed and the sidewalk extended across the entire East Putnam frontage and up Taylor Drive to the new proposed driveway entrance. Properties to the north of the site are in the R-7 residential zone.

This preliminary application was submitted and moved to final by the Commission at the May 5 2020 meeting, so that the applicant many obtain guidance as to compliance with primarily Sections 6-13 through 6-15, 6-17, 6-103, 6-110, 6-141, 6-158, and 6-205 of the Town of Greenwich Building Zone Regulations (BZR).

**COMMENTS/RECOMMENDATIONS:**

1. **LANDSCAPING** – under the preliminary process, the Commission requested more landscaping on the site. The applicant then met with the Tree Warden and Staff, to access trees on the site, those comments have been attached and recommended that while the established trees have value, and more should be saved, they did acknowledge that develop of the site, as proposed, makes preservation of the trees noted, unlikely without revisions to the proposal. The applicant has proposed a revised landscaping plan and is noted that, “trees will to remain as recommended in arborist report” that report has not been provided by the applicant but has been included by staff. Additionally, the applicant should verify and confirm that the proposed landscaping plan is in compliance with Section 6-161 of the BZR.
2. **ARCHITECTURE** – the Commission talked at length about the desire to see the look of the building changed to be more similar to the Architectural types along East Putnam Ave. in Cos Cob. The applicant has revised the plans, and appeared before the ARC to redesign the façade of the building. Final comments were issued at the ARC’s 7/7/2020 meeting and the applicant was referred back to the Commission, with comments, and it was requested, that “Electronic resubmission” be provide post a decision by the Commission and prior to any zoning permit. The Commission should determine if the applicant should meet all, part, or none, of the comments of the ARC, and if determined additional architectural revisions are needed, the Commission shall direct the applicant to revise as they see necessary.

3. **TRAFFIC COMMENTS** - the Commission requested that the applicant address comments from the Commission’s traffic consultant, BETA. The applicant has responded and noted the following:

   a. discussed the concept of a Transportation Demand Management Program but noted one is not a necessity for this site as it: meets parking requirements of the regulations; the mixed use proposal of the site affords the opportunity to share parking during peak times; the proximity to public transportation, bus and commuter rail; and access to community amenities with 0.5 miles of the site.

   b. BETA notes that the operation conditions at the intersection of East Putnam Avenue at Cross Lane/Taylor Drive/Strickland Road are not as good as the “overall” columns in Table 1 would indicate. It was also noted that queues on the Taylor Drive southbound approach to East Putnam are expected to back up past the CVS plaza driveway and site driveway at various times during the peak hours. They ask, “Would the applicant’s engineer recommend any timing changes to the traffic signal to improve conditions? And/or are any signal timing changes already assumed in the “2021 Combined” scenario?”

   c. There is currently no accessible route from the surface lot to the bank building entrance because there is not sufficient clear width to access the walkway and there is no ramp provided to traverse the curb.

   d. BETAS defers to the Town if they have agreed to the three-foot width. Otherwise it was noted that a three-foot width is a minimum ADA standard, not commonly used for sidewalks anymore unless there are extreme constraints, and the Greenwich Town code states in Sec. 6-188 that “sidewalks connecting all building entrances, exits, parking and loading areas and the public street shall be paved with an asphaltic or concrete surfacing and shall have a minimum width of at least six (6) feet...”

4. **PARKING** – it was noted in the prior plans that some of the end parking stall widths are not 10 feet as recommended by Sec. 6-185. The applicant has identified the 20 end parking stalls and has revised the plans so that all but 9 of these end stalls meet the 10-foot width recommended. Staff notes that the Commission may allow a lesser width if they make a determination that a subject use is one that can be considered to be non-
transient (greater than 3-hour turnover) parking. The Commission will need to make a finding that the location and size of these 9 stalls qualify or the applicant will need to address the width issue.

5. **ZONING** – No issues to be addressed from the ZEO.

6. **ENGINEERING** – The Engineering Division have revised their comments and defer to the Commission on the prior traffic concerns.

7. **SEWER** – The property with the proposed development/modifications discharges into a sanitary sewer system that has some existing capacity concerns during certain flow conditions. This sewer system and downstream sewer pumping station at the Cos Cob Pumping Station located on Strickland Road is under further study and future work on the Town sewer system and pumping station may be required. Potential improvements to the system may be required and implemented through the capital improvement planning process in the future. In areas where capacity may be limited under such conditions, it is DPW’s policy to accommodate flows consistent with current zoning to the extent possible. If the proposed development/modifications meet(s) current zoning, it has a right to construct accordingly.

8. **CONSERVATION** – Staff noted that the development requires quite a bit of tree and rock removal. They stressed the need for the landscaping plans to provide a “green” buffer for wildlife, stormwater, air and noise pollution, benefits. They noted a concern regarding the use of non-native species in the plant plans. It was recommended that the planting materials added to the site be at least 25% native species.

9. **HOUSING SPECIALIST** - The applicant has now provided a draft Declaration of Restrictions and a draft marketing plan. It was noted that all references in the documents to “Sec. 6-110(g)” need to be revised to state “Sec. 6-110.” It was also noted that the units to be Moderate Income have not yet been designated. This could be addressed at permit, but the Commission should indicate to staff, the desired mix of units they would like to see designated.

10. **IWWA** - green sheet noting no IWWA permit is required, has been provided.

11. **PRE-APPLICATION WORKSHOP** - As required per Sec. 6-110(e) and pre-application workshop was convened on October 29, 2019.

12. The following is recommended, by staff, to be addressed in the final site plan /special permit application:
   a. Address any outstanding Department/staff comments that Commission would want do see prior to making any final decision(s)/
   d. A construction phasing plan should be submitted to accompany the soil and erosion control plan. The parking of construction vehicles and access in and out of the site will be of paramount importance.
   e. The noise specifications and location of all mechanical equipment proposed should be submitted.
DEPARTMENT COMMENTS:
ZEO - see attached
DPW ENGINEERING - see attached
DPW SEWER - see attached
CONSERVATION - see attached
TRAFFIC - see attached
FIRE -
HOUSING SPECIALIST - see attached
IWWA - Green sheet provided

APPLICATION DETAILS:
The applicant proposed to remove the existing 2,581 sq. ft., 1 story building on site and construct a new 28,353.04 sq. ft. three-story mixed use building on the site. The ground floor is proposed to be 3,831 sq. ft. of commercial space, divided into two tenant spaces, one space for the existing bank tenant, the second, a tenant yet to be identified. The Commercial space would extend along the sites frontage along East Putnam Ave. closing off the current driveway. To the rear of the commercial space would be at grade parking which would extend up to and underneath the building’s upper floors. Vehicle access would be only from Taylor Drive. The upper two floors would be about 24,000 sq. ft. of residential space. Each of the upper floors would have 11 units, per floor, and a mix of eight (8) - one (1) and fourteen (14) - two (2) bedroom units would be spread over the upper two (2) floors.

The top floor (roof level) is proposed to be approximately 642 sq. ft. of floor area, to house a roof deck, elevator and stair bulkheads, and mechanical equipment.

In the Commission’s preliminary decision letter, it was requested that the following be addressed with a return for final site plan / special permit approval:

1. Address sewer comments.
2. Address Engineering comments.
3. Address comments from the Commission’s traffic consultant, BETA.
4. Attempt to address the concerns of Conservation Commission Staff.
5. The Commission requested that the applicant appear before the Architectural Review Committee (the “ARC”) to gain comments on the Architectural Design, building materials, landscaping, lighting, and signage program which shall include façade signs, directory signs (free standing) and directional signage; and the following suggested revisions to the proposal to the applicant, and the ARC, should be addressed between now and any request for final site plan and special permit approvals:
   a. Revise and improve the landscaping plan, specifically the area along the West and North property lines.
   b. Consider the rotation of the bank portion of the building to the North West.
   c. Use brick corbeling and standing seam roof as a continuous parapet along the upper and lower roof line.
d. Eliminate the brick parapet at the balcony and use the railing continuously along the balcony.

e. Square the 2nd floor window openings on the South Elevation, look at a square muntin pattern.

f. Review materials below the retail frieze line. They should reflect a proportional mix of materials, less brick more painted wood, using the Cos Cob retail district as cue.

g. Accentuate individual store fronts around the retail entries. To be carried around retail elevation from South to East to North.

h. Explore treatment of West and North retaining wall finishes.

6. As required by Section 6-110(h)(5), the applicant shall submit a Declaration of Restrictions stating the covenants and restrictions that will run with the land for all current and future owners of the MID units must be provided for review and acceptance prior to any final approval from the Commission

7. As required by Section 6-110(h)(5), the applicant shall submit a Marketing Plan to ensure the building, “adherence to established sales and rental guidelines and administrative procedures.” The Marketing Plan shall outline the specific units designated as moderate income, the specific entity responsible for administration that must be established prior to CO, and how the application and general administrative process will work in order to ensure the regulations are met.

8. The Commission requests that the Applicant review and address end of aisle parking space widths as best possible as recommended by Sec. 6-185.

The applicant appeared before the ARC and at their 7/1/2020 meeting, the following comments were made:

Comments on the tree ridge as follows:

1. Building’s proposed placement is taking away a “green spine” in town that cannot be regained;
   a. Could the placement of the building be revised to save this unique and connected greenscape?
   b. POCD Greenscape finding: Indigenous vegetation outcrops are important;
   c. POCD Greenscape finding: Preservation of greenscape vs. parking requirement numbers. Can the existing building be raised and therefore moved toward Taylor Lane while preserving parking and the spine of trees?”
   d. Is there any way to save all or some of the ridge?

2. Proposed residential entry is not fully developed and needs clarification of the architecture. Windows are too high and lights too low. Does not show an arrival. Is it handicap accessible? Walkability and accessibility in this area are very important and need refinement;

3. Consider adding white band, cornice or other architectural element at the top of the 2nd floor, but not necessarily adding a parapet;

4. Roof-scape needs a lower ridge applied to building parallel to Putnam Ave. with a dropped ridge and dormers, so it does not seem like a 4th story;
5. Try to develop a stronger definition of architectural relief in the long elevations – East and West elevations – not just by changing brick pattern or skin;
6. The proportion of the windows needs updated – they are not symmetrical to themselves or to the façade;
7. Complexity of the roof and façade is commendable. Please add more of it;
8. Architecture needs to be revised to further arrival, walkability, and exits- this specifically needs review at the egress on East Putnam Avenue;
9. Significant greenscape and natural features are valued by ARC;
10. Confirm compliance with Sections 6-180 through 6-182 of the Town’s BZR, specifically Type E plantings for parking areas;

We note that the application has been modified in several ways:
- The First floor elevation has been lowered from el 15.4 to 14.8.
- The northwest portion of the parking lot was lowered
- Of the proposed twenty (20), end parking stalls, all but nine (9) of the end stalls meet the 10-foot width recommended in the by Sec. 6-185 of the BZR.
- The space dedicated to retail use has changed from about 4,400 sq. ft. to about 3,800 sq. ft.
- The total gross floor area has reduced by about 100 sq. ft.
- The eaves have been extended on the east and west facades, to eliminate the prior “slit” roofs.
- The roof line has been adjusted across the west façade.
- Consistent gable roof ends applied to bank tenant.
- Window sills change to brick row-look
- Residential lobby now faces Taylor Drive.
- Mechanical basement has been added for retail tenants.

**EXISTING TREES AND PROPOSED LANDSCAPING:**
The applicant met with staff between preliminary and final site plan applications to discuss the condition of current trees on the site, and the proposed development. Staff and the Town’s Tree Warden went to the site with the Applicant’s team and looked over the trees. Trees seen as having value were identified and a request to save six (6) specimen trees were made, for consideration. The general comment for the Tree Warden and staff was that trees outside of the proposed footprint, should be saved or avoided to the greatest extent possible. It was noted that more trees could be saved with proper measures and not clear cut and replaced as noted.
The applicant has noted the following landscaping changes:
- West property line proposes “columnar” oak tree better suited for a narrow plant bed.
- Notes have been provided stating the applicants intention to keep as many existing trees to the north of the proposed building as possible.
- Wall treatments have not been finalized and the applicant would like the site conditions to dictate the final look of the foundation walls. It has been stated that their intent is to not leave raw, poured concreted exposed.
- Evergreen shrubs have been added along Taylor Drive to screen the parking areas.
• Lighting piers have been changed to brick to match façade.

Additionally, staff would note that the applicant should verify and confirm that the proposed landscaping plan is in compliance with Section 6-161 of the BZR, which requires specific plantings for lots with more than 10 vehicles proposed.

Conservation staff has noted concerns in their memo of 12/30/2020. They note that the project incorporates some principles of “Smart Growth” but also note their opinion that the development is oversized and too intensive for the site given the grading, and tree removal proposed. They stressed the need for green buffers, and that the proposed planting plan has many non-native species and should be made up of at least 25% native and drought resistant species. Bike racks and Electric vehicle charging stations were also recommended.

**ZONING:**
Per the regulation in the LBR-2 Zone the first floor is required to be retail uses. Banks are currently not a permitted use on the first floor in the zone. However, the site currently operates a bank on site which is a legally non-conforming use. The applicant has expressed their intent to continue this non-conformity and indicated the State Public act to transfer this non-conforming right to the proposed new building.

The Town’s ZEO offered no comments that would require revisions or follow-up.

**TRAFFIC AND CIRCULATION:**
The Commission requested in the preliminary decision letter that the applicant address outstanding comments from the Commission’s Traffic consultant, the BETA. The applicant has responded and BETA has noted the following:

- Discussed the concept of a Transportation Demand Management Program but noted one is note a necessity for this site as it: meets parking requirements of the regulations; the mixed use proposal of the site affords the opportunity to share parking during peak times; the proximity to public transportation, bus and commuter rail; and access to community amenities with 0.5 miles of the site.
- BETA notes that the operation conditions at the intersection of East Putnam Avenue at Cross Lane/Taylor Drive/Strickland Road are not as good as the “overall” columns in Table 1 would indicate. It was also noted that queues on the Taylor Drive southbound approach to East Putnam are expected to back up past the CVS plaza driveway and site driveway at various times during the peak hours. They ask, “Would the applicant’s engineer recommend any timing changes to the traffic signal to improve conditions? And/or are any signal timing changes already assumed in the “2021 Combined” scenario?”.
- There is currently no accessible route from the surface lot to the bank building entrance because there is not sufficient clear width to access the walkway and there is no ramp provided to traverse the curb.
• BETAS defers to the Town if they have agreed to the three-foot width. Otherwise it was noted that a three-foot width is a minimum ADA standard, not commonly used for sidewalks anymore unless there are extreme constraints, and the Greenwich Town code states in Sec. 6-188 that “sidewalks connecting all building entrances, exits, parking and loading areas and the public street shall be paved with an asphaltic or concrete surfacing and shall have a minimum width of at least six (6) feet...”

The Applicant had expressed in the preliminary site plan process, the desire to not install a “right turn only lane” out of Taylor Drive, out of respect for the wishes on the public and their Traffic Consultant does not believe its inclusion would improve operations on East Putnam Ave. and through the intersection.

PARKING:
The applicant is proposing 22 residential units. Pursuant to Section 6-155, multi-family residential development requires 44 parking spaces per Section 6-155(1). Per Section 6-155(3), “Dwelling units in mixed-use residential-commercial development: One space per dwelling unit unless a greater or lesser number is deemed appropriate by the Commission.” That would reduce parking on the site to 22 parking spaces for the residential use. The proposed bank (office) use, would require one parking space per 150 sq. ft. of usable floor area (75% of gross) as would the proposed retail space. Based on 3,381 sq. ft. of commercial space, an additional 19.155 parking spaces would be required. 49 spaces exclusive of 2 ADA spaces are proposed.
The following table illustrates the math related to the Town’s Parking requirements:

<table>
<thead>
<tr>
<th>Residential Parking</th>
<th>Number of units</th>
<th>Required Parking Per Unit Type</th>
<th>Number of Parking Spaces Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-bedroom</td>
<td>8</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Two-bedroom</td>
<td>14</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>22</strong></td>
<td></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>

Office Parking

<table>
<thead>
<tr>
<th>Gross Sq. ft.</th>
<th>Usable Sq. ft.</th>
<th>Number of Parking Spaces Required (1 per 150 sq. ft. of Usable floor Area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,831</td>
<td>2873.25</td>
<td>19.155</td>
</tr>
</tbody>
</table>

**TOTAL** 41.155

Staffs notes that some of the end parking stalls widths are still not 10 feet as recommended in Sec. 6-185 of the BZR. The Commission may find these to be acceptable if a determination is made that the use is one that can be considered to be non-transient (lower turnover, 3-hours or greater) parking.

**APPLICABLE REGULATIONS:**
Section 6-15, 6-17, and 6-110(g), 6-103, 6-141, 6-155, 6-158 (parking), 6-185 (Site Plan), and 6-205.
ZONING ENFORCEMENT

Project No. PLPZ 2020000347 Preliminary X Final

Reviewed for Planning and Zoning Commission.

TITLE OF PLAN REVIEWED: 100 East Putnam, LLC.
LOCATION: 100 East Putnam Ave.
PLAN DATE: 
ZONE: LBR-2

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

☐ 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. Building height and coverage are compliant, with incentives.

Reviewed by: Jodi Couture Date: 12/22/2020

Note: These comments do not represent Building Inspection Division approval. Plans subject to review by ZEO at time of building permit application.
DEPARTMENT OF PUBLIC WORKS – ENGINEERING DIVISION
SITE DEVELOPMENT REVIEW

Engineering Project No. 19-5(67)          Department Project No.  PLPZ202000347
Submittal Received Date: 1/8/2021

Traffic Review Requested: Yes  Review Type: Final Site Plan

Submittal Reviewed For:
Planning and Zoning

PLAN SET INFORMATION

Plan Title: 100 East Putnam, LLC          Project Address: 100 East Putnam Avenue
Engineering Firm:          Original Plan Date: 11/13/2020
Mills Engineering, LLC

Latest Plan Revision Date: ___

DRAINAGE SUMMARY REPORT INFORMATION

Engineering Firm:          Original Report Date: 11/13/2020
Mills Engineering, LLC

Latest Report Revision Date: ___

Reviews provided by the Engineering Division are for compliance with the Town’s “Roadway Design Manual and Standard Construction Details” and “Drainage Manual” as amended. Reviews are based upon the information and plans provided. Comments pertaining to the Town’s manuals are not all encompassing. Other reviewing entities may provide additional comments regarding consistency with these manuals in accordance with their jurisdictions. Review of sanitary sewer and septic systems are not reviewed by the Engineering Division.

All New Submittals for Commission Meetings must be received by the Engineering Division four weeks before scheduled Commission Meeting.

All Revised Submittals for Commission Meetings must be received by the Engineering Division three weeks before scheduled Commission Meeting.

Reviewed and Approved by:Scott Marucci - Senior Civil Engineer
Date: 1/3/20

Scott Marucci - Senior Civil Engineer

COMMENTS AND CONDITIONS OF APPROVAL: See Comments Below

The Engineering Division still has some concerns that traffic comments still need to be addressed but are good either way and leaves the decision to the Commission.

1. The comments from Beta Group, Inc. Memorandum dated January 11, 2021 shall be addressed.

The following comments can be addressed prior to zoning/building permit sign-off.

2. A revised Form SC-100 needs to be submitted.
3. A revised Form SC-107 needs to be submitted.
4. The Drainage Summary Report is acceptable in concept for the proposed BMPs. The following revisions and additional information need to be submitted:
   a. Need to discuss the discharge elevation into the forebay of the sand filter.
   b. The stone storage cannot be used for the rain garden (underdrain). Revise the design so the WQV is met with the bioretention soil, mulch/grass, and the surface storage.
   c. The minimum ponding depth for the rain garden is 6-inches. Revise the top of grate to 14.75.
   d. The conveyance computations must be submitted prior to zoning/building permit sign-off.
e. Review and revise all other computations and information as needed.

5. The construction plan needs to be revised as follows:
   a. Existing Conditions Survey Sheet from the Surveyor
      i. Prepared according to the Minimum Standards for Surveys and maps in Connecticut.
      ii. Show a note certifying the survey A-2.
      iii. Show a note certifying the survey T-2.
      iv. Show topography at contour intervals of two feet for the property and Right-of-Way. If possible, include contours ten feet beyond the property limits for neighboring parcels.
      v. Show topography flatter than 2% with additional spot elevations and contour intervals of one foot.
      vi. Show spot elevations throughout the property and Right-of-Way.
      vii. Show a note for a referenced or assumed elevation datum (the FEMA datum shall be used for sites located within a Flood Hazard Zone).
   
   viii. Show one (1) permanent benchmark on the site within one hundred feet of the proposed construction.
   ix. Show notes for referenced plans.
   x. Show the entire Town of Greenwich Right-of-Way for the property frontage (drainage, curbs, sidewalk, trees, bushes, shrubs, walls, contours, etc.).
   xi. Show the entire Town of Greenwich Right-of-Way in both directions for the minimum required sight distance if a new driveway curb cut is proposed.
   xii. Show storm drainage, sewer, water, etc.
   xiii. Show roads, buildings, driveways, patios, walks, walls, and other structures.
   xiv. Show utilities and easements.

   b. Site Plan Sheets
   i. It is recommended that the small connections from the sidewalk on private property going onto right-of-way be changed to concrete sidewalk meeting Town of Greenwich Standards. If it is to remain as shown the sidewalk within the Town of Greenwich right-of-way not meeting Town of Greenwich Standards will require a maintenance agreement from the property owner and review and approval of the agreement and sidewalk design by the Commissioner of Public Works and Highway Division. This must be completed prior to zoning/building permit sign-off.
   ii. The Commission should determine if the proposed 9-foot and 9.5-foot end spaces are acceptable.
   iii. All of the roof leaders and pipes shall be called out.
   iv. Need to discuss the discharge elevation into the forebay of the sand filter.
   v. The minimum ponding depth for the rain garden is 6-inches. Revise the top of grate to 14.75.

   c. Low Impact Development Plan Sheet:
   i. The deep test pit labels and the circular influence needs to be a little darker.

   d. Driveway Profile & Sight Distance Sheet
   i. The driveway profile needs to be revised so the sidewalk across the driveway entrance meets the required ADA standards.

   e. Traffic Signage, Pavement Markings, and Parking Space Layout Sheet (Required for Commercial Projects)
   i. Callout all pavement markings (stop bar, arrows, etc.).

   f. Construction Details Sheets
   i. The Town of Greenwich SCD No. 921.14 needs to be added.
   ii. A detail for CB#6 and DMH No.1 needs to be added.

6. The draft Operations and Maintenance Plan Report needs the following revised:
   a. Exhibit A: Long-term Maintenance Plan needs to have a maintenance item added for the sand filter.

**Standard Conditions for Each Submittal**

1. The Engineering Division will no longer keep any records for the submittals. All records for the submittal shall be obtained from the Town of Greenwich Department/Division that has taken in applications and/or submittals. These documents are maintained within each office (e.g. P&Z, IWWA, and DPW Building and Highway Divisions).

2. All revisions to the reports and plans must follow the requirements in the Town of Greenwich Drainage Manual February 2014 as amended.

3. All revisions must be accompanied by a point-by-point written response to the Engineering Division’s comments.
1. The Operations and Maintenance Plan Report must include the following for the Certificate of Occupancy:
   b. The final completed Exhibit A, and B
   c. The Maintenance Declaration needs to be filed on the Town of Greenwich Land Records prior to a Certificate of Occupancy. A review of the documents above must be completed before filing on the Town of Greenwich Land Records.

2. The Town of Greenwich – Standard Construction Notes for Site and Subdivision Plans are conditions that must be met.

3. All requests for a Temporary Certificate of Occupancy (T.C.O.) or a Certificate of Occupancy (C.O.) shall be submitted one month before the T.C.O. or C.O. is required.

4. The submittal for a Temporary or Final Certificate of Occupancy must include the following:
   c. Field Inspection Record (All required photos) – Form SC-106 – Sealed and Signed by a Connecticut Licensed Professional Engineer.
   d. Bioretention Soil Testing Certification Sign-Off (as applicable with the bioretention soil gradation test and the phosphorous test for the mixed soil) – Form SC-104 – Sealed and Signed by a Connecticut Licensed Professional Engineer.
   h. A Letter discussing all the work that remains to be completed (Only for a Temporary Certificate of Occupancy Submittal).
Date: January 12, 2021

To: Katie Deluca, Director, Planning & Zoning

From: Richard C. Feminella, Wastewater Division Manager

Copy: Chris Mandras, Maintenance Manager - Sewer Division
      Al Romano, Environmental Asset Engineer – Sewer Division

Re: PLPZ202000347: 100 East Putnam Avenue, 100 East Putnam LLC

We have prepared the following comments and questions regarding the proposed application.

Project Summary:
- Moderate Income Housing Development of 22 units.

