

Notice of Intent
for
24 School Street
Wayland, MA 01778

Prepared for: Windsor Place, LLC
73 Pelham Island Road
Wayland, MA 01778

Prepared by: MetroWest Engineering, Inc.
75 Franklin St.
Framingham, MA 01702

December, 2020

Notice of Intent

Contents:

- Project Narrative
- Locus Maps: USGS Topographic Map, DEP Wetlands & NHESP Program Map, Wayland GIS Map
- WPA Form 3, Notice of Intent & Wetland Fee Transmittal Form
- MODFLOW Analysis
- Certified List of Abutters & Abutter Notification
- Affidavit of Service
- Copy of Payment
- Site Plans

Project Narrative

**Notice of Intent Project Narrative
Proposed Site Redevelopment
24 School Street, Wayland, MA**

Introduction and Existing Conditions

This Notice of Intent Application seeks approval from the Wayland Conservation Commission for proposed site work within the Buffer Zone to Wetland Resource areas for the property located at 24 School Street in Wayland, Massachusetts.

The subject parcel (Assessors Map 152, Lot 189) has an area of 37,865 square feet (0.87 acres) and is located within an urbanized area. The property is presently improved with a two-story house, detached garage, barn, paved driveway, subsurface sewage disposal system and supporting utilities. The lot is covered primarily with impervious and lawn areas with some wooded areas located along the westerly and northerly boundaries. The site presently contains approximately 8,908 square feet of impervious area. Existing topography slopes gradually downhill in westerly and southerly directions from the high point located at the northeast corner of the property. The property abuts developed single family residential properties on the north side, commercial properties on the east side of School Street and a vacant lot on the westerly side. The former owner of the property encroached on to the land of the westerly abutter with a stone wall, lawn and gravel areas.

The site redevelopment project includes demolition and removal of the existing house, barn, garage, driveway and subsurface sewage disposal system. The proposed scope of work includes the construction of two new townhouse buildings, paved parking areas, a new subsurface sewage disposal system, stormwater management system and supporting utilities.

Project Permitting History

The site redevelopment project was originally proposed in 2017 pursuant to M.G.L. Chapter 40B.

Board of Health

A site plan showing proposed site conditions and details of the proposed subsurface sewage disposal system was submitted to the Wayland Board of Health in November 2017. The plans were reviewed and approved by the Health Department staff and a Disposal Works Construction Permit was issued by the Health Department on September 17, 2019.

Zoning Board of Appeals

A Comprehensive Permit application was submitted to the Wayland Zoning Board of Appeals in January 2017. It included proposed site plans, a hydrologic analysis, and a stormwater report. The project was reviewed at numerous public meetings and was subject to a peer review. The Board of Appeals approved the project in August 2019 and no appeal was filed. A Special Permit Granted with Conditions became final on September 13, 2019.

Conservation Commission

A Notice of Intent was filed with the Wayland Conservation Commission on September 7, 2017. The project was discussed at numerous public hearings and meetings and was subject to a peer review. The Commission voted to deny the project in September 2018, and an Order of Conditions denying the project was issued on October 4, 2018, in part based on lack of information. The applicant filed an appeal with MassDEP and on July 16, 2019, MassDEP issued a Superseding Order of Conditions affirming the Commission's denial. It was the opinion of the Commission that a more robust analysis of hydraulic loading using the USGS MODFLOW method should be used to model site conditions to determine if the proposed project is capable of protecting the interests of the wetland resources. MassDEP agreed that such information was necessary to properly evaluate the proposed project. MassDEP noted that if a new Notice of Intent was filed, the applicant should include the results of a MODFLOW analysis.

The applicant appealed the Superseding Order of Conditions to MassDEP's Office of Appeals and Dispute Resolution (OADR) on July 30, 2019. The case was assigned docket number WET-2019-025. The parties in the appeal – namely, the applicant, the Commission, MassDEP, and certain intervenors – participated in a pre-hearing conference in September 2019 to discuss the issues in the appeal and the procedure for adjudicating the case. One issue was whether the information submitted by the applicant to the Commission was sufficient to describe the site, the work or the effect of the work on the interests identified in M.G.L. c. 131, § 40, contrary to the findings of the Commission and MassDEP in the denial orders.

On October 4, 2019, the applicant, with the assent of MassDEP, filed a motion to stay the appeal proceedings (In the Matter of Windsor Place, LLC, OADR Docket No. WET-2019-025) to allow the applicant to submit a new Notice of Intent to the Commission to address the concerns raised in the Commission's and MassDEP's denial orders of conditions by supplying additional information to the Commission. On October 17, 2019, the Presiding Officer allowed the motion to stay the appeal proceedings.

Wetland Resource Areas

No wetland resource areas lie within the boundaries of the project site. A Bordering Vegetated Wetland and unnamed Intermittent Stream are located on the land of the westerly abutter. The Intermittent Stream is located approximately 40-feet west of the subject property and the Bordering Vegetated Wetland is located approximately 30-feet west of the westerly boundary line. The 30-foot No-Alteration Zone crosses approximately 12-feet on to the property at the northwest corner of the site encompassing approximately 391 square feet of land on the property. The 100-foot Wetland Buffer Zone extends approximately 83-feet on to the subject property covering approximately 15,366 square feet of land on the site. Resource Areas were delineated and approved by the Wayland Conservation Commission in November 2015 and the delineation has carried through the original Notice of Intent proceedings, currently under appeal.

Proposed Redevelopment

As mentioned above, the site redevelopment program includes demolition and removal of the existing house, barn, garage, driveway and subsurface sewage disposal system, followed by the construction of two new townhouse buildings, paved parking areas, a new subsurface sewage disposal system, stormwater management system and supporting utilities.

The existing house, garage and driveway are located outside the 100-foot wetland buffer zone. A portion of the existing barn and the subsurface sewage disposal system are located within the 100-foot Wetland Buffer Zone. The proposed townhouse buildings will be located in the southerly part of the property. Proposed Building A will be located approximately 23.7-feet west of School Street, 29.1-feet north of West Plain Street and will be located outside the 100-foot Wetland Buffer Zone. Proposed Building B will be located approximately 10.8-feet off the westerly boundary line, 16.1-feet north of West Plain Street and is located within the 100-foot wetland buffer zone. The proposed soil absorption system for the septic system will be located under the proposed driveway and parking area in the northerly part of the site.

Primary access for the site is from a new proposed curb cut on School Street, located approximately 175-feet north of the intersection of School Street and West Plain Street. The proposed driveway will run westerly from School Street to a paved parking area on the north side of the site. A driveway from the parking lot will run between the two buildings and provide access to the driveways and garages of each unit. This driveway will also provide emergency access and egress to West Plain Street. Each of the town house units will have a garage and driveway connecting to the main driveway. The proposed development will have 20,213 square feet of impervious area. Table One below shows impervious coverages for both existing and proposed conditions. As indicated in the table, the proposed project only increases impervious surfaces on the site, compared to the existing condition, by 11,305 square feet, and only 4,912 square feet within the 100-foot Wetland Buffer Zone.

Table One: Existing and Proposed Impervious Area Table

	Existing Impervious Area (s.f.)	Proposed Impervious Area (s.f.)	Difference (s.f.)
30' No Alteration Zone	0	0	0
Inside 100' Wetland Buffer Zone	3,420	8,332	4,912
Outside 100' Wetland Buffer Zone	5,488	11,881	6,393

Construction Sequence

After erosion controls are installed and a building permit is granted, site work will commence. A list of the construction sequence is listed below:

- Cut and cap existing utilities
- Install erosion control barrier
- Demolition of the existing house, barn, garage
- Pump existing sewage disposal system
- Demolition of existing subsurface sewage disposal system
- Remove trees and grub site
- Excavation for building foundations and slabs
- Construction of new foundations
- Construction of retaining wall at rear of site
- Backfill and grading around foundations and rear retaining wall
- Install underground utilities
- Install drainage system pipes, structures and infiltration systems
- Construction of northerly retaining wall
- Installation of new subsurface sewage disposal system
- Grading for driveways and parking area
- Installation of curbing and binder course paving
- Final grading, loam and seed
- Final cleanup
- Finish paving and striping

All unpaved areas that are disturbed will be stabilized with permanent seeding and/or landscaping prior to removal of any erosion controls. Erosion controls shall not be removed until all seeded areas have been mowed at least twice.

Drainage Approach

There are presently no stormwater controls in place to manage runoff rates or volumes. Runoff drains to the south and west on to abutting properties and into West Plain Street. The proposed development will have a stormwater management system to capture, treat and recharge runoff generated by the majority of proposed impervious surfaces on the property. Therefore, stormwater management will improve on the site as a result of the redevelopment project.

Runoff from the front portions of both buildings will be captured and routed to proposed Infiltration System-1 located under the proposed driveway. Runoff from the proposed driveway and parking areas will be captured and treated in deep sump catch basins and Stormceptor 450 units prior to discharge into proposed Infiltration System-1. Proposed Infiltration System-1 has been designed to fully store and infiltrate runoff from storms up through and including the 2-year storm with minor overflow coming from larger storm events. A proposed rain garden is located in the southeast corner of the site. The proposed rain garden will collect and infiltrate runoff from the easterly roof surfaces of

Building A. The project will provide treatment of runoff from all paved surfaces and will significantly reduce the rates and volumes of surface runoff leaving the project site in all storm events. Tables Two and Three below illustrate the significant reductions in runoff rates and volumes in the post-development condition.

Table Two: Comparison of Total Pre and Post-Development Runoff Rates Leaving the Project Site

	2-year storm (c.f.s.)	10-year storm (c.f.s.)	25-year storm (c.f.s.)	100-year storm (c.f.s.)
Total Existing	0.59	1.50	2.32	4.16
Total Proposed	0.28	0.80	1.53	3.82
Difference	-0.31 (52.5%)	-0.70 (46.7%)	-0.79 (34.1%)	-0.34 (8.2%)

Table Three: Comparison of Total Pre and Post-Development Runoff Volumes Leaving the Project Site

	2-year storm (c.f.)	10-year storm (c.f.)	25-year storm (c.f.)	100-year storm (c.f.)
Total Existing	2,261	5,113	7,799	13,853
Total Proposed	1,160	3,933	6,524	12,622
Difference	-1,101 (48.7%)	-1,180 (30.0%)	-1,275 (16.3%)	-1,231 (8.9%)

As noted in the Tables above, the project will reduce surface runoff directed towards the wetland and intermittent stream during storm events. This in turn will reduce storm-related flooding and drainage issues to downstream properties.

The proposed drainage system will also enhance groundwater recharge. This increase in groundwater recharge volumes will promote the sustenance of both the Bordering Vegetated Wetland and Intermittent Stream located on the adjacent property during low-flow periods as well as during sustained droughts.

Interests of the Wetlands Protection Act 310 CMR 10.01 (2):

1. Protection of public and private water supply.

The project site is not located within either a Zone-1 or Zone-2 of a public groundwater supply or within a Zone-A of a public surface water supply. No private wells are located within 200-feet of the property. The project has been designed to comply with all requirements of both 310 CMR 10.00 (The Wetland Regulations) and 310 CMR 15.00

(The Massachusetts Environmental Code, Title V). Accordingly, the project is presumed to protect both public and private water supplies.

A MODFLOW groundwater mounding analysis was performed by Creative Land & Water Engineering, LLC and GeoHydroCycle, Inc. and is attached to the new Notice of Intent. The results of the MODFLOW Analysis are depicted in a letter from GeoHydroCycle dated July 23, 2020 and a letter from Creative Land & Water Engineering, LLC dated August 16, 2020. The results of the MODFLOW analysis indicate a maximum groundwater mound elevation ranging from elevation 159.17-feet to 160.9-feet, increasing in an easterly direction across the footprint of the proposed soil absorption system. The maximum groundwater mound under the proposed stormwater infiltration system will be approximately 0.36-feet above the static water table after the system has fully drained, three days after the cessation of a major storm event. The proposed site and septic plans have been revised (compared to the original proposal) to provide a minimum of four-feet of separation between high groundwater mound elevations and the bottom of the proposed trenches of the soil absorption system, consistent with both 310 CMR 15.00 and MassDEP Stormwater Management Policy.

2. Protection of ground water supply.

The proposed sewage disposal system has been designed in accordance with 310 CMR 15.00 (Title V) and approved by the Board of Health. Accordingly, the system is presumed to protect the interest of public health, the environment and the Wetlands Protection Act. The proposed stormwater management system has been designed in accordance with MassDEP Stormwater Management Policy and thereby presumed to provide protection to public and private water supplies.

The proposed sewage disposal system actually exceeds the minimum standards set forth in 310 CMR 15.00, as well as the local Board of Health Regulations. The system includes a secondary treatment system (a FAST activated sludge treatment unit) to reduce Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) to levels well below ordinary septic tank effluent levels. The inclusion of the Secondary Treatment System has been done voluntarily, and is not mandated by either 310 CMR 15.00 or the Wayland Board of Health Regulations.

The stormwater management system has been designed using deep sump catch basins, Stormceptor proprietary treatment units and a subsurface infiltration system. The system will treat stormwater for oil and gas removal, as well as the removal of suspended solids. Water being discharged or exfiltrated through the infiltration system will have received adequate treatment to not adversely impact the quality of surface or groundwater. Additionally, the property will have a comprehensive Operation and Maintenance Plan for the proposed stormwater management system and subsurface sewage disposal system.

3. Flood Control

The proposed project will decrease flow rates and volumes from the site flowing in a westerly direction in comparison with the existing condition. A Hydrologic Analysis and Stormwater Report for the property were prepared and peer reviewed by two consultants retained by the Town of Wayland Conservation Commission and Zoning Board of Appeals and the Town Engineer during the original permitting process in 2017. Tables Four and Five below show the reduction in peak flow rates and volumes leaving the site, flowing through the adjacent wetlands and, ultimately through the culvert under School Street.

4. Storm Damage Prevention

The proposed project will decrease flow rates and volumes from the site flowing in a westerly direction in comparison with the existing condition. A Hydrologic Analysis and Stormwater Report for the property were prepared and peer reviewed by two Consultants retained by the Town of Wayland Conservation Commission and Zoning Board of Appeals and the Town Engineer during the 2017 permit proceedings. Tables Four and Five below show the reduction in peak flow rates and volumes leaving the site, flowing through the adjacent wetlands, and ultimately through the culvert under School Street. The reduction in flow rates and volumes leaving the site will reduce the chance of off-site flooding at the School Street culvert and further downstream.

Table Four: Comparison of Pre and Post-Development Peak Runoff Rates Flowing Off Site in a Westerly Direction

Site Condition	2-year storm	10-year storm	25-year storm	100-year storm
Existing	0.50 c.f.s.	1.33 c.f.s.	2.08 c.f.s.	3.77 c.f.s.
Proposed	0.26 c.f.s.	0.75 c.f.s.	1.43 c.f.s.	3.62 c.f.s.
Difference	-0.31 c.f.s.	-0.58 c.f.s.	-0.65 c.f.s.	-0.15 c.f.s.
Percentage Reduction	-62.0%	-43.6%	-31.2%	-3.9%

Table Five: Comparison of Pre and Post-Development Peak Runoff Volumes Flowing Off Site in a Westerly Direction

Site Condition	2-year storm	10-year storm	25-year storm	100-year storm
Existing	1,973 c.f.	4,571 c.f.	6,997 c.f.	12,534 c.f.
Proposed	1,053 c.f.	3,587 c.f.	6,148 c.f.	11,949 c.f.
Difference	-920 c.f.	-984 c.f.	-849 c.f.	-585 c.f.
Percentage Reduction	-46.6%	-21.5%	-12.1%	-4.7%

Peer reviews of the Hydrologic Analysis and Stormwater Report in the 2017 permit proceedings acknowledged the reductions in flow rates and volumes leaving the site in the post-development condition.

