



April 5, 2025

Bruce Fitzback, LS, CZEO
Land Use Director
Town of Putnam
200 School Street
Putnam, CT 06260

Subject: 465 School Street Peer Review

Dear Mr. Fitzback:

CDM Smith was requested by the Town of Putnam, CT to conduct a peer review of the development planned for 465 School Street, Putnam, CT. The Town provided the following documents for review:

“Modified Site Plan: Multifamily Housing Development, 465 School Street, Putnam, CT” dated September 2024, revised March 11, 2025 by Green Site Design LLC

“Drainage Calculations, Hydraulics & Hydrology Report, Multi-family Housing 4565 School Street” Dated January 2025 by CLA Engineers, Inc.

“Statement of Use, 465 School Street” letter dated January 24, 2025 from CLA Engineers, Inc.

“Existing Drainage Plan (Sheet D1) Multi-family Development 465 School Street, Putnam, CT” and “Proposed Drainage Plan (Sheet D2) Multi-family Development 465 School Street, Putnam, CT” dated July 31, 2024 by Green Site Design LLC

“465 School Street, Putnam, CT GSD71” letter from Green Site Design LLC to Mr. Fitzback, not dated

The project was reviewed with respect to the requirements of the Connecticut Stormwater Quality Manual latest revision dated March 26, 2024 (Stormwater Manual). The following comments pertain to the documents submitted:

- 1) The project needs to be designed in accordance with the latest version of the Connecticut Stormwater Quality Manual since the expiration of the previous project approval and the revised project not having completed more than 50% of the full design as of the effective date of the regulations.
- 2) Provide a stormwater management report meeting the requirements of Chapter 12 of the Stormwater Manual.

- 3) Provide the rainfall data used to determine the rainfall events.
- 4) The existing conditions section of the report states the project site is 8.8 acres in area with 9.2 acres of wetlands on the project site.
- 5) The drainage analysis is limited to 6.8 acres of the project site and does not account for all new impervious area proposed. The analysis is limited to the areas draining to the proposed water quality basin. Provide analysis and treatment for the entire project site.
- 6) Identify the discharge points in the report and on the plan drainage figures.
- 7) Identify the limits of the drainage sub-catchments and label them.
- 8) Provide summaries on the existing conditions of the sub-catchments with respect to existing ground cover, slope, soils, presence of wetlands, existing vegetation, and existing impervious area.
- 9) Time of concentration lines for both the existing and proposed sub-catchments are not shown. Provide labeled time of concentration lines. Provide justification for a longer time of concentration in the post development analysis.
- 10) Include information on the existing soil conditions in accordance with Chapter 12 of the Stormwater Manual including the seasonal high water table and hydrologic soil group.
- 11) Provide information on the FEMA flood zone limits on the plans and in the report for the Little Tavern Dam Brook.
- 12) Include the infiltration test reports for any proposed best management practices which infiltrate into the onsite soil.
- 13) Confirm the pond exfiltration rate is justified by a geotechnical report or infiltration test. Default infiltration rates detailed in Chapter 10 of the Stormwater Manual are significantly lower for a loamy sand or sandy loam.
- 14) Provide information on how the sediment basin infiltration capacity will be re-established to serve as a water quality basin and any testing requirements to confirm the infiltration rate meets the design infiltration rate after serving as a sediment basin.
- 15) Provide pretreatment for the water entering the water quality basin.
- 16) Provide the total draw down time of the water quality basin to confirm it meets the requirements of Chapter 10 of the Stormwater Manual.



Mr Bruce Fitzback
April 5, 2025
Page 3

- 17) Confirm the modeling of the pond outlet matches the proposed outlet. The Hydraflow report shows a two 12-inch diameter barrel outlet while the plans show one 24-inch diameter outlet.
- 18) Provide pad sizing calculations for all proposed riprap pads.
- 19) Provide information on wetland setback for the stormwater discharge from the water quality basin.
- 20) Provide an operation and maintenance plan meeting the requirements of Chapter 12 of the Stormwater Manual. Consider the side slopes of the proposed water quality basin in respect to ability to mow a 3:1 slope.
- 21) Provide information on water quality basin freeboard requirements.

If you have any questions or require additional clarification on the items listed above, please do not hesitate to call either Alexandra Van De Water at (603) 222-8339 or myself at (401) 215-6310.

Sincerely,

A handwritten signature in blue ink, appearing to read "Cynthia A. Baumann".