Sewer Division Comments:
As indicated in the Sewer Division’s prior comments dated April 13, 2020 and December 31, 2019, the following comments still apply and need to be addressed:

Comments to be addressed during P&Z phase:
- As discussed at the pre-application meeting on October 25, 2019, the Sewer Division indicated that there are sewer capacity concerns in the downstream sanitary sewer system. The property with the proposed development/modifications discharges into a sanitary sewer system that has some existing capacity concerns during certain flow conditions. This sewer system and downstream sewer pumping station at the Cos Cob Pumping Station located on Strickland Road is under further study and future work on the Town sewer system and pumping station may be required. Potential improvements to the system may be required and implemented through the capital improvement planning process in the future. In areas where capacity may be limited under such conditions, it is DPW’s policy to accommodate flows consistent with current zoning to the extent possible. If the proposed development/modifications meet(s) current zoning, it has a right to construct accordingly.

Comments to be addressed during Sewer and Building Permit phase:
- The applicant/owner will be required to obtain all necessary Sewer Permits. Please coordinate directly with the Sewer Division for permitting.
- The proposed connection to the Town sanitary sewer main as shown on the proposed site plans is unacceptable. We will not permit a section of the Town sewer main to be cut out in order to install a new 8”x8”x8” tee connection. Please coordinate directly with the Sewer Division on how connection(s) should be made to the Town sanitary sewer main. This may require more than one lateral to the main.
- Due to the site location, the proposed development is required to utilize low flow plumbing fixtures. Written confirmation is required by the applicant during Sewer Permitting and the property owner must sign the letter as well.
- As this parcel is in the flood zone, if there are any revisions to the site layout that puts any part of the proposed dwelling within any part of the flood zone, the Sewer Division
requires the applicant submit the necessary information for our review and approval to confirm that any plumbing fixtures are a minimum of 1-foot above the flood elevation.

- Any application to the Sewer Division must include the location of the existing sanitary sewer lateral and its connection to the sewer main. Please be sure to show on plans submitted for Sewer Permitting.

- The applicant/owner will be required to perform CCTV inspections of all of the sanitary sewer laterals and private mains (if applicable) that serve the existing buildings to confirm there are no issues with the existing sanitary sewer lateral. Any televising of sanitary sewer laterals must be performed in the presence of the Environmental Asset Engineer / Sewer Inspector. Please coordinate with Sewer Division – Environmental Asset Engineer (203) 622-0963 extension 5. Make a DVD of this inspection. Submit a copy of the DVD to the Sewer Division. Failure to have the Environmental Asset Engineer present during the TVing will result in the Sewer Division not accepting the DVD. Note: VHS format is not accepted. Only DVDs are accepted. Make a copy of the DVD for your records. The Town will not return DVDs. The Town cannot make copies of DVDs. The DVD should be submitted along with a site plan that identifies each investigation run on the DVD.

- Any sewer lateral(s) that are proposed to be installed within 10-feet of any drainage area, such as, but not limited to permeable pavement, biofiltration areas, drain lines, etc., will be required to be encased in concrete to the nearest upstream and downstream joints at least 10-feet from the edge of the drainage area to inhibit infiltration. Should this be required, please coordinate directly with the Sewer Division.

- Please note, sanitary sewers are designed for first floor elevations. Therefore, any plumbing fixtures in lower levels (basements) could be subject to sanitary sewer backups/overflows. The property owner is strongly recommended to consider and review this and plan accordingly to protect themselves in those situations. The Town is not responsible for damages as a result of these connections/installations. Please consider this and revise accordingly.

- Please note, in accordance with Town regulations and standard practice, all clear water sources cannot discharge to sanitary sewer. This includes air conditioning and high efficiency heating system condensate lines. Please confirm that the new development will not discharge any clear water sources to sanitary sewer.

Please NOTE: These comments are intended for P&Z review only. These comments do not take the place of Sewer Permit(s). Any Sewer Permit Applications receive thorough reviews and may result in additional comments/requirements at that time. In addition, please be reminded that in order to receive Building Permits, the applicant must have secured all other necessary permits, including, but not limited to, Sewer Permits PRIOR to obtaining their Building Permits.

Also, please note, the applicant should NOT submit for Sewer Permits until the project has received approval from P&Z.
MEMORANDUM

To: Patrick LaRow, AICP Deputy Director/Assistant Town Planner

From: Aleksandra Moch, Environmental Analyst

Date: December 30, 2020

Re: 100 East Putnam Avenue, LLC, 100 East Putnam Avenue, PLPZ 2020 00347
Site plan by Mills Engineering, LLC., dated November 13, 2020, landscape plan by Granoff Architects, dated November 11, 2020

I have reviewed the above referenced site survey and associated documents. The following comments are offered for your consideration.

1. The proposed development is presented as following the principles of “smart growth.” It incorporates mixed-use development in an area which offers new housing opportunities and options within a walkable neighborhood. The design, however, misses other principles which are equally important.

2. The proposed design does not foster an attractive community with a strong sense of place. The proposed building is oversized and too intensive for the site. The proposed footprint and the parking encroach upon a steep slope controlled by shallow ledge and wooded edges stretching along the northern and western property lines. The existing woodland provides green buffer; an important transition between residential and commercial development. This green belt also provides noise and pollution absorption and resting area for birds, pollinators and small mammals.

3. The proposed parking layout and building closer to the property line than the existing conditions will result in rock removal and elimination of the wooded buffer. The proposed rock removal and tree clearing go against the principle of preserving open space and the natural beauty of this area. It is recommended the applicant consider revising the plan to preserve the wooded slope. Green space provides benefits not only to the future site residents, its neighbors, but also for the entire community. Trees and shrubs will offer space for wildlife, storm water absorption and filtration as well as noise and air pollution amelioration.
4. The proposed planting plan offers variety of trees, shrubs and herbaceous groundcover keeping the lawn area to minimum. Unfortunately, the majority of the proposed species are not native. It is recommended the plan be revised to include at least 25% of native and potentially drought resistant species.

5. Smart growth design and planning emphasizes transportation choices. A walkable neighborhood encourages bicycling as an affordable means of mobility. To address this need, parking design should include bike racks. In addition, Greenwich is leading in state in terms of the number of electric vehicle ownership (more than 900). It is important to accommodate this growing trend by designation of 1% of the parking stalls for EV charging stations. Also wiring 10% of the parking area for additional EV charging stations will provide a great savings when the need for their installation arrives in the near future.

cc: Conservation Commission
BETA Group, Inc. (BETA) has reviewed the updated materials provided for the proposed final site plan and special permit applications for the proposed mixed-use development at 100 East Putnam Avenue. The following documents have been reviewed for traffic operational, circulation, and safety considerations:

- Responses to Comments Letter; Tighe & Bond; January 5, 2021
- Responses to Comments; Granoff Architects; January 7, 2021
- Responses to Comments Letter; Mills Engineering LLC; January 7, 2021

Following below are the string of BETA's original comments and Applicant responses for which additional commentary has been provided (shown as underlined):

Comment #1 (1/3/20 BETA Memo): Town regulations state that one parking space per residential unit can be provided for the residential portion of a mixed-use residential-commercial development. However, based on the proposed size of the residential units (most of them have two bedrooms) combined with some potential uses for the commercial area on site, there could be insufficient parking supply during periods of peak demand. For this site, increasing the parking supply somewhat to account for the larger units should be considered. Additionally, the applicant should develop a Transportation Demand Management program to encourage the use of alternative transportation modes and decrease vehicular trips and parking demand generated by the residential units on site. Strategies could be used such as unbundling parking spaces from lease agreements, subsidizing train/bus passes, providing parking spaces for a shared car service, etc.

Bicycle parking (preferably covered for the residential units) should also be provided on site.

Additional BETA Comment (12/28/20 BETA Memo): It is noted that bicycle storage is now shown on the site plan. However, no updated information was received regarding the adequacy of parking for the anticipated land uses and unit sizes.

Response (1/5/21 Tighe & Bond Letter): The proposed on-site parking meets the requirements of the Town of Greenwich Zoning Regulations. The mixed-use nature of the site provides additional parking to accommodate additional parking during periods when the commercial uses are closed. Furthermore, with respect to Transportation Demand Management, a formal plan is not necessary for this development based on the size and location nor is one required by the Town. CTTransit (Route 311) provides bus service directly in-front of the site, as noted in the Traffic Impact Study, with connections to the Greenwich Train Station, Stamford Transportation Center, and other in-town destinations. Additionally, the Cos Cob Metro-North train station is just over 0.5 mile from the proposed development which is accessible on foot or bicycle from the facility. Finally, the proposed residential use is a low traffic generator and does not warrant a formal plan to reduce site trips.

Additional BETA Comment: For this site, a Transportation Demand Management program would be a way to take a more active role in managing the parking supply by encouraging and/or requiring reduced reliance on motor vehicles for residential tenants. Considering that it is not specified what the final use
for the commercial property on site will be (per the response to comment #2 below), it is difficult to verify its potential impact on parking demand for the site, and proactive efforts could be helpful to ensure parking sufficiency for all users and could be easily adjusted in the future if needed.

**Comment #5 (1/3/20 BETA Memo):** The site plan does not show the proposed restriping of the southbound Taylor Drive approach to East Putnam Avenue to include separate left and right-turn lanes as recommended in the Traffic Impact Study. As that is being done, the stop bar location should be verified to ensure inbound turning movements can be accommodated with the revised lane widths. Additionally, the detection zones for the traffic signal will need to be adjusted. OSTA would need to review and approve any modifications to the signal plan.

**Additional BETA Comment (12/28/20 BETA Memo):** This comment was not addressed or incorporated.

**Response (1/5/21 Tighe & Bond Letter):** The Town of Greenwich Planning & Zoning Commission has indicated that a separate turning lane on Taylor Drive is not requested. Furthermore, during a meeting with Cos Cob area residents, they requested that Taylor Drive be maintained in support of pedestrian safety and mobility. The traffic impact study presents the traffic analysis results without the proposed restriping under Combined Conditions in the revised tables.

**Additional BETA Comment:** Note that the operational conditions at the intersection(s) of East Putnam Avenue at Cross Lane/Taylor Drive/Strickland Road are not as good as the “overall” columns in Table 1 would indicate. Since the intersections operate with one coordinated signal, reporting the Level of Service/Delay results as two separate intersections includes the coordinated movements in the middle of the intersection (WBTR East Putnam movement at Cross/Taylor and EBTR movement at Strickland) in the calculations. Since these are coordinated movements (continued from the upstream signal) they have low delays and good LOS and they bring down the average delays for the two individual signals. An average delay calculated for the whole/combined intersection would be higher since those movements would not be included in the calculations. Also note that queues on the Taylor Drive southbound approach to East Putnam are expected to back up past the CVS plaza driveway and site driveway at various times during the peak hours. Would the applicant’s engineer recommend any timing changes to the traffic signal to improve conditions? And/or are any signal timing changes already assumed in the “2021 Combined” scenario?
Comment #8 (1/3/20 BETA Memo): One handicapped parking space should be placed in the surface lot so there are accessible spaces in both of the parking areas on site and so that an accessible spot is more visible upon entry to the site.

Additional BETA Comment (12/28/20 BETA Memo): This comment was not addressed or incorporated. There is an entrance/exit to the bank building from the walkway adjacent to the surface lot. This needs to be made accessible by providing an ADA compliant space in the lot and an accessible route to the walkway (see Previous Comment #9).

Response (1/7/21 Granoff Architects Letter): The design team has taken comment 8 under advisement and believe the proposed covered accessible parking space location best serves the three commercial tenants/spaces. Additional signage is warranted and will be provided.

Additional BETA Comment: An accessible parking space in the surface lot is required per ADA Standards. Refer to section 208.2 of the 2010 ADA Standards for Accessible Design which states that “the number of accessible spaces provided on the site shall be calculated according to the number of spaces required for each parking facility.” It also states: “The term “parking facility” is used Section 208.2 instead of the term “parking lot” so that it is clear that both parking lots and parking structures are required to comply with this section. The number of parking spaces required to be accessible is to be calculated separately for each parking facility; the required number is not to be based on the total number of parking spaces provided in all of the parking facilities provided on the site.”

Previous Comment #9: Curb ramps should be added to provide accessible routes from both the outside parking area and the garage parking area to the adjacent walkways. Additionally, if it is raised, a curb ramp is needed to access the sidewalk in front of the lobby in the garage area.

Additional BETA Comment (12/28/20 BETA Memo): This comment was not addressed or incorporated. There may be a ramp intended for the walkway in the parking garage, although it is not clearly shown or called out. And there needs to be a ramp and a clear and accessible route for pedestrians to enter and exit the bank building from the surface parking lot. Also, the Town code prohibits the placement of parking spaces directly in front of entrances or exits to buildings.

Response (1/7/21 Mills Engineering, LLC Letter): In lieu of a symbol or callout, the grading plan (sheet 2 of the development plan set) demonstrates ADA compliant accessible routes from the handicapped space within the covered parking area adjacent to the retail/commercial usage to both the bank and the commercial/retail space. Similarly, an ADA compliant route is provided to access the lobby.

The rear entrance to the bank off of the outdoor parking is not the main entrance and ample room is available on the walkway for building access. If desired by the Commission, we can incorporate a loading space in front of the rear entrance.

Additional BETA Comment: ADA Standards require accessible routes to be provided between parking areas and building entrances that are usable by individuals with disabilities. Please refer to 28 CFR § 35.151 - New construction and alterations. There is currently no accessible route from the surface lot to the bank building entrance because there is not sufficient clear width to access the walkway (through the green highlighted area) and there is no ramp provided to traverse the curb (highlighted in yellow).
Previous Comment #11: The sidewalk connecting the bank building to the parking area should have a minimum width of six feet.

Additional BETA Comment (12/28/20 BETA Memo): This original comment was incorporated, however the walkway connecting the Taylor Drive sidewalk to the walkway adjacent to the bank building appears to be three feet wide, while it should be a minimum of six feet according to the Town code.

Response (1/7/21 Mills Engineering, LLC Letter): It is our understanding that a 3’ wide walkway was desirable to increase greenspace and landscaping for the sidewalk accessing Taylor Drive.

Additional BETA Comment: We will defer to the Town if they have agreed to the three-foot width. Otherwise I would note that a three foot width is a minimum ADA standard, not commonly used for sidewalks anymore unless there are extreme constraints, and the Greenwich Town code states in Sec. 6-188 that “sidewalks connecting all building entrances, exits, parking and loading areas and the public street shall be paved with an asphaltic or concrete surfacing and shall have a minimum width of at least six (6) feet...”
January 15, 2021

Re: Housing Comments for 100 East Putnam Avenue, PLPZ202000347

The development at 100 East Putnam Avenue has provided a draft Declaration of Restrictions and the comments from the Housing Specialist are as follows:

- Remove all the 6-110(g), and replace with 6-110.
- Designate which units will be MIU.

Thank you,

Crystal Berry
Housing Specialist
Planning & Zoning
Town of Greenwich
January 5, 2021

Mr. Andrew F. Toth
AFT Management LLC
44 Amogerone Crossway, #7887
Greenwich, Connecticut 06830

RE: Response to Traffic Comments – BETA
Mixed-Use Development
100 East Putnam Avenue
Greenwich, CT 06820

This letter is provided in response to the comments received concerning the 100 East Putnam Avenue Traffic Impact Study (the Study). The responses provided herein respond to the December 28th peer review letter prepared by BETA. For ease of review, comments have been provided/summarized in italics with the response following in bold text.

Review Comments

Comment #1: Town regulations state that one parking space per residential unit can be provided for the residential portion of a mixed-use residential-commercial development. However, based on the proposed size of the residential units (most of them have two bedrooms) combined with some potential uses for the commercial area on site, there could be insufficient parking supply during periods of peak demand. For this site, increasing the parking supply somewhat to account for the larger units should be considered. Additionally, the applicant should develop a Transportation Demand Management program to encourage the use of alternative transportation modes and decrease vehicular trips and parking demand generated by the residential units on site. Strategies could be used such as unbundling parking spaces from lease agreements, subsidizing train/bus passes, providing parking spaces for a shared car service, etc. Bicycle parking (preferably covered for the residential units) should also be provided on site.

Additional Comment: It is noted that bicycle storage is now shown on the site plan. However, no updated information was received regarding the adequacy of parking for the anticipated land uses and unit sizes.

Response: The proposed on-site parking meets the requirements of the Town of Greenwich Zoning Regulations. The mixed-use nature of the site provides additional parking to accommodate additional parking during periods when the commercial uses are closed. Furthermore, with respect to Transportation Demand Management, a formal plan is not necessary for this development based on the size and location nor is one required by the Town. CTTransit (Route 311) provides bus service directly in-front of the site, as noted in the Traffic Impact Study, with connections to the Greenwich Train Station, Stamford Transportation Center, and other in-town destinations. Additionally, the Cos Cob Metro-North train station is just over 0.5 mile from the proposed development which is accessible on foot or bicycle from the facility. Finally, the proposed residential use is a low traffic generator and does not warrant a formal plan to reduce site trips.
Comment #2: To perform a conservative analysis, the Traffic Impact Study assumes a land use of “Coffee/Donut Shop without Drive-Through window” for the proposed 1,872 square feet of commercial/retail space on site. Does the applicant have any updated information on a likely use for that part of the site?

Response: Since the completion of the traffic impact study, which was conducted in 2019 and submitted in support of the Preliminary Site Plan approval process, the development program has evolved to the point where the commercial retail portion of the development is not likely to function as a coffee/donut shop. As noted by BETA, the analyses contained in the traffic impact study are conservative as the estimated trip generation for a coffee/donut shop is higher than other potential commercial retail uses, especially during the morning peak hour, but also during the afternoon and Saturday midday peaks. The traffic impact study has not been revised to reflect this potential change in land use given that the actual traffic generation is expected to be lower than currently reflected in the study.

Comment #3: The site-generated trip distribution seems to be overestimating the percentage of site traffic traveling to and from the west. Based on existing turning movement volumes at the intersections of Cross Lane at East Putnam Avenue and Strickland Road at East Putnam Avenue, the distribution should be more evenly split between areas East and West of the site, if not favoring areas to the East.

Response: The distribution of the proposed site-generated traffic was developed based on the existing traffic patterns at the intersection of East Putnam Avenue at Taylor Drive and the existing site driveway. The existing turning movement volumes indicate approximately 70% and 30% of the existing traffic accessing the commercial sites along Taylor Drive from/to the west and east, respectively.

In response to the comment and to review the potential impacts on traffic operations associated with the BETA trip distribution recommendation, Tighe & Bond revised the site-generated trip distribution pattern assuming a directional split of 55% / 45% from/to the west / east, redistributed the site-generated traffic (based on a coffee/donut shop), and updated the capacity analysis for the 2021 Combined Conditions.

Tables 1 and 2 summarize the capacity and queue results, respectively, with updated trip distribution for the 2021 Combined Conditions. As shown on Table 1, the study intersections and movements are expected to operate at the same LOS with decreased in vehicle delays during the peak hours as a result of the change in distribution, with one exception. The westbound approach to the intersection of East Putnam Avenue and Strickland Road, where the LOS is expected to degrade to LOS E during Saturday midday peak period, due to the increased site-generated traffic from the east. The overall East Putnam Avenue at Strickland Road intersection continues to operate at an acceptable overall LOS D.

The design queues at the study intersections are all similar to those presented in the traffic impact study with differences of less than one
vehicle length. The results of the traffic operations analysis shows that the impact of the trip distribution revision is minimal. It is worth noting that all these results are based on site traffic generation that includes the coffee/donut shop to provide a representative comparison of the effects of the BETA comments. The retail space is likely to generate less traffic than estimated with the coffee/donut shop use, which would result in improved traffic operations relative to the results in the traffic impact study.

Comment #4: Please clarify the sources used to model signal phasing and timing for the cluster of signalized intersections along East Putnam Avenue at Cross Lane, Taylor Drive, and Strickland Road (existing signal plans, timing sheets, etc.) and provide that information in an Appendix to the Traffic Impact Study.

Response: The traffic signal plan for the clustered signals of East Putnam Avenue at Cross Lane, Taylor Drive, and Strickland Road were provided to Tighe & Bond by the Town of Greenwich and is attached to this response.

Comment #5: The site plan does not show the proposed restriping of the southbound Taylor Drive approach to East Putnam Avenue to include separate left and right-turn lanes as recommended in the Traffic Impact Study. As that is being done, the stop bar location should be verified to ensure inbound turning movements can be accommodated with the revised lane widths. Additionally, the detection zones for the traffic signal will need to be adjusted. OSTA would need to review and approve any modifications to the signal plan.

Response: The Town of Greenwich Planning & Zoning Commission has indicated that a separate turning lane on Taylor Drive is not requested. Furthermore, during a meeting with Cos Cob area residents, they requested that Taylor Drive be maintained in support of pedestrian safety and mobility. The traffic impact study presents the traffic analysis results without the proposed restriping under Combined Conditions in the revised tables.

Tighe & Bond has responded to comments in the BETA memorandum pertaining to the traffic impact study. Other comments in the BETA comments have been responded to under comment responses prepared by other consultants on the design team. We trust that the comment responses provided herein address the concerns identified by BETA.

Sincerely,

TIGHE & BOND, INC.

Christopher O. Granatini, PE
Vice President

Enclosures: Revised Traffic Volume Figures
Revised Capacity Analysis Summary Tables
Traffic Control Signal Plan (Town Provided)
Site Trip Distribution

Legend
Enter: xx%
Exit: xx%

100 East Putnam Avenue
Greenwich, Connecticut

Figure 8
Site Generated Traffic Volumes
Weekday Morning Peak Hour
Legend
Enter: xx
Exit: xx

100 East Putnam Avenue
Greenwich, Connecticut
Figure 9
Site Generated Traffic Volumes
Weekday Afternoon Peak Hour
Legend
Enter: xx
Exit: xx

100 East Putnam Avenue
Greenwich, Connecticut
Figure 10
2021 Combined Traffic Volume
Weekday Morning Peak Hour

100 East Putnam Avenue
Greenwich, Connecticut

Figure 15
2021 Combined Traffic Volume
Weekday Afternoon Peak Hour

100 East Putnam Avenue
Greenwich, Connecticut

Figure 16
2021 Combined Traffic Volume
Saturday Midday Peak Hour

100 East Putnam Avenue
Greenwich, Connecticut

Figure 17
TABLE 1
Intersection Operation Summary - Vehicular Levels of Service / Average Delay (sec/veh)

<table>
<thead>
<tr>
<th>Lane Use</th>
<th>Weekday Morning Peak Hour</th>
<th>Weekday Afternoon Peak Hour</th>
<th>Saturday Midday Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Signal - East Putnam Avenue at Cross Lane &amp; Taylor Drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>B / 11.1</td>
<td>B / 11.2</td>
<td>B / 17.4</td>
</tr>
<tr>
<td>East Putnam Avenue</td>
<td>EBL</td>
<td>B / /</td>
<td>B / 20.4</td>
</tr>
<tr>
<td></td>
<td>EBL</td>
<td>B / /</td>
<td>E / 21.2</td>
</tr>
<tr>
<td>Cross Lane</td>
<td>NB</td>
<td>E / 60.4</td>
<td>E / 60.4</td>
</tr>
<tr>
<td>Taylor Drive</td>
<td>SB</td>
<td>D / 50.3</td>
<td>D / 50.2</td>
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<tr>
<td>Traffic Signal - East Putnam Avenue at Strickland Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>B / 17.0</td>
<td>B / 17.5</td>
<td>C / 30.7</td>
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<td>East Putnam Avenue</td>
<td>EBTR</td>
<td>A / 2.3</td>
<td>A / 2.3</td>
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<tr>
<td></td>
<td>EBTR</td>
<td>A / 2.3</td>
<td>A / 2.3</td>
</tr>
<tr>
<td>Strickland Road</td>
<td>WBTL</td>
<td>C / 23.7</td>
<td>C / 24.5</td>
</tr>
<tr>
<td></td>
<td>WBTL</td>
<td>C / 23.7</td>
<td>C / 24.5</td>
</tr>
<tr>
<td>Unsignalized TWSC - East Putnam Avenue at Site Driveway 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Putnam Avenue</td>
<td>EBL</td>
<td>B / 11.3</td>
<td>B / 11.4</td>
</tr>
<tr>
<td>Site Driveway 1</td>
<td>EBT</td>
<td>A / 0.1</td>
<td>A / 0.1</td>
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<tr>
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<td></td>
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<td>NBL</td>
<td>A / 7.2</td>
<td>A / 7.2</td>
</tr>
<tr>
<td></td>
<td>NBT</td>
<td>A / 0.0</td>
<td>A / 0.0</td>
</tr>
<tr>
<td>CVS Driveway</td>
<td>WB</td>
<td>0 / 0.0</td>
<td>A / 8.9</td>
</tr>
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</table>
## TABLE 2
Intersection Operation Summary - Vehicular 50th / 95th Percentile Queue (In Feet)

<table>
<thead>
<tr>
<th>Lane Use</th>
<th>Traffic Signal - East Putnam Avenue at Cross Lane &amp; Taylor Drive</th>
<th>Traffic Signal - East Putnam Avenue at Strickland Road</th>
<th>Unsignalized TWSC - East Putnam Avenue at Site Driveway 1</th>
<th>Unsignalized TWSC - Taylor Driveway at Site Driveway 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weekday Morning Peak Hour</td>
<td>Weekday Afternoon Peak Hour</td>
<td>Saturday Midday Peak Hour</td>
<td>Weekday Morning Peak Hour</td>
</tr>
<tr>
<td>WBTR 50</td>
<td>20 / 26</td>
<td>21 / 27</td>
<td>23 / 23</td>
<td>23 / 25</td>
</tr>
<tr>
<td>Cross Lane</td>
<td>N85 &gt;500</td>
<td>43 / 85</td>
<td>43 / 85</td>
<td>43 / 85</td>
</tr>
<tr>
<td>SB 150</td>
<td>17 / 43</td>
<td>17 / 43</td>
<td>87 / 145</td>
<td>87 / 145</td>
</tr>
<tr>
<td>East Putnam Avenue</td>
<td>EBL &gt;500</td>
<td>46 / 86</td>
<td>47 / 86</td>
<td>44 / 81</td>
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<tr>
<td>Site Driveway 1</td>
<td>SB 150</td>
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<td>0 / 49</td>
<td>0 / 46</td>
</tr>
<tr>
<td>NBR &gt;500</td>
<td>0 / 48</td>
<td>0 / 49</td>
<td>0 / 46</td>
<td>0 / 48</td>
</tr>
<tr>
<td>East Putnam Avenue</td>
<td>EBTR 50</td>
<td>11 / 13</td>
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<td>30 / 34</td>
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<tr>
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<td>46 / 86</td>
<td>47 / 86</td>
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<tr>
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<td>WB 50</td>
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<td>8 / 8</td>
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</table>
January 7, 2021

Town of Greenwich
Planning & Zoning
Town Hall
101 Field Point Road
Greenwich, CT 06830

Att.: Katie Deluca, AICP, Director of Planning and Zoning/Zoning Enforcement Coordinator/Town Planner

RE: PLPZ 2020 00347
Property of 100 East Putnam LLC
100 East Putnam Avenue
Cos Cob, CT

Dear Madam,

Below are responses to Beta Group, Inc. Comments #6 and #8 from their Memorandum dated December 28, 2020.

