DRAINAGE & STORMWATER MANAGEMENT REPORT

Prepared for

PROPOSED CONTRACTOR'S BUILDING
152 CROSS ROAD
WATERFORD, CT

August 2025

Prepared for

Eagle AAM, LLC
Dba Eagle Electric Services

Prepared by

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Civil Engineering & Surveying

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Introduction

Eagle Electric Services LLC has submitted a proposal to the Town of Waterford to construct a 3,600 square foot commercial building with associated paved access and drainage improvements on a 1.447-acre parcel . The property currently houses a 2-level commercial building on the Cross Road frontage and Eagle Electric Services utilizes an office on the lower level. The proposed building will serve as the location for the business to park company vans in a controlled environment, store tools and supplies, and provide a dedicated office area for the company.

A good portion of the property is steeply sloped to a wetlands system to the west and there are approximately only ¾ of an acre of developable area; the proposed project will not result in the disturbance of wetlands nor the clearing of any steeply sloped areas. Drainage from the site currently flows to the west to the wetlands system and the design will maintain the existing drainage patterns incorporating pre-treatment of stormwater runoff.

Summary

According to the USDA-SCS Soil Survey, the soils on the proposed development area on site consist predominantly Canton and Charlton fine sandy loams and are very rocky. According to the NRCS Web Soil Survey, these soils are associated with hydrologic soil group B. The project strives to maintain the existing drainage patterns for post development conditions but curbing and catch basins will be utilized to collect stormwater from paved areas and convey it to the proposed on site stormwater basin prior to discharge off site.

The calculations utilized HydroCAD Stormwater Modeling System, a computer model, to analyze pre-and post-development drainage conditions. The model used the NOAA Type D 24-hour rainfall to calculate the runoff. The 2, 10 and 100-year frequency storms were analyzed to evaluate peak runoff for pre-and post-construction conditions. Tables 1-2 summarize our findings for pre and post construction flows toward the wetlands and to the adjacent property to the north:

Table 1. Existing & Proposed Peak Flows to Wetlands

Design Storm	Depth (in)	Existing peak	Proposed peak	Difference
2-Year	3.45	1.50 CFS	0.80 CFS	-0.70 CFS
10-Year	5.13	2.45 CFS	1.92 CFS	-0.53 CFS
100-Year	7.80	3.96 CFS	3.92 CFS	-0.04 CFS

As shown by the computations, the post development peak runoff rates slightly reduced from pre-construction rates. This is accomplished with the construction of a proposed stormwater detention basin with a low-level outlet. Flows from this basin will discharge to the west and overland before ultimately finishing in the on-site wetlands. Table 2 summarizes peak discharge rates to the west toward the adjacent developed property:

Table 2. Existing & Proposed Peak Flows West

Design Storm	Depth (in)	Existing peak	Proposed peak	Difference
2-Year	3.45	0.49 CFS	0.07 CFS	-0.42 CFS
10-Year	5.13	1.03 CFS	0.15 CFS	-0.88 CFS
100-Year	7.80	1.95 CFS	0.33 CFS	-1.62 CFS