Cynthia A. Baumann
Principal, Senior Project Manager
CDM Smith Inc.

cc: Elaine Sistare, PE
Alexandra Van De Water, PE, CPESC



Ellen Bartlett, P.E. • CPSWQ, Leed Accredited

April 10, 2025

Bruce Fitzback, LS,
CZEO Land Use Director
Town of Putnam
200 School Street
Putnam, CT 06260

Subject: 465 School Street Peer Review

Dear Mr. Fitzback:

This letter is in response to the review comments from CDM Smith:

- 1) The project needs to be designed in accordance with the latest version of the Connecticut Stormwater Quality Manual since the expiration of the previous project approval and the revised project not having completed more than 50% of the full design as of the effective date of the regulations.

Noted

- 2) Provide a stormwater management report meeting the requirements of Chapter 12 of the Stormwater Manual.

Much of the information required by the Stormwater Manual was previously provided in the Statement of Use, the Wetlands Report, and the Drainage Report. All of this information has been combined into one document, the Stormwater Management Report. And the additional information recommended in the Manual and requested in the CDM review has also been added.

- 3) Provide the rainfall data used to determine the rainfall events.
The NOAA rainfall data has been added to the Drainage Report.
- 4) The existing conditions section of the report states the project site is 8.8 acres in area with 9.2 acres of wetlands on the project site.

This was a typo and has been corrected.

- 5) The drainage analysis is limited to 6.8 acres of the project site and does not account for

all new impervious area proposed. The analysis is limited to the areas draining to the proposed water quality basin. Provide analysis and treatment for the entire project site.

The new section of road leading down to School Street has been added onto the proposed drainage map, and discussed in the Drainage Report. A treatment structure, a hydrodynamic separator, has been added to sheet 4 and a detail on sheet 6.

- 6) Identify the discharge points in the report and on the plan drainage figures.

The discharge points have been called out on the Drainage Plans.

- 7) Identify the limits of the drainage sub-catchments and label them.

The second drainage area has been shown on the Proposed Drainage Plan, which includes the new section of access drive out to the existing paved driveway out to School Street. A third drainage map, D-3, has been provided showing sub-catchment areas.

- 8) Provide summaries on the existing conditions of the sub-catchments with respect to existing ground cover, slope, soils, presence of wetlands, existing vegetation, and existing impervious area.

This information has been provided in the Stormwater Management Report. Much of which was included in the Wetlands report that was part of the original application package.

- 9) Time of concentration lines for both the existing and proposed sub-catchments are not shown. Provide labeled time of concentration lines. Provide justification for a longer time of concentration in the post development analysis.

Time of concentration lines have been added to both the existing and proposed drainage plans. The time of concentrations have been revised for post development analysis, it is shorter then the existing time of concentration. The existing time of concentration is now 32.0 minutes and the proposed is 26.4 minutes.

- 10) Include information on the existing soil conditions in accordance with Chapter 12 of the Stormwater Manual including the seasonal high water table and hydrologic soil group.

This information has been proved in the Stormwater Management Report.

- 11) Provide information on the FEMA flood zone limits on the plans and in the report for the Little Tavern Dam Brook.

The floodplain lines have been added to the site development plans. No work is

proposed within the floodplain. There will be a decrease in the peak flows to floodplain. This is discussed in the Stormwater Management Report and the Drainage Report.

- 12) Include the infiltration test reports for any proposed best management practices which infiltrate into the onsite soil.

The infiltration rate has been revised in the model to match the default infiltration rates detailed in Chapter 10 of the Stormwater Manual, 2.41 in/hr.

- 13) Confirm the pond exfiltration rate is justified by a geotechnical report or infiltration test. Default infiltration rates detailed in Chapter 10 of the Stormwater Manual are significantly lower for a loamy sand or sandy loam.

The infiltration rate has been revised in the model to match the default infiltration rates detailed in Chapter 10 of the Stormwater Manual for a loamy sand, 2.41 in/hr.

- 14) Provide information on how the sediment basin infiltration capacity will be re-established to serve as a water quality basin and any testing requirements to confirm the infiltration rate meets the design infiltration rate after serving as a sediment basin.

The proposed stormwater water quality basin has been designed to function as a sedimentation trap during stabilization. However, the bottom 3 feet of the stormwater quality basin will not be excavated until after the site is stabilized and the temporary sedimentation basin is converted to the stormwater quality basin. The sedimentation basin will only be excavated down to elevation 337 for the sedimentation trap. And then the additional 3 feet will be excavated down to elevation 334 for the permanent stormwater basin. This will protect the existing infiltration rate of the native materials under the stormwater quality basin. This has been discussed in the Drainage Report and in the Drainage Report section of the Stormwater Management Report. It has been noted on sheet 3, sheet 4, and discussed in note 11 in the Erosion Control & Sedimentation Narrative on sheet 7.