Response to Comment #6:
The design team will include parking blocks at parking spaces adjacent to the building and sidewalks. Bollards will be provided near entries. The quantity of *end parking* spaces under 10ft have been reduced and strategically located.

Response to Additional Comment #8:
The design team has taken comment 8 under advisement and believe the proposed covered accessible parking space location best serves the three commercial tenants/spaces. Additional signage is warranted and will be provided.

Thank you for your consideration and do not hesitate to reach out to me if you have any questions or concerns.

Sincerely,

[Signature]

Erik Zambell, AIA
Principal

CC Mr. A. Toth,
Mr. C. Haslun Esq
January 7, 2021

Town of Greenwich
Planning & Zoning
Town Hall
101 Field Point Road
Greenwich, CT 06830
Att.: Katie Deluca, AICP, Director of Planning and Zoning/Zoning Enforcement Coordinator/Town Planner

RE: Property of 100 East Putnam LLC
100 East Putnam Avenue
Cos Cob, CT
PLPZ 2020 00347

Dear Madam,

The below is in response to Comments #9 and #11 made by Beta Group, Inc. in their Memorandum dated December 28, 2020.

Response to Comment #9: In lieu of a symbol or callout, the grading plan (sheet 2 of the development plan set) demonstrates ADA compliant accessible routes from the handicapped space within the covered parking area adjacent to the retail/commercial usage to both the bank and the commercial/retail space. Similarly, an ADA compliant route is provided to access the lobby.

Response to Additional Comment #9: The rear entrance to the bank off of the outdoor parking is not the main entrance and ample room is available on the walkway for building access. If desired by the Commission, we can incorporate a loading space in front of the rear entrance.

Response to Comment #11: As noted in the comment, a 6’ wide sidewalk has been provided.

Response to Additional Comment #11: It is our understanding that a 3’ wide walkway was desirable to increase greenspace and landscaping for the sidewalk accessing Taylor Drive.
Thank you for your continued assistance and please let me know if you have any questions or concerns.

Sincerely,

[Signature]

Charles A. Mills, P.E.
Mills Engineering, LLC
DECLARATION OF RESTRICTIONS OF MODERATE INCOME DWELLING UNITS

100 East Putnam, LLC, with offices located in the Town of Greenwich, County of Fairfield and State of Connecticut (the “Developer”) does hereby declare:

WITNESSETH:

WHEREAS, the Developer is the current owner of the real property described in Exhibit A hereto, which property is commonly known as 100 East Putnam Avenue, Cos Cob (Greenwich), Connecticut (the “Property”); and

WHEREAS, in order to induce the Town of Greenwich Planning and Zoning Commission to grant final site plan approval with respect to the Property, the following covenants and restrictions were deemed to be necessary in order to comply with Section 6-110(g) of the Town of Greenwich Building Zone Regulations (the “BZR”), as in effect on November 4, 2019;

NOW, THEREFORE, in consideration of the foregoing premises and as part of the scheme of development thereof, the Developer does hereby declare and establish the following covenants and restrictions, which covenants and restrictions shall run with title to the Moderate Income Dwelling Units (as described below) in perpetuity and shall be binding on the Developer, its successors, legal representatives and assigns, and all future owners of the Moderate Income Dwelling Units and their respective heirs, successors, legal representatives and assigns (collectively, the “Owner”);

1) The Dwelling Units shown on the floor plans attached hereto as Exhibit B that are numbered Unit No. 7, [5 units] and each labeled “Moderate Income Dwelling Unit” or “MIU” are hereby designated as and shall hereafter be referred to as the “Moderate Income Dwelling Units” in accordance with the provisions of Section 6-110(g) of the BZR as in effect on November 4, 2019.

2) The Developer and any future Owner of the Moderate Income Units covenants that the ownership, use, occupancy, sale, resale, lease or other conveyance of the Moderate Income Dwelling Units shall be restricted in accordance with the provisions of Section 6-110(g) of the BZR in effect on November 4, 2019, which provisions are incorporated by reference.

3) If the Developer or Owner at any time fails to comply with any of the provisions of Section 6-110(g) of the BZR in effect on November 4, 2019, or the covenants and restrictions contained in this Declaration, the Town of Greenwich may take any and all actions necessary to assure compliance and may assess, against the Developer or the particular Owner of the Moderate Income Dwelling Unit or Units violating such portion of the BZR, all costs incurred by the Town of Greenwich, including reasonable attorney’s fees, for such purpose. Any such assessment which is not paid within thirty (30) days after demand therefore shall bear interest from the date of demand at a rate established by law for interest upon money judgments, and the Town of Greenwich may bring an action at law to collect such
assessment, and in such event, all costs incurred by the Town of Greenwich for such collection, including reasonable attorney’s fees.

4) The restrictive covenants and agreements herein declared may not be modified, altered, amended, changed or released without the written approval of the Town of Greenwich acting by its Planning and Zoning Commission or such municipal officer or agencies as may have succeeded it.

5) The Developer agrees to subject the Moderate Income Dwelling Units to the burdens of these covenants and restrictions. Such covenants and restrictions shall be incorporated by reference in all contracts, leases and other conveyances by the Developer by Volume and Page references to the Greenwich Land Records.

6) If any provision of this document is subsequently found to be in contravention of the law, such provision shall be deemed null and void, and the remainder of the document shall remain in full force and effect.

7) Notwithstanding any documents filed previously in the Greenwich Land Records, no modification or instrument purporting to modify any condition, term or provision of this Declaration shall be valid unless filed in the Greenwich Land Records, approved by the Town of Greenwich Planning and Zoning Commission, or such municipal officer or agency as may have succeeded it, and the signature of the Chairman of the Planning and Zoning Commission, or such municipal officer or agency as may have succeeded it, appears thereon.

IN WITNESS WHEREOF, the Developer has hereunto caused this Declaration to be executed by an authorized person as of this ____ day of ____________, 2021.

Signed sealed and delivered in the presence of:

100 East Putnam, LLC

____________________________
By: ____________________________
Andrew Toth
Principal
State of Connecticut  )
    ) ss: Greenwich
County of Fairfield  )

Before me, the undersigned, this ___ day of _______, 2021, personally appeared Andrew Toth, known to me to be a Principal of 100 East Putnam, LLC, and that he, as such Principal, signer of the foregoing instrument, acknowledged the execution of the same to be his free act and deed individually and as a principal, and the free act and deed of said limited liability company.

_________________________
Notary Public
My Commission Expires:
Commissioner of the Superior Court
EXHIBIT A

All that certain tract, piece, and parcel of land, together with the buildings and improvements thereon, situated in the Town of Greenwich, County of Fairfield, and State of Connecticut, designated as Lot Nos. 1, 2, 3, 4, and 5 on a certain map entitled, "Map of Washington Park, ‘Cos Cob’, Greenwich, Conn.", dated January 18, 1926, and on file in the Greenwich Town Clerk's Office as Map Nos. 1103.

COMPLIANCE PLAN
MODERATE-INCOME UNITS

FOR

100 EAST PUTNAM AVENUE

GREENWICH, CT

January 2021
Prepared By: JOHNSON HASLUN & HOGEMAN, LLP
Compliance Plan

INTRODUCTION

100 East Putnam, LLC ("100 EP LLC") submits this Compliance Plan ("Plan") in conjunction with their 100 East Putnam Avenue residential development, a 22 unit apartment community to be located at 100 East Putnam Avenue, Cos Cob (Greenwich), CT ("100 EPA" or the “Development”).

Under this plan, not less than 20% of the units (5 units) will meet the criteria for “moderate-income dwelling units” (“MIUs”) as defined in the Greenwich Building Zone Regulations §6-110 et. seq. in effect on November 4, 2020 (“BZR §6-110”) and be so deed restricted in perpetuity from the date of issuance of a Certificate of Occupancy. This Plan satisfies these requirements.

I. Definitions

In this Plan, the term MIUs means an apartment home within the 22-unit Development that is subject to restrictions on the maximum household income of prospective or continuing residents and on the maximum rental, sale price, or resale price, as stated in this Plan. The term “Administrator” means the entity charged with the responsibility of administering this plan and ensuring compliance with BZR §6-110. The term “Property Manager” refers to the person in charge of overall residential services at 100 EPA.

II. Entity Responsible for Administration and Compliance Reporting

The Development will be managed by 100 EP LLC, or its successors or assigns. 100 EPA LLC will maintain the common recreational facilities and common open space areas within the development. 100 EPA LLC will be the Administrator of the Plan and will be responsible for compliance with BZR §6-110. Any changes in the name or contact information of the Administrator will be conveyed in writing to the Town of Greenwich or designee.

III. Construction Quality, Phasing, and Bedroom Type for MIUs

A. Quality: Administrator shall not be required to make customer options or upgrades available to the MIUs, and the exterior appearance of the MIUs shall not distinguish them as a class from other units.

B. Phasing: The construction at 100 EPA will occur in several phases. However, the MIUs will be built and offered for rent with the market units.

C. Bedrooms: Within the proposed Development 8 units will have one bedroom and 14 units will have two bedrooms. All comparably sized market-rate and MIUs will be identical in construction quality and features, provided that residents will have the option to select and pay for certain additional amenities. Within each category of unit size, the minimum set aside will be applied. For example, among the 8 one bedroom units, 20 percent or 2 units will be MIUs and among the 14 two bedroom units 20% or 3 units will be MIUs. MIUs will be dispersed throughout the
residential portion of the Development. At the commencement of leasing, the Administrator, as defined herein, will provide the Town of Greenwich with a designation of MIUs. Such designation may change over time as provided in XIV of the Plan, provided that both the overall set aside and the set aside within each category of unit shall be maintained through adherence to the “next available unit” rule.

IV. Notice of Initial Rental of MIUs

Except as provided in Section VIII hereof, 100 EPA shall provide notice of the availability of each MIU. Such notices shall be provided in accordance with the Affirmative Fair Housing Marketing Plan as outline in Section VI. Such notice shall include a description of the available MIU(s), the eligibility of application forms and additional information. All such notices shall comply with the Federal Fair Housing Act, 42 U.S.C. §§3601 et seq. and all state Fair Housing Statutes and regulations (together, the “Fair Housing Acts”).

V. Resident Eligibility

MIUs shall be offered for rent to households whose annual income does not exceed the eligibility requirements of BZR §6-110. Household income must be verified prior to move-in and annually prior to renewal.

VI. Fair Housing Marketing Plan

The rental of MIUs and market-rate units in the Development shall be publicized using State regulations for affirmative fair housing marketing programs as guidelines. The Administrator shall have responsibility for compliance with this section. Notices of initial availability of units shall be provided, at a minimum, by advertising at least two times in a newspaper of general circulation as identified by the Town of Greenwich. The Administrator shall also provide such notices to the local or regional housing authorities as identified by the Town of Greenwich. Such notices shall include a description of the available MIUs, the eligibility criteria for potential renters, the Maximum Price (as hereinafter defined), and the availability of application forms and additional information.

VII. Application Process

A household seeking to occupy one of the MIUs (“Applicant”) must complete an application to determine eligibility. The application form and process shall comply with the Fair Housing Act.

Priority for the MIUs shall be initially as set forth in BZR §6-110.

If the demand for the initial MIUs is likely to exceed the number of available MIUs, the Administrator may hold an open enrollment period, at which point applications will be accepted. Following the open enrollment period, and after consideration of the priorities as set forth in BZR §6-110, the administrator will hold a lottery on a specific date and time to rank and order the list of all applicants for an MIU by bedroom
size. Should the Administrator deem an open enrollment period necessary, it will be advertised according to
the requirements in the Fair Housing Marketing Plan. If there are more applicants than MIUs, the names and
household information will be maintained on a waiting list by bedroom size. If the Administrator does not
believe that demand will exceed the number of affordable apartments, applications will be accepted after
consideration of the priorities set forth in BZR §6-110 on a first come, first serve basis, and the affordable
apartments will be offered to the first qualified applicant households.

A. Affordable Housing Questionnaire: If an open enrollment and lottery process is not held, all
applicants must first complete an initial questionnaire, provided by the Administrator, which asks for basic
household information and self-reported household income amount. Where it is evident that the Applicant is
not eligible, additional verifications procedures shall not be necessary. However, if the Applicant appears to be
eligible, the Administrator shall ask the applicant to complete a full application and issue a pre-certification
letter when an apartment is available. The letter shall indicate to the Applicant and the Developer, 100 EPA, or
its designee, that the Applicant is income eligible, subject to the verification of the information provided in the
Application. The letter will notify the Applicant that he/she will have up to 7 days to submit all required
documentation, as allowed by the Applicant’s scheduled occupancy date.

B. Application Form: The application form shall be provided by the Administrator to all pre-
approved applicants or to all applicants in the open enrollment process, if applicable. In general, income for
purposes of determining an Applicant’s qualification shall include the Applicant family’s total anticipated
income from all sources for the period set forth in BZR §6-110. In determining what is and is not to be
included in the definition of family annual income, the Administrator shall use the criteria set forth in BZR §6-
110.

C. Applicant Interview: The Administrator shall interview an Applicant upon submission of the
completed application. Specifically, the Administrator shall, during the interview, undertake the following:

1. Review with the Applicant all the information provided on the application.

2. Explain to the Applicant the requirements for eligibility, verification procedures, and the penalties
for supplying false information. If applicable, the Applicant shall provide the documentation
listed on Schedule B, attached, to the Administrator. This list is not exclusive, and the
Administrator may require any other verification or documentation, as the Administrator deems
necessary.

3. Verify that all sources of family income and family assets have been listed in the application.
4. Request the Applicant to sign the necessary release forms to be used in verifying income with a third party if necessary. Inform the Applicant of what verification and documentation must be provided before the application is deemed complete.

5. Inform the Applicant that a certified decision as to eligibility cannot be made until all items on the application have been verified.

6. Review with the Applicant the process and restrictions regarding re-rental.

VIII. Prioritization of Applicants in Leasing
Priority of eligible MIU households shall be selected based on the categories set forth in BZR §6-110.

IX. Minimum Lease Term
All leases for affordable housing units shall be for a minimum of one year.

X. Monthly Payment
Calculation of the maximum monthly payment for an MIU shall comply with BZR §6-110.

XI. No Subletting of MIUs
Subletting of the MIUs shall be prohibited. In addition, an MIU shall be the principal residence of the resident.

XII. Restriction in Perpetuity
A deed restriction in keeping with BZR §6-110 shall be filed on the Greenwich Land Records.

XIII. Renewal Process
1. A recertification notice is sent to the residents starting 90 days prior to the Lease Expiration Date. This initial notice requests an “in-person meeting” with the resident so that the Administrator can review supporting documents to verify that the household annual incomes does not exceed the maximum income limit. This notification explicitly states that the resident’s rent may increase to market rent upon renewal if the household no longer qualifies based on the requirements for the compliance program or if the resident fails to respond in a timely manner.

2. Second renewal notices are sent at 60 days prior to Lease Expiration Date if the resident fails to fully respond to earlier recertification requests. Second renewal notices explicitly state that MIU benefits may be jeopardized in cases of non-response.

3. Upon completion of the recertification, the resident must sign the household income verification form. If the resident household re-qualifies for an MIU, the resident is
offered a new 12 month lease to sign. If the resident household does not still qualify for the MIU, they are no longer eligible and will have the option of either paying market rent at the end of their lease term or vacating the unit.

4. If the resident household fails to provide required documents for income recertification they are no longer eligible and will have the option of either paying market rent at the end of their lease term or vacating the unit.

5. If an MIU is changed to a market rate apartment, the owner will designate the next available comparable market apartment as an MIU.

XIV. Change of Income or Qualifying Status

If an MIU’s resident’s income changes so as to exceed the qualifying maximum at the time of recertification, such resident, shall have the option to vacate the unit within the shorter of 90 days or at the end of the lease term, or to remain in the unit on a month to month basis paying a market-rate.

XV. Compliance Reporting

No later than January 31 of each year, beginning the year after the initial occupancy of the last MIU to be rented, the Property Manager shall prepare and file with the Town of Greenwich or its designee a report, containing a list of the units utilized as MIUs, a list of the incomes of MIU residents, and a certification by the Property Manager of compliance with the regulations applicable to the MIUs. The Town of Greenwich or its designee shall review the information and certify that the project is in compliance. A violation of the regulations shall not result in a forfeiture or reversion of title, but in enforcing these regulations the Town of Greenwich shall retain and may exercise all enforcement powers granted by the BZR, which powers include the authority, at any reasonable time, to inspect the property and to examine the books and records of the Property Manager to determine compliance of the development or individual units with BZR §6-110.

SCHEDULE A

DEFINITIONS AND ELEMENTS OF ANNUAL FAMILY INCOME

1. Annual Income shall be calculated pursuant to BZR §6-110.
SCHEDULE B

DOCUMENTATION OF INCOME

The following documents shall be provided, where applicable, to the Administrator to determine income eligibility:

A. Employment Income

Verification forms must request the employer to specify the frequency and amount of pay. Acceptable forms of verification (of which at least one must be included in the Applicant file include):

1) An employment verification from completed by the employer.
2) Check stubs or earnings statement showing Applicant’s gross pay per pay period and frequency of pay.
3) W-2 forms if the Applicant has had the same job for at least 2 years and pay increase can be accurate projected.
4) Notarized statements, affidavits or income tax returns signed by the Applicant describing self-employment and amount of income, or income from tips and other gratuities.

B. Social Security, Pensions, Supplementary Security Income, Disability Income

1) Benefit verification form completed by agency providing the benefits.
2) Award or benefit notification letters prepared and signed by the authorizing agency. (Since checks or band deposit slips show only net amounts remaining after deducting SSI or Medicare, they may be used only when aware letter cannot be obtained.)

C. Unemployment Compensation

1) Verification form completed by the unemployment compensating agency.
2) Records from unemployment office stating payment dates and amounts.
D. Government Assistance

1) All Government Assistance Programs. Agency’s written statements as to type and amount of assistance Applicant is now receiving, and any changes in assistance expected during the next 12 months.

2) Additional Information for “As-Paid” Programs: Agency’s written schedules or statement that describes how the “as-paid” system works, the maximum amount the Applicant may receive for shelter and utilities and, if applicable, any factors used to ratably reduce an Applicant’s grant.

E. Alimony or Child Support Programs

1) Copy of a separation or settlement agreement or a divorce decree stating amount and type of support and payment schedules.

2) A letter from the person paying the support.

3) Copy of latest check. The date, amount, and number of the check must be documented.

4) Applicant’s notarized statement or affidavit of amount received or that support payments are not being received and the likelihood of support payments being received in the future.

F. Net Income from A Business

The following documents show income for the prior years. The Administrator must consult with Applicant and use this date to estimate for the next 12 months.

   i. IRS Tax Return, Form 1040, including any:
      a. Schedule C (Small Business);
      b. Schedule E (Rental Property Income); and
      c. Schedule F (Farm Income)

   ii. An accountant’s calculation of depreciation expense, computed using straight-line depreciation rules. (Required when accelerated depreciation was used on the tax return or financial statement).

   iii. Audited or unaudited financial statement(s) of the business.

   iv. A copy of a recent loan applicant listing income derived from the business during the previous 12 months.
      a. Applicant’s notarized statement or affidavit as to net income realized from the business during previous years.

G. Recurring Gifts

1) Notarized statement or affidavit signed by the person providing the assistance. Must give the purpose, dates, and values of gifts.

2) Applicant’s notarized statement or affidavit that provides the information above.
H. Scholarships, Grants, And Veterans Administration Benefits for Education

1) Benefactor’s written confirmation of amount of assistance, and educational institution’s written confirmation of expected cost of the student’s tuition, fees, books, and equipment for the next 12 months. To the extent the amount of assistance received is less than or equal to actual educational costs, the assistance payments will be excluded from the Applicant’s gross income. Any excess will be included in income.

2) Copies of latest benefit checks, if benefits are paid directly to student. Copies of canceled checks or receipts for tuition, fees, books, and equipment, if such income and expenses are not expected to change for the next 12 months.

3) Lease and receipts or bills for rent and utility costs paid by students living away from home.

I. Family Assets Currently Held

For non-liquid assets, collect enough information to determine the current cash value (i.e. the net amount the applicant would receive if the asset was converted to cash).

1) Verification forms, letters, or documents from a financial institution, broker, etc.

2) Passbooks, checking account statements, certificates of deposit, bonds, or financial statements completed by a financial institution or broker.

3) Quotes from a stock broker or realty agent as to net amount Applicant would receive if Applicant liquidated securities or real estate.

4) Real estate tax statements if tax authority uses approximate market value.

5) Copies of closing documents showing the selling price, the distribution of the sales proceeds and the net amount to the borrower.

6) Appraisals of personal property held as an investment.

7) Applicant’s notarized statements or signed affidavits describing assets or verifying the amount of cash held at the Applicant’s home or in safe deposit boxes.

J. Assets Disposed of for Less Than Fair Market Value (FMV) During Two Years Preceding Application Date

1) Applicant’s certification as to whether it has disposed of assets for less than FMV during the two years preceding the Application Date.

2) If the Applicant states that it did dispose of assets for less than FMV, then a written statement by the Applicant must be include the following:
   a. A list of all assets disposed of for less than FMV;
   b. The date Applicant disposed of the assets’
   c. The amount of the Applicant received; and
   d. The market value to the asset(s) at the time of disposition.

K. Savings Account Interest Income and Dividends

1) Account statements, passbooks, certificates of deposit, etc., if they show enough information and are signed by the financial institution.
2) Broker’s quarterly statements showing value of stocks or bonds and the earnings credited the Applicant.
3) If an IRS form 1099 is accepted from the financial institution for prior year earnings, the Administrator must adjust the information to project earnings expected for the next 12 months.

L. Rental Income from Property Owned by Applicant

The following, adjusted for changes expected during the next 12 months, may be used:

1) IRS Form 1040 with Schedule E (Rental Income).
2) Copies of latest rent checks, leases, or utility bills.
3) Documentations of Applicant’s income and expenses in renting the property (tax statements, insurance premiums, receipts for reasonable maintenance and utilities, bank statements or amortization schedule showing monthly interest expense).
4) Lessee’s written statement identifying monthly payments due the Applicant and Applicant’s affidavits as to net income realized.

M. Full-Time Student Status

1) Written verification from the register’s office or appropriate school official.
2) School records indicating enrollment for sufficient number of credits to be considered a full-time student by the school.
SCHEDULE C
INITIAL MODERATE INCOME UNIT DESIGNATION

(Place Holder)
100 East Putnam Avenue

EXAMPLE RIDER TO THE LEASE AGREEMENT
FOR MODERATE INCOME HOUSING UNITS

I. TERMS & PROVISIONS:
The annexed Lease Agreement for an Moderate Income Dwelling Unit (“MIU”) is for a term of at least (1) year. This apartment is being rented as an MIU as defined in the Greenwich Building Zone Regulations §6-110 in effect on November 4, 2020 (“BZR §6-110).

This development has been approved by the Town of Greenwich in part on the condition that a defined percentage of apartment homes will be rented as an MIU. The owner is required by law to strictly enforce these restrictions.

II. INCOME LIMITS:
MIUs are reserved for those households with an annual income which does not exceed the maximum amount set forth in BZR §6-110.

III. MAXIMUM RENTS:
Notwithstanding anything in the Lease Agreement to the contrary, the total rent for the MIUs shall not exceed the “Maximum Rent”, as calculated in the manner prescribed by BZR §6-110.

IV. UTILITY ALLOWANCE:
The monthly rent for an MIU includes a monthly allowance for utilities, which are heating, water, electricity, sewer but excluding telephone and cable television. Heat and utility costs are calculated by a reasonable estimate.

