



- Soil & Wetland Studies
- Ecology • Application Reviews
- Listed Species Surveys • GPS
- Environmental Planning & Management
- Ecological Restoration & Habitat Mitigation
- Expert Testimony • Permitting

January 31, 2022

VIA E-MAIL

Alfred Benesch & Company
120 Hebron Avenue
Glastonbury, CT 06033

Attn.: William G. Walter, P.E.

Re: WETLAND DELINEATIONS & ASSESSMENT
Torrington Middle School, High School & Central Office
50 Major Besse Drive, Torrington, CT

Dear Mr. Walter:

At your request, on April 2nd, 2021, REMA ECOLOGICAL SERVICES, LLC (REMA), conducted in-field delineations of regulated wetlands and watercourses at the above-referenced site. Attached herein is our *On-Site Soil Investigation & Wetland Delineation Report*, supporting the delineations, and providing baseline data of the regulated areas. Moreover, we have reviewed a set of plans (13 sheets), produced by Benesch, dated February 2nd, 2022, that show the activities that are proposed at the site (i.e., Phase 1 of 3: Site & Building Construction and Abatement & Demolition of Existing Building).

During our April 2021 field investigation three wetland and watercourse areas were delineated, in part or in their entirety, associated with the subject site. In its northeastern section, a small isolated wetland (C-series wetland) was delineated at the toe of a moderately steep wooded slope. Just off-site to the south, a forested, scrub-shrub, and emergent wetland area was delineated (B-series wetland), which drains under the site's southern parking area, via a 46-inch RCP. Neither the C-series, nor the B-series wetlands will be affected in any way by the proposed activities.



The site's major regulated resource, which will realize significant benefits over the long run from the proposal, is Besse Park Pond and its associated scrub-shrub and emergent wetlands (i.e., A-series wetland). Under existing conditions, the pond receives minimally treated stormwater from the subject site, as well as from other developed areas within its watershed. The pond drains via an engineered ditch that runs parallel to State Route 8, then under the highway towards Troy Brook to the west. Troy Brook is a tributary to the East Branch of the Naugatuck River further to the south.

According to USGS StreamStats (attached), as the pond discharges under Route 8, its watershed is approximately 371 acres in size, is 86.7 percent developed, and its average percentage of impervious surfaces is 30.9 percent. These numbers would likely translate to some impairment of water quality at the pond and downstream. In fact, the East Branch of the Naugatuck River has a Class B surface water quality classification, which bespeaks of such an impairment.

With the aforementioned in view, the design team has proposed a stormwater management system (SMA) that will provide a marked improvement to the quality of discharged runoff to the pond and downstream aquatic habitats. To achieve this goal, the SMS is replete with innovative best management practices (BMPs), which follow the intent and guidelines of CT DEEP's (2004) Stormwater Quality Manual, especially for redevelopment sites, such as the present one.

The plans shows a closed system that will treat runoff from the great majority of impervious surfaces, especially parking areas and driveways, that includes new deep-sump catch basins, hydrodynamic separators (e.g., Hydroworks Hydroguard HG4ii), two below-ground retention/detention system with infiltration capabilities, and seven bioretention areas (i.e., rain gardens). With many of these practices in series, and with the inclusion of the hydrodynamic separators¹ and bioretention areas, it is expected that the annual total suspended solids (TSS) removal efficiency for the site will more than meet the 80% TSS removal goal promulgated by the CT DEEP.

In conclusion, the proposed plans show that there will be no direct impacts to any delineated regulated resources, and that short term and long-term indirect impacts, such as to the water

¹ According to independent testing conducted of the Hydroworks hydrodynamic separator by Alden Research Laboratory, Inc., of Holden, MA, these units have a median sediment trapping efficiency of 60.3%.

Mr. William G. Walter, P.E.

RE: Middle/High School & Central Office, Major Besse Drive, Torrington, CT

January 31, 2022

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quality of the receiving waters will not only be negligible, but that there is a real expectation of improvement based on the BMP-rich stormwater management design. In our professional opinion there will be no short-term or long-term adverse impacts to on-site or off-site regulated wetlands and watercourses from the proposal.

Please feel free to contact us if you have any questions.

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC

A handwritten signature in black ink, appearing to read "George T. Logan", with a long horizontal flourish extending to the right.