- 15) Provide pretreatment for the water entering the water quality basin.

A forebay has been added to sheet 4 of the site plan to provide pretreatment. The forebay volume exceeds the 10% of the WQV, as recommended in the 2024 Stormwater Manual. It is discussed in the Drainage Report and in the Drainage Report section of the Stormwater Management Report.

- 16) Provide the total draw down time of the water quality basin to confirm it meets the requirements of Chapter 10 of the Stormwater Manual.

The calculations have been added to the revised drainage report. The drawdown is well below the maximum of 48 hour requirement.

- 17) Confirm the modeling of the pond outlet matches the proposed outlet. The Hydraflow

report shows a two 12-inch diameter barrel outlet while the plans show one 24-inch diameter outlet.

The detail on sheet 7 shows a 6 inch orifice into the structure at elevation 337.0, a 12 inch orifice into the structure at elevation 339.0. The grate at the top of frame of the structure will provide an additional inflow at elevation 342.0, which will only function during the larger storm events, 25-year and above. All these inflow openings are modeled and the Pond Report shows this. Then there is one out flow pipe from the structure, a 36 inch HDPE pipe at elevation 334.0.

- 18) Provide pad sizing calculations for all proposed riprap pads.

The calculations have been added to the revised drainage report.

- 19) Provide information on wetland setback for the stormwater discharge from the water quality basin.

The location of the stormwater discharge is largely dictated by the access strip for the site driveway. As shown on the project plans, the access strip is narrow and enters the site in proximity of the wetland. Due to the need to have the driveway close to the wetland, and the need to discharge the stormwater down slope of the driveway, the discharge point must be near the wetland. The discharge pipe is located approximately 40 feet from the nearest wetland, however the flow path to the wetland is approximately 60 feet. The splash pad is located approximately 25 feet from the nearest wetland and the flow path is approximately 45 feet. The entire area from the edge of the splash pad to the wetland will be vegetated by either native vegetation or shrubs to be planted at the limits of clearing as shown on the project plans. As a result, GSD believes that the wetland will be well protected from the discharge of the treated stormwater.

Table 10-3 of the manual recommends the following minimum setback distances for stormwater infiltration systems: Surface Waterbodies and Wetlands – 50 feet. The proposed basin is 80 feet from the nearest point of the wetlands, and more to the surface waterbody within the wetlands.

- 20) Provide an operation and maintenance plan meeting the requirements of Chapter 12 of the Stormwater Manual. Consider the side slopes of the proposed water quality basin in respect to ability to mow a 3:1 slope.

The Stormwater Manual allows for 3:1 slopes. 3:1 slopes can be mowed, however on many of our sites a weed wacker is used to cut the vegetation.

An operation and maintenance plan has been added to the site plans.

- 21) Provide information on water quality basin freeboard requirements.

The Manual calls for 6 inches of freeboard for the 10 year storm event and 3 inches of freeboard for the 100 year storm event. We have provided 6 inches of freeboard for the 100 year storm event.

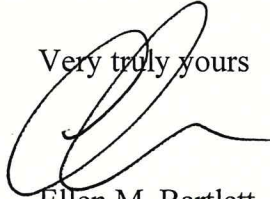
If you have any questions, please do not hesitate to contact us.

Sincerely,



Robert C. Russo
Soil Scientist

Very truly yours



Ellen M. Bartlett, PE, CPSWQ
LEED Accredited Profession

al



May 14, 2025

Bruce Fitzback, LS, CZEO
Land Use Director
Town of Putnam
200 School Street
Putnam, CT 06260
Subject: 465 School Street Peer Review

Dear Mr. Fitzback:

CDM Smith was requested by the Town of Putnam, CT to review the revised documents submitted to the Town for the development planned for 465 School Street, Putnam, CT. These documents were revised to address CDM Smith's peer review comment letter dated April 5, 2025. CDM Smith reviewed the following documents:

"Modified Site Plan: Multifamily Housing Development, 465 School Street, Putnam, CT" dated September 2024, revised April 7, 2025 by Green Site Design LLC (9 sheets)

"Stormwater Management Report" prepared by Ellen Bartlett, P.E., not dated

"Existing Drainage Plan (Sheet D1) Multi-family Development 465 School Street, Putnam, CT",
"Proposed Drainage Plan (Sheet D2) Multi-family Development 465 School Street, Putnam, CT",
"Sub-Area Drainage Plan (Sheet D3) Multi-family Development 465 School Street, Putnam, CT
and dated July 31, 2024 by Green Site Design LLC, revised April 7, 2025

"465 School Street Peer Review" letter from Green Site Design LLC dated April 10, 2025

CDM Smith reviewed the additional documents provided by the Town via email and have the following follow up comments:

- 1) Identify the location of the emergency overflow weir on the plans.
- 2) Perform a test pit or soil boring to 3 feet below the proposed invert of the infiltration system in accordance with Chapter 10 of the Connecticut Stormwater Quality Manual.
- 3) Identify depth from the bottom of the basin to the seasonally high-water table and the depth to bedrock/refusal.