V. CERTIFICATION OF INCOME:
Prospective residents will be required to fill out an application and provide the Administrator with appropriate documentation to verify their household income. This includes but is not limited to a copy of his or her most recently filed Federal Income Tax Return (Form 1040 or 1040A), pay stubs, etc.

The resident must certify that such proof is true and accurate and that the total annual income of all members of the Resident’s family who will occupy the apartment subject to this lease does not exceed the income requirements set forth in BZR §6-110. Applicants will be required to sign a
verification of their review and understanding of the income maximums, the penalties for false information, and the applicable procedures in the event that their income increases at some future time above the allowable maximum.

This Agreement shall terminate and the Resident may be evicted for the failure to qualify, if the Resident has falsely certified family income or family composition. Such false certification constitutes material noncompliance under the Lease Agreement. Resident is obligated to provide such subsequent re-certification of income, as the Landlord shall require. The Town of Greenwich will be entitled to inspect the income statements of the residents of the MIUs upon which the Landlord bases the certification.

VI. **LANDLORD’S RIGHT TO INCREASE RENT:**
The rent for each MIU will be adjusted annually at the time of lease renewal in accordance with the maximum allowable rents at the time of renewal.

VII. **LANDLORD’S RIGHT TO REASSIGN PREMISES:**
Whereas the monthly rent for this apartment is calculated based on the size of the apartment home, the Resident(s) may, during the term of the Lease, be reassigned to different premises if an increase or decrease in the number of the Resident’s family members residing in the apartment home warrants such a change under applicable statutes and regulations. In the event of such reassignment, Resident’s monthly rent shall be based upon the size of the apartment occupied and the Resident(s) must still qualify by the set income requirements, for the remaining Lease and Rider term.

VIII. **NO SUBLETTING OR ASSIGNMENT:**
Subletting of MIUs shall be prohibited. In addition, the affordable unit shall be occupied only as the resident’s principal residence.

IX. **RESTRICTIONS ON USE:**
No portion of the residence may at any time during the term of this Agreement be used on a transient basis, for example, as a hotel, motel, dormitory, fraternity house, sorority house, rooming house, hospital, nursing home, sanitarium, or rest home.

X. **ACCESS TO COMMON FACILITIES:**
Residents shall be given equal access with all other Residents, at an equal charge if any, to all on-site and all off-site common facilities of 100 EPA. The Landlord shall ensure that handicapped or disabled individuals are afforded equal access to all facilities of 100 EPA.

XI. **REQUIRED AND OPTIONAL SERVICES:**
In all apartments at 100 EPA, residents have the option to pay additional amounts for certain services, as specified in the Standard Lease. In the MIUs, the monthly rents for the MIUs include the cost of rent and utility allowances for such utilities as heating, electricity, water, and sewer. All other services and optional premiums (including, but not limited to, pet charges, designated parking spaces and furniture charges) are not included in the monthly payment.

XII. **INTERPRETATION:**
Unless otherwise indicated, the terms used herein shall have the same meanings ascribed to them in the main body of this Lease Agreement. This rider shall control any conflict between terms herein and the Lease Agreement.

XIII. RECERTIFICATION OF INCOME:
Resident(s) of the MIUs will be required to recertify their income on an annual basis at the time of the lease renewal. Income verification also requires submission of most recent tax returns and other household income documentation.

If an affordable Resident’s income changes to exceed the qualifying maximum income, the resident(s) will no longer qualify for the program. The manager will provide the Resident(s) with notice of what the market rent for that apartment home will be. This market rent would be in effect immediately upon the expiration of the current lease. Should the Resident(s) choose to stay in the apartment home and pay market rent, they must reapply and be approved at the new rate. If the Resident either fails to qualify at the new market rate, the Lease Agreement and Rider shall terminate and the Resident(s) may be evicted for failure to execute a new Lease or to qualify at the new market rate. If the Resident(s) chooses to vacate the apartment home, a 30-day written notice to vacate must be provided.

This Lease Agreement and Rider shall terminate and the Resident(s) may be evicted for failure to qualify, if the Resident has falsely certified family income or family composition, or if the Resident no longer uses the unit as his or her primary residence. Such false certification constitutes material noncompliance under the Lease Agreement and Rider.

At any time if one of the families occupying these units vacates voluntarily or otherwise, this unit will be kept vacant until another qualified family is found.

IN WITNESS WHEREOF, the parties hereto have executed this Rider to the Lease Agreement on the _________ day of __________, 20__.
<table>
<thead>
<tr>
<th>RESIDENT(S):</th>
<th></th>
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I. **Sign/Awning Reviews:**

1. **Chicque, 151 Greenwich Avenue;** Application PLPZ202000169 for Sign/Awning review of *awning signage* on a property located at 151 Greenwich Avenue in the CGBR zone.

   **Decision Status:** Electronic Resubmittal  
   **(email:** Marisa.Anastasio@greenwichct.org and Jacalyn.Pruitt@greenwichct.org **)  
   **Motion:** Hein  
   **Second:** Cohen  
   **Vote:** 4-0 (Hein, Brake-Smith, Cohen, Pugliese)

   **The applicant must:**
   
i. Keep the “unit” of text as it is but drop the unit lower, so it is centered between the angular portion of the awning.

2. **Sweetgreen, 102 Greenwich Avenue;** Application PLPZ202000116 and PLPZ202000126 for Sign/Awning and Exterior Alteration review of *proposed new louvers in brick façade, mechanical units, new facade sign and new awnings with signage* on a property located at 102 Greenwich Avenue in the CGBR zone.

   **Decision Status:** Approved as Submitted  
   **Motion:** Hein  
   **Second:** Pugliese  
   **Vote:** 4-0 (Hein, Brake-Smith, Cohen, Pugliese)
3. **Boll and Branch, 169 Greenwich Avenue;** Application PLPZ202000167 for Sign/Awning review of *façade signage* on a property located at 169 Greenwich Avenue in the CGBR zone.

*Decision Status:* **Approved as Submitted**

*Motion:* Hein  
*Second:* Cohen  
*Vote:* 4-0 (Hein, Brake-Smith, Cohen, Pugliese)

---

II. **Exterior Alteration Applications:**

1. **Round Hill Volunteer Fire Company, 166 Old Mill;** Application PLPZ202000170 for an Exterior Alteration review for construction of an addition on the West side of the firehouse and replacement of asphalt with *landscaping* on a property located at 166 Old Mill Road in the RA-4 zone.

*Decision Status:* **Positive recommendation to Planning and Zoning with a return to ARC to review only the following “Notes of the Motion”**  

*Motion:* Hein  
*Second:* Contadino  
*Vote:* Unanimous 7-0 (Hein, Brake-Smith, Cohen, Pugliese, Contadino, Krueger, Meniconi) Cohen and Bolte abstain.

*Notes of the Motion:*

- i. The roofline will be revised to a gambrel roof;  
- ii. Plans need to be revised to show the left side gambrel to be cantilevered equally over the left elevation and the front elevation;  
- iii. Would a front porch work to cover both doors? Or some other way to tie the doors together?  
- iv. The two doors are unwelcoming, and doors around the structure should have a hierarchy;  
- v. Windows should have a rhythm and hierarchy;  
- vi. Color of the doors should be evaluated. White is not recommended. Maybe red to blend in, as a typical barn door?  
- vii. To revisit the parking layout regarding the parking spot that blocks/hinders the pedestrian entrance.

2. **Innis Arden, 120 Tomac Avenue;** Application PLPZ202000084 for an Exterior Alteration for a new clubhouse on the East side of Tomac Avenue with revised landscaping and lighting and construction of a new warming hut and paddle tennis platforms on the West side of Tomac Ave, on a property located at 120 Tomac Avenue in the R-12 zone. *Last reviewed at 5-6-2020 meeting at which members Boldt, Brake-Smith, Cohen, Conte, Krueger, Meniconi, Pugliese were present.*

*Decision Status:* **Positive recommendation to Planning and Zoning with electronic return to ARC to review the planting plan and site plan as noted in**
the following “Notes of the Motion” (For Electronic Return (email: Marisa.Anastasio@greenwichct.org)

*Motion*: Hein  
*Second*: Conte  
*Vote*: Unanimous 8-0 (Hein, Brake-Smith, Cohen, Pugliese, Contadino, Krueger, Meniconi, Cohen)

**Notes of the Motion:**

i. The ARC sees this area as a campus and the landscaping needs a unifying look for this “campus”;  
ii. Applicant to provide a comprehensive existing and proposed planting plan that is cohesive;  
iii. The applicant must confirm compliance with Sections 6-180 through 6-182 of the Town’s Building Zone Regulations (BZR);  
iv. Revisit curb cut location and walkway paths to receive a closer look on both sides of Tomac Ave. Desire to increase shading and greening throughout Greenwich;  
v. Cornus kousa dogwood should be used in place of the dogwood currently proposed;  
vi. Maintain the Privet hedge throughout the campus and stacked stone walls;  
vii. Landscaped stone walls and architectural stone on structures should all relate to each other;  
viii. Concern for tree replacement ratio for P&Z to review;  
ix. Expect exterior lighting for courts and such to respect cut-off times;  
x. Show number and location of bollards to be installed between the Clubhouse and Tomac Ave.;  
xi. Dormers on rear elevation could be resolved more elegantly;  
   a. Revise to show lowered and recessed a bit would help here;  
   b. Could they be symmetrical?  
=xii. Revise the landscaping plans to show vegetation along street and in parking lot relating to each other resulting in a campus feel;  
xiii. Use lower plantings along the crosswalk and parking entrance/exit;  
xiv. The main crosswalk has an awkward path of travel and it may meander too much as currently designed. ARC believes the end user may not respect the path, and make their own path.

3. **Greenwich Cardinal Stadium – Greenwich High School, 10 Hillside Road**;  
Application: PLPZ202000128 for Exterior Alteration review for replacement of home side bleachers with new press box, new 1 story building for home team room, storage, concession, public restroom, 1 story ticket booth/kiosk, new parking area with handicapped parking spaces, replacement of field light fixtures on existing poles, related site development, site lighting, utilities, and
storm drainage improvements on a property located at 10 Hillside Road in the RA-1 and R-20 zone. Last reviewed at 6-3-2020 meeting at which members Hein, LoBalbo; Boldt; Brake-Smith; Cohen; Contadino; Conte; Krueger; Meniconi; Pugliese were present.

Postponed by Applicant

4. 100 East Putnam LLC, 100 East Putnam Avenue; Application PLPZ202000101 for Exterior Alteration review for demolition of existing bank building and construction of new structure with retail/bank on first floor and 22 residential units under 6-110 on second and third floors on a property located at 100 East Putnam Avenue in Cos Cob in the LBR-2 zone. The application was last reviewed at the 5-27-2020 meeting at which members Hein; LoBalbo; Boldt; Brake-Smith; Cohen; Conte; Krueger; Meniconi; Pugliese were present.

Decision Status: Recommendation to proceed to Planning and Zoning as noted in the following “Notes of the Motion” (For Electronic Return (email: Marisa.Anastasio@greenwichct.org)

Motion: Hein Second: Meniconi

Vote: Unanimous 8-0 (Hein, Brake-Smith, Cohen, Pugliese, Contadino, Krueger, Meniconi, Cohen)

Notes of the Motion:

i. The Chairman noted at the beginning of the motion that the Committee’s comments on the tree ridge would go on record:
   1. Building’s proposed placement is taking away a “green spine” in town that cannot be regained;
      a. Could the placement of the building be revised to save this unique and connected greenscape?
      b. POCD Greenscape finding: Indigenous vegetation outcrops are important;
      c. POCD Greenscape finding: Preservation of greenscape vs. parking requirement numbers. Can the existing building be raised and therefore moved toward Taylor Lane while preserving parking and the spine of trees?”
      d. Is there any way to save all or some of the ridge?

ii. Proposed residential entry is not fully developed and needs clarification of the architecture. Windows are too high and lights too low. Does not show an arrival. Is it handicap accessible? Walkability and accessibility in this area are very important and need refinement;

iii. Consider adding white band, cornice or other architectural element at the top
of the 2\textsuperscript{nd} floor, but not necessarily adding a parapet;
iv. Roofscape needs a lower ridge applied to building parallel to Putnam Ave. with a dropped ridge and dormers, so it does not seem like a 4\textsuperscript{th} story;
v. Try to develop a stronger definition of architectural relief in the long elevations – East and West elevations – not just by changing brick pattern or skin;
vi. The proportion of the windows needs updated – they are not symmetrical to themselves or to the façade;

vii. Complexity of the roof and façade is commendable. Please add more of it;
viii. Architecture needs to be revised to further arrival, walkability, and exits-this specifically needs review at the egress on East Putnam Avenue;
ix. Significant greenscape and natural features are valued by ARC;
x. Confirm compliance with Sections 6-180 through 6-182 of the Town’s BZR, specifically Type E plantings for parking areas;

III. Committee Business:
1. Review of Minutes of 5-27, 6-1, and 6-3-2020 meetings.
   i. Approved 6/1 and 6/3 meeting notes
   ii. Motion by Hein Second by Brake-Smith (unanimous)
2. Any other Business.

The Town complies with all applicable federal and state laws regarding non-discrimination, equal opportunity, affirmative action, and providing reasonable accommodations for persons with disabilities. If you require an accommodation to participate, please contact the Commissioner of Human Services at 203-622-3800 or alan.barry@greenwichct.org as soon as possible in advance of the event.
Dr. Greg Kramer sees value in the following trees at 100 East Putnam Ave.:

**Tree No.:**
2 = 8” N. Maple  
3 = 10” S. Maple  
6 = 8” S. Maple  
7 = 28” N. Maple  
9 = 6” N. Maple  
11 = 11” N. Maple  
12 = 11” N. Maple  
13 = 18” N. Maple  
14 = 12” N. Maple  
16 = 12” N. Maple  
18 = 11” N. Maple  
20 = 19” N. Maple  
21 = 19” N. Maple  
24 = 10” N. Maple  
26 = 6” N. Maple  
27 = 5” N. Maple  
28 = 6” N. Maple  
30 = 7” N. Maple  
31 = 6” N. Maple  
33 = 11” N. Maple  
34 = 7” N. Maple  
36 = 12” N. Maple  
38 = 21” Red Oak  
40 = 9” N. Maple  
41 = 18” Red Oak  
42 = 9” N. Maple  
44 = 7” N. Maple  
45 = 7” American Elm  
49 = 8” Eastern White Pine  
50 = 17” B. Locust

This equates to the following loss of tree caliper in Greenwich, by trees that Greg feels would be better saved than removed, if at all possible:

- 18” Sugar Maple
- 250” Norway Maple
- 39” Red Oak
- 7” American Elm
- 8” Eastern White Pine
- 17” Black Locust

Attached are the three files Carolyn Matthews, ISA Certified Arborist at William Kenny Associates LLC, send to us to review and the above assessment is based off of:

1. An existing tree assessment showing existing site conditions.
2. An existing tree assessment showing proposed site conditions.
3. A letter with tree and planting recommendations.

Greg and I discussed that some of the trees that are seen to add value to Town are within the footprint of the proposed building, so we both understand it is unlikely for them to be saved on this project. But there are many on the western and northern property line that we both feel can be saved with the proper measures of construction, and not simply clear-cut.

Jacalyn Pruitt, Planner II
Town of Greenwich Planning & Zoning
101 Field Point Road
Greenwich, CT 06830
Ph. 203-622-7894
Jacalyn.Pruitt@greenwichct.org
August 28, 2020

Dr. Gregory Kramer  
Superintendent of Parks & Trees  
Tree Warden  
101 Field Point Road  
Greenwich, CT 06830

Re: Tree Impact Assessment  
100 East Putnam Avenue, Cos Cob, CT

Dear Dr. Kramer:

At the request of P&Z, we met at the referenced property on August 6, 2020 to review the trees along the western ridge in relation to proposed lot redevelopment activity. Based on our visit, we have updated our initial tree assessment, conducted on April 10, 2020, and provided additional detail regarding site conditions, tree health, condition and risk and recommendations to support ecological conservation goals. In summary, based on proposed development activities, we recommend the trees along the western property boundary be removed. Approximately half of these are recommended for removal based on existing health, condition and/or risk (with no consideration for proposed impacts) and ten of these trees are considered priority removal trees due their elevated risk level. We further recommend modifying the proposed planting plan to provide additional habitat value.

Methodology

Trees with a diameter at breast height greater than or equal to 6 inches were assessed in the western portion of the property. Two types of tree assessments were completed – a Health and Condition Assessment and a Risk Assessment. Assessments were performed by International Society of Arboriculture (ISA) Certified Arborists holding the Tree Risk Assessment Qualification (TRAQ) credential.

A Condition Assessment was performed consistent within the standards of the “Council of Tree and Landscape Appraiser’s Guide for Plant Appraisal”. Condition indicates the current state of a tree’s health and soundness and is determined through a visual evaluation of the roots, trunk, and scaffold branches, as well as branches,
twigs, foliage and buds. The overall health of any given tree is the sum of the condition for all of these woody and vegetative components. The Council’s condition rating system returns a numerical value (1-4) that can then be adapted to “Dead”, “Poor”, “Fair”, and “Good”.

A Risk Assessment was performed in accordance with the Level 2 tree risk assessment (ANSI A300-Part 9) standards. The assessment includes a 360-degree ground-based visual inspection of the crown, trunk, trunk flare, above ground roots, and site conditions around the tree in relation to targets. Each tree is assigned a qualitative risk rating of “Low”, “Moderate”, “High” or “Extreme” using the risk categorization matrices found in the International Society of Arboriculture Best Management Practices: Tree Risk Assessment (Smiley, Matheny, and Lilly 2017). Various and multiple failure scenarios helped determine the tree’s risk rating. The tree defect (i.e., branch, whole tree, codominant stem) with the greatest risk served as the overall tree risk rating. Refer to “Assumptions/Limitations” below for limitations of the tree risk assessment.

**Existing Conditions**

Fifty trees were assessed on the property. The majority of trees are on a steep rock-ledge slope on the western side of the property that has been historically disturbed for development. Invasive Norway maple trees dominate this slope (42 of the 50 trees). In addition to the invasive trees, the understory of the slope is dominated by extensive invasive vegetation such as multiflora rose, forsythia, oriental bittersweet, porcelain berry, English ivy, mugwort and garlic mustard. Based on a health and condition assessment, 31 of the 50 assessed trees are in poor health and condition. Nineteen trees are in fair health and condition. Of the poor trees, 11 were rated as moderate-risk trees and 6 were rated as high-risk trees. The trees are generally rated as poor or fair, resulting from observed defects such as poor structure, suppression (from vines or other trees), stress and decay in trunks. Along the slope, there is a relatively very limited rooting area due to the rock ledge, which is the likely cause for many of the observed defects. Torsion cracks are present on many trees, indicating the trees are stressed from the shallow rooting zone and steepness of the slope, and create a weak point in the trees. Some of these trees show further signs of basal and/or trunk decay (as observed through sounding and visual observation) in conjunction with the torsion cracks or other exposed wounds. Additionally, invasive English ivy vines are dense at the base of most trees. In some cases, the vines extend the length of tree trunks and are in the tree canopy, further suppressing the trees. The ivy also limits the extent of the visual assessment (i.e. decay in trunks may be hard to detect during a Level 2 risk assessment).

The shallow rooting area, when considered with present tree conditions and continued growth over time, will serve to increase the associated risk ratings as the likelihood of failure and impact to targets will increase as the size, weight and length of the trunk and limbs increase. As such, 28 trees are recommended for removal based on their existing health, condition and/or risk alone, regardless of any potential redevelopment activities.
Ten of these trees are considered priority trees for removal due to their risk and proximity to potential targets.

**Proposed Conditions**

Based on the proposed property redevelopment plans, all trees (including the aforementioned 28 trees) along the western boundary are recommended for removal. The proposed building is within ten feet of the property boundary. Many of the trees are within the footprint of the proposed building and trees to the west of the building will be removed or significantly impacted during construction activity. The retaining wall installation, despite the building location, will ultimately affect all the trees on the ridge in terms of structural stability and long-term success.

The proposed project includes a planting plan to reestablish vegetation along the western property boundary. A planting bed will extend along the western property boundary, which will provide more suitable conditions for root establishment and, resultingly, provide support for overall long-term success of the new trees. While the plan is responsive to Conservation’s request for additional greenspace, we recommend the following changes to further support conservation goals:

1. Only plant native vegetation. Remove the columnar Norway maples from the plan.
2. Include additional native shrub and groundcover plants to create a native understory. This will help control the invasive vegetation and limit potential reemergence in the proposed planting areas.
3. Select native plants with various bloom periods throughout the growing season to add habitat value for insects and wildlife.

The existing rock slope will continue to impact the health, condition and risk of the invasive trees that occupy this slope. The proposed redevelopment plan offers an opportunity to mitigate the risk from the continuing long-term decline of the trees, remove and control the existing invasive vegetation and provide additional habitat value through a planting plan which incorporates our recommendations.

**Assumptions/Limitations**

Data provided by WKA are based on observations made at the time of inspection and considers only known targets and visible/detectable conditions of the tree and site consistent with a Level 2 assessment per ANSI A300 (Part 9) standards, the ISA Best Management Practices (Tree Risk Assessment). This level of assessment is consistent with the client solicitation. WKA is not responsible for discovery or identification of hidden or otherwise non-observable hazards. Observations do not include individual testing or analysis and do not include aerial or sub-soil inspection. Any reference to time frame is not a guarantee for tree stability. Records may not remain accurate after inspection due to variable deterioration of the inventoried material. Extreme weather or
unforeseeable events may cause tree failure. WKA provides no warranty with respect to the fitness of the tree for any use or purpose whatsoever.

**Conclusions**

We conducted a tree inventory and condition and risk assessment at 100 East Putnam Avenue in Cos Cob, Connecticut. Based on proposed site plans, we recommend removing the trees along the western property boundary. Due to the existing rock slope, the existing invasive trees will continue to decline over time. Approximately half of these are recommended for removal based on existing condition and/or risk (with no consideration for proposed impacts) and ten of these trees are considered priority removal trees due their elevated risk level. If you should have any questions or comments, please do not hesitate to contact us.

Sincerely,

Carolyn Matthews
ESA Certified Ecologist
ISA Certified Arborist, NE-6822A
Tree Risk Assessment Qualified

Allan Fenner
ASCA Consulting Arborist
ISA, TRAQ, NE-6503-A
CT S-4894-A

Ref. No. 4480
Town of Greenwich
Planning & Zoning Department
Town Hall – 101 Field Point Road, Greenwich, CT 06830
Phone: (203)622-7894 – Fax: (203)622-3795

SITE PLAN APPLICATION

□ PRELIMINARY  ■ FINAL

Project Name: 100 East Putnam Avenue Cos Cob
Project Address: 100 East Putnam Avenue Cos Cob
Property Owner(s): 100 East Putnam, LLC
Tax Account Number(s): 08-2821/S Zone(s): LBR-2 Lot Area: 33,077 sq ft

Please select all relevant items below:
□ Special Permit – Complete special permit application form
□ Coastal Overlay Zone
□ Property is within 500 feet of a Municipal Boundary of __________________________ (for notification)
□ Amendment to Building Zone Regulations – Section(s) ____________________________
□ Amendment to Building Zone Map – Zone(s) affected ____________________________
□ Health Department review needed
□ Sewer Department review needed
□ Architectural Review Committee Application attached or Review needed
□ Planning & Zoning Board of Appeals review needed
□ Inland Wetlands and Watercourses Agency Review / Approval Required

AUTHORIZED AGENT

Name: W.I. Haslun II
Street Address: 21 Sherwood Place
Phone: 203-983-6750
Signature: William I Haslun II

Firm name: Johnson Haslun & Hogeman LLP
City: Greenwich St: CT Zip: 06830
Email: chaslun@jh-law.com
Date: 11/19/20

PROPERTY OWNER(S) AUTHORIZATION

Name: 100 East Putnam, LLC
Street Address: 44 Amegerone Crossway #7887
Phone: 203-496-0716
Signature: [Signature Attached]

City: Greenwich ST: CT Zip: 06831
Email: atoth@atmgmtlcc.com

To be completed by P&Z staff only:
Check #: Check Amount: $________________________
Application #: _______________________________ PZ Site Plan App 2018
# SITE PLAN ZONING STATISTICS

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This Site Plan Involves:

- ☐ ADDITIONS
- ☐ ALTERATIONS
- ☐ DEMOLITION
- ☐ RE-CONSTRUCTION

PZSitePlan App 2018
SPECIAL PERMIT APPLICATION

Project Name: 100 East Putnam Avenue
Project Address: 100 East Putnam Avenue, Cos Cob
Property Owner(s): 100 East Putnam, LLC
Tax Account Numbers (s): 08-2821/S Zone(s): LBR-2 Lot Area: 33,077 sq ft

PLEASE SELECT ALL RELEVANT ITEMS BELOW:

✔ Section 6-17 — Special Permit standards and procedure
✔ Section 6-30 — Conservation Zone special provisions
✔ Section 6-94(b) — Non-residential Uses and Group Living Facilities permitted in Residential Zones including Resident Medical Professional Office
✔ Section 6-98 — RMF Zone
✔ Section 6-100 — Use Groups for Business Zones
✔ Section 6-101, 107 — Buildings over 40,000 c.f. in Central Greenwich Impact Overlay Zone, Post Road Impact Overlay Zone, WB, LB or LBR Zones; and over 150,000 c.f. in all other zones
✔ Section 6-103.1 — Parking deficient uses in CGBR
✔ Section 6-104 — Parking Structures incl. underground in LB Zone and Height exceptions
✔ Section 6-105, 106 — Front Yard Parking in GB or GBO Zone
✔ Section 6-109, 109.1 — HO & HRO Zones
✗ Section 6-110 — Dwellings under special requirements for Business Zones
✔ Section 6-112 — IND-RE Zone applications
✔ Section 6-113 — In Hospital Zones: certain accessory uses, expansions exceeding 4,000 s.f. or interior alterations or changes of use exceeding 20,000 s.f. (cumulative within 2 years)
✔ Section 6-114 — CCRC (Continuing Care Retirement Community)
✔ Section 6-118.1 — Uses within railroad rights of way
✔ Section 6-123 — Setbacks from Connecticut Turnpike in Business Zones
✔ Section 6-140.1 — Satellite Earth Stations that emit microwaves
✗ Section 6-141 — Changes in non-conforming uses, buildings
✔ Section 6-205 — Historic structures in CBG Zone exceeding FAR And Notes 7, 8 & 9

To be completed by P&Z staff only:
Check # Check Amount: $ 
Application # PZ Special Permit App 2018
Via Electronic Filing and Hand Delivery

Ms. Katie DeLuca
Town Planner
Planning & Zoning Commission
Town of Greenwich
101 Field Point Road
Greenwich, CT 06830

November 24, 2020

Re: Final Site Plan & Special Permit: Moderate Income Development per BZR 6-110
100 East Putnam Avenue, Cos Cob

Dear Katie:

On behalf of our client, 100 East Putnam, LLC, owner property located at 100 East Putnam Avenue, Cos Cob, we are pleased to submit herewith an application for final site plan and special permit approval for a Moderate Income Housing Development of 22 units to be located at 100 East Putnam, Cos Cob. The proposed project previously received preliminary site plan approval and was further reviewed prior to this submission as a pre-application. This application is made pursuant to Section 6-110 of the Building Zone Regulations (commenced prior to the moratorium) and Sections 6-13 through 6-15, 6-17, 6-101 through 6-103, 6-141, 6-155, 6-161, 6-176 et. seq. and 6-205, as amended.