George T. Logan, MS, PWS, CSE

Certified Professional Wetland Scientist

Registered Soil Scientist, Certified Senior Ecologist

Attachments: On-Site Soil Investigation & Wetland Delineation Report (4/22/2021)
USGS StreamStats



REPORT DATE: April 22, 2021

PAGE 1 OF 3

REMA ECOLOGICAL SERVICES, LLC

164 East Center Street, Suite 8
Manchester, CT 06040

860.649.REMA (7362)

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT

PROJECT NAME & SITE LOCATION:

+/- 10.0 acres

Torrington High School Site

Torrington, CT

REMA Job No.: 21-2372-MLB16

Field Investigation Date(s): 4/2/21

Field Investigation Method(s):

- Spade and Auger
- Backhoe Test Pits
- Other: _____

REPORT PREPARED FOR:

Benesch

120 Hebron Avenue

Glastonbury, CT 06033

Field Conditions:

Weather: Overcast /20s to 30s

Soil Moisture: Moderate to high

Snow/Frost Depth: N/A

Purpose of Investigation:

- Wetland Delineation/Flagging in Field
- Wetland Mapping on Sketch Plan or Topographic Plan
- High Intensity Soil Mapping by Soil Scientist
- Medium Intensity Soil Mapping from *The Soil Survey of Connecticut* Maps (USDA-NRCS)
- Other: _____

Base Map Source/Attachments: CT Web Soil Survey (USDA-NRCS); Figures A1 & A2 (attached)

Wetland Boundary Marker Series: RES-A-1 to RES-A-20, tied to RES-1A-1 to RES-1A-18, RES-RES-B-1 to RES-B-11 (open lines), and RES-C-1 to RES-C-12 (closed loop)

General Site Description/Comments: The "study area" encompasses roughly 10.0-acres of the Torrington High School property, and Bessie Park, in Torrington, CT. Within the southern portion of the study area, which includes Bessie Park Pond, roughly 5.5 acres were investigated. Also, the steep to moderately wooded slope to the east of the existing athletic fields, encompassing roughly 4.5 acres, was also investigated. The study area's soils are both disturbed and undisturbed, and are derived predominately from glacial till (i.e., unstratified sand, silt and rock) deposits, and sandy fill. The undisturbed upland soil types are the well-drained Canton and Charlton (62) soil series complex, while the disturbed uplands soils mapped as udorthents (308). The undisturbed wetland soils belong to the poorly drained Ridgebury (2) soil series, while the disturbed wetlands soils were mapped as the poorly drained and very poorly drained Aquents (308w). The delineated regulated areas include a small forested hillside seep wetland (C-series), a forested and scrub shrub wetland associated with a utility easement (B-series), and the scrub shrub and emergent wetlands associated with Bessie Park Pond (A-, 1A-series). The wetlands associated with the pond have developed on sediment that has entered the pond since 1995, per aerial photography. Common overstory trees include red maple, black willow, speckled alder, cottonwood, and pin oak. Observed woody understory species include pussy willow, multiflora rose, elderberry, Morrow's honeysuckle, winterberry, and spicebush. Herbs include skunk cabbage, garlic mustard, cinnamon and sensitive ferns, asters, goldenrods, sedges, stout wood reedgrass, cattail, common reed, scouring rush, purple willowherbs, soft rush, grasses, and others.

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT (CONTINUED)

PROJECT NAME & SITE LOCATION: (+/- 11.0 acres)
Torrington High School, Torrington, CT

SOIL MAP UNITSUpland Soils

Canton stony fine sandy loam (62). This series consists of deep, well drained soils formed in a coarse-loamy mantle underlain by sandy glacial till on uplands. They are nearly level to very steep soils on till plains and hills. The soils formed in acid glacial till derived mainly from schist, gneiss or granite. Typically, these soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil from 2 to 23 inches is yellowish brown fine sandy loam, gravelly fine sandy loam and gravelly sandy loam. The substratum from 23 to 60 inches is pale brown gravelly loamy sand.

Charlton very stony fine sandy loam (62). This series consists of very deep, well drained coarse-loamy soils formed in friable, glacial till on uplands. They are nearly level to very steep soils on till plains and hills. The soils formed in acid glacial till derived mainly from schist, gneiss or granite. In tilled areas, these soils have a surface layer of dark brown fine sandy loam 8 inches thick. The subsoil from 8 to 26 inches is yellowish brown fine sandy loam and sandy loam. The substratum from 26 to 60 inches or more is grayish brown gravelly fine sandy loam.