Mr Bruce Fitzback
May 14, 2025
Page 2

- 4) An infiltration test is required after final conversion of sedimentation basin to an infiltration basin by excavating the final 3 feet of soil. Provide an infiltration test confirming the design infiltration rate in accordance with Chapter 10 of the Connecticut Stormwater Quality Manual dated March 26, 2024, to the Town during construction.
- 5) The proposed hydrodynamic separator must meet third party verification requirements of Chapter 10 of the Connecticut Stormwater Quality Manual dated March 26, 2024. Provide verification from the manufacturer during construction.

If you have any questions or require additional clarification on the items listed above, please do not hesitate to call either Alexandra Van De Water at (603) 222-8339 or myself at (401) 215-6310.

Sincerely,

A handwritten signature in blue ink that reads "Cynthia A. Baumann".

Cynthia A. Baumann, P.E., CFM, PMP
Principal, Senior Project Manager
CDM Smith Inc.

cc: Elaine Sistare, PE
Alexandra Van De Water, PE, CPESC

Dear Mr. Fitzback:

Please find Green Site Design's responses to CDM Smith's follow up comments:

- 1) Identify the location of the emergency overflow weir on the plans.

An emergency overflow level spreader has been shown on sheet 4

- 2) Perform a test pit or soil boring to 3 feet below the proposed invert of the infiltration system in accordance with Chapter 10 of the Connecticut Stormwater Quality Manual.

A test hole was done on June 4th, test hole #5, and is shown on sheets 3 and 7. The test hole was done down to elevation 330.5, which is over 3 feet below the bottom of the basin.

- 3) Identify depth from the bottom of the basin to the seasonally high-water table and the depth to bedrock/refusal.

A test hole was done on June 4th, test hole #5, and is shown on sheets 3 and 7. The test hole was done down to elevation 330.5, which is over 3 feet below the bottom of the basin. We did not hit bedrock/refusal down at this elevation. Test hole #2 hit a boulder at approximately 9 feet, which they thought might be ledge. However, we did test hole #5 with a larger excavator, adjacent to #2 and did not hit ledge down to 15.5 feet. There was no mottling in test hole #5, however as this has been a very wet May, we did hit groundwater at elevation 331.0, which would be the seasonally high-water table.

- 4) An infiltration test is required after final conversion of sedimentation basin to an infiltration basin by excavating the final 3 feet of soil. Provide an infiltration test confirming the design infiltration rate in accordance with Chapter 10 of the Connecticut Stormwater Quality Manual dated March 26, 2024, to the Town during construction.

This note has been added to sheet 7, note 12 of the Erosion Control & Sedimentation Narrative. It is also noted on sheet 4, bottom right hand corner of the sheet.

- 5) The proposed hydrodynamic separator must meet third party verification requirements of Chapter 10 of the Connecticut Stormwater Quality Manual dated March 26, 2024. Provide verification from the manufacturer during construction.

This note has been added to sheet 4 and 6.

STORMWATER MANAGEMENT REPORT

General Information

Applicant

Homes at School, LLC
305 Butlertown Road Oakdale Ct 06370
860-235-2846 cell

Engineer

Ellen Bartlett P.E.
Green Site Design
317 Main St
Norwich CT 06360
ebartlett@greensitedesignllc.com
Ph: 860-892-1380

Site Address

465 School Street, Putnam, CT

Site Locus Map

See the appended map

Current use and zoning of property

Presently undeveloped, R10, Residential

Proposed use of property

40 residential units

Project Summary

The project is proposing 40 residential – two bedroom units. The previously approved site plan was also proposed for 40 residential units. The original site plan was for duplexes. The modified site plan is proposing detached units.

The major modification to the site development plans is the addition of a water quality basin and forebay, as required by DEEP's 2024 CT Guidelines for Soil Erosion & Sedimentation Control and the Connecticut 2024 Stormwater Quality Manual. The proposed basin will function as a temporary sediment control basin during the construction

phase of the project and then as a permanent stormwater treatment basin for the life of the residential project.

