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February 5, 2024

VIA E-MAIL

Inland Wetlands Agency/Conservation Commission
Town of South Windsor
Town Hall
1540 Sullivan Avenue
South Windsor, CT 06074

Re: WETLANDS ASSESSMENT

Proposed Industrial Development
396 Burnham Street, South Windsor, CT

REMA Job No.: 18-2076-SWN102

Dear Chair Kelly & Agency members:

At the request of the applicant, Burnham Realty, LLC, REMA ECOLOGICAL SERVICES, LLC (REMA), provides herein a brief assessment of potential short-term and long-term impacts upon regulated resources (i.e., wetlands/watercourses) at the above-referenced property. REMA visited the subject site on May 11th and September 19th, 2018, January 28th, 2023, and most recently on January 31st, 2024, for the purpose of delineating the wetland boundaries and obtaining baseline data. An *On-Site Soil Investigation & Wetland Delineation Report* dated September 19th, 2018, and revised through January 28th, 2023, has been submitted into the record for this application.

We have reviewed plans submitted by Bushnell Associates, LLC, dated October 23rd, 2023, and (2 sheets), entitled "Plan Prepared for Burnham Realty, LLC, 396 Burnham Street, South Windsor, CT."

1.0 Existing Conditions

As has been documented in the aforementioned report, the overall site encompasses roughly 6.69 acres, most of which is encumbered by forested wetlands, which also extend off-site to the north,



east, and west. The overall wetland system is in excess of 15 acres (i.e., on-site and off-site). According to the National Wetlands Inventory (NWI) mapping, as well as the CT Soil Survey, this swath of forested wetlands has two primary hydrologic regimes: *seasonally flooded*, and *seasonally saturated*. The wetland cover type is dominated by red maple in the overstory, sweet pepperbush and highbush blueberry in the woody understory, and skunk cabbage, ferns (i.e., cinnamon, royal, sensitive), sedges, and stout wood reedgrass in the herbaceous stratum.

It should be noted that the wetlands in the immediate vicinity of the proposed development include several invasive plant species or aggressive colonizers such as Japanese knotweed, multiflora rose, Japanese barberry, pachysandra, and garlic mustard. Moreover, much of the wetland boundary northerly of the proposed activities were delineated at the toe of an old fill slope.

Wetland/watercourse functions and values¹ were assessed informally, using the rationales of a standardized evaluation methods [e.g., US Army Corps of Engineers' *Descriptive Approach* (1995)], and best professional judgment. Wetland and upland baseline data provide the basis for the assessment, as well as the landscape setting of the site, as noted above. Table A (below) shows the results of the assessment.

Table A: Summary of Wetland/Watercourse Functions-Values Assessment

Function/Value	Wetland A
Groundwater Recharge/discharge	P
Floodflow alteration	P
Sediment/Shoreline Stabilization	N
Sediment/toxicant/pathogen retention	P
Nutrient Removal/Transformation	P
Production Export	Y
Aquatic Habitat	Y
Wildlife Habitat	P
Endangered Species Habitat	N
Visual Quality/aesthetics	Y
Educational/Scientific Value	Y
Recreation (passive/active)	Y
Uniqueness/heritage	N

Notes: **P** = Primary/principal function; **Y** = secondary/function present; **N** = function is not appreciably present or is absent

¹ Functions are those provided by a given wetland/watercourse that are intrinsic to the resource. That is, they would present regardless of society (e.g. wildlife habitat, nutrient removal/transformation). Values are those services that society benefits from (e.g., floodflow alteration, recreation, educational/scientific value. Some "functions" also benefit society, such as sediment/toxicant/pathogen retention.



Due to the extent and moderate wetland cover type diversity of the overall wetland ecological unit, five (5) functions/values are attributed as principal, and five (5) functions/values are attributed as secondary. However, the site itself including the wetland fringe is highly disturbed, including by filling to the edge of the delineated wetland boundary, and a high proportion of invasive plant species. These disturbances date back several decades.

