



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

June 11, 2023

VIA E-MAIL

PDS Engineering & Construction, Inc.
107 Old Windsor Road
Bloomfield, CT 06002

Attn.: Mr. Brian Farrell

Re: WETLANDS DELINEATIONS & MITIGATION REPORT

Commercial Storefront Services, Inc.
470 Governors Highway, South Windsor, CT

REMA Job No.: 23-2608-SWN121

Dear Mr. Farrell:

At your request, REMA ECOLOGICAL SERVICES, LLC (REMA), on May 24th, and again, on June 4th, 2023, REMA visited the above-referenced property, for the purpose of delineating regulated wetland resources, per State Statutes, as well as investigating the site for mitigation opportunities. Specifically, we have been asked to provide a compensatory wetland mitigation plan as an offset for a small and inadvertent encroachment upon a wetland resource, that occurred at the northwestern section of the subject property (see Figure A, attached).

1.0 Overview & Wetland Delineations

The subject site is located on the northside of Governors Highway, in South Windsor, CT, roughly half a mile easterly of John Fitch Boulevard (Route 5). Under existing conditions, the site houses Commercial Storefront Services, Inc., built in 2013, servicing the commercial glass industry. The site, which encompasses approximately 3.071 acres, is seeking to expand the property limits to the north and to the west, to approximately 3.712 acres. Wooded wetlands and uplands surround the subject site to the north, east, and west (see Figure A, attached).



During the May 24th, 2023 site visit, we verified the accuracy of previous wetland delineations by REMA in October of 2012. Most of the wetland boundary flags were located, especially for the wetland in the northwestern section of the site, where the small encroachment took place (see Photos 1 to 3, attached). As a result of this effort, we conclude that the previous wetland delineations remain substantially correct, and no adjustments were necessary.

On June 4th, 2023, REMA delineated some additional wetland resources. To the north, and off-site, we delineated an old agricultural ditch, located approximately 80 feet from the proposed property boundary. Wetland boundary flags RES-A-1 to RES-A-8 define the limits of Wetland A. This is a seasonally flooded to seasonally saturated wetland, dominated by red maple in the overstory and sweet pepperbush in the understory (see Photo 7, attached). Other dominant or common plants observed included sedges, sensitive fern, and swamp dewberry.

Further to the west, of Wetland A, Wetland B was delineated (RES-B-1 to RES-B-8). This occurs in part within the expanded property, and comes within a few feet of the existing chain link fence (see Photos 8 and 9). This is also a seasonally flooded to seasonally saturated wetland, with red maple in the overstory. The understory exhibits an open habit, with Japanese barberry, multiflora rose, sweet pepperbush, a variety of sedges, goldenrods, soft rush, sensitive fern, bedstraw, poison ivy, and jewelweed, among others.

The wetland-type soils within both the previously delineated and the recently delineated wetland resources are dominated by the poorly drained Walpole (13) sandy loam, while the upland-type soils are the moderately well drained Ninigret (701) fine sandy loam, soil series.

We note that the mostly off-site wetland at the northwestern section of the site, the eastern tip of which was impacted, was found to have a diverse herbaceous stratum with sedges, including tussock, lake, lurid, graceful, fringed, bladder, brome-like, and Swan's, bedstraws, large hop clover, small-flowered buttercup, smartweeds, sensitive fern, and several others. This diversity has been considered in the proposed wetland mitigation.

2.0 Compensatory Wetland Mitigation

The proposed wetland mitigation, consists of the creation of roughly 1,200 square foot of productive wetland, in the southwestern section of the site. The specific site was selected because it is open, not requiring the removal of trees, and is an area with a fair amount of invasives species. Based on review of archival aerial photographs (i.e., 1970, 1986, 2004) this area appears to be a remnant of the agricultural fields that dominated the subject property.

Mr. Brian Farrell

RE: 470 Governors Highway, South Windsor, CT

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A couple of shallow soil tests pits were developed at the selected area, using hand tools. The soils are the moderately well drained Ninigret soil series, showing evidence that the seasonal high groundwater table reaches within 16 to 18 inches of the soil surface. This means that a shallow excavation, in the order of 12 to 18 inches, and replacement of the existing topsoil with a high quality topsoil (10 inches), will easily create a seasonally flooded to seasonally saturated wetland hydrologic regime.