Once development of the site is completed, there will be a decrease in runoff from the site. The temporary sedimentation basin provides ample wet and dry storage volume to meet and exceed the requirements of the 2024 CT Guidelines for Soil & Sedimentation Control. Likewise, Water Quality Basin meets and exceeds the post construction requirements of the Connecticut 2024 Stormwater Quality Manual.

The project is scheduled to begin in the summer of 2025 and be completed in 2027.

The project is subject to Town of Putnam Inland Wetlands and Planning and Zoning regulations and CTDEEP 2024 Erosion and Sedimentation and Stormwater Manuals

Existing Conditions

The site is a 9.2 acre parcel located on School Street in Putnam, CT and is bordered to the south by an existing subdivision on Valley Drive. Local land use is commercial and residential. This site is currently undeveloped and has cover types including wooded uplands, wooded wetlands, scrub shrub uplands, and a perennial stream.

The site has gentle to moderately steep slopes and the topography is shown on the site plans. A small portion of the site drains westward onto the adjacent property and eventually into Little Dam Brook. Starting at the western watershed side, the slopes are nearly flat to moderate and approximately 6.8 acres drains eastward into Little Dam Brook, a perennial stream. The stream enters the site from the east and leaves flowing northwest under School Street. Little Dam Brook receives stormwater runoff from School Street and the surrounding commercial and residential development. This stream eventually flows into the Quinebaug River. The remainder of the property drains northward to School Street and from there into Little Dam Brook.

Past land use was predominantly farming and woodland. The 1934 Connecticut Fairchild aerial photos (http://magic.lib.uconn.edu/mash_up/1934.html) show the site partially in agricultural use and partially in woodland. The 1990 and 2004 aerial photographs document the gradual succession of the site back into mixed forest with some historic excavation.

The site is zoned R10. To the south, east and west the land use is predominantly residential. The land use along School Street is mostly commercial.

The current cover type at the site is mixed hardwood and evergreen forest. This forest is middle-aged based on the typical diameter of the trees which range from 12-18 inches d.b.h.

Wetland and Upland Soil Types

Robert Russo, C.S.S. performed the wetland delineation in June of 2024 and the table below provides wetland flag numbers, soil type, and wetland type.

As shown on the project plans, Little Dam Brook, a Class A stream with no impairments or TMDLs, is located on the east and north sides of the site. Wetland flags WF 1-1 to WF 1-17 mark the boundary of the wetland system which continues off site to the west, north and east. The reach of the perennial stream that flows through the site has a boulder, cobble and gravel bottom with pool and riffle structure. There are rock piles and evidence of altered soils however the vegetation is predominantly hardwoods such as red maple (*Acer rubrum*) and yellow birch (*Betula lutea*) and shrubs such as multiflora rose (*Rosa multiflora*) and highbush blue berry (*Vaccinium corymbosum*). The surrounding upland area has stands of red maple, red and white oak (*Quercus rubra* and *alba*), hickory (*Carya spp.*) and eastern red cedar (*Juniperus virginiana*). This wetland has hydrology fed by shallow groundwater discharge from the local glacial till and outwash and the upstream watershed. It receives storm water from the nearby roads. Field inspection of the stream revealed that the channel is stable with no signs of ongoing erosion.

The soils present on the site are documented in the table below and further detail is provided in Appendix B.

Table 2, Soils at the 465 School Street Site

<u>Soil Series</u>	<u>Parent Material</u>	<u>Drainage Class</u>	<u>Texture/Characteristics</u>
Rippowam (103)*	Alluvial	Poorly drained	Fine sandy loam HSG B/D
Charlton Chatfield (73)	Glacial till	Moderately Well drained	Fine sandy loam HSG B

* Wetland soil type

Charlton and Chatfield soils are formed in glacial till and comprise the remainder of the site. They are unsorted silt, gravel stones and boulders and typically have greater than 6 feet to bedrock the Charlton soils and less than 6 feet to bedrock in the Chatfield soils. The adjacent wetland soils are of the Rippowam series which are formed in alluvium deposits surrounding the brook.

As shown on the project plans test pits within the upland were excavated to depths of 80" to 120" and had sand or loamy sand in the C layer. While this is coarser than typically encountered in Charlton soils, it is not inconsistent with the parent material, melt out till. Test pits excavated in the area of the proposed stormwater basin, (TH1 and TH2) had depths of 121" and 111" with no water or redoximorphic features. Per the NRCS soil Survey of Windham County the C layer of Charlton soils typically ranges from 0.6 to 6 in/hr. Given the textures found in the C Layers of the test pits, these soils fall at the upper end of the permeability range. These areas are suitable for infiltration.