In response to the multiple discussions had with and recommendations received from the Commission and various agencies and town departments since preliminary site plan approval was obtained, and to the comments made in the recent pre-final application review, we have made several changes to the project plans, as set forth in the summaries from Granoff Architects and Mills Engineering attached hereto and incorporated herein.

The proposed redevelopment plan is in keeping with the applicable sections of the Town of Greenwich 2019 Plan of Conservation and Development and the Housing Task Force recommendations of 2011 to increase the diversity of the Town’s housing stock and to mitigate the shortage of dwelling units to meet the housing needs of moderate income households as defined in Section 6-110.

Background:

The subject property is located on the corner of East Putnam Avenue and Taylor Drive in Cos Cob adjacent to CVS and is in the LBR-2 zone, abutting the R-7 zone to the north. The area is a highly developed commercial area located on the bus transit line and close to Cos Cob Railroad Station. The
property is currently improved with a legally non-conforming (first floor bank) single story commercial building.

**Proposal:**

The applicant proposes to build 22 housing units, 20% (5) of which will be restricted to occupancy by moderate income households under the incentives for Moderate Income Housing set forth in Section 6-110, and commercial retail space comprising 3861 square feet with mixed use parking of 49 spaces and 2 handicap spaces.

We believe this proposal conforms to the letter and the spirit of the BZR and the POCD and we look forward to presenting this final application at the next possible meeting of the Commission. In the meantime, if you have any questions or comments please do not hesitate to contact me.

Very truly yours,

W.I. Haslun II
Account Number: 200126412
Total Charges: $53.68
Statement Date: 04/07/20
Service for: 100 E PUTNAM AVE
COS COB CT 06807

Website: www.aquarionwater.com

Meter # | Billing Period | Days | Meter Reading | Reading Type | Usage | Next Billing |
---|---|---|---|---|---|---|
54127706 (1") | 03/10/20 - 04/07/20 | 29 | From / To 96 / 100 | Actual | 4 hundred cubic feet (3 thou. g) | Approximately 05/07/20 |

Outstanding Balance 55.87
Payment Received (03/24/2020), Thank You -55.87
Outstanding Balance 0.00

Current Charges
Basic Service 30.72
Residential Usage Charge 4 ccf @ $4.2340 16.94
** WICA ** 4.26
Water Revenue Adjustment (WRA) 1.61
DPH Safe Drinking Water Fee 0.15
Total Current Charges Due By 05/02/20 53.68

Total Balance $53.68

Any outstanding balance is due immediately and may be subject to a 1.5% late fee or further collection activity.

SPECIAL NOTES

CONTACT US: Mail: CS@aquarionwater.com - Phone: (203) 445-7310 or (800) 732-9678. Call Center hours are weekdays, 8:00 a.m. to 5:30 p.m. Emergency service is available all other hours including weekends and holidays.

DPH SAFE DRINKING WATER FEE:
This fee is an assessment rendered by the State of Connecticut Department of Public Health to support the department’s ability to administer the Federal Safe Drinking Water Act. As of January 1st, 2020, the fee has been reduced to $1.83 per year.

WICA: Effective April 1, 2020, bills will contain a 8.94% Water Infrastructure and Conservation Adjustment (WICA) charge.

WRA: Effective April 1, 2020, bills will contain a 3.37% Water Revenue Adjustment (WRA) charge.

ACCOUNT NUMBER | TOTAL | PAYMENT ENCLOSED |
---|---|---|
200126412 | $53.68 |

Payment Must Be Received By 05/02/2020
Please indicate account number and amount enclosed to ensure prompt credit to your account.

Check here for address or telephone number changes. See reverse side.
Account Number: 200126412
Total Charges: $55.87
Statement Date: 03/09/20
Service for: 100 E PUTNAM AVE
COS COB CT 06807

Website: www.aquarionwater.com

Account Detail

Outstanding Balance 53.53
Payment Received (02/19/2020), Thank You -53.53
Outstanding Balance 0.00

Current Charges
Basic Service 33.90
Residential Usage Charge 4 ccf @ $4.2340 16.94
** WICA ** 3.55
Water Revenue Adjustment (WRA) 1.32
DPH Safe Drinking Water Fee 0.16
Total Current Charges Due By 04/03/20 55.87

Total Balance $55.87

Any outstanding balance is due immediately and may be subject to a 1.5% late fee or further collection activity.

SPECIAL NOTES

CONTACT US: Mail: CS@aquarionwater.com - Phone: (203) 445-7310 or (800) 732-9678. Call Center hours are weekdays, 8:00 a.m. to 5:30 p.m. Emergency service is available all other hours including weekends and holidays.

DPH SAFE DRINKING WATER FEE:
This fee is an assessment rendered by the State of Connecticut Department of Public Health to support the department’s ability to administer the Federal Safe Drinking Water Act. As of January 1st, 2020, the fee has been reduced to $1.83 per year.

WICA: Effective October 1, 2019, bills will contain a 6.99% Water Infrastructure and Conservation Adjustment (WICA) charge.

WRA: Effective April 1, 2019, bills will contain a 2.59% Water Revenue Adjustment (WRA) charge.

Please detach and return this stub with your check payable to Aquarion Water Company. Do not send cash. Thank you!

ACCOUNT NUMBER TOTAL PAYMENT ENCLOSED
200126412 $ 55.87

Payment Must Be Received By 04/03/2020
Please indicate account number and amount enclosed to ensure prompt credit to your account.

Hudson City Savings
Prokarma-MTB 112
P O BOX 2410
OMAHA NE 68103-2410

Aquarion Water Company of CT
PO Box 10010
Leviston NE 04243-9427

Check here for address or telephone number changes. See reverse side.
November 18, 2020

Re: 100 East Putnam Avenue
Greenwich, CT 06807

To Whom It May Concern,

Stantec has been obtained as MEP Engineers for the new construction project located at 100 East Putnam in Greenwich, CT. The project is a new 3-story building consisting of (1) retail level and (2) residential levels. The building will have a total of 4,453 Sq.Ft of retail space and a total of 22 residential apartments.

Based on the residential unit count and square footage of the retail space, please find the below estimated wastewater flow rates calculated per DPH design flow guidelines.

**Domestic Water:**
Residential:
Type of Dwelling Unit – Multifamily
Total 1-Bedroom Apartments – 8
Total 2-Bedroom Apartments – 14
150 Gallons Per Day (GPD) based on DPH design flow guidelines.
Estimated Average Wastewater Flow = 5,400 GPD

Retail:
Total Retail Area – 4,453 Sq.Ft.
0.1 GPD/Sq.Ft. based on DPH design flow guidelines.
Estimated Average Wastewater Flow = 446 GPD

Total Estimated Wastewater Flow = 5,846 GPD

Based on the above calculations, the site will have approximately 5,846 GPD of wastewater flow. Please let Stantec know if the current infrastructure can accommodate the planned water usage and wastewater flow rates.

Sincerely,

**Joseph Merlino**

___________________________________
Joseph Merlino, PE, LEED AP BD+C
Stantec
30 Oak Street Suite 400, Stamford CT 06905-5313
Phone: (203) 328-1894
Fax: (203) 352-1718
joseph.merlino@stantec.com

Stantec Consulting Services Inc.
New Services Inquiry

Thank you for applying to Aquarion Water Company for water service. Please fill in the pertinent information.

Upon submitting this form you will receive an email confirmation and your request will be reviewed.

<table>
<thead>
<tr>
<th>Property Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Street Number</td>
</tr>
<tr>
<td>*Street Name</td>
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<tr>
<td>*City</td>
</tr>
<tr>
<td>*State</td>
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<td>*Zip</td>
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<table>
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<tr>
<th>Requestor's Information</th>
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<tr>
<td>*Requestor's First / Last Name</td>
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<tr>
<td>*Call Back Number</td>
</tr>
<tr>
<td>*Email Address</td>
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<td>(We will never disclose your email address)</td>
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<table>
<thead>
<tr>
<th>*Relationship to Property Owner</th>
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<tbody>
<tr>
<td>Engineer</td>
</tr>
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</table>

<table>
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<tr>
<th>Property Owner's Information</th>
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<tbody>
<tr>
<td>*Property Owner's Name</td>
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<tr>
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</tr>
<tr>
<td>*State</td>
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<td>*Zip</td>
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<tr>
<td>*Phone</td>
</tr>
<tr>
<td>Email</td>
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<tr>
<td>(We will never disclose your email address)</td>
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<table>
<thead>
<tr>
<th>Intended Use Of This Property</th>
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</thead>
<tbody>
<tr>
<td>*(Please check all applicable boxes)</td>
</tr>
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</table>

Residential
Inquiry for Water Service Form

What Are Your Needs?

*(Please check all applicable boxes)*
- Domestic Water Supply to Building
- Lawn Irrigation
- Fire Service / Sprinkler
- Hydrant
- Other

Building Information

*Does the building have frontage on a State Road? (i.e., State Route 25 aka Main Street, Monroe)*
- Yes ☐
- No ☐
- I don’t know ☐

*Nearest cross street* □ East Putnam Avenue and Taylor Drive

*Distance from street to the building* 23 Feet

*Number of bedrooms* 36 Bedroom(s)

*Required Gallons Per Minute (GPM), if known* 85 GPM

*Building length* 226 Feet

*Building width* 126 Feet

*Number of floors* 3 Floor(s)

*Number of units* 22 Unit(s)

*Is there an existing building?* Yes ☐

*Is the building being demolished?* Yes ☐

Well Information

*Is this property currently on a well?* Yes ☐

https://www.aquarionwater.com/forms/NewServiceInquiryForm.aspx
Attachments Including Maps, Pictures, Drawings and Sketches (Optional)

Choose File  No file chosen
Choose File  No file chosen
Choose File  No file chosen

Comments (Optional)

Domestic and fire services are proposed to enter the new building from East Putnam Avenue.

Note: * Indicates required fields

Inquiry form successfully submitted!
Print this form for your records.

Submit    Print Submitted Form    Reset
November 17, 2020

Town of Greenwich
Department of Public Works – Engineering Division
Town Hall
101 Field Point Road
Greenwich, CT 06830
Att.: Scott Marucci, Senior Civil Engineer

RE: Property of 100 East Putnam LLC
100 East Putnam Avenue
Cos Cob, CT

Dear Mr. Marucci,

Enclosed you will find a copy of the updated development plans and drainage report in response to comments made by the Planning & Zoning Commission during their preliminary Site Plan approval letter dated 5/20/20, as well as per your comments dated 4/16/20.

Specific revision due to comments made by the Planning and Zoning Commission and Staff are as follows:

1. The bank first floor elevation was lowered from el. 15.4 to 14.8 to allow for ADA access from East Putnam Avenue.
2. The residential lobby was moved to the east face of the covered parking facility and its first floor elevation was lowered from el. 20.5 to 18.3 (west entrance) and 17.13 (east entrance).
3. The northwest portion of the parking lot was lowered by 1’ to reduce the building height.
4. Minor grading revisions were made to accommodate these changes.
5. Previously, (20) end parking spaces were provided that were less than 10’ wide (9’ to 9.5’ were provided). Per the Commission’s request that best efforts be made to meet the widths recommended by Sec. 6-185, (9) deficient end spaces are now shown and (10) 10’ wide end spaces have been provided. Most of the deficient end spaces are situated in locations where the parking lot geometry allows for easy access.

The responses below follow the outline of your comments dated 4/16/20 comments.

1. Agreed.
2. Attached
3. Attached
4. Attached
5.
   a. Site Plan Sheets
      i.
         1. This has been provided.
         2. This has been provided.
         3. This has been provided.
         4. This has been provided.
         5. This has been provided.
      ii.
         1. This has been provided.
         2. This has been provided.
         3. This has been provided.
         4. This has been provided.
      iii. Agreed.
      iv. Agreed.
      v. This has been provided.
      vi. This has been provided.
      vii. This has been provided.
      viii. This has been provided.
      ix. Agreed.
      x. Agreed.
   b.
      i. Agreed.
c.
   i. Agreed.

d.
   i. This has been provided.
   ii. This has been provided.
   iii. This has been provided.
   iv. This has been provided.
   v. This has been provided.
   vi. This has been provided.
   vii. This has been provided
   viii. Agreed.

e.
   i. This has been provided.
   ii. This has been provided.
   iii. This has been provided.
   iv. This has been provided.
   v. This has been provided.

f.
   i. This has been provided.
   ii. This has been provided.
   iii. Agreed.

   g. This shall be provided prior to sign off.

    Thank you for your continued assistance, please contact me should you have any questions regarding this matter.

    Sincerely,
Charles A. Mills, P.E.
Mills Engineering, LLC
Drainage Summary Report

Prepared for 100 East Putnam LLC

100 East Putnam Avenue
Cos Cob, CT

November 13, 2020
TABLE OF CONTENTS

SUMMARY REPORT 1

SOIL DATA 2

WATER QUALITY CALCULATIONS
(RUNOFF REDUCTION VOLUME, WATER QUALITY VOLUME, SAND FILTER SIZING CALCULATIONS, RRV & WQV STAGE-AREA-STORAGE DATA, GRV, & TSS REMOVAL) 3

HYDROLOGIC & HYDRAULIC CALCULATIONS
EXISTING CONDITIONS 4

HYDROLOGIC & HYDRAULIC CALCULATIONS
PROPOSED CONDITIONS 5

DRAINAGE AREA MAPS 6
**Engineer of Record Certification**

<table>
<thead>
<tr>
<th><strong>Project Name:</strong></th>
<th>100 East Putnam LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Address:</strong></td>
<td>100 East Putnam Avenue, Cos Cob, CT</td>
</tr>
<tr>
<td><strong>Engineer's Name:</strong></td>
<td>Charles A. Mills, P.E.</td>
</tr>
<tr>
<td><strong>Engineering Firm's Name:</strong></td>
<td>Mills Engineering, LLC</td>
</tr>
<tr>
<td><strong>Street Address:</strong></td>
<td>68 Canterbury Lane</td>
</tr>
<tr>
<td><strong>Phone:</strong></td>
<td>203-940-2411</td>
</tr>
</tbody>
</table>

The undersigned Registered Professional Engineer of Record certifies that the Stormwater Management Report and Plans submitted herewith entitled:

**Proposed Development Plan prepared for 100 East Putnam LLC**

---

**Stormwater Management Report Last Revision Date:** 11/13/20

**Number of Plan Sheets:** 11 | **Last Revision Date:**


---

**Engineer's Signature**  
**Date** 11/13/20

---

**Engineer's Seal**

---

Form SC-100  
February 2014
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA) CERTIFICATION
PRE-CONSTRUCTION

Property Address: 100 East Putnam Avenue

Tax Account No.: 08-2821/S

Building Permit No.: 

PLANS & DRAINAGE SUMMARY REPORT INFORMATION

Engineering Firm: Mills Engineering, LLC

Design Plans Date: 11/13/20

Drainage Report Date: 11/13/20

PROPERTY INFORMATION FOR DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)

<table>
<thead>
<tr>
<th>Description</th>
<th>Area (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Property Area</td>
<td>33,077</td>
</tr>
<tr>
<td>Total Proposed Site Disturbance Area</td>
<td>33,077</td>
</tr>
<tr>
<td>Total Impervious Area Under Existing Conditions</td>
<td>24,459</td>
</tr>
<tr>
<td>Total Impervious Area Under Proposed Conditions</td>
<td>26,594</td>
</tr>
<tr>
<td>Total Impervious Area Under Proposed Conditions</td>
<td>25,192</td>
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<tr>
<td>Total Directly Connected Impervious Area Under</td>
<td>1,402</td>
</tr>
<tr>
<td>Proposed Conditions</td>
<td></td>
</tr>
</tbody>
</table>

1 The entire property area (i.e. parcel/lot area) based on property address and tax account number.

2 The entire area being disturbed for the proposed construction activity (foundations, buildings, houses, stormwater systems, septic systems, pools, patios, accessory structures, vegetative soil cover modifications, etc.). The project disturbance area (delineated with construction/silt fence) shall be depicted on the design, construction, and mitigation plans, and shall be installed on-site prior to commencing land disturbance activities.

3 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.

4 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 Bioretention (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).

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

Engineer’s Signature: [Signature]

Date: 10/29/20

Engineer’s Seal: [Stamp]

Form SC-107

June 2019
The owners of the above referenced property (the site) are seeking approval to construct a mixed-use moderate-income housing development with retail space for two tenants on the first floor, along with the associated walkways and patios, as well as a driveway and parking area. This is part of a final site plan and special permit application to the Planning and Zoning Commission as well as an administrative Coastal Area Management (CAM) Plan application to the Planning & Zoning Department. It is proposed to demolish the existing bank structure and driveway, and to re-develop the site. Currently the site is covered with the existing structure, driveway and parking area, walls, and associated patios. Natural ground cover consists of lawn, and steep slopes containing rock outcrops with intermittent forested areas. The site is situated in the LBR-2 zone. Since the site is within 1000' of Long Island Sound, it is within the Coastal Area Management (CAM) Zone. No wetlands are present onsite. The AE 11 flood hazard zone is just outside the southeast corner of the property. This project is deemed a Redevelopment by the Town of Greenwich.

The site is located on the north side of East Putnam Avenue. Runoff flows onto the site from a small wooded area (approximately 7,400 sf) just to the west of the site. Site runoff predominantly flows in a southeasterly direction across the parking area and enters the existing CB located in the southeast corner of the parking area. This CB discharges into the roadway CB in Taylor Drive at its intersection with East Putnam Avenue, and subsequently the roadway drainage system in Taylor Drive. Small portions of the site sheet flow runoff onto East Putnam Avenue and Taylor Drive; this runoff runs along the gutter line of each respecting road prior to entering the aforementioned roadway CB at the intersection of East Putnam Avenue and Taylor Drive. As discussed with the Town of Greenwich Department of Public Works Engineering Division, this existing roadway CB shall be referred to as Point of Study 1 and all areas draining through the site to it shall be referred to as Drainage Area No. 1. Refer to the enclosed Drainage Area Maps. Runoff patterns will not be significantly altered after development.

In accordance with Appendix B of the Greenwich Drainage Manual, the NRCS Web Soil Survey was used to conduct the initial soils feasibility evaluation. According to the survey, all soils within the site are made up of Urban land-Charlton-Chatfield complex, Rocky, and Urban land, both of which are characterized by a hydrologic soil group (HSG) classification of D. Concept design testing in the form of a site wide textural analysis was performed to determine if the site was a candidate for infiltration and if the HSG D rating was merited. Based on the
results of these tests, site soils were found to be consistent with HSG D soils. Soil profiles consisted predominantly of sandy loam soils, however, many had ledge rock just below the surface and only two of the seven holes showed ledge rock deeper than 37”, as such, infiltration practices are not possible onsite.

The proposed development concept sought to utilize Low Impact Development (LID) design principles, practices and techniques to the maximum extent practicable. The remainder of this summary report follows the Stormwater Management Standards from the Town of Greenwich Drainage Manual – Low Impact Development and Stormwater Management, to aid the approving authority in review.

Standard 1: Low Impact Development (LID)

LID BMPs (Best Management Practices) were designed to meet the constraints and character of the site. Runoff from nearly all impervious surfaces will be collected and treated within a BMP. Approximately 95% of all the impervious areas onsite draining to Point of Study No. 1 will receive treatment within an LID BMP.

In general, the existing topography was followed. The proposed parking area follows the existing contours wherever possible, however, the northern portion of the existing parking lot was slightly lowered to meet current maximum slope standards for driveways and parking areas. The existing steep rock slopes will also be excavated to accommodate the development and parking areas.

One sand filter and one rain garden filtration system (BMP No. 1 & 2) were selected as the stormwater mitigation devices for the proposed development given the constraints of the soil test hole data.

The Sand Filter (BMP No. 1) treats the Water Quality Volume (WQV) and Runoff Capture Volume (RCV) for the majority of the proposed structure, the driveway and parking area, as well as runoff from some offsite areas and surrounding slopes. It provides peak flow attenuation as the sand throttles the discharge of runoff before it is collected by the underdrain and discharged to Point of Study 1. Rain Garden Filtration System No. 1 (BMP No. 2) treats the Water Quality Volume (WQV) and Runoff Capture Volume (RCV) for a small portion of the proposed structure. It provides some peak flow attenuation as well as the soil media throttles the discharge of runoff before it is collected by the under drain and ultimately discharged to Point of Study 1. As previously discussed, as infiltration is not possible onsite, the Runoff Reduction Volume (RRV), Groundwater Recharge Volume (GRV), cannot be met. These points are illustrated on the enclosed LID Conceptual Plan included in the site plan package.
Standard 2: Protection of Natural Hydrology

A. Nearly the entire site will be disturbed by the development, however, a planting plan is proposed.
B. Construction notes to the contractor to limit soil compaction and the limits of disturbance are included on the Site Plan.
C. The time of concentration will be minimally impacted after development.
D. As mentioned in Standard 1, the existing topography was followed in general.
E. As of yet, areas of compost-amended soils have not been incorporated into the design, however, any pervious areas used for parking during construction shall have the soil tilled to a depth of 12 to 18 inches and amended with small amounts of organic matter if needed.
F. All areas disturbed, with the exception of the proposed impervious surfaces will be restored to a vegetated state upon completion of the project.
G. No existing surface waters or systems are present onsite.
H. No roadway or driveway crossings of surface waters are proposed.
I. No roadway or driveway crossings of streams are proposed.

Standard 3: Stormwater Best Management Practices

A. Refer to Standard 1.
B. Refer to Standard 1 and the enclosed calculations.
C. No contamination should occur on the property. In the event that there is ever an issue, the proposed drainage systems are serviced by structures which will allow the approving authority to shut down the systems if ever required due to a contamination event.
D. No pumping of stormwater is proposed.
E. Pumping of uncontaminated groundwater is proposed. Two 1 hp Goulds pumps Model 2DM51E are proposed to service the proposed pump station.

Standard 4: Runoff Volume Reduction and Groundwater Recharge

A. RRV (Runoff Reduction Volume) calculations are enclosed.
B. GRV (Groundwater Recharge Volume) calculations are enclosed.
C. RCV (Runoff Capture Volume) calculations are enclosed. Compliance with Standard 4A satisfies this requirement.

Standard 5: Peak Flow Control

A. The Stream Channel Protection criteria are not required to be met for this project.
B. Conveyance Protection calculations shall be submitted prior to issuance of a building permit.
C. Using HydroCAD, which incorporates the SCS TR - 20 Unit Hydrograph Method, the peak rate of runoff discharging to Point of Study 1 was computed for a 1, 2, 5, 10, 25, 50, and 100 year 24 hour storm event, under existing and proposed conditions.