Attached to this report we provide Tables 1 through 4, with the proposed planting materials (i.e., trees, shrubs, herbs, seed mixes). While this is a relatively straightforward mitigation plan, which is the reason we have not provided detailed implementation notes, we recommend that REMA be involved in its implementation in the field, including the earthwork and planting. This will allow for in-field adjustments leading to long-term success. Moreover, we recommend a three-year monitoring and maintenance period, following plan implementation, during which time control/eradication of invasives shall take place, as well as any necessary remediation.

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

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC



George T. Logan, MS, PWS, CSE
Certified Professional Wetland Scientist
Registered Soil Scientist, Certified Senior Ecologist

Attachments: Figure A; Annotated photographs (1 to 10), USDA-NRCS Web Soil Survey

FIGURE A: WETLAND DELINEATIONS SKETCH MAP
470 Governors Highway, South Windsor, CT



Legend

- Parcels for Protected Open Sp
- Town Boundary
- State Boundary
- Coastline
- Light Gray Canvas Base

Notes

Seen on 2019 aerial photo,
with 2016 topography

0.1 0 0.04 0.1 Miles

	SITE/LOCATION: 470 Governors Highway South Windsor, CT	REMA JOB NO.: 23-2608-SWN21	ANNOTATED PHOTO LOG
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		
DATE: May 24, 2023	FACING: EASTERLY	PHOTO NO.: 1	
		<i>Northwesterly wetland at edge of property that was slightly impacted</i>	

DATE: May 24, 2023	FACING: NORTHWESTERLY	PHOTO NO.: 2	
		<i>Same wetland as in previous photo, looking away from subject property</i>	

	SITE/LOCATION: 470 Governors Highway South Windsor, CT	REMA JOB NO.: 23-2608-SWN21	ANNOTATED PHOTO LOG
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		
DATE: May 24, 2023	FACING: EASTERLY	PHOTO NO.: 3	
		<i>Most of the wetland boundary flags for the wetland that was impacted are still observable.</i>	

DATE: May 24, 2023	FACING: NORTHWESTERLY	PHOTO NO.: 4	
		<i>To compensate for the wetland impact, wetland habitat will be created within the southwesterly section of the subject site, in a moderately well drained area, that is devoid of trees and replete with invasive plants of upland habitats (e.g., Asiatic bittersweet, Japanese barberry, etc.)</i>	

	SITE/LOCATION: 470 Governors Highway South Windsor, CT	REMA JOB NO.: 23-2608-SWN21	ANNOTATED PHOTO LOG
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		
DATE: June 4, 2023	FACING: WESTERLY	PHOTO NO.: 5	
		<i>Open canopied uplands within the area of proposed property expansion to the north</i>	

DATE: June 4, 2023	FACING: WESTERLY	PHOTO NO.: 6	
		<i>Upland woods within the area of proposed property expansion to the north</i>	

	SITE/LOCATION: 470 Governors Highway South Windsor, CT	REMA JOB NO.: 23-2608-SWN21	ANNOTATED PHOTO LOG
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		
DATE: June 4, 2023	FACING: WESTERLY	PHOTO NO.: 7	
		<i>Wetland A, an old agricultural wet ditch</i>	

DATE: June 4, 2023	FACING: SOUTHEASTERLY	PHOTO NO.: 8	
		<i>Wetland B, within the northerly expansion of the property</i>	

	SITE/LOCATION: 470 Governors Highway South Windsor, CT	REMA JOB NO.: 23-2608-SWN21	ANNOTATED PHOTO LOG
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		
DATE: June 4, 2023	FACING: SOUTHERLY	PHOTO NO.: 9	
		<i>Wetland B, comes within a few feet of the chain link fence, which is close to the existing property boundary</i>	