Other Site Constraints

There is no known contamination or other site constraints.

On-site and Off-site Critical Resources

NDDB Coordination

GSD has checked the CTDEEP Natural Diversity Database for the presence of protected species at the site and the December 2024 mapping indicated that no such species are known to inhabit the site.

Potential Wetlands Impacts

GSD has considered potential impacts at several levels. Each of the types of impacts considered are discussed in the following paragraphs.

Direct impacts

There will be no direct wetland impacts proposed as there is no filling of wetlands proposed.

Construction related impacts

Throughout the site, there are areas where activity is planned within the 200-foot upland review zone. These activities include construction of residential units, the driveway and the stormwater basin. The site plan contains a detailed erosion and sedimentation control narrative that is consistent with the CTDEP Sedimentation and Erosion Control Manual. Provisions to protect both onsite and offsite resources are included. A temporary sediment trap, sediment barrier and soil stabilization are all shown on the E&S plans.

Water quality

The CTDEEP Stormwater Manual prescribes means by which stormwater runoff from developed sites can be adequately treated. As indicated in the calculations provided in the Drainage Report, the stormwater treatment design exceeds treatment of the WQV required by the Manual for the stormwater treatment basin. Thus, it is anticipated that the stormwater basin will provide a higher level of water quality renovation than required by CTDEEP

Based on the stormwater treatment design and the measures incorporated to be consistent with the CTDEEP Manuals, GSD believes that the design is protective of both onsite resources and the adjacent brook.

Summary of Wetland Impacts

No direct filling of wetland is proposed. GSD has examined the potential for secondary wetland impacts both construction related and post-construction. The main concern during construction is water quality. In order to protect the aquatic life and water quality within the stream, proper erosion and sedimentation control has been provided on the project plans. Post construction,

water that runs off of the developed surfaces will be treated in the water treatment basin as shown on the plan. The site has been designed per the CTDEEP 2024 Manuals, and that design will protect on-site and off-site water resources.

Proposed (Post-Development) Conditions Description

The project is a new development comprising 40 residential units, associated driveway, utilities, and stormwater management infrastructure. The proposed ground cover, includes vegetated lawn area, and development features such as driveway, residences, utilities, and a stormwater treatment system.

Proposed drainage area boundaries and design points

The proposed activities are not classified as Land Uses with Higher Potential Pollutant Loads (LUHPPLs). The proposed drainage areas and the design points have been shown on the Drainage Maps.

At total of 2.7 acres of impervious area will be generated by this project, and 2.5 acres will be treated in the stormwater basin and forebay, However only the new shown DCIA will be 0.2 acres of land along the driveway, which will be treated by swirl technology unit.

The total proposed land disturbance is 8.0 acres.

The site has been designed to treat the WQV and be consistent with the CTDEEP 2024 water quality manual.

DRAINAGE HYDRAULICS AND HYDROLOGY REPORT

EXISTING CONDITIONS

The site is approximately 9.2 acres in area and is shown on the Existing Conditions Survey (Sheet 1 of the site plans). The site has an access easement onto School Street. There are also 0.7 acres of wetlands on the site.

FLOODPLAIN

The is also a section of FEMA flood zone on the site, for Little Tavern Dam Brook, Zone AE. No work is proposed within the floodplain limits. And as the stormwater management system has been designed to provide for zero increase in peak stormwater discharge from the site, the project will have no adverse impacts on the flood zone.

PROPOSED DEVELOPMENT

The project proposes the development of a multi-family housing development consisting of 40 detached family residences. The site was previously approved for 20 duplexes, consisting of 40 residences. This project is a modification of the previous approved site plan, with the addition of a temporary sedimentation basin, in accordance with the 2024 CT Guidelines for Soil Erosion & Sedimentation Control, which will ultimately become a permanent water quality basin in accordance with the Connecticut the 2024 Stormwater Quality Manual (Manual).

EXISTING AND PROPOSED HYDRAULICS

The stormwater management system has been designed to provide for zero increase in peak stormwater discharge from the site. The project has been designed to actually result in a decrease in the peak stormwater rates leaving the project site. The proposed stormwater water quality basin will provide treatment of the runoff from the proposed site.