5. Prevention of Pollution

The site is presently improved with an existing house, detached garage, barn, and driveways. There is no stormwater management system in place to manage stormwater runoff from existing impervious surfaces allowing runoff to flow on to abutting properties and East Plain Street untreated. The proposed project will have a stormwater management system for the treatment, storage and recharge of stormwater runoff. The system will provide treatment of stormwater runoff from all proposed paved surfaces. Treatment will occur through the following stormwater BMP's: street sweeping, deep sump catch basins, StormCeptor inline treatment units and a subsurface infiltration system. The proposed stormwater management system has been designed in accordance with the current MassDEP Stormwater Management Policy as stipulated in 310 CMR 15.00.

The existing house is served by a cesspool located in the rear yard. The existing cesspool is non-compliant with the State Environmental Code 310 CMR 15.00 (Title V). The cesspool is located within four-feet of the existing seasonal high groundwater elevation and wastewater is discharged directly from the house into the cesspool with no primary treatment in a septic tank. The proposed project will have a new subsurface sewage disposal system for the treatment of wastewater from the proposed development.

Plans for the proposed subsurface sewage disposal system were thoroughly reviewed by the staff at the Board of Health. The plans were approved, and a Disposal Works Construction Permit (DN20190007) was issued by the Board of Health on September 17, 2019. 310 CMR section 10.03 (3) states that "a subsurface sewage disposal system that is to be constructed in compliance with the requirements of 310 CMR 15.000: The State Environmental Code, Title V: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-Site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage, or more stringent local board of health requirements, shall be presumed to protect the eight interests in M.G.L. c. 131, section 40."

6. Protection of Land Containing Shellfish

The property and surrounding area are not listed within a shellfish growing area on current Division of Marine Fisheries mapping.

7. Protection of fisheries

The property, surrounding area and nearby streams are not listed as protected habitat on Fish and Wildlife mapping.

8. Protection of wildlife habitat

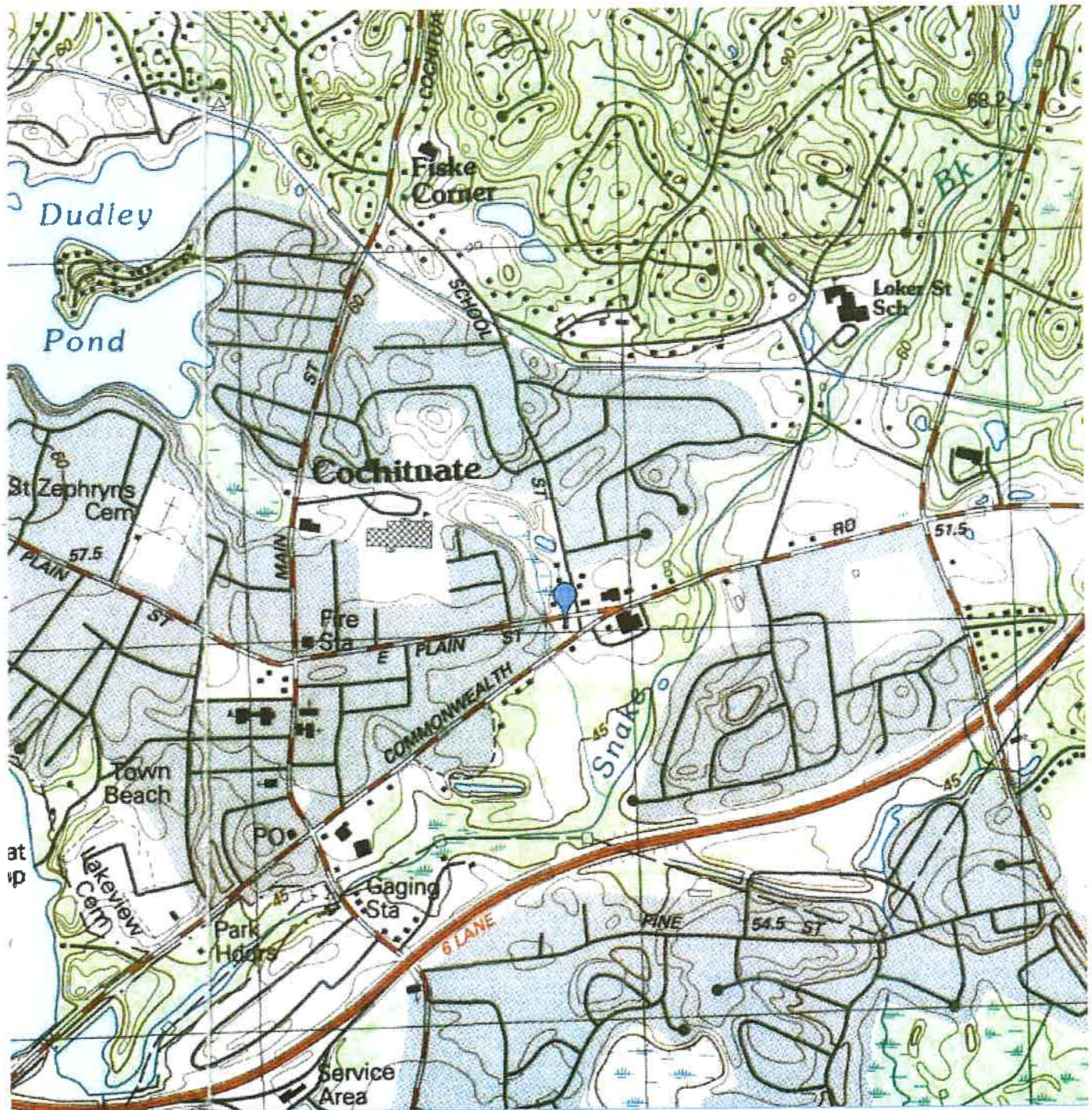
The property and surrounding area are not listed within Priority Habitat areas on current NHESP maps. The site is presently developed and improved with an existing house, detached garage, barn, other impervious surfaces and turf lawn and does not provide beneficial wildlife habitat. The property will be redeveloped to include two new multi-unit townhouse buildings, parking areas and supporting utilities and will not be detrimental to wildlife habitat.

Conclusion

Proposed redevelopment of the site will include the construction of two new townhouse buildings and associated site improvements. A portion of this work will occur in the 100-foot Wetland Buffer Zone. No proposed work will occur within the local 30-foot No-Alteration Zone. The new subsurface sewage disposal system for the project has been approved by the Wayland Health Department and is fully compliant with 310 CMR 15 (Title V). The subsurface sewage disposal system will feature a MicroFast unit for secondary treatment of effluent. The proposed stormwater management system will provide treatment of runoff from proposed paved surfaces and recharge of runoff from the majority of impervious surfaces. A proposed subsurface infiltration system will store and recharge runoff from paved and building surfaces. A proposed rain garden will store and infiltrate runoff from the rear portion of the Building A roof surface. The project is fully compliant with the MassDEP Stormwater Management Policy and will reduce flow rates and volumes of runoff leaving the site in the post-development condition. The project meets all performance standards specified in Section 310 CMR 10.01 of the Wetlands Protection Act.

Locus Maps

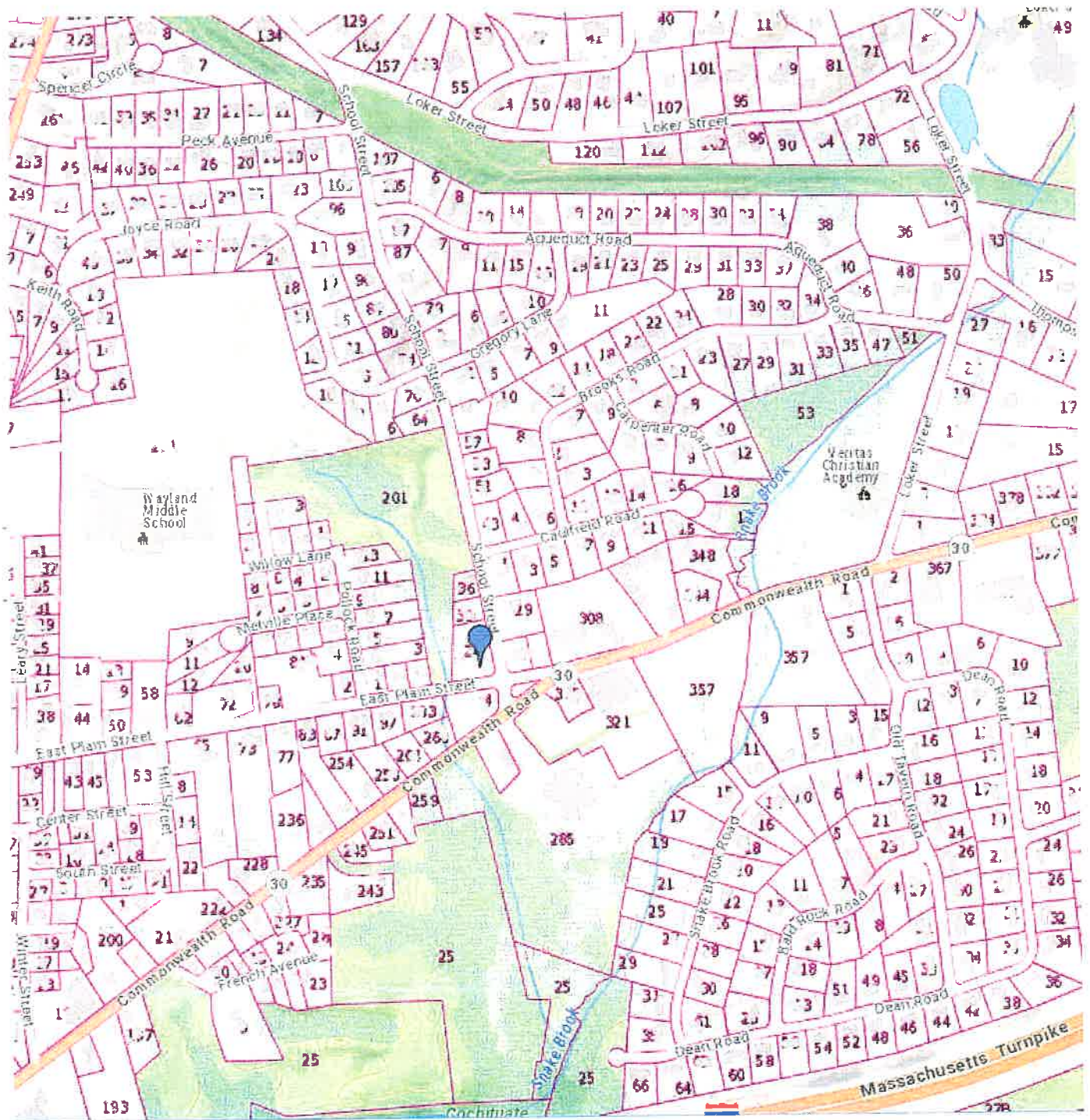
USGS Topographic Map
24 School Street, Wayland MA



DEP Wetlands Map
24 School Street, Wayland MA



NHESP Program Map
24 School Street, Wayland MA





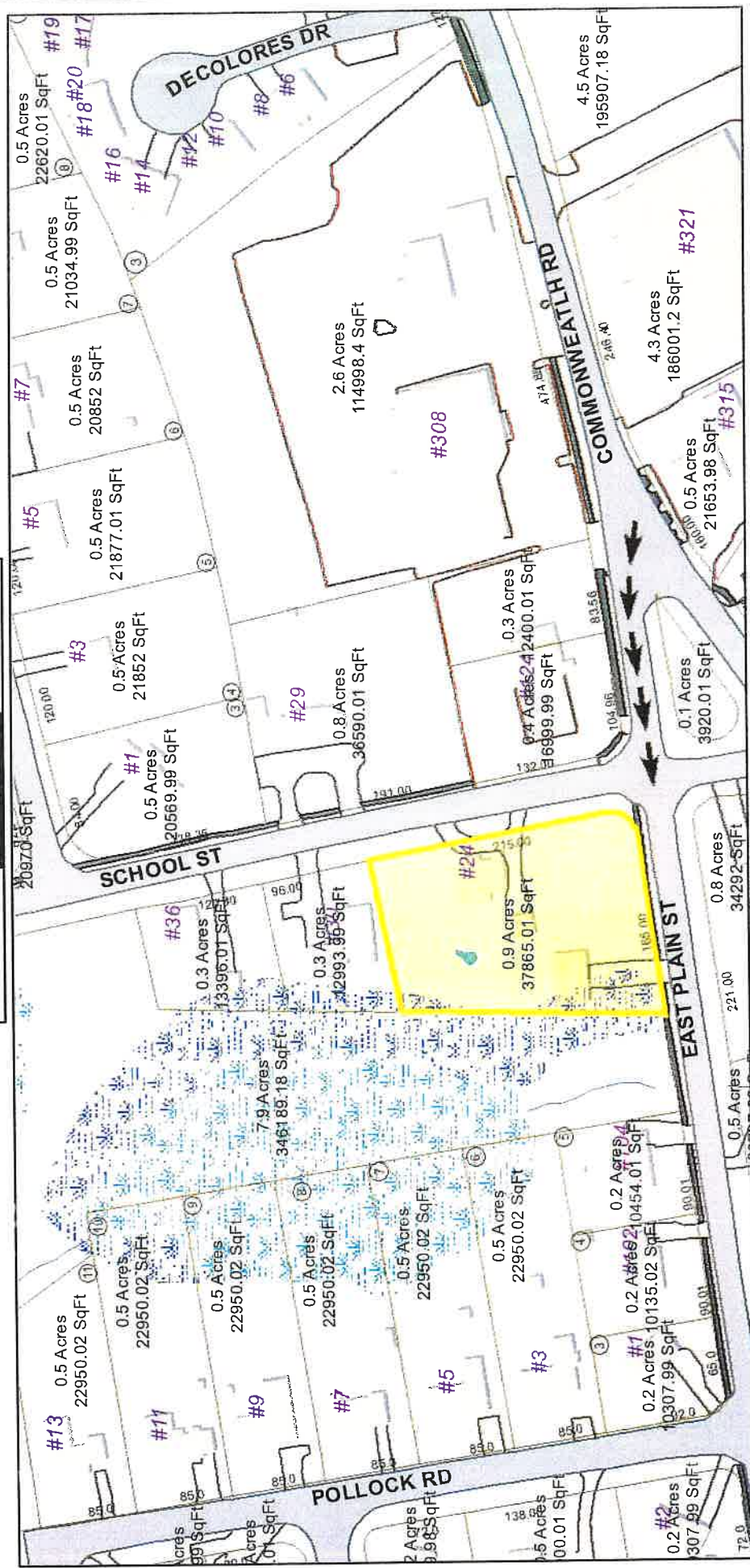
N

Wayland, MA

1 inch = 139 Feet

0 139 278 417

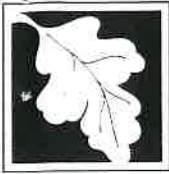
September 17, 2020



Street Names	Building Rooftop	Driveways	Wetlands (2012 Flyover)
Building Addresses	Rule 1	Parking Lots	Wetlands (DEP)
Acres and Sq Ft of the Lot	Paved	Streams	
Parcel Lines - No Ortho	Public Sidewalks	Lakes, Ponds, Rivers	