To compensate for the increase in the peak rate of runoff discharging to Point of Study 1 after development, it is proposed to collect runoff from the areas delineated on the attached plans and convey it to the proposed Sand Filter and Rain Garden Filtration System No. 1. The Sand Filter consists of (24) 4’ high Retain-It Precast Concrete Modular structures with an internal 2’ high weir separating a sediment forebay with a permanent pool of water and the sand filtration units with a perforated underdrain set on the bottom slab. This system provides attenuation of runoff as the discharge is throttled by the sand filtration layer before it is collected via the underdrain. Once the storage capacity is exceeded, additional runoff bypasses the system as it is designed as an offline system. The Rain Garden filtration system provides attenuation as discharge is throttled back by the soil media before it is collected via the under drain or overflow CB and ultimately discharged.

With these drainage systems in place, the total peak rate of runoff discharging to Point of Study 1 after development will be reduced for a 1, 2, 5, 10, 25, 50, and 100 year 24 hour storm event. These results are summarized in Drainage Summary Table I.

As discussed with the Town of Greenwich Department of Public Works Engineering Division, the proposed basement mechanical space’s footing drain is serviced by two 1 hp Goulds pumps Model 2DM51E. The operation point of the pump is for approximately 0.22 cfs at 21 feet of total dynamic head. This is an initial conservative design to protect the basement and may be reduced. Regardless, this pumped discharge can be added to the total peak rate of runoff discharging to Point of Study 1 after development for a 1, 2, 5, 10, and 25 year 24 hour storm event while still maintaining discharge at or below existing discharge levels. These results are summarized in Drainage Summary Table II (note that the total volumes remain the same as no effort has been made to determine the total volume of water discharged from the pump station in a 24 hour period).

<table>
<thead>
<tr>
<th>DRAINAGE SUMMARY TABLE I</th>
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<tbody>
<tr>
<td>SUMMARY OF HYDROLOGIC &amp; HYDRAULIC ROUTING CALCULATIONS FOR POINT OF STUDY 1</td>
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<tr>
<td>Storm Frequency</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
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<tr>
<td>5 - Year</td>
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<td>50 - Year</td>
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<tr>
<td>100 - Year</td>
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</table>

**DRAINAGE SUMMARY TABLE II**

**SUMMARY OF HYDROLOGIC & HYDRAULIC ROUTING CALCULATIONS FOR POINT OF STUDY 1 (W/ FOOTING DRAIN PUMP ADDED TO PROPOSED DISCHARGE)**

<table>
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<th>Storm Frequency</th>
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<th>Proposed Flow cfs</th>
<th>Difference Flow %</th>
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<th>Proposed Volume cf</th>
<th>Difference Volume %</th>
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<td>7155</td>
<td>3.6</td>
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<td>8685</td>
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<td>11213</td>
<td>11504</td>
<td>2.6</td>
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<tr>
<td>10 - Year</td>
<td>3.82</td>
<td>3.34</td>
<td>-12.6</td>
<td>13750</td>
<td>14057</td>
<td>2.2</td>
</tr>
<tr>
<td>25 - Year</td>
<td>4.97</td>
<td>4.96</td>
<td>-0.2</td>
<td>17943</td>
<td>18269</td>
<td>1.8</td>
</tr>
<tr>
<td>50 - Year</td>
<td>6.03</td>
<td>6.04</td>
<td>0.2</td>
<td>21863</td>
<td>22203</td>
<td>1.6</td>
</tr>
<tr>
<td>100 - Year</td>
<td>7.37</td>
<td>7.43</td>
<td>0.8</td>
<td>26808</td>
<td>27161</td>
<td>1.3</td>
</tr>
</tbody>
</table>

D. Emergency Outlet Sizing is not required for this project.

Standard 6: Pollution Reduction

A. By virtue of capturing and treating the required water quality volume, the project achieves the required 80% removal efficiency for the average annual post construction load of Total Suspended Solids (TSS). Based on Table 5-6 in section 5 of the Greenwich Drainage Manual, the systems achieve a removal efficiency of 80%. Please refer to the enclosed calculations and plans for further details.
Standard 7: High Load Areas

A. This site is not classified as a High Load Area.
B. This site is not classified as a High Load Area.
C. This site is not classified as a High Load Area.

Standard 8: Critical Areas

A. The site is located within the Coastal Area Management (CAM) zone, and is thus deemed to be within a Critical Area. Stormwater BMPs have been designed to meet the pollutant reduction standard for the site.
B. The site is not within a High Load Area.

Standard 9: Redevelopment

A. This project is considered a redevelopment.
B. As previously discussed, this project meets the standards to the maximum extent practicable.
C. The development concept complies with all aspects of the drainage manual.
D. The proposed stormwater controls reduce annual stormwater pollutant loads from the site, and reduce peak runoff rates.
E. No known regulated or hazardous soils or materials were found on site during the onsite soil investigation; therefore, this standard is not applicable.

Standard 10: Construction Erosion and Sediment Control

A. Erosion control design and details are indicated in the site plan drawing set.
B. The contractor has been instructed on the site plan drawing set to install erosion controls prior to the start of construction.

Standard 11: Construction Inspections

A. If required by the approving authority, the proponent will post a bond, cash or other acceptable surety, in an amount deemed sufficient to ensure the work will be completed in compliance with the approved plans.
B. The proponent will be instructed to notify the approving authority before starting land-disturbing activity and before construction of key components of the stormwater management system.
C. The project engineer will conduct periodic inspections of the stormwater management system.
D. The project engineer will perform site inspections as required by the Field Inspection Record form SC-106.
E. Regardless of compliance with the approved plans, the stormwater management system design shall be revised if performance is not deemed adequate due to operational failure. This shall occur prior to final approval by the approving authority.

F. Upon project completion, all required inspections and certifications necessary to document compliance to the approved plans shall be performed prior to approval being granted by the approving authority.

Standard 12: Operation and Maintenance

A. Refer to the Operations and Maintenance Plan Report for specific maintenance activities necessary to ensure functionality of the proposed stormwater management system.

B. The Operations and Maintenance Plan shall identify all applicable items in Section 5 and Section 7 of the Town of Greenwich Drainage Manual – Low Impact Development and Stormwater Management.

C. The Operations and Maintenance Plan Report will identify the parties legally responsible for implementing the Operations and Maintenance Plan.

D. The parties legally responsible for maintaining the stormwater management system will be instructed to keep records of all maintenance or repair activities necessary to ensure system functionality.

E. The parties legally responsible for maintaining the stormwater management system will be instructed to keep records of all maintenance or repair activities, and to provide these to the approving authority during inspections and/or upon request.

F. When the parties legally responsible fails to implement the Operation and Maintenance Plan, the municipality is authorized to assume responsibility for their implementation, and to secure reimbursement for associated expenses from the parties legally responsible, including, if necessary, placing a lien on the subject property.


This report satisfies this standard.

Standard 14: Illicit Discharges

Based on investigation of the site, there are currently no existing illicit discharges that could enter the stormwater management system. No illicit discharges are proposed.

Based on the above we can be assured that this development will not have any adverse hydrological or hydraulic impacts to any surrounding or downstream properties or drainage facilities. To the best of my knowledge, the drainage aspects of this proposal comply with the Town of Greenwich Roadway Design Manual, Drainage Manual, and Construction Standards.
Respectfully submitted,

MILLS ENGINEERING, LLC

[Signature]

Charles A. Mills, P.E.

Date: November 13, 2020
## Credits for Low Impact Development (LID) Best Management Practices (BMPs)

<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
</table>
| Minimizing Soil Compaction           | • The "no disturbance" areas are protected by having the limits of disturbance and access clearly shown on the Stormwater Management Plan, all construction drawings, and delineated.flagged/fenced in the field.  
  • "No disturbance" areas are not to be stripped of existing topsoil.  
  • "No disturbance" areas are not to be stripped of existing vegetation.  
  • Vehicle movement, storage, or equipment/material lay-down is not to be permitted in "no disturbance" areas.  
  • Use of soil amendments and additional topsoil is permitted in other areas being disturbed. Grading may be performed using low ground pressure equipment (less than 3 pounds per square inch) to reduce the potential for soil compaction.  
  • Lawn and turf grass are acceptable uses. Planted meadow is an encouraged use.                                                                                                                                                    | Areas that comply (i.e., "no disturbance areas") can use the forested cover and open space site cover runoff coefficient (R) when calculating the required Water Quality Volume. See Section 5.6.3 and Table 5-5, Site Cover Runoff Coefficients. | ☐        | ☐            |
| Minimizing Site Disturbance          | Site disturbance including earthwork and clearing of vegetation should be limited to 40 feet beyond the building perimeter, 10 feet beyond the primary roadway curbs, walkways, and main utility branch trenches, and 25 feet beyond areas of proposed infiltration in order to limit compaction in the proposed infiltration area. This guidance is not intended to limit lawn areas.                                           | Areas that comply can use the forested cover and open space site cover runoff coefficient (R) when calculating the required Water Quality Volume. See Section 5.6.3 and Table 5-5, Site Cover Runoff Coefficients. | ☐        | ☐            |
| Protecting Sensitive Natural Areas   | Sensitive natural areas should be conserved at development sites, thereby preserving predevelopment hydrologic and water quality characteristics. The area must be permanently protected under a conservation easement.                                                                                                               | The project proponent can subtract the conservation area from the total area in the Water Quality Volume calculation.                                                                                           | ☐        | ☐            |
| Protecting Riparian Buffers          | Effective treatment of stormwater runoff is achieved when pervious and impervious area runoff is discharged to a grass or forested buffer via overland flow. The use of a filter strip is recommended to treat overland flow in the green space of a development site.  
  • The minimum stream buffer width (i.e., perpendicular to the stream flow path) shall be 50 feet as measured from the top bank elevation of a stream or the boundary of a wetland.  
  • The maximum contributing path shall be 150 feet for pervious surfaces and 75 feet for impervious surfaces.  
  • The average contributing overland slope to and across the buffer shall be less than or equal to 5%.  
  • Runoff shall enter the buffer as sheet flow. A level spreader shall be utilized where local site conditions prevent sheet flow from being maintained.  
  • The stream buffer remains unmanaged other than routine debris removal.  
  • The buffer is protected by an acceptable conservation easement or other enforceable instrument that provides perpetual protection of the area. The easement must clearly specify how the natural area vegetation shall be protected. | The area draining by sheet flow to a buffer can be subtracted from the total area in the Water Quality Volume calculation, and the impervious area draining to the buffer by sheet flow can be subtracted from the impervious area in the Groundwater Recharge Volume calculation and post-development impervious area in the Runoff Reduction Volume calculation. | ☐        | ☐            |
<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding Disturbance of Steep Slopes (Section 4.4.5)</td>
<td>Development on steep slope areas shall be avoided. Unnecessary grading should be avoided on all slopes, as should the flattening of hills and ridges. Development shall follow the natural contours of the landscape.</td>
<td>Undisturbed steep slope areas can use the forested cover and open space site cover runoff coefficient (R) when calculating the required Water Quality Volume. See Section 5.6.3 and Table 5-5, Site Cover Runoff Coefficients.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siting on Permeable and Erodible Soils (Section 4.4.6)</td>
<td>Whenever possible, highly erodible soils should be left undisturbed and protected from disturbance during site construction. Gravel soils tend to be the least erodible. Also as clay and organic matter increase erodibility tends to decrease. Infiltration practices should be located on those portions of the site with the most permeable soils.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protecting Natural Flow Pathways (Section 4.4.7)</td>
<td>Site designs should use and/or improve natural drainage pathways whenever possible to reduce or eliminate the need for stormwater pipe networks. Natural drainage pathways should be protected from significantly increased runoff volumes and rates due to development. The design should prevent the erosion and degradation of natural drainage pathways through the use of upstream volume and rate control BMPs, if necessary. Level spreaders, erosion control matting, revegetation, outlet stabilization, and check dams can also be used to protect natural drainage features.</td>
<td>Reducing impervious surfaces reduces the Water Quality Volume, Runoff Reduction Volume, Groundwater Recharge Volume, and Peak Flow/Runoff Attenuation requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reducing Impervious Surfaces (Section 4.4.8)</td>
<td>By reducing the amount of paved surfaces, stormwater runoff is decreased while infiltration and evapotranspiration opportunities are increased.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stormwater Disconnection (Section 4.4.9)</td>
<td>Disconnecting roof leaders and routing road and driveway runoff from conventional stormwater conveyance systems allows runoff to be collected and managed onsite. Runoff can be directed to vegetated areas designed for onsite storage, treatment, and volume control. All design criteria from section 4.4.9 must be met in order to obtain the credits shown.</td>
<td>Methods to compute the resultant runoff volumes and peak runoff rates from disconnected impervious areas are discussed in Section 4.6 of this manual and the design references cited therein. For simple disconnection, subtract 100% of the disconnected area from the total area in the Water Quality Volume calculation if the receiving pervious area is HSG A or B soils or 50% of the</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Credits for Low Impact Development (LID) Best Management Practices (BMPs)

<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
</table>
| Compost-Amended Soils             | Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of infiltration BMPs.  
- Soil must be tilled to 12 to 16 inches and amended with small amounts of organic material.  
- For mechanical aeration of lawns/turf to be effective:  
  - Utilize a soil aerator that has a mechanical action that not only penetrates the soil surface but also shatters the soil matrix, causing the soil to decompact and crack, thus creating void space and increasing infiltration. (Passive-type aerators which simply poke a hole into the soil, whether it removes a plug or simply spikes a hole, can create a hardpan effect at the depth of penetration.)  
  - Shatter-type aerators include vertidrain, soil reliever, agriator, and groundbreaker. Shatter-type aerators should penetrate the soil at depths of 8 to 18 inches.  
  - The depth to water table or bedrock must be greater than 18 inches.  
  - Existing soils may not be saturated or seasonal wet.  
  - Slopes may not exceed 10%.  
  - Existing tree root systems shall be avoided, no deep till or amendment under the tree drip lines. | disconnected area if the receiving pervious area is HSG C or D soils.  
For disconnection to LID BMPs, subtract 100% of the disconnected area from the total area in the Water Quality Volume calculation.  
Subtract 50% of any restored areas (100% of any restored and reforested areas) from the total post development site area and re-calculate the Runoff Reduction Volume. |         |          |
| Rainwater Harvesting (Rain Barrels)| Rain barrels should hold a minimum of 50 gallons.  
Rain barrels can be connected in series to provide larger storage volumes.  
- Equip rain barrels with a drain spigot near the bottom of the barrel with garden hose threading to allow easy hook up and use for watering.  
- Provide an overflow pipe or hose near the top of the rain barrel.  
- Provide removable, child-resistant covers.  
- Provide mosquito screening on water entry holes to prevent mosquito breeding in standing water | Subtract 25% of the contributing drainage area from the total area in the Water Quality Volume calculation. |         |          |
### Credits for Low Impact Development (LID) Best Management Practices (BMPs)

<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
</table>
| Rainwater Harvesting (Cisterns) | The rooftop runoff must be captured and either (1) used on site for irrigation of lawns and gardens, wash water and other non-potable uses, or (2) treated and released, or (3) infiltrated.  
  
The cistern must be sized to treat the design rainfall from the roof area directed to the water harvesting system. If all of the design volume captured cannot be used, then a scaled reduction in credit will be given. The remaining volume must be treated by a properly designed BMP.  
  
A minimum factor of safety equal to 1.2 must be applied to the calculated cistern volume required.  
  
All stormwater collected must have a dedicated, year-round, use to assure no overflow of the system during a design rainfall. A water balance calculation must be used to establish the dedicated use volumes and rates. The water balance calculation must demonstrate that the design volume can: (1) be drawn down (used) within 3 days to allow for available volume in the system for the next rain event to be captured and stored, or (2) have an overflow of no more than 14 percent of the annual average historic rainfall, or (3) be drawn down within 3 days and discharged to a properly designed BMP. On a case-by-case basis, reduced credit may be given if the design volume cannot be reliably drawn down within 3 days, or if a year-round reuse is not available. The dedicated water use system must be automated to ensure that the water will be used at the rate and volume designed.  
  
The overflow shall discharge flows in excess of the design volume to a vegetated or natural area, or to another properly designed BMP (e.g., rain garden). This discharge shall be non-erodible flow for the 10-yr rainfall event. It shall not discharge directly to impervious surfaces. The elevation of the overflow pipe from the cistern shall be at or above the design volume elevation. If a first flush diverter is used, the bypassed water must discharge to a properly designed BMP. The first flush can be directed to a relatively small BMP next to the water harvesting system, or it can be directed to and accounted for in other BMPs on the site.  
  
At a minimum, a 1 mm or smaller screen at the entrance to the cistern from the gutter system shall be provided to filter out debris and to keep mosquitoes out of the cistern.  
  
If the water reuse system is designed to accommodate basement sump/foundation drain water and roof runoff, the design must allow for adequate storage for the full volume of roof runoff for the next design storm and basement sump/foundation drain water. | Subtract 100% of the contributing drainage area from the total area in the Water Quality Volume calculation. |          |              |
## Credits for Low Impact Development (LID) Best Management Practices (BMPs)

<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A properly designed footing for the cistern must be designed if the load of the cistern at full capacity is greater than the soils will support. If it is buried, buoyancy calculations must be provided to show the cistern will not float when empty. Buoyancy calculations and flotation constraints must be provided if any part of the buried cistern is below the seasonal high water table, or if the area is subject to flooding. An appropriate pump shall be selected to provide adequate pressure for its designated uses. Above ground cisterns shall be made of a material or color that prevents light from entering the cistern, which helps prevent algae growth within the cistern. Irrigation water from a cistern shall be applied so that the water infiltrates into the ground. If for any reason the designed dedicated end use becomes unavailable because of some change, it will be required that an approved alternative end use or a properly designed BMP treatment system be installed on site to manage the roof runoff. The harvesting system shall be labeled and identified as non-potable water. The harvesting system shall meet all local and state building and plumbing codes.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.


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 Data: Version 19, Sep 13, 2019 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>273E</td>
<td>Urban land-Chariton-Chaifield complex, rocky, 15 to 45 percent slopes</td>
<td>D</td>
<td>0.3</td>
<td>30.7%</td>
</tr>
<tr>
<td>307</td>
<td>Urban land</td>
<td>D</td>
<td>0.7</td>
<td>69.3%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td></td>
<td><strong>1.1</strong></td>
<td><strong>100.0%</strong></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 material. 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.
### Soil Evaluation Test Results

**Engineer's Name:** Charles A. Mills, P.E.

**Engineering Firm's Name:** Mills Engineering, LLC

#### Test Pit/Soil Boring #: DT1

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Soil Texture (Percent Sand, Silt and Clay)</th>
<th>Depth Range in Inches</th>
<th>Existing Ground Elevation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.4</td>
<td>Asphalt</td>
<td>0&quot; - 3&quot;</td>
<td>Top Elevation of Proposed Infiltration System:</td>
</tr>
<tr>
<td>12.2</td>
<td>Processed Aggregate</td>
<td>3&quot; - 18&quot;</td>
<td>Bottom Elevation of Proposed Infiltration System:</td>
</tr>
<tr>
<td>11.8</td>
<td>Asphalt</td>
<td>18&quot; - 23&quot;</td>
<td>Elevation of Test*:</td>
</tr>
<tr>
<td>11.3</td>
<td>Processed Aggregate</td>
<td>23&quot; - 29&quot;</td>
<td>Test Method (check one of the following acceptable methods**):</td>
</tr>
<tr>
<td>11.1</td>
<td>Brown Sandy Loam</td>
<td>29&quot; - 31&quot;</td>
<td>Borehole infiltration test (NHDES, 2008)</td>
</tr>
<tr>
<td>8.7</td>
<td>Light Brown Sandy Loam</td>
<td>31&quot; - 60&quot;</td>
<td>Guelph permeameter - ASTM D5126-90 Method</td>
</tr>
<tr>
<td>6.9</td>
<td>Coarse Sand &amp; Gravel</td>
<td>60&quot; - 82&quot;</td>
<td>Falling Head Permeameter - ASTM D5126-90 Method</td>
</tr>
</tbody>
</table>

* All test pit or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

**Saturated Hydraulic Conductivity Test Location #:**

- **Calculated Saturated Hydraulic Conductivity Rate:**

| Elevation | Depth in Inches | **A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity.**
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9.8</td>
<td>Mottling</td>
<td>47&quot;</td>
</tr>
<tr>
<td>n/a</td>
<td>Groundwater</td>
<td>n/a</td>
</tr>
<tr>
<td>n/a</td>
<td>Ledge (or Machine Refusal)</td>
<td>n/a</td>
</tr>
</tbody>
</table>

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

**Percolation tests overestimate the saturated hydraulic conductivity rate.**

**Test Certification**

I HEREBY CERTIFY THAT THE DATA CONTAINED IN THIS DEEP TEST AND PERCOLATION TEST REPORT IS TRUE AND CORRECT

Name of Test Conductor: Charles A. Mills, P.E.

Signature of Test Conductor: __________________________  Date: 4/1/20
Project Name: 100 East Putnam LLC
Project Address: 100 East Putnam Avenue
Sand Filter No. 1

SOIL EVALUATION TEST RESULTS

Engineer's Name: Charles A. Mills, P.E.
Engineering Firm's Name: Mills Engineering, LLC

TEST PIT/SOIL BORING #: DT7  GROUND ELEVATION: 14.3

Depth Range in Inches

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Soil Texture (Percent Sand, Silt and Clay)</th>
<th>Depth Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0</td>
<td>Asphalt</td>
<td>0 - 3&quot;</td>
</tr>
<tr>
<td>13.3</td>
<td>Processed Aggregate</td>
<td>3&quot; - 12&quot;</td>
</tr>
<tr>
<td>13.0</td>
<td>Asphalt</td>
<td>12&quot; - 15&quot;</td>
</tr>
<tr>
<td>12.8</td>
<td>Processed Aggregate</td>
<td>15&quot; - 18&quot;</td>
</tr>
<tr>
<td>10.3</td>
<td>Fine Light Brown Sandy Loam</td>
<td>18&quot; - 48&quot;</td>
</tr>
<tr>
<td>7.3</td>
<td>Coarse Sand &amp; Gravel</td>
<td>48&quot; - 84&quot;</td>
</tr>
</tbody>
</table>

Existing Ground Elevation:

Top Elevation of Proposed Infiltration System:

Bottom Elevation of Proposed Infiltration System:

Elevation of Test*:

Test Method (check one of the following acceptable methods**):

- Borehole infiltration test (NHDES, 2008)
- Guelph permeameter - ASTM D5126-90 Method
- Falling Head Permeameter - ASTM D5126-90 Method
- Double ring permeator or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
- Amoozegar or Amoozegar (constant head) permeater - Amoozegar 1992

Attach field data form for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate:

** A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity.

Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

*All test pit or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system

TEST CERTIFICATION

I HEREBY CERTIFY THAT THE DATA CONTAINED IN THIS DEEP TEST AND PERCOLATION TEST REPORT IS TRUE AND CORRECT

Name of Test Conductor: Charles A. Mills, P.E.

Signature of Test Conductor: ___________________________  Date: 4/1/20
WATER QUALITY CALCULATIONS
(RUNOFF REDUCTION VOLUME, WATER QUALITY VOLUME, SAND FILTER SIZING CALCULATIONS, RRV & WQV STAGE-AREA-STORAGE DATA, GRV, & TSS REMOVAL)
Storm Water Quality Calculations - RRV - Runoff Reduction Volume - As defined in the "Town of Greenwich Drainage Manual - Low Impact Development and Stormwater Management" Section 5.6.1

Point of Study 1

RRV = post development Volume for 1yr 24 hr storm - predevelopment Volume for 1yr 24 hr storm

V_{\text{post}} = 7,155 \text{ without BMPs (DA1, IA, & IB)}

V_{\text{pre}} = 6,907 \text{ Existing (DA1)}

RRV = 248 \text{ cf}

The subject site is not a candidate for infiltration due to the presence of ledge and groundwater.
Storm Water Quality Calculations - WQV - Water Quality Volume - As defined in the "Town of Greenwich Drainage Manual - Low Impact Development and Stormwater Management" Section 5.6.3 Pollutant Reduction - see Table 5-5 of the Drainage Manual for Runoff Coefficients

WQV = Water Quality Volume

\[
\text{WQV} = \frac{12}{(\text{R})(\text{R})} \times (\text{V})(\text{T})(\text{T}) + (\text{R})(\text{F})(\text{F})
\]

\[
\text{RfT} = (\text{RfT})(\text{T})(\text{T})(\text{T})(\text{T}) + (\text{RfT})(\text{T})(\text{T})(\text{T})(\text{T}) + (\text{RfT})(\text{T})(\text{T})(\text{T})(\text{T}) + (\text{RfT})(\text{T})(\text{T})(\text{T})(\text{T})
\]

\[
\text{RfF} = (\text{RfF})(\text{T})(\text{T})(\text{T})(\text{T}) + (\text{RfF})(\text{T})(\text{T})(\text{T})(\text{T}) + (\text{RfF})(\text{T})(\text{T})(\text{T})(\text{T}) + (\text{RfF})(\text{T})(\text{T})(\text{T})(\text{T})
\]

### TURF RUNOFF COEFFICIENT CALCULATION

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<th>Drain Area</th>
<th>TOTAL SF</th>
<th>OF-TURF</th>
<th>RfT A</th>
<th>RfT B</th>
<th>RfT C</th>
<th>RfT D</th>
<th>%T A</th>
<th>%T B</th>
<th>%T C</th>
<th>%T D</th>
<th>RfT</th>
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<td>0</td>
<td>0</td>
<td>100</td>
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<tr>
<td>1B</td>
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<td>0.15</td>
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### FORREST RUNOFF COEFFICIENT CALCULATION

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<th>OF-FORREST</th>
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<th>RfF B</th>
<th>RfF C</th>
<th>RfF D</th>
<th>%F A</th>
<th>%F B</th>
<th>%F C</th>
<th>%F D</th>
<th>RfF</th>
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<td>0.02</td>
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<td>0.05</td>
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<td>0.04</td>
<td>0.05</td>
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<td>100</td>
</tr>
<tr>
<td>2B</td>
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<td></td>
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<td>0.02</td>
<td>0.03</td>
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### WATER QUALITY VOLUME CALCULATION

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<th>Description</th>
<th>Drain Area</th>
<th>Total SF</th>
<th>Rvl</th>
<th>%H</th>
<th>Rvt</th>
<th>%T</th>
<th>Rvf</th>
<th>%F</th>
<th>R</th>
<th>WQV CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>Roof &amp; Driveway</td>
<td>1A</td>
<td>28,456</td>
<td>0.95</td>
<td>85.5</td>
<td>0.250</td>
<td>0</td>
<td>0.050</td>
<td>14.41</td>
<td>0.820</td>
<td>1946</td>
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<tr>
<td></td>
<td>souther exposed</td>
<td>1B</td>
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<td>0.95</td>
<td>85.5</td>
<td>0.250</td>
<td>0</td>
<td>0.050</td>
<td>14.41</td>
<td>0.820</td>
<td>71</td>
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<td></td>
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<td>0.350</td>
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<td>2B</td>
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*BMP No. x IS SIZED BASED ON THE INFLOWING DRAINAGE AREA

<table>
<thead>
<tr>
<th>IMPERV</th>
<th>TURF</th>
<th>FORREST</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.95</td>
<td>0.15</td>
<td>0.02</td>
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<tr>
<td>0.95</td>
<td>0.20</td>
<td>0.03</td>
</tr>
<tr>
<td>0.95</td>
<td>0.22</td>
<td>0.04</td>
</tr>
<tr>
<td>0.95</td>
<td>0.25</td>
<td>0.05</td>
</tr>
</tbody>
</table>

The following Water Quality treatment storage is available in each BMP before system bypass begins.