DATE: June 4, 2023	FACING: SOUTHERLY	PHOTO NO.: 10	
		<i>The area for the proposed wetland creation, the limits of which were flagged (M-1 to M-10). This area is devoid of any substantial trees, and contains many invasive species. The surveyors stake is at the existing property boundary, which shall expand 30 feet to the west.</i>	

Table 4: Seed Mixes for Wetland Mitigation Area

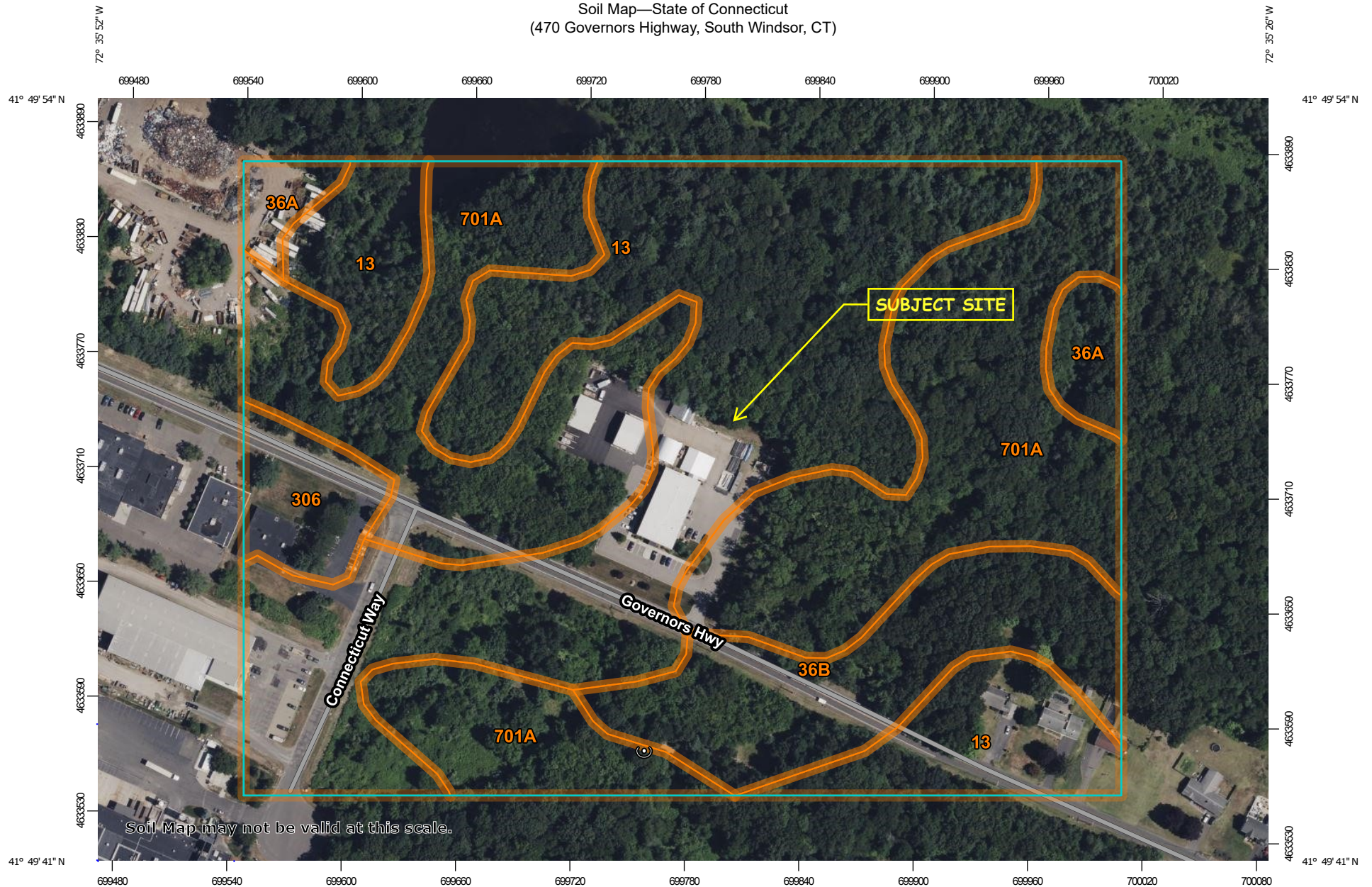
		Total Pounds per Seed Mix	
COMMENTS: See notes accompanying each seed mix for additional guidance pertaining to the season that seed mix is applied. Implementation notes also include a section of seeding.		Wetland Mitigation Area	Totals
NEWP Seed Mix #1	Wetland Mitigation Area		
New England Wetmix		2	2
1 lb/2,500 sf			
NEWP Seed Mix #2	Edges of Wetland Mitigation Area		
New England Conservation/Wildlife Mix		2	2
1 lb/1,750 sf			
		Total	4
Notes: 1. Mix 1:1 with filler (coarse sand, kitty litter, Speedy Dry) to help correctly divide seed packages and for even spreading. 2. Mixes contain seeds with a range of hydrologic tolerances, so different species will thrive in different areas. 3. Plants will set seed and spread further, increasing in density, becoming concentrated in most suitable areas. 4. Mulch (do not seed) areas under and around plug & shrub clusters, to exclude weeds and hold moisture. (Coverage specified assumes area occupied by mulched woody plantings has been subtracted.) 5. A late fall seeding will require 20% more seed, because some seed will be lost to wash off and herbivory, but germination rates will actually be higher the following spring, due to the cold winter stratification of the seed.			
Sources: New England Wetland Plants, South Hadley, MA; phone: 413-548-8000			