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

WPA Form 3, Notice of Intent & Wetland Fee
Transmittal Form



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Provided by MassDEP:

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

MassDEP File Number

Document Transaction Number

Wayland

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

24 School Street

a. Street Address

Wayland

b. City/Town

01778

c. Zip Code

Latitude and Longitude:

42° 19' 22"N

d. Latitude

71° 21' 22"W

e. Longitude

Map 52

f. Assessors Map/Plat Number

Lot 189

g. Parcel /Lot Number

2. Applicant:

Chris

a. First Name

D'Antonio

b. Last Name

Windsor Place, LLC

c. Organization

73 Pelham Island Road

d. Street Address

Wayland

e. City/Town

MA

f. State

01778

g. Zip Code

(508) 358-6298

h. Phone Number

(508) 358-6299

i. Fax Number

chris@chadwickproperties.com

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name

b. Last Name

Windsor Place, LLC

c. Organization

73 Pelham Island Road

d. Street Address

Wayland

e. City/Town

MA

f. State

01778

g. Zip Code

(508) 358-6298

h. Phone Number

(508) 358-6299

i. Fax Number

chris@chadwickproperties.com

j. Email address

4. Representative (if any):

Robert

a. First Name

Gemma

b. Last Name

MetroWest Engineering Inc.

c. Company

75 Franklin Street

d. Street Address

Framingham

e. City/Town

MA

f. State

01702

g. Zip Code

(508) 626-0063

h. Phone Number

(508) 875-6440

i. Fax Number

rgemma@mwengineering.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$1,050.00

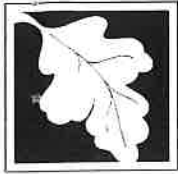
a. Total Fee Paid

\$512.50

b. State Fee Paid

\$537.50

c. City/Town Fee Paid



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Provided by MassDEP:

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

MassDEP File Number

Document Transaction Number

Wayland

City/Town

A. General Information (continued)

6. General Project Description:

Construction of two new townhouse buildings, driveway and parking areas, subsurface sewage disposal system, stormwater management system and supporting utilities. A portion of the proposed site work occurs within the 100-foot Wetland Buffer Zone.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. <input type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Commercial/Industrial | 4. <input type="checkbox"/> Dock/Pier |
| 5. <input type="checkbox"/> Utilities | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation |
| 9. <input checked="" type="checkbox"/> Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Middlesex (South)

a. County

69050

c. Book

b. Certificate # (if registered land)

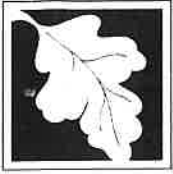
394

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number _____

Document Transaction Number _____

Wayland _____

City/Town _____

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet _____	2. linear feet _____
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet _____	2. square feet _____
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet _____ 3. cubic yards dredged _____	2. square feet _____

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet _____ 3. cubic feet of flood storage lost _____	2. square feet _____ 4. cubic feet replaced _____
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet _____ 2. cubic feet of flood storage lost _____	3. cubic feet replaced _____

f. ☐ Riverfront Area

1. Name of Waterway (if available) - **specify coastal or inland** _____

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____

b. square feet within 100 ft. _____

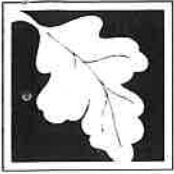
c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☒ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Wayland

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment

	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

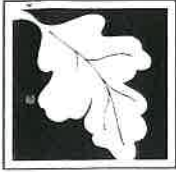
a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

MassDEP File Number

Document Transaction Number

Wayland

City/Town

C. Other Applicable Standards and Requirements

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Notice of Intent – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. ☐ Yes ☒ No **If yes, include proof of mailing or hand delivery of NOI to:**

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

2017

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.1.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area percentage/acreage

(b) outside Resource Area percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

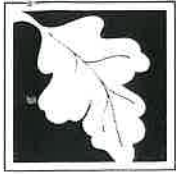
2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Wayland

City/Town

C. Other Applicable Standards and Requirements (cont'd)

- (c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhESP/regulatory_review/ mesa/ mesa_fee_schedule.htm). Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following
1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhESP/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
2. ☐ Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____
3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.
3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
- a. ☒ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

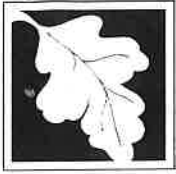
South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
1213 Purchase Street – 3rd Floor
New Bedford, MA 02740-6694
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Provided by MassDEP:

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

MassDEP File Number

Document Transaction Number

Wayland

City/Town

C. Other Applicable Standards and Requirements (cont'd)

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
- a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
- b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
- a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
- a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
- a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
1. ☒ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. ☒ A portion of the site constitutes redevelopment
 3. ☒ Proprietary BMPs are included in the Stormwater Management System.
- b. ☐ No. Check why the project is exempt:
1. ☐ Single-family house
 2. ☐ Emergency road repair
 3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

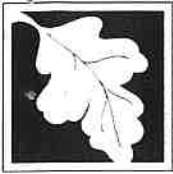
D. Additional Information

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

MassDEP File Number

Document Transaction Number

Wayland

City/Town

D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

"Existing Conditions Site Plan in Wayland, Mass. 24 School Street dated October 28, 2020"

a. Plan Title

MetroWest Engineering, Inc.

Robert A. Gemma

b. Prepared By

c. Signed and Stamped by

1"=20'

d. Final Revision Date

e. Scale

Please see attached document for complete list

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☐ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2296

2. Municipal Check Number

11/18/2020

3. Check date

2295

4. State Check Number

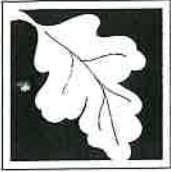
11/18/2020

5. Check date

Windsor Place, LLC.

6. Payor name on check: First Name

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Wayland

City/Town

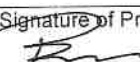
F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.


1. Signature of Applicant

11/23/2020
2. Date

3. Signature of Property Owner (if different)


4. Date
12/10/2020

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

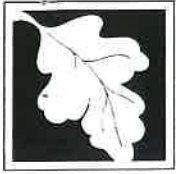
For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

24 School Street

a. Street Address

2296

c. Check number

Wayland

b. City/Town

\$537.50

d. Fee amount

2. Applicant Mailing Address:

Chris

a. First Name

D'Antonio

b. Last Name

Windsor Place, LLC

c. Organization

73 Pelham Island Road

d. Mailing Address

Wayland

e. City/Town

MA

f. State

01778

g. Zip Code

(508)-358-6298

h. Phone Number

(508)-358-6299

i. Fax Number

chris@chadwickproperties.com

j. Email Address

3. Property Owner (if different):

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

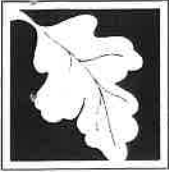
Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 3b: each building (for development) including site	1	\$1,050.00	\$1,050.00
Step 5/Total Project Fee:			\$1,050.00

Step 6/Fee Payments:

Total Project Fee:	\$1,050.00
	a. Total Fee from Step 5
State share of filing Fee:	\$512.50
	b. 1/2 Total Fee less \$12.50
City/Town share of filling Fee:	\$537.50
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Plans:

“Existing Conditions Site Plan in Wayland, Mass. 24 School Street dated October 28, 2020”

“Proposed Layout Plan in Wayland, Mass. 24 School Street dated November 16, 2020”

“Proposed Grading Plan in Wayland, Mass. 24 School Street dated November 16, 2020”

“Proposed Site Plan in Wayland, Mass. 24 School Street dated November 16, 2020”

“Proposed Details Plan in Wayland, Mass. 24 School Street dated November 16, 2020”

MODFLOW Analysis

August 16, 2020
Revised November 9, 2020

To: Chris D'Antonio, Windsor Place LLC
73 Pelham Island Road
Wayland, MA 01778

From: Desheng Wang, Ph.D., P.E.
Creative Land & Water Engineering, LLC

Re: 24 School Street, Wayland, MA, DEP file # 322-0897

Plans to develop the property at 24 School Street include 12 residential units under state statute Chapter 40B. Wastewater from the development is estimated to be 2,860 gallons per day and will be discharged to groundwater under Title 5 regulations. Site storm water will be collected and a portion of which will be discharged to groundwater by way of a storm water infiltration basin. See site plan for location reference.

During the Wayland Conservation review process, questions were raised concerning groundwater mounding for Site wastewater and storm water. On February 28, 2018 CLAWE submitted a report to Wayland presenting groundwater mounding calculations for both wastewater and storm water. The Town of Wayland Consecration Commission hired consultant agreed with CLAWE's analysis after some minor adjustment in parameters. Board of Health has approved the onsite septic plans. However, the Wayland Conservation Commission had denied the project citing with the abutters concerning impact to wetland and demanding a groundwater analysis using USGS model MODFLOW. The applicant appealed the decision to DEP for a superseding Order of Conditions and then to an adjudicatory hearing. During the meeting with DEP, the applicant and DEP reached an agreement to conduct a MODFLOW analysis of the groundwater mounding. The parties also agreed to use all the existing testing data in soil and ground water including groundwater monitoring wells, hydraulic conductivity, deep hole soil test pits and the approved wetland border as general site condition. At the request of CLAWE through Dr. Wang, GeoHydroCycle, Inc. (HGC) was retained to conduct a Groundwater Mounding Analyses using MODFLOW, a finite difference groundwater computer model, and the most widely used groundwater computer model in the world.

The goals for HGC's analysis were to:

- 1. Simulate groundwater mounding for discharge to the proposed effluent disposal area; and***
- 2. Simulate groundwater mounding from the discharge of a 100-year storm event for the proposed stormwater infiltration basin.***
- 3. Accumulative effects of the two systems in groundwater mounding height for SAS design and impact evaluation on stormwater infiltration trench.***

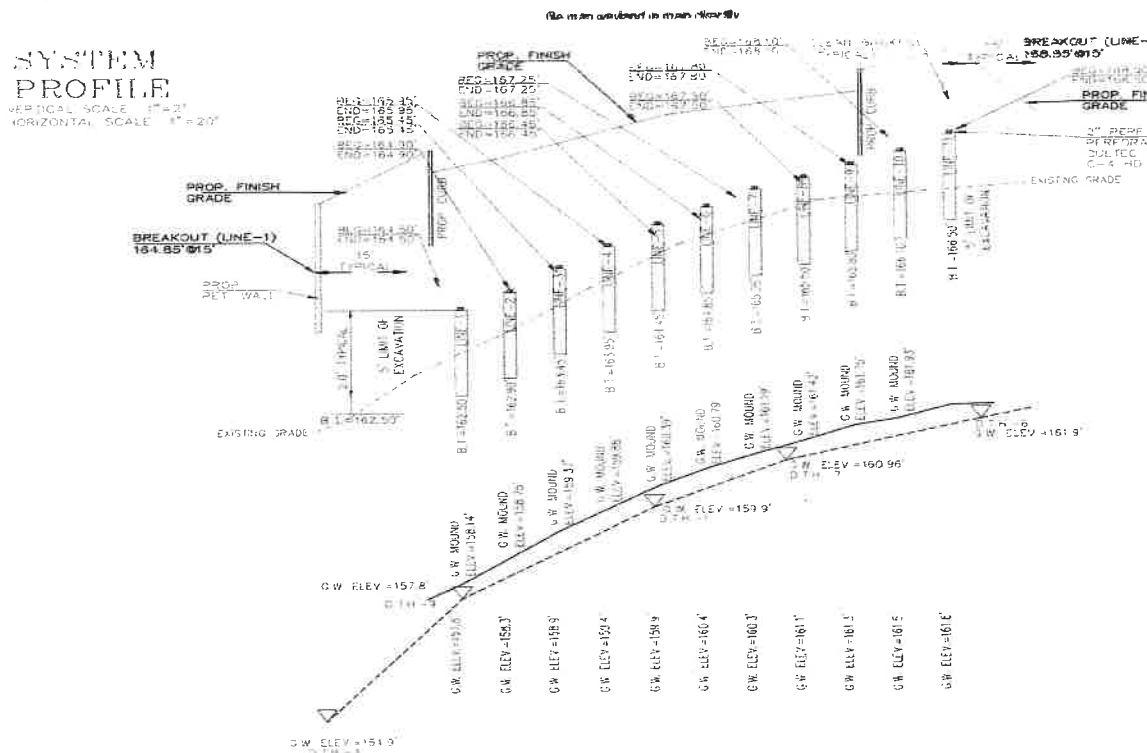
HGC's modeling results had more detailed spatial distribution of groundwater mounding while the maximum mounding heights in similar or slightly lower than CLAWE's results. In some area, HGC's analysis showed a lightly higher mounded groundwater in the western 1/3 of the leaching area. The septic leaching trenches (Line-1, Line 2, Line-3, and Line-4) needs to be raised 0.08 ft to 0.67 ft. The septic plan will be updated with these elevation changes. However, it will not impact the surface grading as enough fill depth in this area can accommodate the new trench elevations. The HGC's analysis also confirmed that stormwater infiltration trench will be adequately

dewatered as the previously analysis done by CLAWE. The detailed comparison of septic leaching field is summarized in the following. Detailed analysis can be referred to GHC's report.