The development of the proposed site will result in two drainage areas:

Proposed Drainage Area 1	6.8 Acres
Proposed Drainage Area 2	0.2 Acres

The Proposed Drainage Areas contain the proposed development for the site. The stormwater runoff from Area 1 will be treated by the proposed water quality basin and forebay. The basin has been modelled to assume that the basin will be a dry basin at the onset of the storm event. The stormwater runoff from Area 2 will be treated by the proposed hydrodynamic separator, as shown on sheet 4 of the site plans and detailed on sheet 6.

Both the existing and the proposed conditions for the development site have been analyzed for the 2-year, 10-year, 25-year, 50-year, and 100 year design storms using the SCS model and the NOAA Type D rainfall distribution, which is included in the calculations.

Drainage Area 1

	2 Year	10 Year	25 Year	50 Year	100 Year
Existing	3.492 cfs	8.873 cfs	12.69 cfs	15.61 cfs	18.85 cfs
Proposed	1.377 cfs	6.361 cfs	8.86 cfs	13.38 cfs	15.35 cfs

The Manual calls for 6 inches of freeboard for the 10 year storm event and 3 inches of freeboard for the 100 year storm event. We have provided over 6 inches of freeboard for the 100 year storm event.

EROSION & SEDIMENTATION CONTROL

The 2024 CT Guidelines for Soil Erosion & Sedimentation Control applies to the construction phase of the project. A detailed erosion and sediment control plan has been provided in the site development plans. The proposed stormwater water quality basin has been designed to function as a sedimentation trap during stabilization. However, the bottom 3 feet of the stormwater quality basin will not be excavated until after the site is stabilized and the temporary sedimentation basin is converted to the stormwater quality basin. The basin will only be excavated down to elevation 337 for the sedimentation trap. And then the additional 3 feet will be excavated down to elevation 334 for the permanent

stormwater basin. This will protect the existing infiltration rate of the native materials under the basin.

The first calculation required by the Guidelines is for the sediment storage volume (SSV). The sediment storage volume is the calculation for one year of predicted sediment load. The required SSV calculation for the temporary sediment trap is shown below.

Drainage Area 1

$$SSV = A(134CY/Acre)$$

$$A = 6.8 \text{ ACRE}$$

$$SSV = 911.2 \text{ CY} = \underline{\underline{24,602 \text{ CF}}}$$

The second calculation required by the Guidelines is for wet storage volume (WSV). The wet storage volume is the volume in the basin that is located below the bottom of the riprap for the level spreader outlet of the basin. The volume of the wet storage is required to be half of the required SSV. The required wet storage volume is shown below along with the dry storage volumes (DSV).

Drainage Area 1A

$$WSV = DSV = SSV/2$$

$$= \underline{\underline{12,301 \text{ CF}}}$$

The required and provided storage for the basin are as follows:

Drainage Area 1 (Outlet structure inlet elevation = 339.0)

Sedimentation Trap

12,301 CF of Wet Storage Volume Required	12,944 CF Provided*
12,301 CF of Dry Storage Volume Required	28,153 CF Provided
24,602 CF of Sediment Storage Volume Required	41,097 CF Total Provided

***storage in the water quality between elevation 339 and 337 plus storage in the forebay below elevation 342.5**

CONNECTICUT STORMWATER QUALITY MANUAL

The Connecticut 2024 Stormwater Quality Manual (Manual) applies to the post construction phase, for the operation of the facility. The temporary sediment trap has been designed to function as a water quality basin after the site is stabilized. The basin meets the criteria of the Connecticut Stormwater Quality Manual for a Water Quality Basin.

The proposed stormwater water quality basin has been designed to function a sedimentation trap during stabilization. However, the bottom 3 feet of the stormwater quality basin will not be excavated until after the site is stabilized and the temporary sedimentation basin is converted to the stormwater quality basin. The basin will only be excavated down to elevation 337 for the sedimentation trap. And then the additional 3 feet will be excavated down to elevation 334 for the permanent stormwater basin. This will protect the existing infiltration rate of the native materials under the basin.

Drainage Area 1

$$WQV = (1.3'')(R)(A)/12$$

$$A = 6.8 \text{ Acre}$$

$$R = 0.05 + 0.009(I)$$

$$I = 4.8 \text{ Acres} / 6.8 \text{ Acres} = 0.71 \quad (71\%)$$

$$R = 0.69$$

$$WQV = 0.508 \text{ Ac-Ft} = 22,142 \text{ CF (Required)}$$

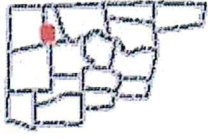
33,125 CF (Provided in Water Quality Basin between elevation 339 and 344, additional WQV provided in the forebay)

The Forebay provides 7,133 CF of storage volume, which is 32% of the required WQV

Once development of the site is completed, there will be a decrease in volume and runoff from the site. The temporary sedimentation basin provides ample wet and dry storage volume to meet and exceed the requirements of the 2024 CT Guidelines for Soil & Sedimentation Control, as well as the 2024 CT Guidelines for Soil & Sedimentation Control. Likewise, the Water Quality Basin meets and exceeds the post construction requirements of the Connecticut 2024 Stormwater Quality Manual.