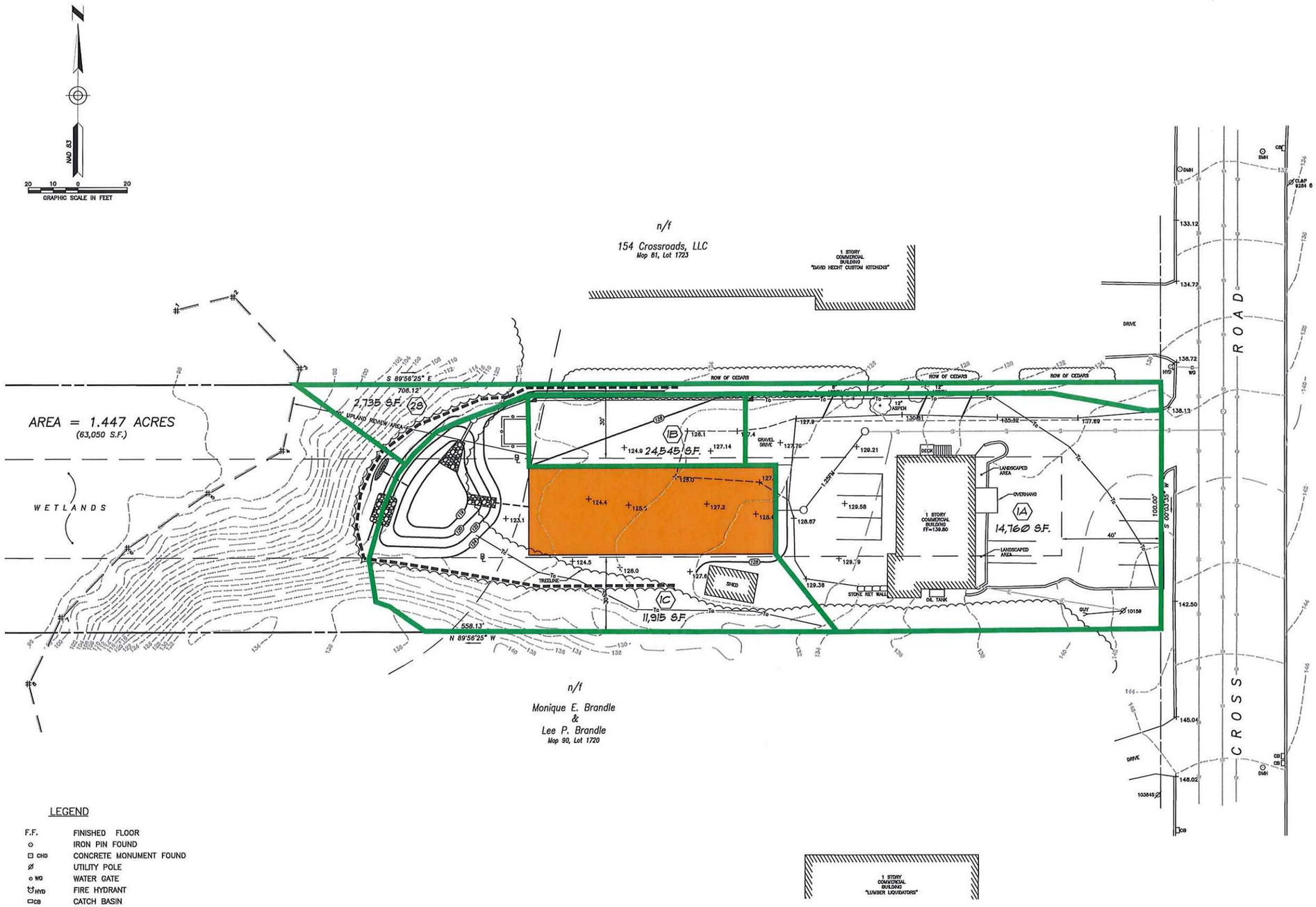
As shown by the summary, there are decreases in peak runoff rates to the west. This is accomplished by re-routing drainage that previously flowed in that direction and conveying it to the proposed stormwater basin.

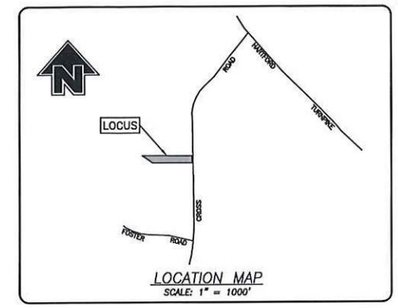
The water quality is addressed by the installation of sumps in the proposed catch basins and water quality volume (WQV) in the basin for the first 1.3" of rain as required by the CTDEEP Stormwater Quality Manual. Water Quality Volume is as follows:

Drainage Area = 0.53 acres
Impervious area (I) = 49.17% (pavement, no roof)
WQV = (1.3") R A/12

R= 0.05+0.009(I) = 0.05+0.009(49.7) = 0.4973
WQV = (1.3)(0.4973)(0.53)/12 = 0.037 ac-ft = 1,478 c.f.

We have determined that a WQV of 1,478 cubic feet is required to meet the recommended requirements of the Stormwater Quality Manual (SWQM). The stormwater basin will provide 1,878 cubic feet of WQV below the weir outlet.





LOCATION MAP
SCALE: 1" = 1000'

LEGEND

F.F.	FINISHED FLOOR
○	IRON PIN FOUND
⊡ CHD	CONCRETE MONUMENT FOUND
⌀	UTILITY POLE
○ WG	WATER GATE
HYD	FIRE HYDRANT
CB	CATCH BASIN
⊙ DMH	DRAINAGE MANHOLE
⊙ SMH	SANITARY SEWER MANHOLE
100	EXISTING CONTOURS
100	PROPOSED CONTOURS
	INLAND WETLANDS FLAG
BR	BUILDING SETBACK LINE
E	ELECTRIC LINE
S	SANITARY SEWER LINE
G	GAS LINE
W	WATER LINE
	SILT FENCE

DATE	DESCRIPTION

REVISIONS

PROPOSED DRAINAGE AREAS

PREPARED FOR

EAGLE ELECTRIC SERVICES

152 CROSS ROAD
WATERFORD, CONNECTICUT

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DATE: 8/3/2025	DRAWN: RGS
SCALE: 1" = 20'	DESIGN: NET
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8/23/2025
DATE

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