24 School Street, Wayland, MA - Groundwater Mounding using Soil Mottling
by Creative Land & Water Engineering, LLC
Date: 11/29/2018 updated: 2/27/2019 4/24/2019 8/16/2020
Hantush Method

	Dist from SW CNR, ft	Stormw M, ft	SAS M GW ft	Combined, ft	Required Bottom Elev., ft	Diff, ft	HGW, ft	Mound, ft	M. GW, ft	Required Bottom of Trench, ft	Previous Bottom of Trench, ft	Difference, ft	Min. raise of trench bottom elev., ft	Updated Bottom of Trench meeting BOH required, ft	Actual Raise of bottom Elev, ft
Trench															
Line-1	5	0.340	158.83	159.168	163.17	-0.67	157.8	0.38	158.18	162.18	162.5	0.32	good, 0	162.5	0
Line-2	13	0.325	159.18	159.503	163.50	-0.80	158.3	0.49	158.79	162.79	162.9	0.11	good, 0	162.9	0
Line-3	21	0.309	159.52	159.830	163.83	-0.38	158.9	0.51	159.41	163.41	163.3	-0.11	raise 0.07 ft	163.45	0.15
Line-4	29	0.293	159.73	160.027	164.03	-0.08	159.4	0.52	159.92	163.92	163.7	-0.22	raise 0.18 ft	164.35	0.25
Line-5	37	0.278	159.95	160.225	164.22	0.23	159.9	0.53	160.43	164.43	164.1	-0.33	raise 0.29 ft	164.45	0.35
Line-6	45	0.262	160.18	160.439	164.44	0.41	160.3	0.53	160.83	164.83	164.5	-0.33	raise 0.29 ft	164.85	0.35
Line-7	53	0.246	160.41	160.658	164.66	0.59	160.7	0.53	161.23	165.23	164.9	-0.33	raise 0.29 ft	165.25	0.35
Line-8	61	0.231	160.57	160.804	164.88	0.70	160.96	0.5	161.46	165.40	165.3	0.16	raise 0.12 ft	165.5	0.2
Line-9	69	0.215	160.69	160.906	164.91	0.89	161.3	0.49	161.79	165.79	165.7	0.09	raise 0.06 ft	165.8	0.1
Line-10	77	0.200	160.81	161.006	165.01	1.09	161.5	0.47	161.97	165.97	166.1	0.13	good, 0	166.1	0
Line-11	85	0.184	160.93	161.110	165.11	1.29	161.8	0.45	162.25	166.25	166.5	0.25	good, 0	166.5	0

- Note: 1. The groundwater mounding height is calculated in Scenario #3 using soil mottling elevations by Metrowest Eng.
2. Hantush Groundwater mounding analysis had been taken from Creative Land & Water Eng, LLC report dated 8/12/2018.
3. This trench bottom elevation adjustments were done per the Wayland Board of Health request
4. MODFLOW groundwater mounding analysis by GHC
5. Difference (-) indicate bottom of the trench need to be raised. (+) no change or can be lowered

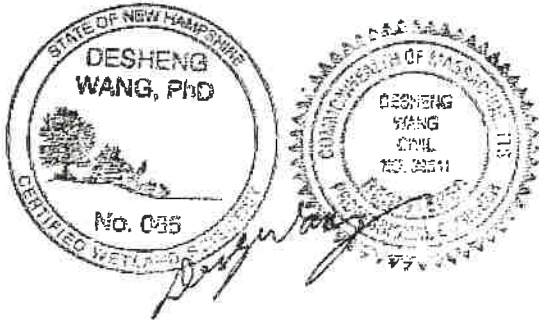


If you have any questions, please feel free to contact me.

Sincerely,

Creative Land & Water Engineering, LLC

By



Desheng Wang, Ph.D., P.E.
Certified Wetland Scientist and Hydraulic Engineer

Cc: **Michelle N. O'Brien**, [PIERCE ATWOOD LLP](#), 100 Summer Street, 22nd Floor Boston, MA 02110
DEP, NERO, Wetland Program, Wilmington, MA 01887
Conservation Commission, Wayland Town Hall, 41 Cochituate Road, Wayland, MA 01778
Mark Kablack
Brian Nelson, MWE
Steve Smith, GHC



GEOHYDROCYCLE, INC.

WASTEWATER DISPOSAL
WATER SUPPLY

ASSESSMENT
ANALYSES
PERMITTING
MODELING
SOFTWARE

July 23, 2020

Desheng Wang, Ph.D., P.E.
Creative Land & Water Engineering, LLC
PO Box 584
Southborough, MA 01772

re: Groundwater Mounding Analyses
24 School Street
Wayland, MA 01778
GHC #20005

Dear Dr. Wang:

GeoHydroCycle, Inc. (GHC) is pleased to present this letter report describing the work that Dr. Desheng Wang of Creative Land & Water Engineering, LLC (CLAWE) requested to conduct a Groundwater Mounding Analyses using MODFLOW for the property located at 24 School Street, Wayland, MA 01778 (the Site). Figure 1 presents a Locus of the property and Figure 2 presents a plan view of the Site Features.

In performing this analyses GHC conducted a field reconnaissance on June 26, 2020 to observe surface water and wetland conditions, but did not conduct any field testing. For our work, GHC relied on project information and data provided by CLAWE, including:

- An AutoCAD file entitled PROP_SITE_3_R11.dwg dated 5/28/20 and prepared by MetroWest Engineering, Inc.
- Three Site data tables prepared by CLAWE. See Enclosure 2.

Introduction

Plans to develop the property at 24 School Street include 12 residential units under state statute Chapter 40B. Wastewater from the development is estimated to be 2,860 gallons per day and will be discharged to groundwater under Title 5 regulations. Site storm water will be collected and a portion of which will be discharged to groundwater by way of a storm water infiltration basin. Figure 2 presents proposed locations for the wastewater and storm water discharges.



GEOHYDROCYCLE, INC.

Desheng Wang, Ph.D., P.E.
re: Groundwater Mounding Analyses
24 School Street
Wayland, MA 01778
July 23, 2020
Page 2

During the Wayland review process, questions were raised concerning groundwater mounding for Site wastewater and storm water. On February 28, 2018 CLAWC submitted a report to Wayland presenting groundwater mounding calculations for both wastewater and storm water. Based on subsequent reviews and discussions of the CLAWC report, additional groundwater mounding calculations were requested, and GeoHydroCycle, Inc. was retained to conduct a Groundwater Mounding Analyses using MODFLOW.

As requested, to conduct a Groundwater Mounding Analyses, GHC used the groundwater model entitled MODFLOW, a finite difference groundwater computer model, and the most widely used groundwater computer model in the world.

In applying MODFLOW, using similar model parameters to those employed by CLAWC, the goals for GHC's analysis were to:

1. Simulate groundwater mounding for discharge to the proposed effluent disposal area;
2. Simulate groundwater mounding from the discharge of a 100-year storm event for the proposed infiltration basin; and
3. Using the predicted wastewater and storm water mounding, assess the cumulative effects.

Groundwater Modeling

Groundwater mounding modeling requires the input of parameters that are representative of the aquifer being simulated, including hydraulic conductivity, saturated thickness, and the nearby Snake Brook tributary and wetland. For mounding simulations the model requires the characteristics of the discharge area, including its physical location, area and proposed discharge rate. Model timing is set by Massachusetts guidelines¹ for land disposal of wastewater and was set at 90 days. For the discharge of storm water the model timing was set to 1 day for the 100-year storm plus additional time to allow observation of the storm aftereffects, including the 3 days after the storm. As requested, GHC used two aquifer hydraulic conductivity values in the model.

Groundwater mounding for both wastewater and storm water is required to be done starting with groundwater at a seasonal high elevation. Based on data presented in CLAWC's tables and the layout of Site Features as shown in the AutoCAD file, GHC prepared Figure 3 showing groundwater contours. Data for that map included groundwater levels from the three Site monitoring wells, seasonal high groundwater levels (soil mottling) from three Site test pits, and high surface water levels from the adjacent Snake Brook tributary and wetland to the west.

¹ Massachusetts DEP. July 2018. *Guidelines for the Design, Construction, Operation, and Maintenance of Small Wastewater Treatment Facilities with Land Disposal.*



GEOHYDROCYCLE, INC.

Desheng Wang, Ph.D., P.E.
re: Groundwater Mounding Analyses
24 School Street
Wayland, MA 01778
July 23, 2020
Page 3

Groundwater data used in preparing the map were from the three test pits and the wetlands represent seasonal high groundwater levels, and the three well groundwater levels were taken on March 12, 2018, during the time of the year when groundwater levels are at annual highs. As such, the groundwater contours shown in Figure 3 represent seasonal high groundwater for the Site.

Conceptual Model

In developing the groundwater model to predict Wastewater and Storm Water mounding, GHC prepared a conceptual model of the aquifer. Features of the conceptual model include:

1. The model is a two layer model with the upper layer representing only the Infiltration Basin, all other nodes in the upper layer are inactive. The lower layer represents the aquifer beneath the Site, and is unconfined with the water table as the upper surface.
2. The hydraulic conductivity of the Infiltration Basin upper layer nodes is set at 50,000 ft/day to simulate an open water condition² typical of a storm water basin during a storm event.
3. The Snake Brook tributary and wetland to the west is the local groundwater discharge area.
4. Aquifer properties are set at values similar to those used by CLAW.
5. The simulation can be achieved by modeling the proposed discharges on a flat water table with the resulting groundwater mound superimposed onto the seasonal high groundwater.

The following Table 1 presents aquifer properties used in the groundwater mounding model.

Table 1. MODFLOW Aquifer Parameters.

Parameter	Value	Unit
Hydraulic Conductivity - North:	31.09	feet per day
Hydraulic Conductivity - South:	16.24	feet per day
Hydraulic Conductivity - Infiltration Basin	50,000	feet per day
Saturated Thickness:	15.1	feet

² Eggleston, J.R., Carlson, C.S., Fairchild, G.M. and P.J. Zarriello. *Simulation of Groundwater and Surface-Water Interaction and Effects of Pumping in a Complex Glacial-Sediment Aquifer, East Central Massachusetts*. 2012. Scientific Investigations Report 2012-5172.

Figure 4A presents the distribution of hydraulic conductivity for the model, and Figure 4B presents a Schematic Cross-Section of the model. Table 2 presents the wastewater and storm water discharge amounts used in the model.

Table 2. MODFLOW Wastewater and Storm Water Parameters.

Parameter	Value	Unit
Wastewater Discharge:	2,860	gallons per day
100-Year Storm Water Discharge:	4,344	cubic feet per day

Figure 5 presents a plan view of the wastewater and storm water discharge areas in the model.

MODFLOW Mounding Results

Wastewater

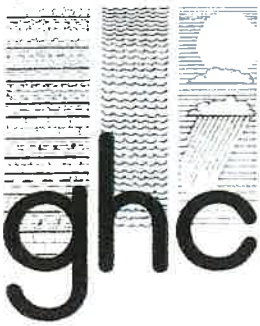
Results of the MODFLOW groundwater mounding simulation for the proposed wastewater discharge are shown in Figure 6, which indicates that the increase in groundwater levels would be 0.44 feet beneath the effluent disposal area. Superimposing the Figure 6 mounding onto the Figure 3 Seasonal High Groundwater elevations yields Figure 7 showing mounded seasonal high groundwater elevation contours. This figure demonstrates that the highest mounded seasonal high groundwater elevation at the Site beneath the effluent disposal area will be 160.9 feet, MSL at the southeast corner.

Storm Water

Results of the MODFLOW groundwater mounding simulation for the 100-Year Storm Water discharge to the Infiltration Basin are shown in Figure 8 and indicate that 3 days after the storm the residual groundwater mound would be 0.36 feet beneath the Infiltration Basin. This value is less than the 2 foot design separation distance, showing that the basin has fully drained in 3 days.

To assess the effects of the storm water mounding, GHC prepared Figure 9 showing model graphs of the mound development over time at the four corners of the effluent disposal area. As Figure 9 shows, the storm water mounding at the corners of the effluent disposal area varies between 0.08 and 0.35 feet, with the largest mounding occurring at the southern corners closest to the infiltration basin.

In summary, GHC's MODFLOW groundwater mounding for both wastewater and storm water discharges has shown similar groundwater mounding heights to those calculated by CLAW.



GEOHYDROCYCLE, INC.

Desheng Wang, Ph.D., P.E.
re: Groundwater Mounding Analyses
24 School Street
Wayland, MA 01778
July 23, 2020
Page 5

If you have any questions, please call me.

Sincerely,
GeoHydroCycle, Inc.

Stephen W. Smith, P.E., P.HGW.

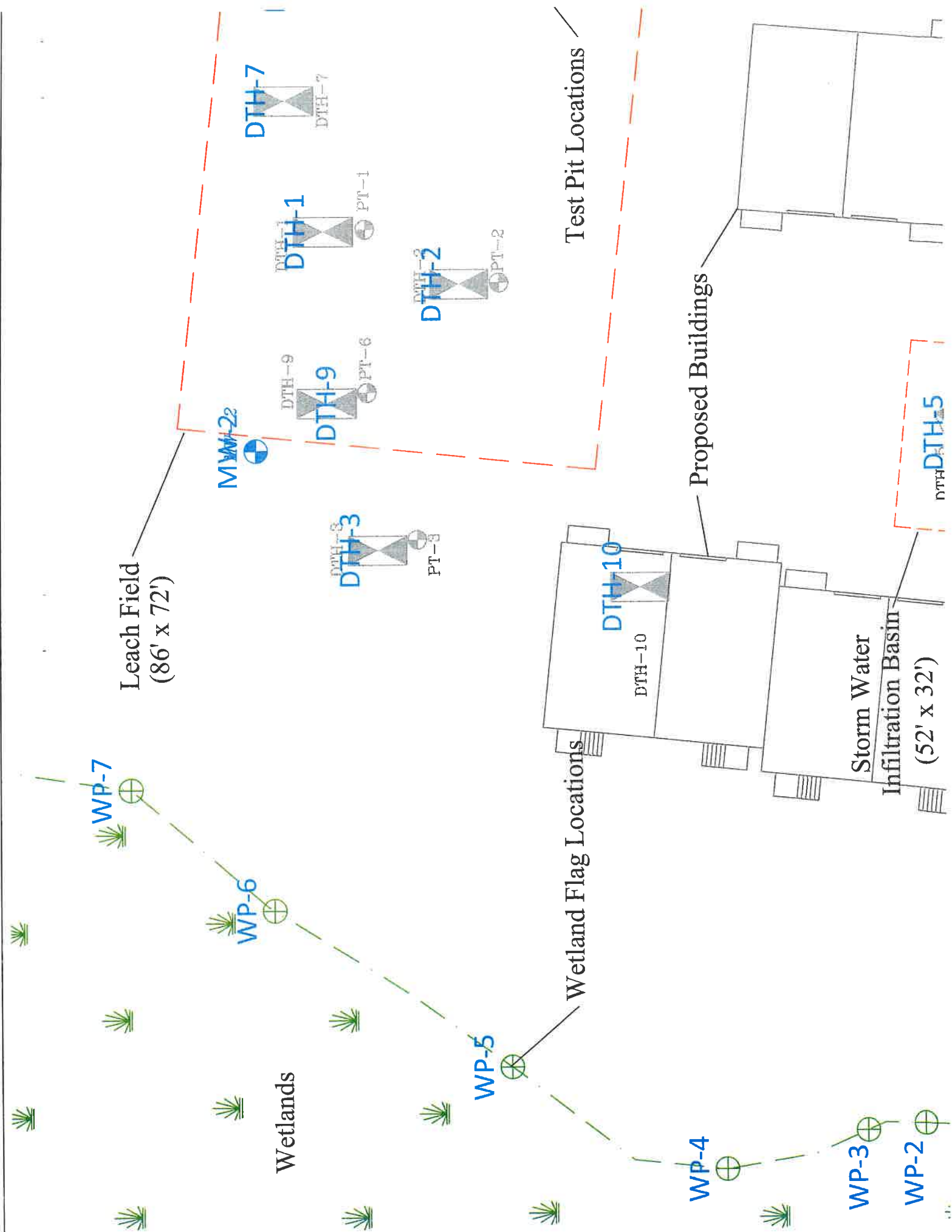
Enclosures: 1 - Figures
2 - CLAWC References