2.0 Proposed Conditions

According to the reviewed plans, *direct* wetland disturbances (i.e., filling) are **not** being proposed at the subject site.

Indirect or *secondary* physical impacts to a wetland or watercourse can occur as a result of activities *outside* of wetlands or watercourses. Such impacts can be *short-term* or *long-term*, the former typically associated with the potential for erosion and sedimentation, mostly during the construction period, the latter including the removal or disturbance of vegetation in upland areas but adjacent to wetlands or watercourses, the alteration of wetland hydrology or the flow regime of a watercourse, and the discharge of degraded surface water or groundwater, which may adversely impact the water quality of the regulated resources both on-site, but also, potentially off-site and downgradient.

The potential for any of these *indirect* impacts to occur at the site as a result of the proposal depends on the regulated resources themselves, the magnitude and quality of the functions and values that they provide, their environmental sensitivity, and their ecological and physical characteristics.

The potential for erosion and subsequent deposition in wetlands and watercourses at the subject site is *low*. Per the plans robust controls are proposed in accordance with CT DEEP's 2002 *Guidelines for Soil Erosion and Sediment Control*. The proposed water quality/detention basin will be utilized as a sedimentation basin during the construction phase.

While the water quality basin will be constructed within a few feet of the wetland boundary, and additional vegetation will be removed, the more significant trees that occur just inside of the edge of the wetland will be left in place. Most of the vegetation to be removed consists of low quality ruderal forest with invasive species (e.g., Japanese knotweed). Tables 1 through 4 (attached) are recommended plantings for the water quality basin. This will not only ensure that the basin will function at a higher capacity to renovate stormwater, but also provide a defense against invasive proliferation, and some complementary habitat to the adjacent wetland habitat.



Since this is an in-fill development, with grading or clearing as close to the wetland boundary to that which is proposed, both to the east and to the west of the subject site, the wetland setback is appropriate and protective of the regulated resource. Moreover, while the overall wetland system provides many principal functions and values, it is resilient and not sensitive to this kind of development at this particular location, given not only its size and landscape setting, but also its type, that is, *not* an oligotrophic (i.e., low-nutrient) system that would be sensitive to stormwater discharges, but a mostly mesotrophic system (i.e., moderate nutrient availability/fertility).

Alteration of wetland hydrology is not an issue at this site, primarily due to the fact that the hydrology of this resource is dependent on inputs from its large watershed. Also, due to past filling, there is minimal recharge to the wetland fringe from this site.

Potential water quality impacts are effectively dealt with by the proposed water quality basin, which treats the water quality volume (WQV) from the impervious areas. The basin is also being planted with native emergents creating a saturated wetland habitat (i.e., wet meadow/marsh) that will enhance the effectiveness of this best management practice to treat stormwater and protect the water quality of the associated wetlands.

3.0 Conclusion

It is our professional opinion that there will not be a significant or adverse impact to the site's regulated wetlands and watercourses, or to off-site wetland and watercourse resources. The regulated resources will continue to provide substantial functions and values, post-construction.

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: Photos 1 to 4; Tables 1 to 4

	SITE/LOCATION: Proposed Industrial Development 396 Burnham Street South Windsor, CT	REMA JOB NO.: 18-2076-SWN102	ANNOTATED PHOTO LOG
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		
DATE: May 11, 2018	FACING: WESTERLY	PHOTO NO.: 1	
		Comments: Near wetland edge; note Japanese barberry (early infestation)	

DATE: May 11, 2018	FACING: EASTERLY	PHOTO NO.: 2	
		Comments: Seasonally flooded area (not a vernal pool), northerly of wetland boundary	

	SITE/LOCATION: Proposed Industrial Development 396 Burnham Street South Windsor, CT	REMA JOB NO.: 18-2076-SWN102	ANNOTATED PHOTO LOG
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		
DATE: January 31, 2024	FACING: EASTERLY	PHOTO NO.: 3	
		Comments: Near edge of wetland; trees seen here will not be distrubed	