BMP No. 1 = 882 sf + 1,147 sf = 2,029 sf (includes sand filter void storage - see separate pond storage definitions where void storage is included)
BMP No. 2 = 76 sf (includes rain garden void storage - see separate pond storage definitions where void storage is included)

Refer to the enclosed Stage-Area-Storage Curves for each BMP.

Point of Study 1:
Imperv. Surface treated by LID device within DA 1A, & 1B = 25,192 sf
Total Imperv. Surface in DA 1A, 1B, & 1 = 26,594 sf
LID Treatment % = 25,192 sf / 26,594 sf = 94.7%

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_{WQ}</td>
<td>Water Quality Volume to Treat (cf)(^a)</td>
</tr>
<tr>
<td>H_s</td>
<td>Height of System (ft)(^b)</td>
</tr>
<tr>
<td>H_{or}</td>
<td>Height above High Overflow/Freeboard (ft)(^c)</td>
</tr>
<tr>
<td>T_{hs}</td>
<td>Sand Bed Thickness (ft)(^d)</td>
</tr>
<tr>
<td>k</td>
<td>Sand Bed Permeability (ft/day)(^e)</td>
</tr>
<tr>
<td>n</td>
<td>Sand Bed Porosity(^d)</td>
</tr>
<tr>
<td>T_D</td>
<td>Sand Bed Drawdown Time (day)(^d)</td>
</tr>
<tr>
<td>D_TT</td>
<td>Temporary Forebay Depth (ft)(^c)</td>
</tr>
<tr>
<td>D_{ST}</td>
<td>Temporary Depth Above Sand Bed (ft)(^d)</td>
</tr>
<tr>
<td>V_{ST}</td>
<td>Temporary Forebay Volume Including Volume in Sand (cf)(^d)</td>
</tr>
<tr>
<td>V_{PT}</td>
<td>Temporary Forebay Volume Excluding Permanent Pool Volume (cf)(^d)</td>
</tr>
<tr>
<td>A_F</td>
<td>Minimum Forebay Surface Area (sf)(^d)</td>
</tr>
<tr>
<td>A_S</td>
<td>Minimum Sand Bed Surface Area (sf)(^b)</td>
</tr>
<tr>
<td>FB</td>
<td>Number of Retain-It Forebay Structures(^d)</td>
</tr>
<tr>
<td>SB</td>
<td>Number of Retain-It Sand Bed Structures(^d)</td>
</tr>
</tbody>
</table>

Therefore, use (24)\(^d\) Retain-It Units (12 for Sediment Forebay w/ permanent pool, and 12 for Sand Bed Filtration). 2,029 cf of storage is available within the Sand Filter prior to system bypass (2,029 cf > 1,946 cf - see separate pond storage definition with void storage included).

\(^a\) WQV = Water Quality Volume = (L\(^3\) x R x A)/12; from the 2014 Town of Greenwich Drainage Manual Section 5.6.3

\(^b\) Internal height of the entire sand filter

\(^c\) Distance from the high overflow inert to the top of structure

\(^d\) From Table 9.9-1 within Section 9.9 of Chapter 9 of the "New Jersey Stormwater Best Management Practices - February 2004"

\(^e\) D_TT = D_{ST} - H_s - H_{or} - 2\(^x\)

\(^x\) The depth of both the sand bed and permanent pool is 2'

\(^f\) V_{ST} = V_{PT} = 0.5 \times V_{WQ}

\(^g\) A_F = (V_{ST})/(D_{TT}) It should be noted that an A_F of this value would create 50% of the WQV (V_{WQ}) within the Forebay. The 2014 update to the "New Jersey Stormwater Best Management Practices" only requires the forebay to be a minimum of 10% of the WQV. As such, anything between 10% to 50% of the WQV shall be deemed sufficient.

\(^h\) A_S = (V_{ST})/(D_{ST} \times (T_{HS} \times n))

\(^i\) The number of Retain-It units are determined by dividing the min. surface area for either the forebay or the sand bed by the surface area per Retain-It unit (7\(^3\)x7\(\approx\)49sf). The calculated value is rounded up.
RAIN GARDEN FILTRATION SYSTEM No. 1 (BMP 2 W/ VOID STORAGE)

SAND FILTER No. 1 (BMP 1 W/ VOID STORAGE)
### Summary for Pond 1P: SAND FILTER No. 1 (BMP 1 W/ VOID STORAGE)

<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>10.80’</td>
<td>882 cf</td>
<td>Custom Stage Data (Forebay) (Prismatic) Listed below (Recalc)</td>
</tr>
<tr>
<td>#2</td>
<td>9.30’</td>
<td>1,147 cf</td>
<td>Custom Stage Data (Sandfilter) (Prismatic) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

2,029 cf Total Available Storage

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surf.Area (sq-ft)</th>
<th>Voids (%)</th>
<th>Inc.Store (cubic-feet)</th>
<th>Cum.Store (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.80</td>
<td>588</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12.30</td>
<td>588</td>
<td>100.0</td>
<td>882</td>
<td>882</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surf.Area (sq-ft)</th>
<th>Voids (%)</th>
<th>Inc.Store (cubic-feet)</th>
<th>Cum.Store (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.30</td>
<td>588</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10.80</td>
<td>588</td>
<td>30.0</td>
<td>265</td>
<td>265</td>
</tr>
<tr>
<td>12.30</td>
<td>588</td>
<td>100.0</td>
<td>882</td>
<td>1,147</td>
</tr>
</tbody>
</table>

**Device Routing Invert Outlet Devices**

<table>
<thead>
<tr>
<th>#1</th>
<th>Primary</th>
<th>8.80’</th>
<th>4.0” Vert. Orifice/Grate</th>
<th>C= 0.600</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>Primary</td>
<td>12.30’</td>
<td>10.0” Round Culvert</td>
<td></td>
</tr>
</tbody>
</table>

L= 5.5’ CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 12.30’ / 11.30’ S= 0.1818’’’ Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=0.00’ (Free Discharge)

1=Orifice/Grate (Controls 0.00 cfs)
2=Culvert (Controls 0.00 cfs)
### Stage-Area-Storage for Pond 1P: SAND FILTER No. 1 (BMP 1 W/ VOID STORAGE)

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Storage (cubic-feet)</th>
<th>Elevation (feet)</th>
<th>Storage (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.30</td>
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<td>11.90</td>
<td>1,558</td>
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<tr>
<td>9.35</td>
<td>9</td>
<td>11.95</td>
<td>1,617</td>
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<tr>
<td>9.40</td>
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<tr>
<td>9.45</td>
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<td>1,735</td>
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<tr>
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<tr>
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</table>
Summary for Pond 2P: RAIN GARDEN FILTRATION SYSTEM No. 1 (BMP 2 W/ VOID STORAGE)

<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>11.83'</td>
<td>96 cf</td>
<td>Custom Stage Data (Irregular) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
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<td>10.0</td>
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<tr>
<td>14.70</td>
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<td>100.0</td>
<td>29</td>
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<td>15.00</td>
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<td>35.0</td>
<td>100.0</td>
<td>19</td>
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<td>175</td>
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<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Device 2</td>
<td>14.70'</td>
<td>12.0&quot; x 12.0&quot; Horiz. Orifice/Grate ( C= 0.600 ) Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>11.50'</td>
<td>4.0&quot; Round Culvert ( L= 34.0' ) CPP, square edge headwall, ( K_e = 0.500 ) Inlet / Outlet Invert= 11.50' / 9.50' ( S = 0.0588 ) ( C_c = 0.900 ) ( n = 0.010 ) PVC, smooth interior, Flow Area= 0.09 sf</td>
</tr>
</tbody>
</table>

Primary OutFlow: Max=0.00 cfs @ 0.00 hrs \( HW=0.00' \) (Free Discharge)

- 2=Culvert \( \) (Controls 0.00 cfs)
- 1=Orifice/Grate \( \) (Controls 0.00 cfs)

Pond 2P: RAIN GARDEN FILTRATION SYSTEM No. 1 (BMP 2 W/ VOID STORAGE)

Stage-Area-Storage

[Graph showing Stage-Area-Storage with Surface, Horizontal, and Wetted Area (sq-ft) data]
<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surface (sq-ft)</th>
<th>Storage (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.83</td>
<td>64</td>
<td>0</td>
</tr>
<tr>
<td>11.88</td>
<td>64</td>
<td>1</td>
</tr>
<tr>
<td>11.93</td>
<td>64</td>
<td>3</td>
</tr>
<tr>
<td>11.98</td>
<td>64</td>
<td>4</td>
</tr>
<tr>
<td>12.03</td>
<td>64</td>
<td>5</td>
</tr>
<tr>
<td>12.08</td>
<td>64</td>
<td>6</td>
</tr>
<tr>
<td>12.13</td>
<td>64</td>
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<tr>
<td>12.23</td>
<td>64</td>
<td>10</td>
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<td>12.28</td>
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</tr>
<tr>
<td>12.33</td>
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<tr>
<td>12.38</td>
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<tr>
<td>12.43</td>
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<td>12.63</td>
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<tr>
<td>12.68</td>
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<td>12.73</td>
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<td>12.88</td>
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<td>13.68</td>
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<td>53</td>
</tr>
<tr>
<td>14.38</td>
<td>64</td>
<td>56</td>
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</table>

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surface (sq-ft)</th>
<th>Storage (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.43</td>
<td>64</td>
<td>59</td>
</tr>
<tr>
<td>14.48</td>
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<td>91</td>
</tr>
<tr>
<td>14.98</td>
<td>64</td>
<td>94</td>
</tr>
</tbody>
</table>
Storm Water Quality Calculations - GRV - Runoff Reduction Volume - As defined in the "Town of Greenwich Drainage Manual - Low Impact Development and Stormwater Management" Section 5.6.1. Refer to Table 5-2 - Recharge Target Depth by Hydrologic Soil Group

GRV= Groundwater Recharge Volume:

\[ GRV = F \times I \]

Target Depth Factor F see Table 5-2, for Target Depth by Hydrologic Soil Group (Factor F)

\begin{align*}
F &= \text{"A" Soils} & = 0.60 \text{ Inches} \\
F &= \text{"B" Soils} & = 0.35 \text{ Inches} \\
F &= \text{"C" Soils} & = 0.25 \text{ Inches} \\
F &= \text{"D" Soils} & = 0.10 \text{ Inches} \\
A &= \text{Total Site Area} & = 0.759 \text{ Acres} \\
\end{align*}

Percent of Increase of Impervious area (decimal value used for computation):

\begin{align*}
\text{Proposed Impervious area} &= \frac{26,594}{43560} = 0.610514 \text{ Acres} \\
\text{Existing Impervious area} &= \frac{24,459}{43560} = 0.561501 \text{ Acres} \\
\end{align*}

\[ I = \frac{0.0490}{0.7593} = 0.0646 \]

\[ GRV = \frac{(F \times I)}{12} = 0.00041 \text{ Acre Feet} \]

\[ = 17.79 \text{ Cubic Feet Storage Required} \]

The subject site is not a candidate for infiltration due to the presence of ledge and groundwater.
### TSS REMOVAL CALCULATION WORKSHEET

**Instructions:**
2. Complete only highlighted cells

| Location: Rain Garden No. 1 |

<table>
<thead>
<tr>
<th>BMP</th>
<th>TSS REMOVAL RATE</th>
<th>STARTING TSS LOAD</th>
<th>AMOUNT REMOVED (B*C)</th>
<th>REMAINING LOAD (C-D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 2</td>
<td>80%</td>
<td>1</td>
<td>0.8</td>
<td>0.2</td>
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<td></td>
<td></td>
<td>0.2</td>
<td>0</td>
<td>0.2</td>
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<tr>
<td></td>
<td></td>
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<td>0</td>
<td>0.2</td>
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<tr>
<td></td>
<td></td>
<td>0.2</td>
<td>0</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**TOTAL TSS REMOVAL = 80.0%**

*Equals remaining load form previous BMP (E) which enters the BMP*
TSS REMOVAL CALCULATION WORKSHEET

Instructions:
2. Complete only highlighted cells

Location: Sand Filter

<table>
<thead>
<tr>
<th>A</th>
<th>B TSS REMOVAL RATE(^1)</th>
<th>C STARTING TSS LOAD(^*)</th>
<th>D AMOUNT REMOVED (B*C)</th>
<th>E REMAINING LOAD (C-D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>85%</td>
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<td>0.85</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
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<td>0.15</td>
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<td>0.15</td>
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<tr>
<td></td>
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<td>0</td>
<td>0.15</td>
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<tr>
<td></td>
<td></td>
<td>0.15</td>
<td>0</td>
<td>0.15</td>
</tr>
</tbody>
</table>

TOTAL TSS REMOVAL = 85.0%

*Equals remaining load from previous BMP (E) which enters the BMP
HYDROLOGIC & HYDRAULIC CALCULATIONS
EXISTING CONDITIONS
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1 TO CB IN TAYLOR Runoff Area=40,685 sf 60.12% Impervious Runoff Depth=5.29" Flow Length=367' Tc=7.6 min CN=WQ Runoff=4.97 cfs 17,943 cf

Total Runoff Area = 40,685 sf Runoff Volume = 17,943 cf Average Runoff Depth = 5.29"
39.88% Pervious = 16,226 sf 60.12% Impervious = 24,459 sf
Summary for Subcatchment 1S: DA-1 TO CB IN TAYLOR DR

Runoff = 4.97 cfs @ 12.11 hrs, Volume= 17,943 cf, Depth= 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-27.00 hrs, dt= 0.02 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>2,552</td>
<td>98</td>
<td>Roofs, HSG D</td>
</tr>
<tr>
<td>17,064</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>847</td>
<td>98</td>
<td>Paved parking, HSG D</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3,996</td>
<td>98</td>
<td>Unconnected ledge, HSG D</td>
</tr>
<tr>
<td>2,995</td>
<td>79</td>
<td>Woods, Fair, HSG D</td>
</tr>
<tr>
<td>5,837</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
</tr>
<tr>
<td>*</td>
<td>77</td>
<td>Offsite Woods, Good, HSG D</td>
</tr>
<tr>
<td>40,685</td>
<td></td>
<td>Weighted Average</td>
</tr>
<tr>
<td>16,226</td>
<td>78</td>
<td>39.88% Pervious Area</td>
</tr>
<tr>
<td>24,459</td>
<td>98</td>
<td>60.12% Impervious Area</td>
</tr>
<tr>
<td>3,996</td>
<td></td>
<td>16.34% Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4</td>
<td>64</td>
<td>0.1630</td>
<td>0.17</td>
<td></td>
<td>Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.30&quot;</td>
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<tr>
<td>0.0</td>
<td>20</td>
<td>0.5200</td>
<td>14.64</td>
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<td>Shallow Concentrated Flow, Paved Kv= 20.3 fps</td>
</tr>
<tr>
<td>0.0</td>
<td>2</td>
<td>0.1100</td>
<td>1.66</td>
<td></td>
<td>Shallow Concentrated Flow, Woodland Kv= 5.0 fps</td>
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<tr>
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<td>0.0530</td>
<td>4.67</td>
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<td>Shallow Concentrated Flow, Paved Kv= 20.3 fps</td>
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<tr>
<td>0.5</td>
<td>92</td>
<td>0.0230</td>
<td>3.08</td>
<td></td>
<td>Shallow Concentrated Flow, Paved Kv= 20.3 fps</td>
</tr>
</tbody>
</table>

7.6 367 Total
Subcatchment 1S: DA-1 TO CB IN TAYLOR DR

Hydrograph

4.97 cfs @ 12.11 hrs

Type III 24-hr
25-YEAR Rainfall=6.40"
Runoff Area=40,685 sf
Runoff Volume=17,943 cf
Runoff Depth=5.29"
Flow Length=367'
Tc=7.6 min
CN=WQ
Subcatchment 1S: DA-1 TO CB IN TAYLOR
Runoff Area=40,685 sf  60.12% Impervious  Runoff Depth=2.04"
Flow Length=367'  Tc=7.6 min  CN=WQ  Runoff=1.92 cfs  6,907 cf

Total Runoff Area = 40,685 sf  Runoff Volume = 6,907 cf  Average Runoff Depth = 2.04"
39.88% Pervious = 16,226 sf  60.12% Impervious = 24,459 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1 TO CB IN TAYLOR Runoff Area=40,685 sf  60.12% Impervious  Runoff Depth=2.48" 
Flow Length=367"  Tc=7.6 min  CN=WQ  Runoff=2.34 cfs  8,420 cf

Total Runoff Area = 40,685 sf  Runoff Volume = 8,420 cf  Average Runoff Depth = 2.48" 
39.88% Pervious = 16,226 sf  60.12% Impervious = 24,459 sf
Subcatchment 1S: DA-1 TO CB IN TAYLOR
Runoff Area = 40,685 sf  60.12% Impervious  Runoff Depth = 3.31"
Flow Length = 367'  Tc = 7.6 min  CN = WQ  Runoff = 3.12 cfs  11,213 cf

Total Runoff Area = 40,685 sf  Runoff Volume = 11,213 cf  Average Runoff Depth = 3.31"
39.88% Pervious = 16,226 sf  60.12% Impervious = 24,459 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1 TO CB IN TAYLOR Runoff Area=40,685 sf  60.12% Impervious  Runoff Depth=4.06"
Flow Length=367’  Tc=7.6 min  CN=WQ  Runoff=3.82 cfs  13,750 cf

Total Runoff Area = 40,685 sf  Runoff Volume = 13,750 cf  Average Runoff Depth = 4.06"
39.88% Pervious = 16,226 sf  60.12% Impervious = 24,459 sf
Subcatchment 1S: DA-1 TO CB IN TAYLOR  Runoff Area=40,685 sf  60.12% Impervious  Runoff Depth=5.29"
Flow Length=367"  Tc=7.6 min  CN=WQ  Runoff=4.97 cfs  17,943 cf

Total Runoff Area = 40,685 sf  Runoff Volume = 17,943 cf  Average Runoff Depth = 5.29"
39.88% Pervious = 16,226 sf  60.12% Impervious = 24,459 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: DA-1 TO CB IN TAYLOR**
Runoff Area=40,685 sf  60.12% Impervious  Runoff Depth=6.45"
Flow Length=367'  Tc=7.6 min  CN=WQ  Runoff=6.03 cfs  21,863 cf

Total Runoff Area = 40,685 sf  Runoff Volume = 21,863 cf  Average Runoff Depth = 6.45"
39.88% Pervious = 16,226 sf  60.12% Impervious = 24,459 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method  -  Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1 TO CB IN TAYLOR  Runoff Area=40,685 sf  60.12% Impervious  Runoff Depth=7.91''
Flow Length=367'  Tc=7.6 min  CN=WQ  Runoff=7.37 cfs  26,808 cf

Total Runoff Area = 40,685 sf  Runoff Volume = 26,808 cf  Average Runoff Depth = 7.91''
39.88% Pervious = 16,226 sf  60.12% Impervious = 24,459 sf
1BS
DA-1B TO RG 1

DA-1 TO CB IN TAYLOR DR

1S

RAIN GARDEN FILTRATION SYSTEM No. 1 (BMP 2)

2P

DA-1A TO SAND FILTER

1AS

1L
CB IN TAYLOR DR

1P
SAND FILTER No. 1 (BMP 1)
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1AS: DA-1A TO SAND
Runoff Area=28,466 sf 85.59% Impervious  Runoff Depth=5.84"
Flow Length=57' Tc=5.5 min CN=WQ Runoff=4.01 cfs 13,857 cf

Subcatchment 1BS: DA-1B TO RG 1
Runoff Area=894 sf 92.73% Impervious  Runoff Depth=6.01"
Tc=5.0 min CN=WQ Runoff=0.13 cfs 448 cf

Subcatchment 1S: DA-1 TO CB IN TAYLOR
Runoff Area=11,324 sf 12.38% Impervious  Runoff Depth=4.20"
Flow Length=176' Tc=7.9 min CN=WQ Runoff=1.17 cfs 3,965 cf

Pond 1P: SAND FILTER No. 1 (BMP 1)
Peak Elev=13.06' Storage=2,626 cf Inflow=4.01 cfs 13,857 cf
Outflow=3.46 cfs 13,857 cf

Pond 2P: RAIN GARDEN FILTRATION SYSTEM
Peak Elev=14.74' Storage=33 cf Inflow=0.13 cfs 448 cf
Outflow=0.13 cfs 448 cf

Link 1L: CB IN TAYLOR DR
Inflow=4.74 cfs 18,269 cf
Primary=4.74 cfs 18,269 cf

Total Runoff Area = 40,684 sf  Runoff Volume = 18,269 cf  Average Runoff Depth = 5.39"
34.63% Pervious = 14,090 sf  65.37% Impervious = 26,594 sf
Summary for Subcatchment 1AS: DA-1A TO SAND FILTER

Runoff = 4.01 cfs @ 12.08 hrs, Volume = 13,857 cf, Depth = 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span = 0.00-27.00 hrs, dt = 0.02 hrs
Type III 24-hr 25-YEAR Rainfall=6.40"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
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<td>Offsite Woods, Good, HSG D</td>
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<tr>
<td>28,466</td>
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<td>Weighted Average</td>
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<tr>
<td>4,103</td>
<td>78</td>
<td>14.41% Pervious Area</td>
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<td>24,363</td>
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<td>85.59% Impervious Area</td>
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<th>Tc (min)</th>
<th>Length (feet)</th>
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<td>Woods: Light underbrush n = 0.400 P2 = 3.30&quot;</td>
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<td>Total</td>
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Subcatchment 1AS: DA-1A TO SAND FILTER

Hydrograph

4.01 cfs @ 12.08 hrs

Type III 24-hr
25-YEAR Rainfall=6.40"
Runoff Area=28,466 sf
Runoff Volume=13,857 cf
Runoff Depth=5.84"
Flow Length=57"
Tc=5.5 min
CN=WQ
Summary for Subcatchment 1BS: DA-1B TO RG 1

Runoff = 0.13 cfs @ 12.07 hrs, Volume= 448 cf, Depth= 6.01" 

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-27.00 hrs, dt= 0.02 hrs 
Type III 24-hr 25-YEAR Rainfall=6.40" 

<table>
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<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>829</td>
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<td>Roofs, HSG D</td>
</tr>
<tr>
<td>65</td>
<td>80</td>
<td>&gt;75% Grass cover, Good, HSG D</td>
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<tr>
<td>894</td>
<td></td>
<td>Weighted Average</td>
</tr>
<tr>
<td>65</td>
<td>80</td>
<td>7.27% Pervious Area</td>
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<tr>
<td>829</td>
<td>98</td>
<td>92.73% Impervious Area</td>
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</table>

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

Subcatchment 1BS: DA-1B TO RG 1

Hydrograph

0.13 cfs @ 12.07 hrs

Type III 24-hr 25-YEAR Rainfall=6.40"
Runoff Area=894 sf
Runoff Volume=448 cf
Runoff Depth=6.01"
Tc=5.0 min
CN=WQ
Summary for Subcatchment 1S: DA-1 TO CB IN TAYLOR DR