cc: Chris D'Antonio, Chadwick Properties, LLC

School Street Report.lwp

Enclosure 1 - Figures





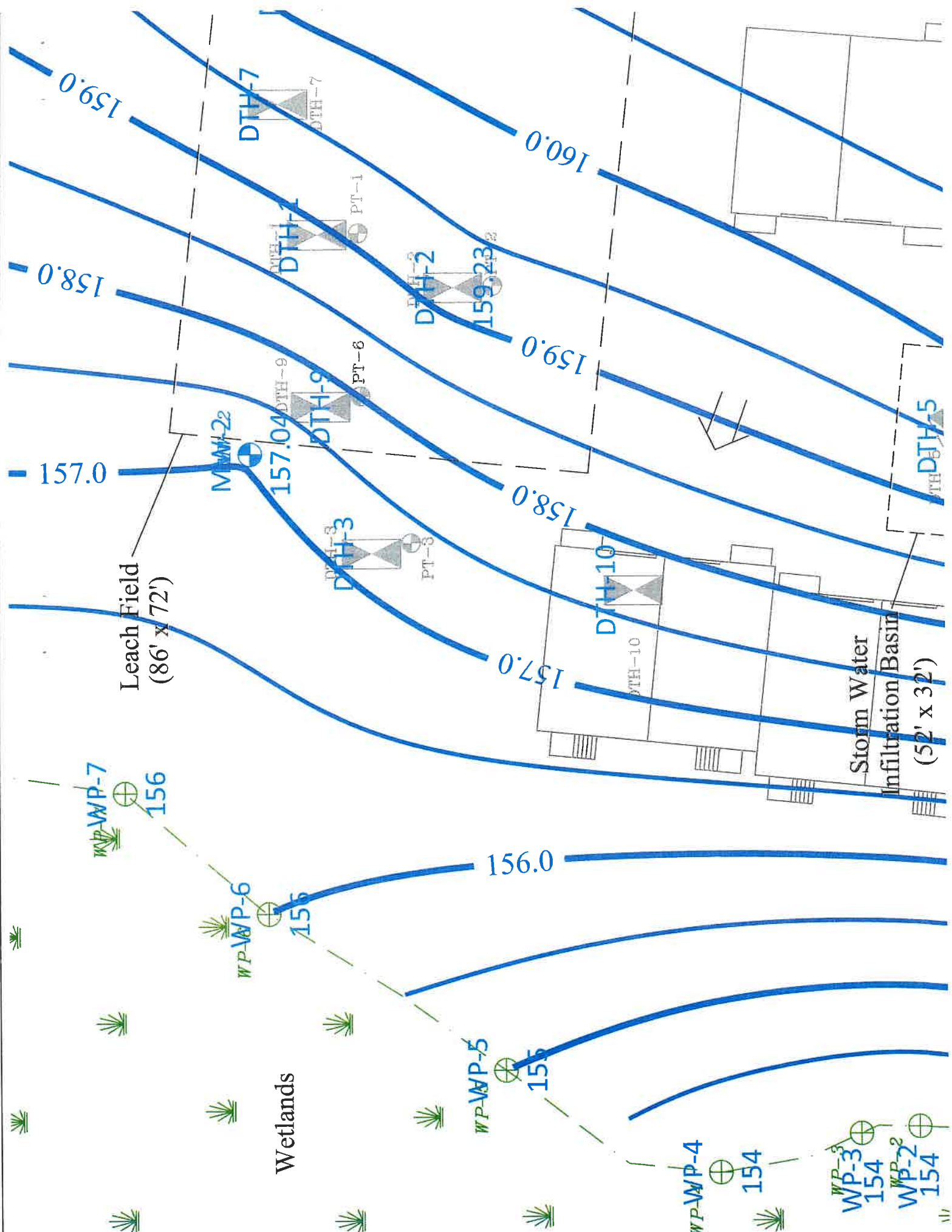
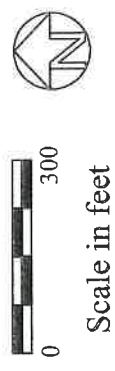


Figure 4A. MODFLOW
Plan View Layout.



Project No. GHCH#20005
Drafted SWS
Date 06/23/20 Rev 06/25/20
Base Map: Metrowest
Engineering, Inc. AutoCAD
File Obtained from CLAWE.

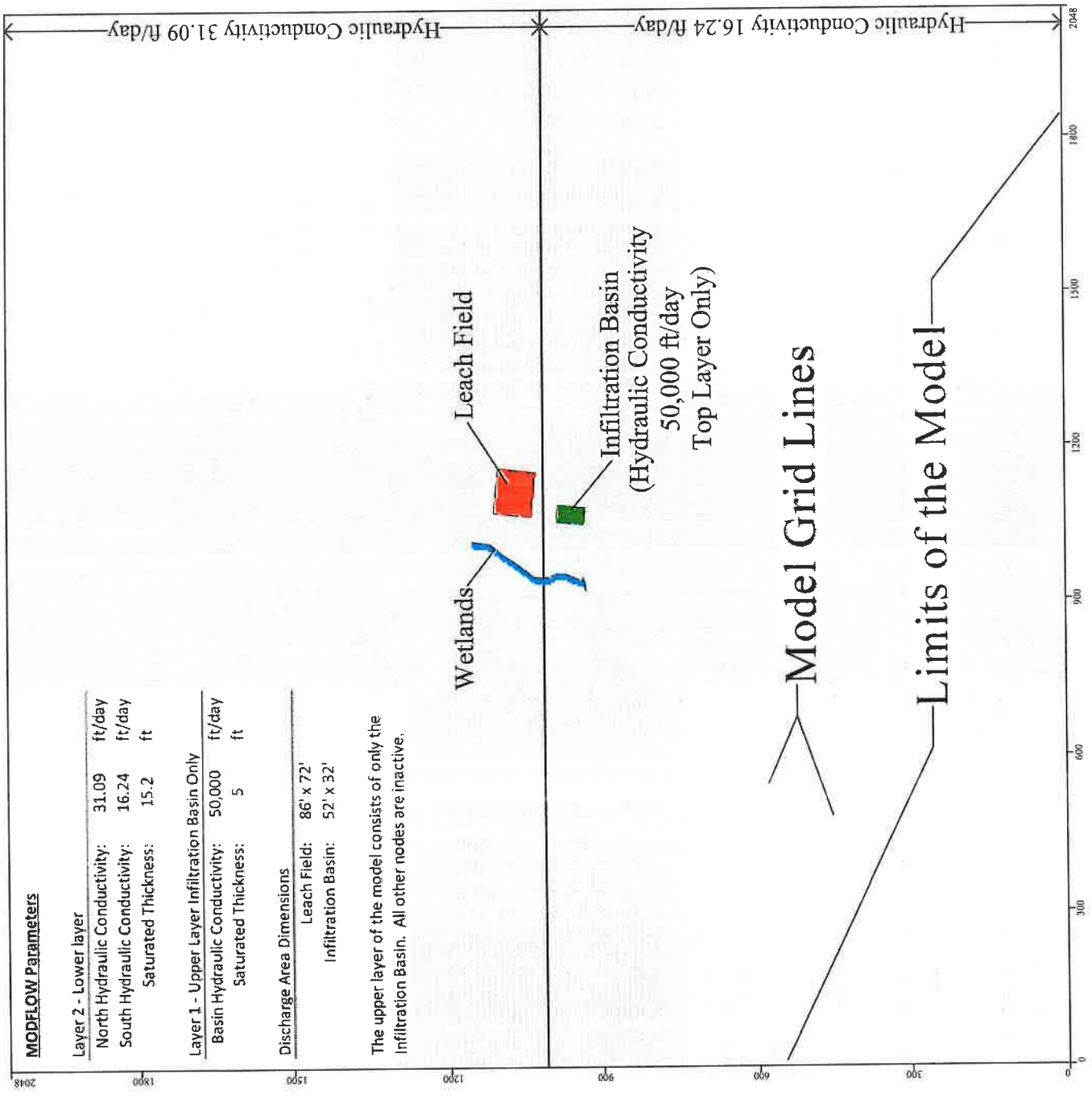
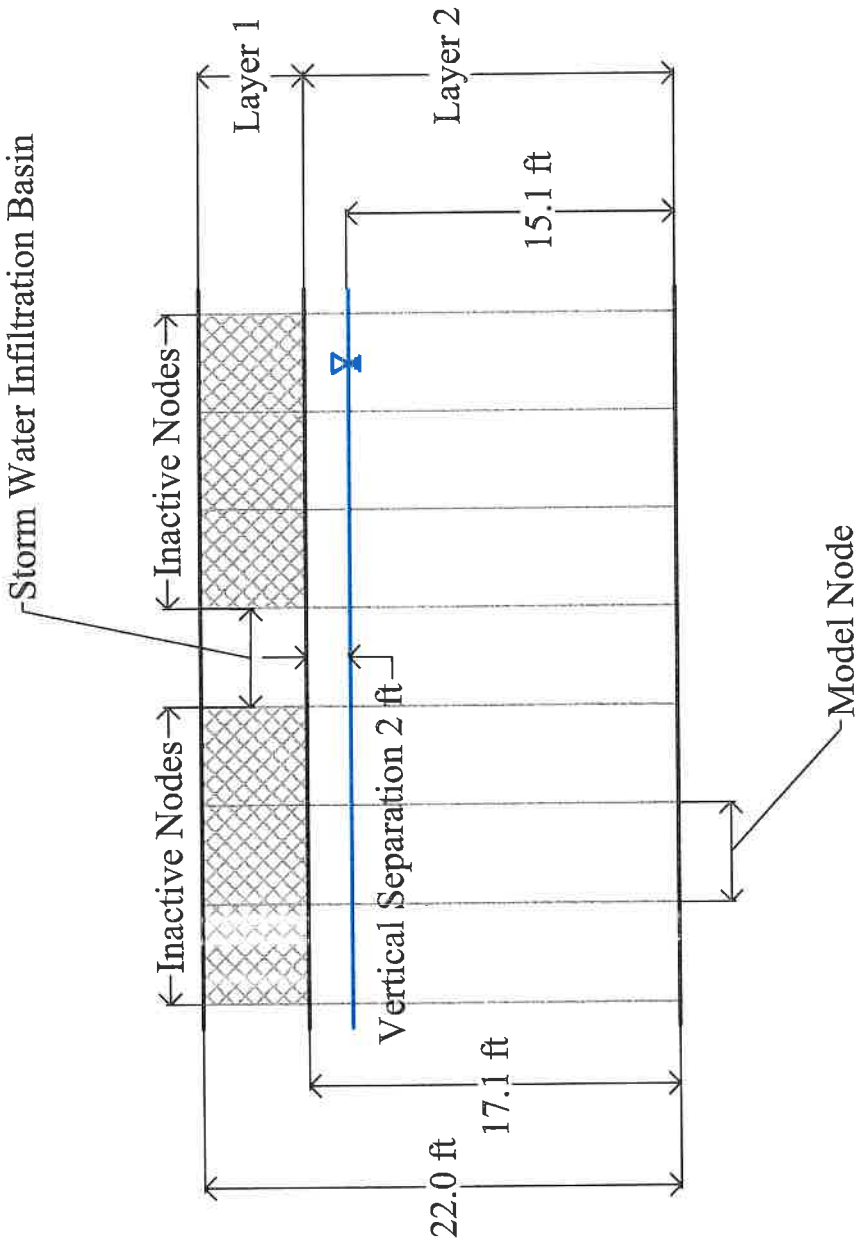


Figure 4B. Schematic
Model Cross-Section.

Project No. GHC#20005
Drafted SWS
Date 07/7/20 Rev
Base Map: None.



Not to Scale

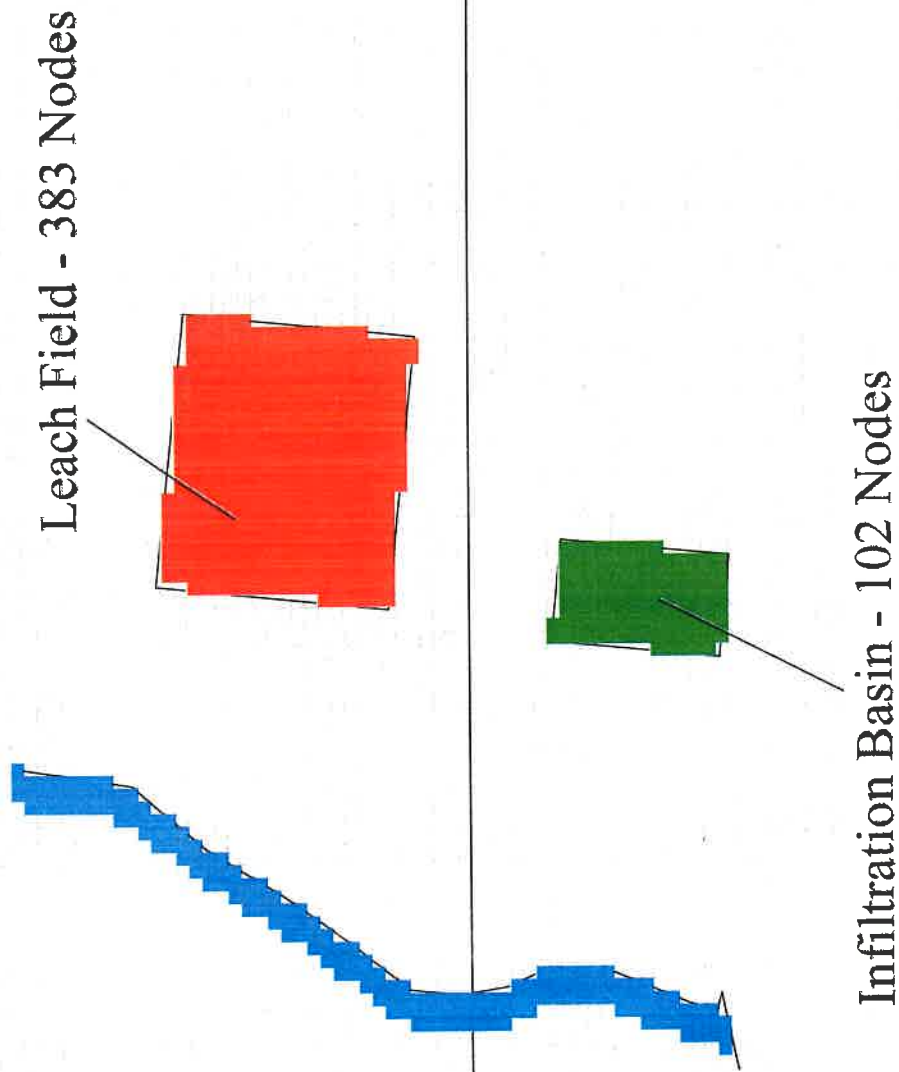
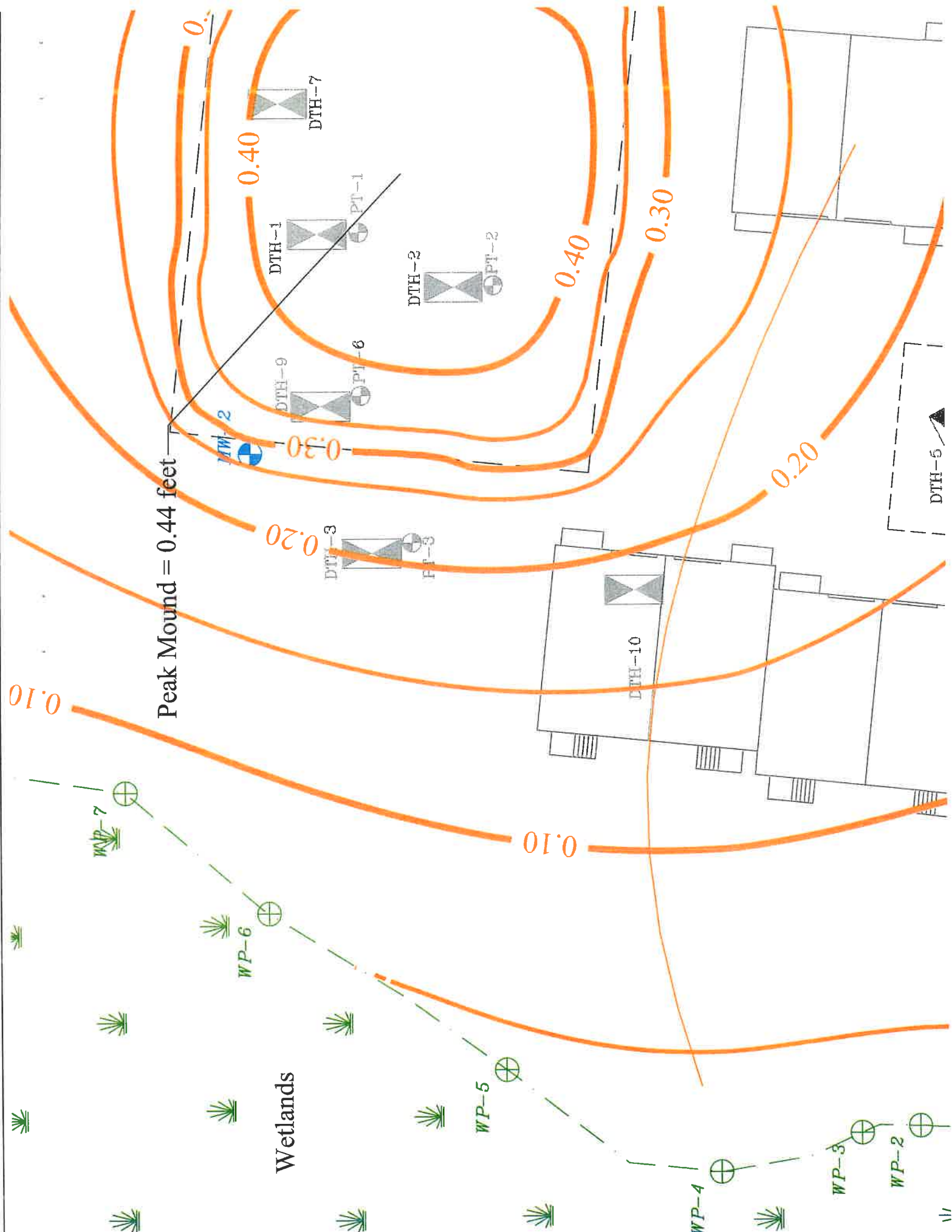