Udorthents (308). This soil mapping unit consists of well drained to moderately well drained soils that have been altered by cutting, filling, or grading. The areas either have had two feet or more of the upper part of the original soil removed or have more than two feet of fill material on top of the original soil. Udorthents or Made Land soils can be found on any soil parent material but are typically fluvial on glacial till plains and outwash plains and stream terraces.

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT (CONTINUED)

PROJECT NAME & SITE LOCATION: (+/- 11.0 acres)
Torrington High School, Torrington, CT

SOIL MAP UNITSWetland Soils

Ridgebury fine sandy loam (2). This soil series consists of deep, poorly and somewhat poorly drained soils formed in a coarse-loamy mantle underlain by firm, compact glacial till on uplands. They are nearly level to moderately steep soils on till plains, low ridges and drumloidal landforms. The soils formed in acid glacial till derived mainly from schist, gneiss or granite. Typically, these soils have a black sandy loam surface layer 6 inches thick. The mottled subsoil from 6 to 16 inches is olive gray sandy loam. The mottled substratum from 16 to 60 inches is a light olive brown and olive, very firm and brittle gravelly sandy loam.

Aquents (308w). This soil map unit consists of poorly drained and very poorly drained, disturbed land areas. They are most often found on landscapes which have been subject to prior filling and/or excavation activities. In general, this soil map unit occurs where two or more feet of the original soil surface has been filled over, graded or excavated. The Aquents are characterized by a seasonal to prolonged high ground water table and either support or are capable of supporting wetland vegetation. Aquents are recently formed soils which have an aquic moisture regime. An aquic moisture regime is associated with a reducing soil environment that is virtually free of dissolved oxygen because the soil is saturated by groundwater or by water of the capillary fringe. The key feature is the presence of a ground water table at or very near to the soil surface for a period of fourteen days or longer during the growing season.

Any accompanying soil logs and soil maps, and the on-site soil investigation narrative are in accordance with the taxonomic classification of the National Cooperative Soil Survey of the USDA Natural Resource Conservation Service, and with the Connecticut Soil Legend (DEP Bulletin No.5, 1983), as amended by USDA-NRCS. Jurisdictional wetland boundaries were delineated pursuant to the Connecticut General Statutes (CGS Sections 22a-36 to 22a-45), as amended. The site investigation was conducted and/or reviewed by the undersigned Registered Soil Scientist(s) [registered with the Society of Soil Scientists of Southern New England (SSSSNE) in accordance with the standards of the Federal Office of Personnel Management].

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC



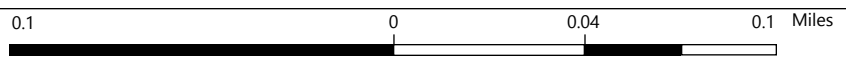
George T. Logan, MS, PWS, CSE
Registered Soil Scientist
Field Investigator/Senior Reviewer



Legend
□ Parcels for Protected Open Sp
Light Gray Canvas Base

1: 2,257

Notes



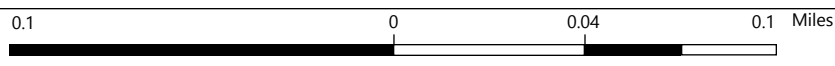
This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.



Legend

- Parcels for Protected Open Sp
- Light Gray Canvas Base

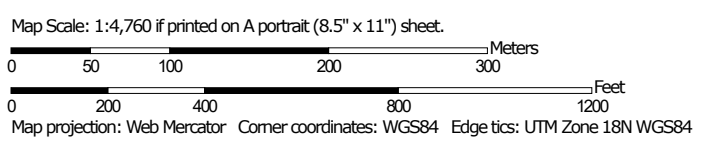
1: 2,257



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Notes

Soil Map—State of Connecticut
 (Torrington High School, 50 Major Besse Drive, Torrington, CT)




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 12, 2020—Sep 15, 2020

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
38C	Hinckley loamy sand, 3 to 15 percent slopes	0.7	0.6%
38E	Hinckley loamy sand, 15 to 45 percent slopes	6.9	5.9%
60D	Canton and Charlton soils, 15 to 25 percent slopes	0.7	0.6%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	11.9	10.2%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	6.9	5.9%
84C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes	0.2	0.2%
260B	Charlton-Urban land complex, 3 to 8 percent slopes	2.4	2.1%
260C	Charlton-Urban land complex, 8 to 15 percent slopes	4.1	3.5%
273C	Urban land-Charlton-Chatfield complex, rocky, 3 to 15 percent slopes	3.4	2.9%
306	Udorthents-Urban land complex	62.4	53.6%
308	Udorthents, smoothed	12.9	11.1%
W	Water	4.0	3.5%
Totals for Area of Interest		116.5	100.0%

