

# ENGINEERING REPORT

Prepared for

## RESUBDIVISION OF ANDERSON SUNNYSIDE FARM

Located at

**318 Kings Highway  
Town of North Haven, New Haven County, CT  
Tax Map 98 Lot 01**

Submitted

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Revised

November 10, 2020

Prepared for

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## APPENDICES

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**Appendix A** – Soil Map



## **I.0 INTRODUCTION**

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### **I.1 Location**

The proposed project is located on a vacant 13.938 acre parcel at 318 Kings Highway, with access from Kings Highway and Hartford Turnpike. The property is identified as Tax Map 98 Lot 01. The project is located in the R-40 zoning district.

### **I.2 Existing Conditions Summary**

The existing parcel is overgrown with brush. Sewer service is not available in the area of the property. Soil testing has been conducted on the property and witnessed by the Quinnipiack Valley Health District. There is an existing 12" water main located in Kings Highway with a water service serving 320 & 310 Kings Highway. The lot is bounded by Kings Highway on the northwesterly side of the property and Hartford Turnpike on the southeasterly side of the property. The lot slopes from Kings Highway to Hartford Turnpike with a 120 foot elevation difference.

### **I.3 Proposed Project Description**

The proposed project consists of subdividing the existing 13.938 acre parcel into eight (8) residential building lots consisting of three (3) frontage lots and five (5) rear lots. Each lot will be served by an on-site septic system and municipal water service. Four (4) lots will share two (2) common driveways. Each of the lots have been designed to meet the minimum bulk requirements of the R-40 zoning district.

## **2.0 STORMWATER DESIGN**

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### **2.1 Stormwater Design**

Each of the eight (8) lots have been designed to include an underground chamber system to treat the first inch of rainfall runoff from the impervious roof areas. The underground chamber system consists of (6) SC-310 Stormtech Chambers with 6" Stone Base. The underground chamber systems are designed based upon the house size depicted on the site plans. The sizes may change based upon the future development of the lots.

A rain garden consisting of an excavated depression (see construction details) is proposed for a portion of the shared driveway for Lots 7 & 8. The rain garden is designed based upon the area of impervious driveway depicted on the site plans. The driveway is sloped to one side for stormwater runoff to enter a grass lined swale prior to discharge into the rain garden. The size may change based upon the future development of the lots. A grass lined swale has been added to the rear of lot 8 to divert stormwater runoff to the stormwater management area on lot 7

Our office has surveyed the existing drainage system on Hartford Turnpike, and performed an analysis of existing and proposed drainage conditions. The analysis indicates that the existing drainage system exceeds capacity downstream from this development for all storm events analyzed. The proposed development increases the peak rate of runoff due to the proposed change of surface coverage. Since the existing drainage system lacks available capacity to accommodate the increase in site runoff, stormwater management areas (excavated depressions) are proposed on lots 1, 2 & 7.



Existing conditions and developed conditions drainage area maps and HydroCAD Stormwater Modeling System computer program by Applied Microcomputer Systems was used to analyze the drainage system in Hartford Turnpike. HydroCAD uses the TR-55 curve number method to estimate the quantity and peak rates of runoff produced by each drainage area to each catch basin in the drainage system. This information is shown in tabular form for each catch basin for the 2-year, 10-year & 25- year storm event on the drainage area maps. Runoff rates chosen from the NOAA Atlas 14, Volume 10, Version 3 located in North Haven, CT.

The stormwater management areas (excavated depressions) have been provided on Lots 1, 2 & 7 to detain stormwater runoff from the development. These depressions as designed reduce the rate of runoff to below the pre-development conditions. The rate of runoff at each catch basin for the 2-year, 10-year and 25-year storm event are provided in tabular form on the plans entitled: “Existing Conditions Drainage Area Plan”, sheet DA-1 and the “Developed Conditions Drainage Area Plan”, sheet DA-2 which are enclosed for reference. The stormwater management areas include a small diameter, low flow outlet pipe and riprap spillways.

### **3.0 WASTEWATER SERVICES**

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The on-site subsurface sewage disposal system has been designed to treat wastewater.

#### **3.1 Soil Results**

The existing soils on the site mainly include Wethersfield Loam (8-15 percent slopes) and Ludlow silt loam (3-8 percent slopes). Both soil types being in the “C” Hydrologic Soil Group.

Test pits, witnessed by the Quinnipiack Valley Health District have been conducted on the property. No additional soil testing was conducted on the property for the subdivision layout proposed. The size of the septic system design depicted on each proposed lot shows a worst-case scenario to demonstrate that all of the proposed lots can accommodate a septic system, house and other site improvements. Prior to house construction, detailed septic system design plans will be provided to the Health District for approval.

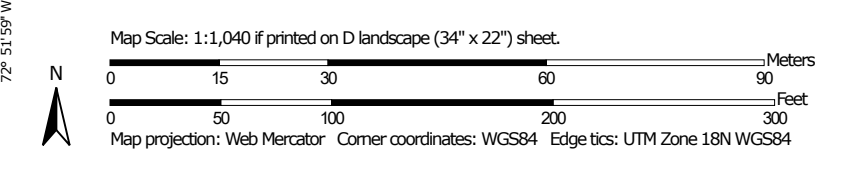


## **APPENDIX A – SOILS MAP**

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Soil Map may not be scaled to other scales.



## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

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

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

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

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

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

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

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

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

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

Date(s) aerial images were photographed: Jun 27, 2014—Jul 22, 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.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12	Raypol silt loam	1.8	3.5%
13	Walpole sandy loam, 0 to 3 percent slopes	4.0	8.0%
24A	Deerfield loamy fine sand, 0 to 3 percent slopes	7.6	15.1%
35B	Penwood loamy sand, 3 to 8 percent slopes	0.8	1.6%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	3.0	5.9%
40B	Ludlow silt loam, 3 to 8 percent slopes	7.2	14.3%
87B	Wethersfield loam, 3 to 8 percent slopes	5.3	10.5%
87C	Wethersfield loam, 8 to 15 percent slopes	20.7	41.1%
<b>Totals for Area of Interest</b>		<b>50.4</b>	<b>100.0%</b>