Figure 5. Model Input.



Project No. GHCH20005
Drafted SWS
Date 06/23/20 Rev 07/06/20
Base Map: Metrowest
Engineering, Inc. AutoCAD
File Obtained from CLAW.



Wetlands

Peak Mound = 0.44 feet

0.10

0.40

0.30

0.20

0.10

0.40

0.30

0.20

DTH-7

DTH-1

DTH-2

DTH-9

DTH-3

DTH-10

DTH-5

PT-1

PT-2

PT-6

PT-3

WP-7

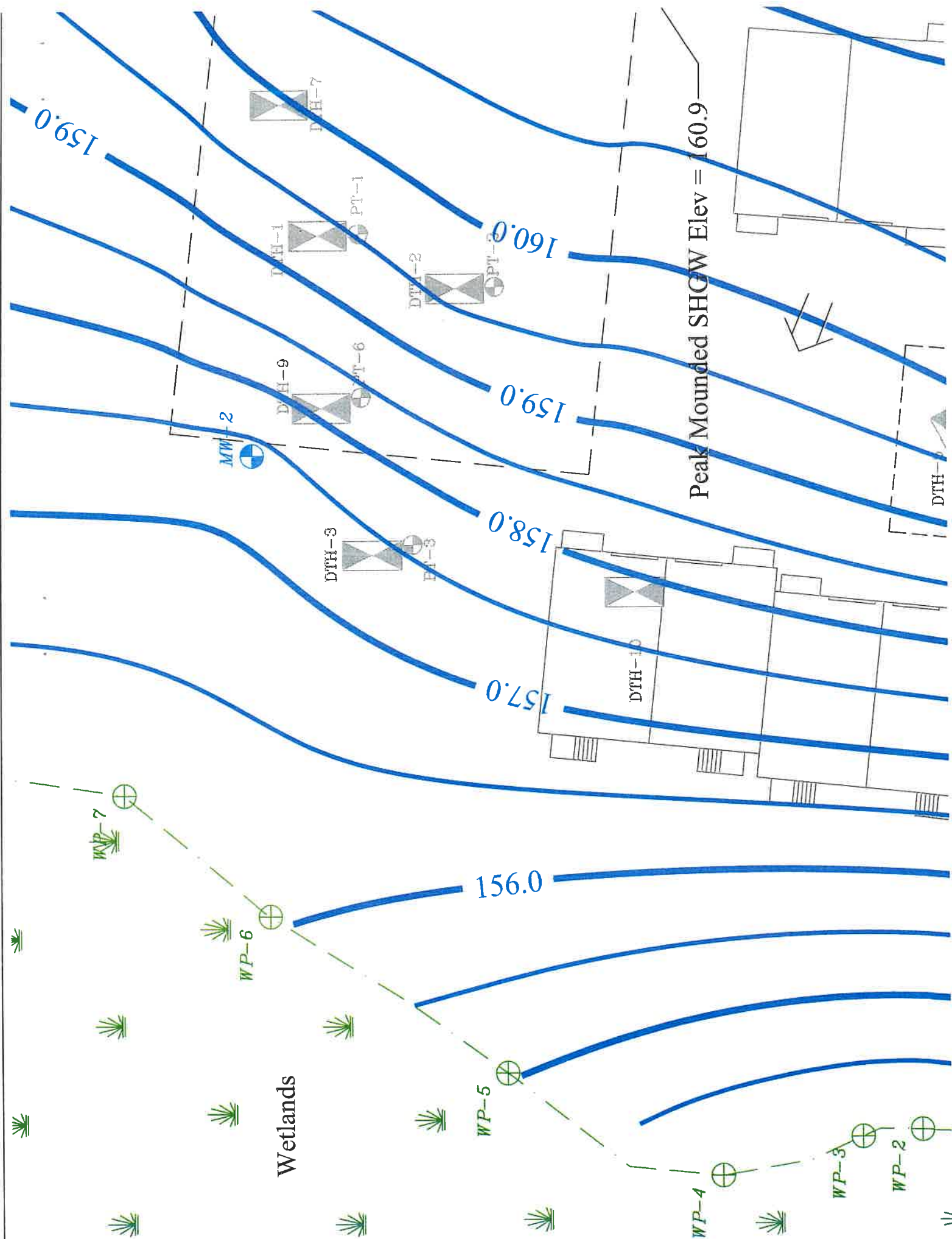
WP-6

WP-5

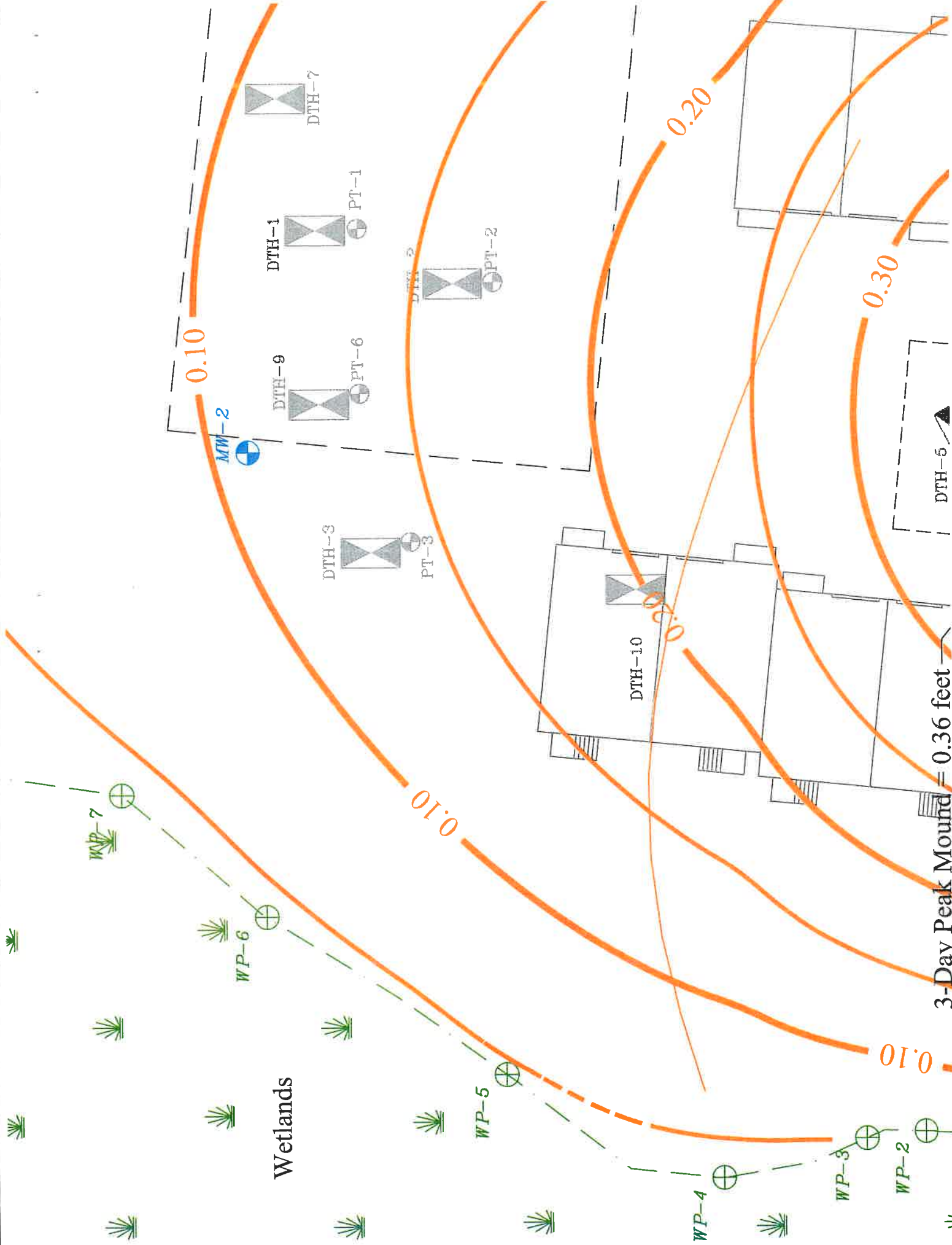
WP-4

WP-3

WP-2

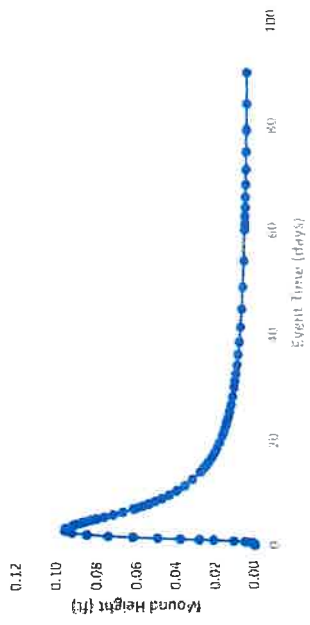


Wetlands





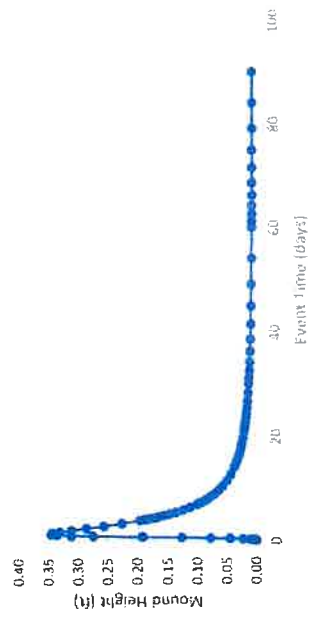
NW Corner



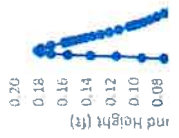
Wetland



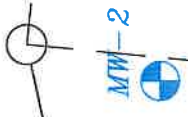
SW Corner



SE Corner



NW



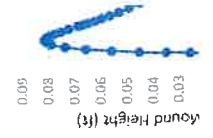
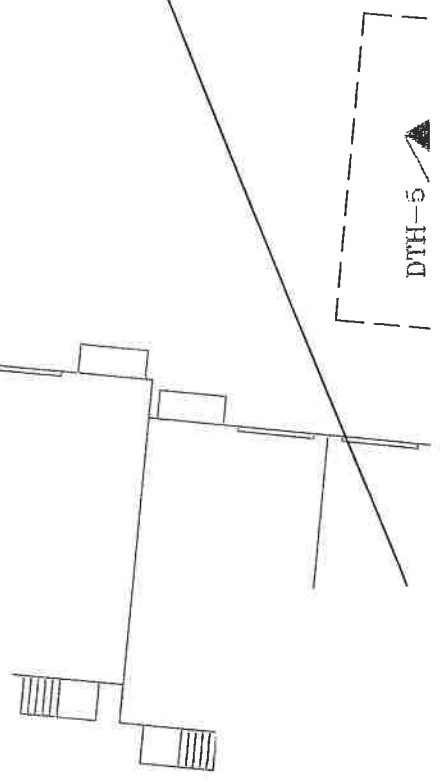
DTH-1

Summary Table.