Runoff = 1.17 cfs @ 12.11 hrs, Volume= 3,965 cf, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-27.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-YEAR Rainfall=6.40"

<table>
<thead>
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<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
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<tr>
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<td>Paved parking, HSG D</td>
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<tr>
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<tr>
<td>4,459</td>
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<td>Woods/grass comb., Good, HSG D</td>
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<tr>
<td>*</td>
<td>5,463</td>
<td>Offsite Woods, Good, HSG D</td>
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<tr>
<td>11,324</td>
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<tr>
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<td>87.62% Pervious Area</td>
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<td>12.38% Impervious Area</td>
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<table>
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<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
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<tr>
<td>6.4</td>
<td>64</td>
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<td>Sheet Flow, Woods: Light underbrush n= 0.400</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>P2= 3.30&quot;</td>
</tr>
<tr>
<td>1.5</td>
<td>112</td>
<td>0.0620</td>
<td>1.24</td>
<td></td>
<td>Shallow Concentrated Flow, Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

Subcatchment 1S: DA-1 TO CB IN TAYLOR DR

Hydrograph

Type III 24-hr
25-YEAR Rainfall=6.40"
Runoff Area=11,324 sf
Runoff Volume=3,965 cf
Runoff Depth=4.20"
Flow Length=176'
Tc=7.9 min
CN=WQ
Summary for Pond 1P: SAND FILTER No. 1 (BMP 1)

Inflow Area = 28,466 sf, 85.59% Impervious, Inflow Depth = 5.84" for 25-YEAR event
Inflow = 4.01 cfs @ 12.08 hrs, Volume= 13,857 cf
Outflow = 3.46 cfs @ 12.12 hrs, Volume= 13,857 cf, Atten= 14%, Lag= 2.7 min
Primary = 3.46 cfs @ 12.12 hrs, Volume= 13,857 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-27.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 13.06' @ 12.12 hrs Surf.Area= 447 sf Storage= 2,626 cf

Plug-Flow detention time= 41.7 min calculated for 13,846 cf (100% of inflow)
Center-of-Mass det. time= 41.7 min ( 792.4 - 750.7 )

<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>10.80'</td>
<td>1,501 cf</td>
<td>Custom Stage Data (Forebay) (Prismatic) Listed below (Recalc) - Impervio</td>
</tr>
<tr>
<td>#2</td>
<td>10.80'</td>
<td>1,501 cf</td>
<td>Custom Stage Data (Sandfilter) (Prismatic) Listed below (Recalc)</td>
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</tbody>
</table>

3,001 cf Total Available Storage

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surf.Area (sq-ft)</th>
<th>Voids (%)</th>
<th>Inc.Store (cubic-feet)</th>
<th>Cum.Store (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.80</td>
<td>588</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12.30</td>
<td>588</td>
<td>100.0</td>
<td>882</td>
<td>882</td>
</tr>
<tr>
<td>12.80</td>
<td>588</td>
<td>100.0</td>
<td>294</td>
<td>1,176</td>
</tr>
<tr>
<td>13.90</td>
<td>2</td>
<td>100.0</td>
<td>324</td>
<td>1,501</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surf.Area (sq-ft)</th>
<th>Voids (%)</th>
<th>Inc.Store (cubic-feet)</th>
<th>Cum.Store (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.80</td>
<td>588</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12.30</td>
<td>588</td>
<td>100.0</td>
<td>882</td>
<td>882</td>
</tr>
<tr>
<td>12.80</td>
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<td>100.0</td>
<td>294</td>
<td>1,176</td>
</tr>
<tr>
<td>13.90</td>
<td>2</td>
<td>100.0</td>
<td>324</td>
<td>1,501</td>
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</table>

Device | Routing | Invert | Outlet Devices |
<table>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Device 2</td>
<td>10.80'</td>
<td>10.000 in/hr Exfiltration over Surface area below 10.81'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Conductivity to Groundwater Elevation = 9.30' Phase-In= 0.01'</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>8.80'</td>
<td>4.0&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#3</td>
<td>Primary</td>
<td>12.30'</td>
<td>10.0&quot; Round Culvert X 2.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>L= 5.5' CPP, square edge headwall, Ke= 0.500</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Inlet / Outlet Invert= 12.30' / 11.30' S= 0.1818 '/' Cc= 0.900</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf</td>
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</table>

Primary OutFlow Max=3.45 cfs @ 12.12 hrs HW=13.06' TW=0.00' (Dynamic Tailwater)
2=Orifice/Grate (Passes 0.34 cfs of 0.85 cfs potential flow)
1=Exfiltration (Controls 0.34 cfs)
3=Culvert (Inlet Controls 3.11 cfs @ 2.97 fps)
Pond 1P: SAND FILTER No. 1 (BMP 1)

Hydrograph

- Inflow
- Primary

Flow (cfs)

Time (hours)

- 4.01 cfs @ 12.08 hrs
- 3.46 cfs @ 12.12 hrs

Area = 28,466 sf
Peak Elev = 13.06'
Storage = 2,626 cf

Pond 1P: SAND FILTER No. 1 (BMP 1)

Stage-Discharge

- Primary

Elevation (feet)

Discharge (cfs)

- Culvert
- Exfiltration
Pond 1P: SAND FILTER No. 1 (BMP 1)

Stage-Area-Storage

Surface/Horizontal/Wetted Area (sq-ft)

Elevation (feet)

Custom Stage Data (Forebay) + Custom Stage Data (Sandfilter)
## Stage-Area-Storage for Pond 1P: SAND FILTER No. 1 (BMP 1)

<table>
<thead>
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<th>Elevation (feet)</th>
<th>Surface (sq-ft)</th>
<th>Storage (cubic-feet)</th>
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</thead>
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<td>235</td>
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<tr>
<td>11.25</td>
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<th>Surface (sq-ft)</th>
<th>Storage (cubic-feet)</th>
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<tr>
<td>13.90</td>
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<td>3,001</td>
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</tbody>
</table>
Summary for Pond 2P: RAIN GARDEN FILTRATION SYSTEM No. 1 (BMP 2)

Inflow Area = 894 sf, 92.73% Impervious, Inflow Depth = 6.01" for 25-YEAR event
Inflow = 0.13 cfs @ 12.07 hrs, Volume= 448 cf
Outflow = 0.13 cfs @ 12.08 hrs, Volume= 448 cf, Atten= 0%, Lag= 0.3 min
Primary = 0.13 cfs @ 12.08 hrs, Volume= 448 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-27.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 14.74' @ 12.08 hrs  Surf.Area= 64 sf  Storage= 33 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 6.3 min (752.9 - 746.6)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
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<tbody>
<tr>
<td>#1</td>
<td>14.00'</td>
<td>50 cf</td>
<td>Custom Stage Data (Irregular) Listed below (Recalc)</td>
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</table>

<table>
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<th></th>
</tr>
</thead>
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<td>14.25</td>
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<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
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</thead>
<tbody>
<tr>
<td>#1</td>
<td>Device 3</td>
<td>14.00'</td>
<td>8.270 in/hr Exfiltration over Surface area below 14.01' Conductivity to Groundwater Elevation = 12.50' Phase-In= 0.01'</td>
</tr>
<tr>
<td>#2</td>
<td>Device 3</td>
<td>14.70'</td>
<td>12.0' x 12.0' Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads</td>
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<td>#3 Primary</td>
<td>11.50'</td>
<td>4.0' Round Culvert L= 4.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.50' / 10.56' S= 0.2043'/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf</td>
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Primary OutFlow Max= 0.13 cfs @ 12.08 hrs HW= 14.74' TW= 0.00' (Dynamic Tailwater)
=1=Exfiltration (Controls 0.02 cfs)
=2=Orifice/Grate (Weir Controls 0.11 cfs @ 0.67 fps)
Pond 2P: RAIN GARDEN FILTRATION SYSTEM No. 1 (BMP 2)

Hydrograph

Inflow Area = 894 sf
Peak Elev = 14.74'
Storage = 33 cf

Inflow
Primary

Pond 2P: RAIN GARDEN FILTRATION SYSTEM No. 1 (BMP 2)

Stage-Discharge

Orifice/Grate

Exfiltration
Pond 2P: RAIN GARDEN FILTRATION SYSTEM No. 1 (BMP 2)

Stage-Area-Storage

Surface/Horizontal/Wetted Area (sq-ft)

Elevation (feet)

Storage (cubic-feet)

Custom Stage Data

- Surface
- Storage
<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surface (sq-ft)</th>
<th>Storage (cubic-feet)</th>
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Summary for Link 1L: CB IN TAYLOR DR

Inflow Area = 40,684 sf, 65.37% Impervious, Inflow Depth = 5.39" for 25-YEAR event
Inflow = 4.74 cfs @ 12.12 hrs, Volume= 18,269 cf
Primary = 4.74 cfs @ 12.12 hrs, Volume= 18,269 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-27.00 hrs, dt= 0.02 hrs

Link 1L: CB IN TAYLOR DR

Hydrograph

4.74 cfs @ 12.12 hrs

Inflow Area=40,684 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1AS: DA-1A TO SAND
Runoff Area=28,466 sf  85.59% Impervious  Runoff Depth=2.44"
Flow Length=57'  Tc=5.5 min  CN=WQ  Runoff=1.71 cfs  5,781 cf

Subcatchment 1BS: DA-1B TO RG 1
Runoff Area=894 sf  92.73% Impervious  Runoff Depth=2.56"
Tc=5.0 min  CN=WQ  Runoff=0.06 cfs  191 cf

Subcatchment 1S: DA-1 TO CB IN TAYLOR
Runoff Area=11,324 sf  12.38% Impervious  Runoff Depth=1.25"
Flow Length=176'  Tc=7.9 min  CN=WQ  Runoff=0.34 cfs  1,183 cf

Pond 1P: SAND FILTER No. 1 (BMP 1)
Peak Elev=12.32'  Storage=1,787 cf  Inflow=1.71 cfs  5,781 cf
Outflow=0.28 cfs  5,781 cf

Pond 2P: RAIN GARDEN FILTRATION SYSTEM
Peak Elev=14.70'  Storage=31 cf  Inflow=0.06 cfs  191 cf
Outflow=0.02 cfs  191 cf

Link 1L: CB IN TAYLOR DR
Inflow=0.58 cfs  7,155 cf
Primary=0.56 cfs  7,155 cf

Total Runoff Area = 40,684 sf  Runoff Volume = 7,155 cf  Average Runoff Depth = 2.11"
34.63% Pervious = 14,090 sf  65.37% Impervious = 26,594 sf
Subcatchment 1AS: DA-1A TO SAND
Runoff Area=28,466 sf  85.59% Impervious  Runoff Depth=2.92"
Flow Length=57'  Tc=5.5 min  CN=WQ  Runoff=2.04 cfs  6,917 cf

Subcatchment 1BS: DA-1B TO RG 1
Runoff Area=894 sf  92.73% Impervious  Runoff Depth=3.05"
Tc=5.0 min  CN=WQ  Runoff=0.07 cfs  227 cf

Subcatchment 1S: DA-1 TO CB IN TAYLOR Runoff Area=11,324 sf  12.38% Impervious  Runoff Depth=1.63"
Flow Length=176'  Tc=7.9 min  CN=WQ  Runoff=0.45 cfs  1,541 cf

Pond 1P: SAND FILTER No. 1 (BMP 1)
Peak Elev=12.51'  Storage=2,007 cf  Inflow=2.04 cfs  6,917 cf
Outflow=0.62 cfs  6,917 cf

Pond 2P: RAIN GARDEN FILTRATION SYSTEM
Peak Elev=14.72'  Storage=32 cf  Inflow=0.07 cfs  227 cf
Outflow=0.06 cfs  227 cf

Link 1L: CB IN TAYLOR DR
Inflow=0.84 cfs  8,685 cf
Primary=0.84 cfs  8,685 cf

Total Runoff Area = 40,684 sf  Runoff Volume = 8,685 cf  Average Runoff Depth = 2.56"
34.63% Pervious = 14,090 sf  65.37% Impervious = 26,594 sf
Subcatchment 1AS: DA-1A TO SAND
Runoff Area = 28,466 sf  85.59% Impervious  Runoff Depth = 3.79"
Flow Length = 57'  Tc = 5.5 min  CN = WQ  Runoff = 2.62 cfs 8,982 cf

Subcatchment 1BS: DA-1B TO RG 1
Runoff Area = 894 sf  92.73% Impervious  Runoff Depth = 3.94"
Tc = 5.0 min  CN = WQ  Runoff = 0.09 cfs 293 cf

Subcatchment 1S: DA-1 TO CB IN TAYLOR
Runoff Area = 11,324 sf  12.38% Impervious  Runoff Depth = 2.36"
Flow Length = 176'  Tc = 7.9 min  CN = WQ  Runoff = 0.65 cfs 2,229 cf

Pond 1P: SAND FILTER No. 1 (BMP 1)
Peak Elev = 12.69'  Storage = 2,223 cf  Inflow = 2.62 cfs 8,982 cf
Outflow = 1.37 cfs 8,982 cf

Pond 2P: RAIN GARDEN FILTRATION SYSTEM
Peak Elev = 14.74'  Storage = 33 cf  Inflow = 0.09 cfs 293 cf
Outflow = 0.10 cfs 293 cf

Link 1L: CB IN TAYLOR DR
Inflow = 1.92 cfs 11,504 cf
Primary = 1.92 cfs 11,504 cf

Total Runoff Area = 40,684 sf  Runoff Volume = 11,504 cf  Average Runoff Depth = 3.39"
34.63% Pervious = 14,090 sf  65.37% Impervious = 26,594 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

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<th>Runoff Area=28,466 sf  85.59% Impervious  Runoff Depth=4.57&quot;  Flow Length=57'  Tc=5.5 min  CN=WQ  Runoff=3.15 cfs  10,831 cf</th>
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<td>Link 1L: CB IN TAYLOR DR</td>
<td>Inflow=3.12 cfs  14,057 cf  Primary=3.12 cfs  14,057 cf</td>
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Total Runoff Area = 40,684 sf  Runoff Volume = 14,057 cf  Average Runoff Depth = 4.15"
34.63% Pervious = 14,090 sf  65.37% Impervious = 26,594 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

| Subcatchment 1AS: DA-1A TO SAND          | Runoff Area=28,466 sf  85.59% Impervious  Runoff Depth=5.84"  
|                                        | Flow Length=57’  Tc=5.5 min  CN=WQ  Runoff=4.01 cfs  13,857 cf |
| Subcatchment 1BS: DA-1B TO RG 1         | Runoff Area=894 sf  92.73% Impervious  Runoff Depth=6.01"  
|                                        | Tc=5.0 min  CN=WQ  Runoff=0.13 cfs  448 cf |
| Subcatchment 1S: DA-1 TO CB IN TAYLOR   | Runoff Area=11,324 sf  12.38% Impervious  Runoff Depth=4.20"  
|                                        | Flow Length=176’  Tc=7.9 min  CN=WQ  Runoff=1.17 cfs  3,965 cf |
| Pond 1P: SAND FILTER No. 1 (BMP 1)      | Peak Elev=13.06’ Storage=2,626 cf  Inflow=4.01 cfs  13,857 cf  
|                                        | Outflow=3.46 cfs  13,857 cf |
| Pond 2P: RAIN GARDEN FILTRATION SYSTEM  | Peak Elev=14.74’ Storage=33 cf  Inflow=0.13 cfs  448 cf  
|                                        | Outflow=0.13 cfs  448 cf |
| Link 1L: CB IN TAYLOR DR                | Inflow=4.74 cfs  18,269 cf  Primary=4.74 cfs  18,269 cf |

Total Runoff Area = 40,684 sf  Runoff Volume = 18,269 cf  Average Runoff Depth = 5.39"  
34.63% Pervious = 14,090 sf  65.37% Impervious = 26,594 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1AS: DA-1A TO SAND
- Runoff Area=28,466 sf 85.59% Impervious Runoff Depth=7.02"
- Flow Length=57’ Tc=5.5 min CN=WQ Runoff=4.80 cfs 16,663 cf

Subcatchment 1BS: DA-1B TO RG 1
- Runoff Area=894 sf 92.73% Impervious Runoff Depth=7.21"
- Tc=5.0 min CN=WQ Runoff=0.16 cfs 537 cf

Subcatchment 1S: DA-1 TO CB IN TAYLOR
- Runoff Area=11,324 sf 12.38% Impervious Runoff Depth=5.30"
- Flow Length=176’ Tc=7.9 min CN=WQ Runoff=1.47 cfs 5,003 cf

Pond 1P: SAND FILTER No. 1 (BMP 1)
- Peak Elev=13.26’ Storage=2,778 cf Inflow=4.80 cfs 16,663 cf
- Outflow=4.22 cfs 16,663 cf

Pond 2P: RAIN GARDEN FILTRATION SYSTEM
- Peak Elev=14.75’ Storage=33 cf Inflow=0.16 cfs 537 cf
- Outflow=0.16 cfs 537 cf

Link 1L: CB IN TAYLOR DR
- Inflow=5.82 cfs 22,203 cf
- Primary=5.82 cfs 22,203 cf

Total Runoff Area = 40,684 sf Runoff Volume = 22,203 cf Average Runoff Depth = 6.55"
34.63% Pervious = 14,090 sf 65.37% Impervious = 26,594 sf
Time span=0.00-27.00 hrs, dt=0.02 hrs, 1351 points x 2
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1AS: DA-1A TO SAND
  Runoff Area=28,466 sf  85.59% Impervious  Runoff Depth=8.51"
  Flow Length=57'  Tc=5.5 min  CN=WQ  Runoff=5.79 cfs  20,183 cf

Subcatchment 1BS: DA-1B TO RG 1
  Runoff Area=894 sf  92.73% Impervious  Runoff Depth=8.70"
  Tc=5.0 min  CN=WQ  Runoff=0.19 cfs  648 cf

Subcatchment 1S: DA-1 TO CB IN TAYLOR
  Runoff Area=11,324 sf  12.38% Impervious  Runoff Depth=6.71"
  Flow Length=176'  Tc=7.9 min  CN=WQ  Runoff=1.84 cfs  6,330 cf

Pond 1P: SAND FILTER No. 1 (BMP 1)
  Peak Elev=13.56'  Storage=2,937 cf  Inflow=5.79 cfs  20,183 cf
  Outflow=5.21 cfs  20,183 cf

Pond 2P: RAIN GARDEN FILTRATION SYSTEM
  Peak Elev=14.76'  Storage=34 cf  Inflow=0.19 cfs  648 cf
  Outflow=0.19 cfs  648 cf

Link 1L: CB IN TAYLOR DR
  Inflow=7.21 cfs  27,161 cf
  Primary=7.21 cfs  27,161 cf

Total Runoff Area = 40,684 sf  Runoff Volume = 27,161 cf  Average Runoff Depth = 8.01"
34.63% Pervious = 14,090 sf  65.37% Impervious = 26,594 sf
DRAINAGE AREA MAPS
PROPOSED DEVELOPMENT PLAN
PREPARED FOR
100 EAST PUTNAM LLC

SITE DEVELOPMENT LEGEND

LIST OF DRAWINGS

SHEET No. TITLE
1 EXISTING CONDITIONS
2 GRADING
3 PARKING LAYOUT PLAN
4 SITE PLAN
5 TURNING MOVEMENTS PLAN
6 EROSION CONTROL PLAN
7 DETAILS & NOTES
8 DETAILS & NOTES II
9 DRIVeway PROFILE & SIGHT LINE DISTANCE PLAN
10 LID CONCEPTUAL PLAN

LOCATION MAP
SCALE: 1" = 500'

100 EAST PUTNAM AVENUE
DATE: NOVEMBER 13, 2020

PARCEL ID No: 06-282/5

ZONING: BR-2
TOTAL LOT AREA = 33,077 SF

COVER SHEET
ZONE1BR-2
TOTAL LOT AREA = 33,077 SF
Sediment Barrier Width: Crushed Stone

NOTES:
1. All dimensions shown are based on the North American Vertical Datum of 1988 (NAVD 88).
2. Properties are subject to local, state, and federal laws.
3. All submitted plans are subject to review by the local, state, and federal agencies.
4. All required permits must be obtained before any work can begin.
5. All proposed work must comply with the requirements of the local, state, and federal agencies.
6. The use of the proposed materials is subject to the approval of the local, state, and federal agencies.
7. All proposed work must be completed in accordance with the approved plans.
8. All proposed work must be submitted for review and approval by the local, state, and federal agencies.
9. All proposed work must be completed within the time frames approved by the local, state, and federal agencies.
10. All proposed work must be maintained in accordance with the approved plans.

Erosion Control Plan
ZONING REGULATIONS:
1. All proposed work must be in compliance with the zoning regulations of the local, state, and federal agencies.
2. All proposed work must be submitted for review and approval by the local, state, and federal agencies.
3. All proposed work must be completed within the time frames approved by the local, state, and federal agencies.
4. All proposed work must be maintained in accordance with the approved plans.
5. All proposed work must be submitted for review and approval by the local, state, and federal agencies.
6. All proposed work must be completed within the time frames approved by the local, state, and federal agencies.
7. All proposed work must be maintained in accordance with the approved plans.
8. All proposed work must be submitted for review and approval by the local, state, and federal agencies.
9. All proposed work must be completed within the time frames approved by the local, state, and federal agencies.
10. All proposed work must be maintained in accordance with the approved plans.

Total Lot Area: 33,077 SF
November 13, 2020

Town of Greenwich
Department of Public Works
Division of Building Inspection
Zoning Enforcement Division
Town Hall
101 Field Point Road
Greenwich, CT 06830
Attn.: Jodi Couture, Zoning Enforcement Officer

RE: Property of 100 East Putnam LLC
100 East Putnam Avenue
Cos Cob, CT

Dear Sir,

Mills Engineering, LLC has determined the Proposed Grade Plane for the above referenced project to be at elevation 21.67, for a first floor elevation of 18.3 as shown on the enclosed calculation sheet and sketch prepared by Mills Engineering, LLC, and based on the Building Zone Regulations Sections 6-5 (a) (26), 6-5 (45.2) and 6-134 (d), (e), (f), & (g). We have also determined that at no point is the finished floor more than 12 feet above the adjacent grade.

Please let me know if you have any questions or concerns regarding this matter.

Respectfully submitted,

Mills Engineering, LLC

[Signature]

Charles A. Mills, P.E.

Enc.: Grade Plane Calculation Sheet and Sketch
<table>
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<tr>
<th>SIDE</th>
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<th>LENGTH X</th>
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TOTAL: 706.96 XXXXXX 14643.39

COLUMN 3/ COLUMN 1=GRADE PLANE = 20.67
100 East Putnam Avenue Granoff Adjustments 11/16/20

Architectural:
- Eve lines extended on East & West facades to eliminate “slit roofs”
- Adjusted roof lines across west facade
- Consistent truncated gable ends at Bank
- Window sills changed to brick rowlock
- Redesigned residential lobby. Reconfigured layout to allow the entry door to face Taylor Drive and create symmetry in the façade.
- Added mechanical basement area below retail space

Landscape:
- Changed western property line tree selection to a columnar oak tree. Better root system for a tight space (tap root).
- Provided notes to keep as many trees as possible especially to the north side of property. Maple along Taylor is kept per request.
- Made note of wall material treatment. Will not know exact wall type and extents until construction due to possible ledge rock. Would give them the opportunity to approve once construction is underway and conditions are better known. We do not intend to have a raw poured concrete wall, we want to treat it as beautifully as possible. The final wall material will work together with cascading vines.
- Added evergreen shrubs along Taylor Drive to better diffuse parking lot.
- Engineering adjusted some grading.
- Changed lighting piers to brick matching building facade
100 EAST PUTNAM AVENUE
Greenwich, CT

SITE LOCATION - NCT TO SCALE
EXISTING & PROPOSED TREE CANOPY STUDY

NOTE: For illustrative purposes only. Survey base information as provided per MILLS ENGINEERING, LLC, 65 COLUMBUS PLACE, UNIT C, STAMFORD, CT 06906-2407. Satellite image from google.

LEGEND

- EXISTING TREE CANOPY TO REMAIN
- EXISTING TREE CANOPY TO BE REMOVED
- PROPOSED TREE CANOPY

NOTE:
REFER TO ARBORIST REPORT PROVIDED BY WILLIAM KENNY ASSOCIATES, LLC, FOR FURTHER TREE HEALTH AND RECOMMENDATIONS.
EXTERIOR LIGHTING PHOTOMETRICS

NOTE: All calculations provided by Illuminart.

Notes:
Hedges/Shrubs assumed at 1.6ft. Thuja Plicata assumed at 6ft.

Calculation Summary

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100 East Putnam Avenue

PLANNING & ZONING SUBMISSION

DRAWING NO. A103

ROOF PLAN

1/8" = 1'-0"
GROUND FLOOR ZONING KEY PLAN
SEE DRAWING 3/Z100.2 FOR MECHANICAL BASEMENT AREA CALCULATIONS

GROUND FLOOR AREA DIAGRAM

BASEMENT AREA DIAGRAM (MECHANICAL USE ONLY) MECHANICAL SPACE EXEMPT FROM F.A.R. (6-13488)

100 EAST PUTNAM AVENUE
GREENWICH, CT 06830
WWW.GRAHAMARCHITECTS.COM

PLANNING & ZONING SUBMISSION

Z100.2