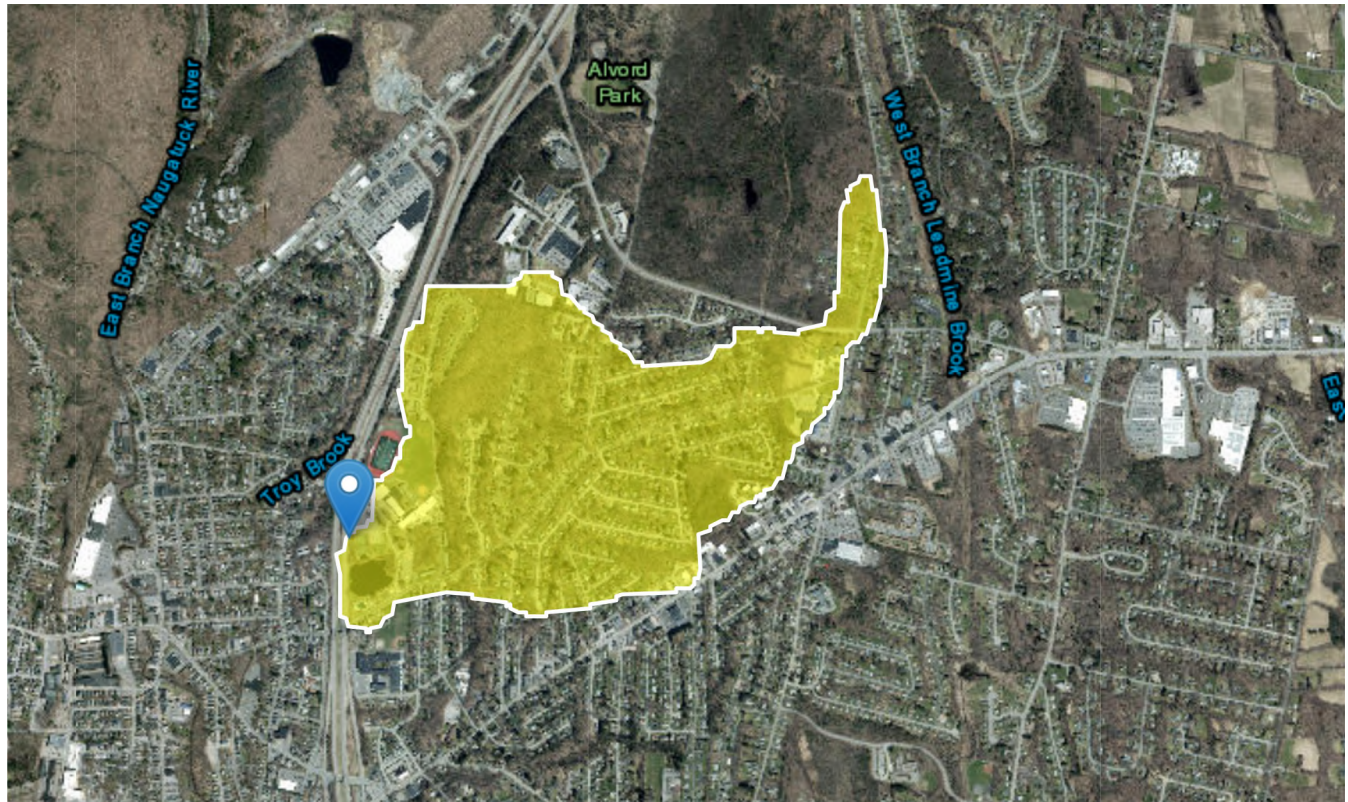
StreamStats Report - Besse Park Pond

Region ID: CT

Workspace ID: CT20220201010746931000

Clicked Point (Latitude, Longitude): 41.81511, -73.11339

Time: 2022-01-31 20:08:08 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.58	square miles
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	86.7	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	30.9	percent
WETLAND	Percentage of Wetlands	0.2	percent

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Application Version: 4.6.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2