DATE: January 31, 2024	FACING: NORTHWESTERLY	PHOTO NO.: 4	
		Comments: View of wetland from edge of woods; area with Japanese knotweed shall be taken over by water quality basin	

TABLES OF PLANTING MATERIALS FOR WATER QUALITY BASIN
396 Burnham Street, South Windsor, CT

Table 1. Trees							Water Quality Basin	TotalS
Hydrologic Zones: Zone A: Saturated/Shallow inundation; Zone B: seasonally saturated, moist Zone C: moderately well drained, usually moist; Zone D: well-drained								
Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form		
FULL SIZE TREES								
Quercus palustris	B,C	Pin Oak	4'-6'	Y	FACW	nursery pot	1	1
Acer rubrum	D	Red maple	4'-6'	Y	FACU-	nursery pot	1	1
Total:							2	2
SMALL TREES/LARGE SHRUBS								
Salix discolor	B,C	Pussy willow	3'-4'	N	FACW	nursery pot	2	2
Total:							2	2

Table 2. Shrubs							Totals	
Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form		
MEDIUM TO LOW SHRUBS								
Clethra alnifolia	B,C	Sweet pepperbush	3'-4'	Y	FAC+	pot		2
Lyonia ligustrina	B,C	Maleberry	3'-4'	Y/N	FACW	pot	2	2
Viburnum lentago	B,C	Nannyberry	3'-4'	Y	FAC	pot	2	2
Swida racemosa	B,C	Gray dogwood	3'-4'	Y	FAC	pot	6	6
Total:							12	12

Table 3. Herbs						Water Quality Basin	Totals
Hydrologic Zones: Zone A: Saturated/Shallow inundation;							
Zone B: seasonally saturated, moist							
Zone C: moderately well drained, usually moist; Zone D: well-drained							
Scientific Name	Zone	Common Name	Form	NWI*	Spacing		
Carex lupulina	B	Hop sedge	2" plug	FACW	2'OC	50	50
Eutrochium purpureum	B	Purple Joe Pye weed	2" plug	FAC	3'OC	50	50
Vernonia noveboracensis	B	New York Ironweed	2" plug	FACW	3'OC	50	50
Total:						150	150
* NWI Status (National Wetland Inventory; National Wetland Plant List: Northcentral & Northeast)							
NOTES:							
1. Plant between May 15 and June 30 for herbaceous species. July planting will need watering through end of August.							
2. Purchased woody material may be installed either in the spring (April 15th to June 15th), or in the fall (August 15th to Oct.15th)							
3. Plant in same species groupings of two to three shrubs, ten to fifteen for herbs							
4. Use seed mixes from New England Wetland Plants, Inc., South Hadley, MA (see Table 4), at specified seeding rate.							
5. No seeding or plants in 3' diameter circle around each shrub and tree,1' around plugs; mulch with shred. bark or nat. wood mulch							
6. Water and weed as needed during first growing season.							

Table 4: Seed Mixes for Water Quality Basin

COMMENTS:

See notes accompanying each seed mix for additional guidance pertaining to the season that the seed mix is applied. Implementation notes also include a section on seeding.

Total (lbs per
seed mix)

NEWP Seed Mix #1

Water Quality Basin Bottom (elev. <62')

New England Erosion Control/Restoration Mix for Detention Basins
1 lb/2,500 sf

*(in seasonally saturated, temporarily flooded
and moist areas)*

2

NEWP Seed Mix #2

Water Quality Basin Slopes (elev. >62')

New England Conservation/Wildlife Mix
1 lb/1,750 sf

(in moist to dry areas)

2

4

Notes:

1. Mix 1:1 with filler (coarse sand, kitty litter) 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.

Source:

New England Wetland Plants, 14 Pearl Lane, South Bradley, Massachusetts; phone: 413-548-8000