Corner	Max (ft)
SW	0.35
SE	0.18
NW	0.10
NE	0.08

SW

DTH-10



Enclosure 2 - CLAWE References

Table 1. Water Table Monitoring (revised 6/15/2018, 5/4/2019)

Monitoring well	Top of case, ft	Top of well, ft	Bottom of well	Ground elev., ft	Depth to water from TOW, ft							Difference
					12/4/2017	1/10/2018	1/29/2018	2/9/2018	3/12/2018	5/3/2019	5/9/2019	
MW 1	170.18	169.97	142.7	167.7	11.9	14.12	11.81	12.02	9.77	10.87	11.64	4.35
MW 2	166.13	165.69	146.2	164.2	9.57	11.12	9.67	9.8	8.65	9.62	9.79	2.47
MW 3	165.08	164.91	148.1	163.1	6.76	8.85	6.07	6.19	4.77	5.95	6.85	4.08

3.63

Average

Monitoring well	Top of case, ft	Top of well, ft	Bottom of well	Ground elev., ft	Water Table Elev, ft							K, ft/day
					12/4/2017	1/10/2018	1/29/2018	2/9/2018	3/12/2018	5/3/2019	5/9/2019	
MW 1	170.18	169.97	142.7	167.7	158.07	155.85	158.16	157.95	160.2	159.1	158.33	25.97
MW 2	166.13	165.69	146.2	164.2	156.12	154.57	156.02	155.89	157.04	156.07	155.9	31.09
MW 3	165.08	164.91	148.1	163.1	158.15	156.06	158.84	158.72	160.14	158.96	158.06	6.51

Monitoring well	Top of case, ft	Top of well, ft	Bottom of well	Ground elev., ft	Depth to water from GS, ft						
					12/4/2017	1/10/2018	1/29/2018	2/9/2018	3/12/2018	5/3/2019	5/9/2019
MW 1	170.18	169.97	142.7	167.7	9.63	11.85	9.54	9.75	7.5	8.6	9.37
MW 2	166.13	165.69	146.2	164.2	8.08	9.63	8.18	8.31	7.16	8.13	8.3
MW 3	165.08	164.91	148.1	163.1	4.95	7.04	4.26	4.38	2.96	4.14	5.04

Table 1a. Soil Evaluation Estimated High Groundwater - MetroWest v.s. MW measurements
Revised 6-10-2018

Test Pit	GSE, ft		EHGW	Location	Measured from MW		Use for Mounding
DTH-1	165.7		159.87	CN SAS	(MW1+ MW2)/2	158.62	159.55
DTH-2	165.9		159.23	CS SAS			
DTH-3	161.7		154.87	CW SAS			
DTH-4	164.1		<154	Center STM Infil			
DTH-5	162.6		156.6	NW STM infil	MW 3	160.14	160.14
DTH-6	167.7		161.87	NE SAS	MW 1	160.2	
DTH-7	166.8		<157.3	NE SAS			
DTH-8	168.2		161.53	SE SAS			
DTH-9	163		157.8	NW SAS	MW 2	157.04	
DTH-10	160.75		155.08	SW off SAS			
DTH-11	166		161	E off STM Infil			
DTH-12	168.2		161	SE off SAS			

* SAS used average water table of DTH-1 and DTH-2 for mounding analysis

Table 3. Summary of Updated Mounding Analysis, revised 6-11-2018, 7-2-2018

8/15/2018

Parameters	Long-Term	100-year Storm	Wastewater				
			SAS, K1	SAS, K1,2,3, WT DTH1,2	SAS - K1,3, WT DTH 1,2	SAS, K1,2,3, WT MW1,2	SAS - K1,3, WT MW 1,2
Recharge area	Infiltration- LT	Infiltration-cons	SAS, K1	SAS, K1,2,3, WT DTH1,2	SAS - K1,3, WT DTH 1,2	SAS, K1,2,3, WT MW1,2	SAS - K1,3, WT MW 1,2
Scenarios	Inf-sys	Inf - sys	SCN 1	SCN 2	SCN 3	SCN4	SCN 5
Dimension, ft	32x52	32x52	86 x 72	86 x 72	86 x 72	86 x 72	86 x 72
Area, sq. ft	1664	1664	6192	6192	6192	6192	6192
Recharge Vol. Cu ft (per day or event)	804	4344	358.24	358.24	358.24	358.24	358.24
Duration, day	1	1	90	90	90	90	90
Recharge rate, cu ft/day/sq. ft	0.48	2.61	0.0579	0.0579	0.0579	0.0579	0.0579
Dewater time, day	3	3	90	90	90	90	90
GW Separation, ft	2.11	2.11	4	4	4	4	4
Maximum mounding height, ft	1.13	6.17	0.27	0.38	0.49	0.4	0.52
Estimated effective Max MH, ft	1.14	2.962	0.31	0.42	0.53	0.44	0.56
Impact mounding height by other systems, ft	0.01	0.2	0.04	0.04	0.04	0.04	0.04
Combined Mound height, ft	1.14	6.37	0.31	0.42	0.53	0.44	0.56
3-day residual height, ft	0.3	1.75					
5-day residual height, ft	0.18	0.93					
Estimated effective 3d MH, ft	0.3	1.75					
Estimated effective 5d MH, ft	0.18	0.93					
Bottom of stones, ft	162.25	162.25	163.25 to 166	163.25 to 166	163.25 to 166	163.25 to 166	163.25 to 166
Top of stones, ft							
EHGW, ft	160.14	160.14	156.12 to 158.16	(DTH 1+DTH2)/2	(DTH 1+DTH2)/2	(MW1+MW2)/2	(MW1+MW2)/2
	MW#3	MW#3	160	159.55	159.55	158.62	158.62
Bottom aquifer, ft	148.1	148.1	142.7	144.45	144.45	144.45	144.45
3 day elevation, ft	160.22	160.22					
Flood routing elev, ft	161.28	163.10					
Top of grade, ft	167	167					
Aquifer depth, ft	12.04	12.04	17.3	15.1	15.1	14.17	14.17
Hydraulic Conductivity, ft/day	6.51, MW#3	6.51, MW#3	25.97 Min(MW#1, MW#2)	21.19 (MW#1+2+3)/3	16.24 (MW#1+3)/2	21.19 (MW#1+2+3)/3	16.24 (MW#1+3)/2

Distance to Const.
head boundary from
center of field, ft

126

121

* mounded water tables for stormwater management area are at 3-day.

STEPHEN W. SMITH
P.E., P.HGW.

Professional Expertise:

Groundwater modeling
Groundwater hydrology
Aquifer test design and analysis
Aquifer/groundwater supply evaluation
Software development

Education:

M.S., Civil Engineering, Groundwater and Hydrology, 1978, Colorado State University
B.S., Civil Engineering, Sanitary Engineering, 1975, Lowell Technological Institute

Professional History:

1991 -	GeoHydroCycle, Inc., President
1988 - 1991	Sasaki Associates, Inc., Senior Associate
1984 - 1988	Metcalf & Eddy, Inc., Senior Project Manager
1982 - 1984	NUS Corporation, Senior Environmental Engineer
1980 - 1982	Goldberg-Zoino & Associates, Project Geohydrologist
1978 - 1980	Barr Engineering Company, Hydrologist/Geohydrologist

Professional Affiliations:

National Ground Water Association
American Institute of Hydrology

Registrations:

Professional Engineer: Massachusetts (#36947) and Colorado (#17952)
Professional Hydrologist-Ground Water: American Institute of Hydrology (#947)

Professional Board Memberships:

Former Member of the Technical Advisory Committee for the Civil and Environmental Engineering Department at the University of Massachusetts at Lowell.

Teaching Experience:

Appointed to the University of Massachusetts Lowell, Civil Engineering Faculty in 1991 as an Adjunct Instructor, teaching Groundwater Modeling (14.575), a three credit graduate course in the civil engineering curriculum. Mr. Smith has been teaching this course on alternate years since 1991.
Appointed to Tufts University's Civil Engineering faculty as a part-time lecturer. In 1985, co-taught Groundwater Hydrology (CE193G).
Conducted in-house training seminars in soil identification methods.

PROFESSIONAL EXPERIENCE

Mr. Smith has been practicing professionally for 42 years, for 29 of those years with GeoHydroCycle Mr. Smith has managed and/or contributed to all of GeoHydroCycle's groundwater related projects involving detailed groundwater investigations, field testing, production well design, site remedial designs, complex data analyses, and groundwater flow and transport modeling.

REPRESENTATIVE GROUNDWATER PROJECTS

Purchase, New York, 1988-1989 - Developed and calibrated a 3-dimensional finite difference groundwater model of the bedrock aquifer to evaluate the yield potential and estimate the impacts to nearby wetlands and residential wells from the



GEOHYDROCYCLE,

withdrawal of groundwater for the irrigation of the future Country Club of Purchase. Also, managed the geohydrologic investigation into the capabilities of a bedrock aquifer to irrigate the golf course. The investigation involved a trace fracture analysis, the installation of 3 bedrock wells and 6 surficial monitoring wells, and conducting and evaluating a 2-day bedrock aquifer pump test.

Mattapoisett, Massachusetts, 1990 - Used a 3-dimensional groundwater flow and transport model to estimate a bedrock aquifer capability, impacts to adjacent wetlands, and the potential for salt water intrusion due to large irrigation withdrawals from a bedrock aquifer. When the project was reduced in size, the model was easily reformatted to provide the client with revised yield and impact estimates. Also, managed the field investigation of the bedrock aquifer including: a trace fracture analysis, geophysical surveys using conductivity and resistivity, the installation of 5 bedrock wells and 14 surficial monitoring wells, and a 2-day bedrock aquifer pump test.

City of Marlborough, Massachusetts, 1990 - Managed a groundwater resource evaluation to identify additional municipal water supplies. The evaluation included a review of previous studies, a test well drilling program, a 2-day aquifer pump test, and using a finite difference model, estimated the yield of the valley aquifer system.

Bridgewater, Massachusetts, 1995 - Investigated a surficial aquifer for providing irrigation water for the Olde Scotland Links 18-hole golf course. The study included the analysis of historic pump test data with which to predict environmental impacts due to irrigation. Developed and calibrated a finite difference groundwater flow model to evaluate the aquifer yield potential and estimate the impacts to nearby wetlands and residential wells from the withdrawal of groundwater from a new golf course irrigation well.

Paxton, Massachusetts, 1995 - Investigated a bedrock aquifer to assess its capabilities to irrigate a proposed golf course. This investigation included a trace fracture analysis, field measurements of fractures present in local bedrock outcrops, and geophysical surveys very low frequency (VLF) sound.

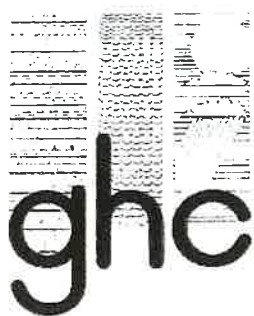
Peabody, Massachusetts, 1997 - Assessed options for providing irrigation water for the Peabody Municipal 18-hole Golf Course, and is to provide services to insure new water supply conforms with all permitting requirements of the Massachusetts DEP.

Philipston, Massachusetts, 1997 - Investigated a bedrock aquifer to locate wells for a fish farm. This investigation included a trace fracture analysis, field measurements of fractures present in local bedrock outcrops, and analyses of the data.

Salem Chase, New York, 1998 - Investigated a bedrock aquifer to assess its capabilities to provide additional drinking and irrigation water for a 54-home residential community at Salem Chase. This investigation included a fracture trace analysis, field measurements of fractures present in local bedrock outcrops, and geophysical surveys very low frequency (VLF) sound, drilling three bedrock test wells, conducting 2-day bedrock pumping test, and evaluating the results. The evaluation used a finite difference model to estimate the total well yield.

Marlborough, Massachusetts, 1998 - Established a preliminary aquifer protection area (Zone II) for a proposed municipal well field using a 3-dimensional groundwater flow model and a groundwater flow path model.

Hingham, Massachusetts, 1999-2001 - Investigated a bedrock aquifer to assess its capabilities to irrigate the Black Rock Golf Course. This investigation included the drilling test wells, conducting a 5-day pumping test on successful wells to determine aquifer performance under sustained pumping. Developed and calibrated a 3-dimensional finite difference groundwater model of the bedrock



GEOHYDROCYCLE,

aquifer to evaluate the yield potential and estimate the impacts to nearby wetlands and wells.

Ipswich, Massachusetts, 1998-2001 - Investigated a bedrock aquifer to assess its capabilities to irrigate the Turner Hill Golf Course. This investigation included geophysical studies of the bedrock aquifer, the drilling of test wells, conducting a 10-day bedrock pumping test on successful wells to determine aquifer performance. Developed and calibrated a 3-dimensional finite difference groundwater model of the bedrock aquifer to evaluate the yield potential and estimate the impacts to nearby wetlands and wells.

Methuen, Massachusetts, 2004-2005 - Investigated a bedrock aquifer to assess its capabilities to provide 18.3 million gallons per season of irrigation water for the Emerald Pines Golf Course. This investigation included exploration of the bedrock aquifer, the drilling six test wells, conducting 5-day pumping test on successful wells to determine aquifer performance. Developed and calibrated a 3-dimensional finite difference groundwater model of the bedrock aquifer to evaluate the yield potential and estimate the impacts to nearby wetlands and wells.

Boxford, Massachusetts, 2011-2012 - Currently working on a Water Supply Permit for a new bedrock drinking water well for the Boxford Library. Geohydrologic work to-date has included: bedrock well drilling, conducting a 24-hr pump test of the new well, and well sampling.

Wayland, Massachusetts, 1995 - Developed and calibrated a groundwater flow model to determine the aquifer effects of three septic system leaching fields associated with a large development of multifamily residential buildings. Model results were used to determine final septic system design.

Easton, Connecticut, 1997 - Developed and calibrated a groundwater flow model to aid in the design and permitting of a 75,000 gallon per day community waste water treatment system.

Carlisle Road, Acton, Massachusetts, 1998 - Developed and calibrated a groundwater flow model for a mounding analysis for the design and permitting of a residential community waste water treatment system.

Wickes Lumber, Acton, Massachusetts, 1998 - Developed and calibrated a groundwater flow for a mounding analysis for the design and permitting of a residential community waste water treatment system.

Summer Street, Acton, Massachusetts, 1998 - Developed and calibrated a groundwater flow model for a mounding analysis for the design and permitting of a residential community waste water treatment system.

Acton, Massachusetts, 1998 - Developed and calibrated an analytic groundwater contaminant transport model to estimate the effects of a sewage disposal area on a potential municipal well site.

Georgetown, Massachusetts, 2001 - Developed and calibrated a groundwater flow model for mounding analysis for the design and permitting of a residential community waste water treatment system.

Duxbury, Massachusetts, 2001-2002 - Developed a groundwater model to predict the nitrogen impacts to a wellhead protection zone due to a planned residential housing development.

Concord, Massachusetts, 2003 - Provided geohydrologic services, including observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 18,000 GPD of treated waste water to groundwater for the Concord Country Club.



East Bridgewater, Massachusetts, 2003 - Provided geohydrologic services, including observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 25,000 GPD of treated wastewater to groundwater for a commercial wastewater facility.

Stowe, Massachusetts, 2002-2004 - Completed groundwater modeling of the effect of wastewater and stormwater discharge from thirteen detention basins on nearby foundations, leach fields, and wetland resources for a Groundwater Discharge Permit application. Because the new SAS area would be located in a Zone II, GHC conducted a time-of-travel analysis to determine whether the SAS location would meet the two-year time-of-travel requirement.

Falmouth, Massachusetts, 2004 - Provided geohydrologic services in support of a permit application to discharge treated waste and process water to groundwater for Woods Hole Oceanographic Quissett Campus.

Wrentham, Massachusetts, 2004 - Completed groundwater modeling for a Groundwater Discharge Permit application of the effect of wastewater and stormwater discharge from two detention basins on nearby leach fields and wetland resources.

Easton, Massachusetts, 2004 - Provided geohydrologic services, including observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 17,000 GPD of treated wastewater to groundwater for a residential development.

Dighton, Massachusetts, 2004 - Provided geohydrologic services, including observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 17,000 GPD of treated waste water to groundwater for a residential development.

Sherborn, Massachusetts, 2004-2005 - Provided geohydrologic services, including observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 18,000 GPD of treated wastewater to groundwater for a residential development.