Necog GIS Site



Legend

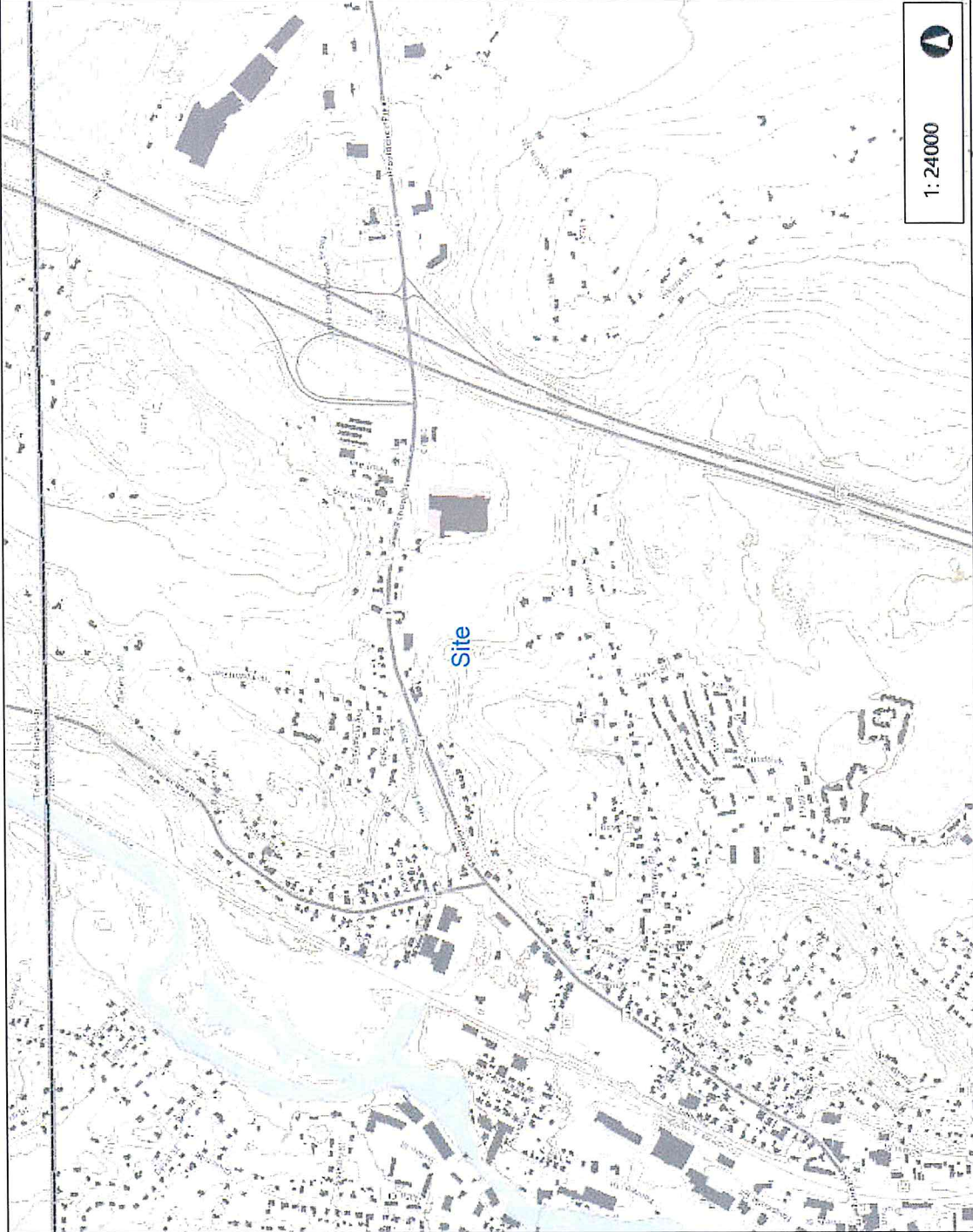
465 School Street
Putnam CT
Locus Map
CLA Engineers

1: 24000



Notes

465 School Street
Locus Map



This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

WGS 1984 Web Mercator Auxiliary Sphere
© Latitude Geographics Group Ltd.