**TABLES OF PLANTING MATERIALS FOR WETLAND MITIGATION AREA
470 Governors Highway, South Windsor, Connecticut**

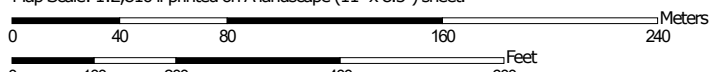
Table 1. Trees						Wetland Mitigation Area 'A'	Totals
Hydrologic Zones: Zone A: Saturated/Shallow inundation; Zone B: seasonally saturated, moist Zone C: moderately well drained, usually moist							
Scientific Name	Zone	Common Name	Size	Shade tolerant?	Form		
FULL SIZE TREES							
Nyssa sylvatica	B,C	Black gum	4'-6'	Y	nursery pot	2	2
Total:						2	2
SMALL TREES/LARGE SHRUBS							
Amelanchier canadensis	C	Shadblow	3'-4'	Y/N	nursery pot	2	2
Total:						2	2

Table 2. Shrubs						Totals		
Scientific Name	Zone	Common Name	Size	Shade tolerant?	Form			
MEDIUM TO LOW SHRUBS								
Aronia arbutifolia	B,C	Chokeberry	3'-4'	N	nursery pot		2	2
Clethra alnifolia	B,C	Sweet pepperbush	3'-4'	Y	nursery pot	4	4	
Ilex verticillata	B,C	Winterberry	3'-4'	Y	nursery pot	4	4	
Lyonia ligustrina	B,C	Maleberry	3'-4'	Y/N	nursery pot	4	4	
Vaccinium corymbosum	B	Highbush blueberry	3'-4'	Y	nursery pot	2	2	
Viburnum lentago	B,C	Nannyberry	3'-4'	Y	nursery pot	2	2	
Spiraea latifolia	B,C	Meadowsweet	3'-4'	N	nursery pot	10	10	
Swida racemosa	B,C	Gray dogwood	3'-4'	Y	nursery pot	5	5	
Rosa palustris	A	Swamp rose	3'-4'	Y	nursery pot	2	2	
Total:						35	35	

Soil Map—State of Connecticut
(470 Governors Highway, South Windsor, CT)



Map Scale: 1:2,810 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

6/11/2023
Page 1 of 3

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 22, Sep 12, 2022

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

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

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
13	Walpole sandy loam, 0 to 3 percent slopes	16.8	44.5%
36A	Windsor loamy sand, 0 to 3 percent slopes	1.1	3.0%
36B	Windsor loamy sand, 3 to 8 percent slopes	4.2	11.0%
306	Udorthents-Urban land complex	1.2	3.3%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	14.5	38.2%
Totals for Area of Interest		37.8	100.0%