Weston, Massachusetts, 2004-2006 - Completed groundwater modeling of the effect of wastewater and stormwater discharge from twenty detention basins on nearby foundations, leach fields, and wetland resources for a Groundwater Discharge Permit application. Because the new SAS area would be located in a Zone II, GHC conducted a time-of-travel analysis to determine whether the SAS location would meet the two-year time-of-travel requirement.

Sturbridge, Massachusetts, 2005 - Provided geohydrologic services, including exploration for suitable disposal areas, observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 21,000 GPD of treated wastewater to groundwater for a residential community.

Falmouth, Massachusetts, 2005 - Provided geohydrologic services, including exploration for suitable disposal areas, observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 40,000 GPD of treated wastewater to groundwater for a residential development.

Stowe, Massachusetts, 2005-2006 - Provided geohydrologic services, including observation well installations, aquifer testing and analyses, and groundwater



GEOHYDROCYCLE,

modeling in support of a application for a Groundwater Discharge Permit to discharge 38,000 GPD of treated wastewater to groundwater for a suburban shopping center.

Chatham, Massachusetts, 2006 - Completed groundwater modeling for a Groundwater Discharge Permit application for an increase in flow of 60,000 gallons per day at an existing destination resort.

Halifax, Massachusetts, 2006 - Provided geohydrologic services, including exploration for suitable disposal areas, observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 60,000 GPD of treated wastewater to groundwater for a residential community.

Seekonk, Massachusetts, 2006 - Provided geohydrologic services, including observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 120,000 GPD of treated wastewater to groundwater for a golf course and residential community.

Wayland, Massachusetts, 2007 - Conducted a nutrient loading analysis for the Town of Wayland to assess the impacts of residential development at a former Nike Site on a nearby town well.

Sharon, Massachusetts, 2007 - Conducted an analysis of the nutrient loading impacts of a proposed commercial development.

Pembroke, Massachusetts, 2007 - Completed groundwater modeling for a Groundwater Discharge Permit application for a 25,740 gallons per day residential development.

Sharon, Massachusetts, 2007 - Completed groundwater modeling of the effect of wastewater and stormwater discharge on nearby foundations, leach fields, and wetland resources for a Groundwater Discharge Permit application. Because the new SAS area would be located in a Zone II, GHC conducted a time-of-travel analysis to determine whether the SAS location would meet the two-year time-of-travel requirement.

Sharon, Massachusetts, 2007 - Provided geohydrologic services, including exploration for suitable disposal areas, observation well installations, aquifer testing and analyses, and groundwater modeling in support of a application for a Groundwater Discharge Permit to discharge 35,000 GPD of treated wastewater to groundwater for a residential community and 60,000 GPD of treated wastewater for a commercial development.

Kingston, Massachusetts, 2007-2009 - Completed groundwater modeling for a Groundwater Discharge Permit application for a residential and commercial development proposed to discharge 246,000 gallons per day of treated wastewater. The modeling also included assessing the effects of stormwater discharges to groundwater.

Oak Bluffs, Massachusetts, 2009 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 193,000 gallons per day municipal discharge. Because the new SAS area would be located in a Zone II, GHC conducted a time-of-travel analysis to determine whether the SAS location would meet the two-year time-of-travel requirement.

Swansea, Massachusetts, 2009 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 20,800 gallons per day discharge at an existing commercial development.



GEOHYDROCYCLE,

Duxbury, Massachusetts, 2010 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 68,000 gallons per day discharge at a proposed residential development.

Shrewsbury, Massachusetts, 2010 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 26,400 gallons per day discharge at a proposed residential development.

Yarmouth, Massachusetts, 2009/2010 - Completed an analysis of the nutrient loading impacts for two proposed commercial developments using the model developed by the Cape Cod Commission.

Middleboro, Massachusetts, 2011 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 16,050 gallons per day discharge at an existing commercial facility.

Leicester, Massachusetts, 2011 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for system to replace a 21,000 gallons per day failing leach field at residential community.

Leicester, Massachusetts, 2011 - Compiled a New Source Approval application for two replacement bedrock wells for an existing residential facility.

Manchester-by-the-Sea, Massachusetts, 2011 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 8,800 gallons per day discharge for a proposed residential development.

Sudbury, Massachusetts, 2012 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 20,000 gallons per day discharge at a proposed residential development.

Monterey, Massachusetts, 2012 - Completed a nutrient loading analysis for a working farm that included individual septic systems, leachate lagoons, grazing animals and field crops.

Carlisle, Massachusetts, 2012 - Completed the New Source Approval process for a bedrock well for a age-restricted living facility that was sponsored by the Town of Carlisle. The application was successful and a water supply permit was awarded.

Cohasset, Massachusetts, 2013 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 18,920 gallons per day discharge at a proposed residential development.

Oak Bluffs, Massachusetts, 2014 - As an extension of work completed in 2009, developed and calibrated a groundwater model of Martha's Vineyard to demonstrate how groundwater recharge and normal well pumping can effect the size of a Zone II and the location of proposed wastewater sand beds. The modeling also demonstrated that the location of the sand beds meets the 2 year time-of-travel requirement.

Andover, Massachusetts, 2014 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 34,660 gallons per day discharge at a proposed residential development.

Cambridge, Massachusetts, 2014 - Completed groundwater modeling to demonstrate the extent of groundwater mounding in three areas of the city where porous pavement will be used to infiltrate the first inch of runoff to improve the quality of storm water.

Hanover, Massachusetts, 2015 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 15,390 gallons per day discharge at a proposed residential development.

Southborough, Massachusetts, 2015 - Completed groundwater mounding modeling for a Groundwater Discharge Permit application for a 120,000 gallons per day discharge at a proposed residential development.



GEOHYDROCYCLE,

Sharon, Massachusetts, 2015 - Completed groundwater modeling for a Groundwater Discharge Permit application for a 44,000 gallon per day treated wastewater discharge, and the groundwater modeling for stormwater discharge at a proposed residential development. The modeling included estimating the 2-year groundwater travel time to a nearby municipal well.

Wrentham, Massachusetts, 2016 - Completed a Geohydrologic Evaluation for the groundwater mounding modeling application for a 111,000 gallons per day discharge at a proposed multi-use project, including: commercial, restaurant, and residential.

Swansea, Massachusetts, 2016 - Completed a Geohydrologic Evaluation for the groundwater mounding modeling for a Groundwater Discharge Permit application for a 21,000 gallons per day discharge at an existing shopping mall.

Boxborough, Massachusetts, 2016 - Completed a New Source Approval for two bedrock wells that are proposed for a residential community in Boxborough.

Milford, Massachusetts, 2017 - Completed a Hydrogeologic Evaluation for a proposed residential community for the discharge of 55,000 gallons per day of treated wastewater.

West Tisbury, Massachusetts, 2017 - Completed groundwater flow and transport modeling for a proposed residential development on Martha's Vineyard to estimate impacts to adjacent residential wells.

Townsend, Massachusetts, 2017 - Completed a Hydrogeologic Evaluation for an existing shopping mall that was upgrading its 27,500 gallon per day wastewater discharge.

Boxborough, Massachusetts, 2017 - Conducted groundwater flow and transport modeling for a small residential community to evaluate the possibility for wastewater constituents migrating to a nearby water supply well.

Norfolk, Massachusetts, 2018 - Completed a Hydrogeologic Evaluation for a proposed residential development that is planning on discharging 64,000 gallons per day of treated wastewater to groundwater.

Wenham, Massachusetts, 2018 - Completed a groundwater modeling exercise to evaluate the potential to discharge 6,600 gallons per day of wastewater, and to evaluate the possible impacts due to storm water infiltration.

Attleboro, Massachusetts, 2018 - Conducted groundwater mounding modeling to evaluate the potential impacts of infiltrating a 100-year storm event to adjacent properties.

Hanover, Massachusetts, 2018 - Completed a Hydrogeologic Evaluation for a proposed specialty meat market and restaurant to discharge 6,530 gallons per day to groundwater.

Bolton, Massachusetts, 2018 - Completed a Hydrogeologic Evaluation for a regional high school to discharge 24,000 gallons per day of treated wastewater.

Bourne, Massachusetts, 2018 - Completed a Hydrogeologic Evaluation for a proposed mixed-use development to discharge 25,000 gallons per day of treated wastewater.

Certified List of Abutters and Abutter
Notification

**NOTIFICATION TO ABUTTERS
UNDER THE MASSACHUSETTS WETLANDS PROTECTION ACT**

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following.

The Applicant: Windsor Place, LLC
Address 73 Pelham Island Road, Wayland MA Phone: (508) 358-6298

Has filed a Notice of Intent with the Wayland Conservation Commission seeking permission to work within the buffer zone to a Bordering Vegetated Wetland, pursuant to the Wetlands Protection Act. (General Laws Chapter 131, Section 40)

Applicant's Representative: Metrowest Engineering, Inc.

Address 75 Franklin Street – Framingham MA 01702 Phone: (508) 626-0063

The address of the property where the activity is proposed 24 School Street, Wayland

Town Atlas Plate Map 52 Parcel 189

Project Description: The project involves the demolition of an existing single family house, barn, driveway, and existing soil absorption system followed by the construction of two new townhouse buildings, subsurface sewage disposal system, driveway, stormwater management system and supporting utilities. A portion of the proposed work will be located within the 100-foot Buffer Zone.

Copies of the Notice of Intent may be examined at the Conservation Commission Office at Wayland Town Hall between the hours of 9:00 A.M. and 4:00 P.M. on the following days of the week: Monday, Tuesday, Thursday and Friday. For more information please call the **Conservation Office at 508-358-3669.**

Copies of the Notice of Intent may be obtained at the Applicant's Representative Office at 75 Franklin Street, Framingham, MA 01702 between the hours of 9:00 A.M. and 4:00 P.M. on the following days of the week: Monday through Friday. For more information please call **Metro West Engineering, Inc. at 508-626-0063.**

The notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in **The Wayland Town Crier** (at the applicant's expense).

The public hearing date is January 27, 2020 at 6:30 p.m. (Meeting date and time subject to change due to the COVID-19 Public Health Emergency). Further information about meeting place and time can be found by contacting the Wayland Conservation Commission Office at 508-358-3669.

NOTE: You may also contact your local Conservation Commission or the nearest Department of Environmental Protection Regional Office for more information about this application or, the Wetlands Protection Act. Wayland is in the Northeast Region. To contact DEP, Call:

Central Region: 508 792-7650
Southeast Region: 508 946-2800

Northeast Region: (978) 694-3200
Western Region: 413 784-1100

100 foot Abutters List Report

Wayland, MA
August 27, 2020

Subject Property:

Parcel Number: 52-189
CAMA Number: 52-189
Property Address: 24 SCHOOL ST

Mailing Address: WINDSOR PLACE LLC
73 PELHAM ISLAND RD
WAYLAND, MA 01778

Abutters:

Parcel Number: 47D-058B
CAMA Number: 47D-058B
Property Address: 201 MAIN ST

Mailing Address: TOWN OF WAYLAND MIDDLE SCHOOL
201 MAIN STREET
WAYLAND, MA 01778 ✓

Parcel Number: 52-174
CAMA Number: 52-174
Property Address: 4 SCHOOL ST

Mailing Address: COVERED BRIDGE INC
54 CANAL ST
BOSTON, MA 02114 ✓

Parcel Number: 52-174A
CAMA Number: 52-174A
Property Address: 290 COMMONWEALTH RD

Mailing Address: TOWN OF WAYLAND PARK DEPT
41 COCHITUATE ROAD
WAYLAND, MA 01778 ✓

Parcel Number: 52-175
CAMA Number: 52-175
Property Address: 103 EAST PLAIN ST

Mailing Address: BERNARD GEORGE H CAROLYN H
BERNARD
103 E PLAIN STREET
WAYLAND, MA 01778 ✓

Parcel Number: 52-188
CAMA Number: 52-188
Property Address: 104 EAST PLAIN ST

Mailing Address: WAYLAND HOUSING AUTHORITY
106 MAIN ST
WAYLAND, MA 01778 ✓

Parcel Number: 52-190
CAMA Number: 52-190
Property Address: 30 SCHOOL ST

Mailing Address: MILLER LINDA P
30 SCHOOL ST
WAYLAND, MA 01778 ✓

Parcel Number: 52-191
CAMA Number: 52-191
Property Address: 36 SCHOOL ST

Mailing Address: SIAGEL NICHOLAS A PULIZZI
BOBBYSUE A J/T
36 SCHOOL ST
WAYLAND, MA 01778 ✓

Parcel Number: 52-203
CAMA Number: 52-203
Property Address: 1 CAULFIELD RD

Mailing Address: DEVLIN RALPH T SUSAN J MURTAGH
1 CAULFIELD RD
WAYLAND, MA 01778 ✓

Parcel Number: 52-204
CAMA Number: 52-204
Property Address: 29 SCHOOL ST

Mailing Address: DIWAYNY RAKY EL
ORTH, ELIZABETH ULRIKA
29 SCHOOL ST
WAYLAND, MA 01778 ✓

Parcel Number: 52-205
CAMA Number: 52-205
Property Address: 124 EAST PLAIN ST

Mailing Address: SCHNETKE RICHARD C SCHNETKE
JULIA E J/T
6 WILDWOOD TERR
FRAMINGHAM, MA 01702 ✓



www.cai-tech.com

Data shown on this report is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this report.

8/27/2020

Page 1 of 1

Affidavit of Service

**AFFIDAVIT OF SERVICE
UNDER THE MASSACHUSETTS WETLANDS PROTECTION ACT**

I, **Emily Petro**, of Metrowest Engineering, Inc., hereby certify under the pains and penalties of perjury that on **January 13, 2021** I will give notification to abutters within 100 feet of the proposed project in compliance with the second paragraph of the Massachusetts General Laws, Chapter 131, Section 40 and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A Notice of Intent application was filed under the Massachusetts Wetlands Protection Act, by **MetroWest Engineering** with the Wayland Conservation Commission on for the property located at **24 School Street, Wayland**.

The form of the notification and the list of the abutters to whom it was given and their addresses are attached to this Affidavit of Service.

Signature

Emily Petro

Date

12/22/2020

Copy of Payment

2296



Windsor Place LLC
73 Pelham Island Road
Wayland, MA 01778

THE Village Bank™
307 Auburn Street, Auburndale, MA 02466
53-7185/2113

11/18/2020

PAY TO THE ORDER OF **Town of Wayland**

\$537.50**

Five Hundred Thirty-Seven and 50/100*****

DOLLARS

Town of Wayland
41 Cochituate Road
Wayland, MA 01778

AUTHORIZED SIGNATURE

MEMO
24 School Street Filing Fee NOI

2295



Windsor Place LLC
73 Pelham Island Road
Wayland, MA 01778

THE Village Bank™
307 Auburn Street, Auburndale, MA 02466
53-7185/2113

11/18/2020

PAY TO THE ORDER OF **Commonwealth of Massachusetts**

\$512.50**

Five Hundred Twelve and 50/100*****

DOLLARS

AUTHORIZED SIGNATURE

MEMO 24 School Street Filing Fee NOI

Site Plans