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Re: DeSautels 4-Lot re-subdivision
257 Chesterfield Road (Tax Map 29 Lot 66)
Montville, CT 06370

DRAINAGE DESIGN NARRATIVE

This project is a proposed conservation re-subdivision at 257 Chesterfield Road in Montville, Connecticut. The subject property encompasses approximately 16 acres, including 7.76 acres of wetlands concentrated along the northern boundary. The proposed development includes the

re-subdivision of the subject property into four (4) residential building lots. All dwellings will be serviced by public sanitary sewer and private wells.

The existing topography of the site generally slopes from south to north, directing surface runoff toward the large on-site inland wetland. Site soils, as identified by the USDA NRCS Soil Survey, are classified as Woodbridge fine sandy loam with 8–15% slopes. This soil type is characterized as hydrologic group C/D, indicating moderate to slow infiltration potential and a seasonally high-water table, particularly in undisturbed areas. These hydrologic conditions have been considered in the sizing and selection of proposed stormwater management measures.

Although site work is conceptual at this stage, the plan includes paved driveways for each proposed lot, ranging from approximately 1,300 S.F. to 2,100 S.F. of impervious coverage per lot and house rooftop areas of approximately 1,800 square feet per house. For runoff mitigation purposes, residential-scale rain gardens have been proposed for each lot. These rain gardens are designed to capture and treat the first 1.3 inches of rainfall from the impervious areas of each Lot, consistent with the guidance provided in the 2024 Connecticut DEEP Stormwater Quality Manual. The rain gardens will promote infiltration, enhance groundwater recharge, and improve water quality prior to discharge toward the adjacent wetland area.

In addition to these on-site stormwater measures, the plan accounts for an existing town drainage pipe outlet located on proposed Lot 1. As part of this conceptual layout, the existing pipe will be extended with approximately 50 lineal feet of 18-inch HDPE pipe and riprap outlet protection, matched to the existing invert elevation. This extension is intended to better guide concentrated flows away from the center of proposed Lot 1 and directed towards a stabilized

swale or overland sheet flow toward the natural inland wetland system. The extension will reduce the potential for erosion and help maintain the existing hydrologic function of the site.

Although, no construction is proposed at this time, erosion and sedimentation control measures are shown on the site plans. Once the project advances to permitting and construction; site work shall include silt fence downgradient of disturbed areas, stone construction entrances and temporary stabilized soil stockpile areas.

In summary, the proposed conservation re-subdivision at 257 Chesterfield Road has been designed to minimize impacts to existing site hydrology and provide stormwater management consistent with current regulatory standards. Stormwater runoff from new impervious surfaces will be mitigated using rain gardens designed to treat the required water quality volume. The extension of the existing drainage pipe will further ensure safe and controlled discharge to the site's natural inland wetland system. These measures, together with the site's protected upland and wetland buffers, demonstrate that the conceptual subdivision layout can be accommodated without adverse impact to water resources or downstream properties.

Included below is a summary of water quality volume calculations for each of the 4 proposed Lots.

Proposed Lot 1:

Proposed impervious coverage:

Conceptual House: 1,800 S.F.

Conceptual Paved Driveway: 1,300 S.F.

Total Conceptual Impervious Area: 3,100 S.F.

First 1.3 Inches of Stormwater Runoff:

$3,100 \text{ S.F.} \times 1.3"/12" = 336 \text{ C.F.}$

Conceptual Rain Garden Sizing:

Top Contour Area = 314 S.F.

Bottom Contour Area = 63 S.F.

Conceptual Rain Garden Depth = 2 FT.

Rain Garden Capacity = Avg. Area * Depth = $(314 \text{ S.F.} + 63 \text{ S.F.})/2 \times 2 \text{ FT.} = 377 \text{ C.F.}$

Conceptual Storage Volume 377 C.F. > First 1.3" of Runoff 336 C.F. – O.K.

Proposed Lot 2:

Proposed impervious coverage:

Conceptual House: 1,800 S.F.

Conceptual Paved Driveway: 1,300 S.F.

Total Conceptual Impervious Area: 3,100 S.F.

First 1.3 Inches of Stormwater Runoff:

$3,100 \text{ S.F.} \times 1.3"/12" = 336 \text{ C.F.}$

Conceptual Rain Garden Sizing:

Top Contour Area = 314 S.F.

Bottom Contour Area = 63 S.F.

Conceptual Rain Garden Depth = 2 FT.

Rain Garden Capacity = Avg. Area * Depth = $(314 \text{ S.F.} + 63 \text{ S.F.})/2 \times 2 \text{ FT.} = 377 \text{ C.F.}$

Conceptual Storage Volume 377 C.F. > First 1.3" of Runoff 336 C.F. – O.K.

Proposed Lot 3:

Proposed impervious coverage:

Conceptual House: 1,800 S.F.

Conceptual Paved Driveway: 2,100 S.F.

Total Conceptual Impervious Area: 3,900 S.F.

First 1.3 Inches of Stormwater Runoff:

$3,900 \text{ S.F.} \times 1.3"/12" = 423 \text{ C.F.}$

Conceptual Rain Garden Sizing:

Top Contour Area = 314 S.F.

Bottom Contour Area = 113 S.F.

Conceptual Rain Garden Depth = 2 FT.

Rain Garden Capacity = Avg. Area * Depth = $(314 \text{ S.F.} + 113 \text{ S.F.})/2 \times 2 \text{ FT.} = 427 \text{ C.F.}$

Conceptual Storage Volume 427 C.F. > First 1.3" of Runoff 423 C.F. – O.K.

Proposed Lot 4:

Proposed impervious coverage:

Conceptual House: 1,800 S.F.

Conceptual Paved Driveway: 1,450 S.F.

Total Conceptual Impervious Area: 3,250 S.F.

First 1.3 Inches of Stormwater Runoff:

$3,250 \text{ S.F.} \times 1.3"/12" = 353 \text{ C.F.}$

Conceptual Rain Garden Sizing:

Top Contour Area = 314 S.F.

Bottom Contour Area = 63 S.F.

Conceptual Rain Garden Depth = 2 FT.

Rain Garden Capacity = Avg. Area * Depth = $(314 \text{ S.F.} + 63 \text{ S.F.})/2 \times 2 \text{ FT.} = 377 \text{ C.F.}$

Conceptual Storage Volume 377 C.F. > First 1.3" of Runoff 353 C.F. – O.K.