

Notice of Intent

for

310 Kenneth W. Welch Drive, Lakeville MA 02347

Lakeville Conservation Commission
346 Bedford Street
(office location 241 Main Street)
Lakeville, MA 02347

PREPARED FOR:

TAC Vega MA Owner LLC
3560 Lenox Road NE, Suite 1475
Atlanta, GA 30326

February 28, 2023

RECEIVED

MAR 1 - 2023

Conservation Commission



February 28, 2023

Lakeville Conservation Commission
346 Bedford Street
(Office location 241 Main Street)
Lakeville, MA 02347

Re: Notice of Intent (NOI)
310 Kenneth W. Welch Drive
Lakeville MA 02347

Dear Lakeville Conservation Commission,

On behalf of the applicant, TAC Vega MA Owner LLC, Goddard Consulting, LLC is hereby submitting this Notice of Intent (NOI) application for the expansion of an existing parking lot. A 177,995 SF industrial building with an associated parking lot currently sits on-site within the 100-Foot Buffer Zone to Bordering Vegetated Wetlands. As requested by the Town of Lakeville, additional parking is required on-site due to the number of tenants utilizing the facility. The existing building located on-site is currently under use by three separate entities. Currently, the parking on-site is not adequate compared to the number of employees, and significant spillover parking occurs off-site and on nearby streets. The project proposes to expand the parking lot to meet the required needs for the site's usage. This application is a filing under the Massachusetts Wetlands Protection Act (WPA).

Seven hard copies, two full-size plans, two stormwater reports, and a digital copy have been submitted for the Commission's review. Enclosed are the WPA Form 3 and additional supporting documentation for your review and approval.

If you have any questions, please do not hesitate to reach out.

Sincerely,

Goddard Consulting, LLC

Andrew Thibault

Andrew Thibault, WPIT, WSA
Environmental Scientist

CC: MassDEP Southeast Regional Office, 20 Riverside Drive, Lakeville, MA 02347



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1.0 INTRODUCTION

This Notice of Intent (NOI) is submitted in accordance with the requirements of the Massachusetts Wetlands Protection Act. This project is being filed with the commission as the parking available on-site is not on par with the site's usage. The applicants were requested to increase available parking on-site to meet the needs of the three businesses currently operating on-site. The project has been designed to meet the needs of the site's use while upholding all interests outlined in the Wetlands Protection Act. The available upland adjacent to the parking lot was selected for expansion, and wetland impacts were limited to the extent feasible. Due to the required wetland impacts to achieve the project's design, wetland replication has been proposed at a 1.5 : 1 ratio to exceed the performance standards put forth in the Wetlands Protection Act (WPA).

2.0 EXISTING CONDITIONS

The site of the proposed project consists of 1 land parcel, totaling +/- 569,383 SF. A 177,995 SF industrial building with an associated parking lot currently sits on-site within the 100-Foot Buffer Zone to Bordering Vegetated Wetlands. The existing pavement areas measure 107,874 SF of impervious surfaces on-site. Parking is limited to small lots located on the eastern and western portions of the site. A raised elevation upland portion of the site is located adjacent to the Eastern parking lot. The remainder of the site to the North is forested, undeveloped land. Bordering Vegetated Wetlands span much of the Northern section of the site. Hydrology stems from an internal intermittent stream near the northern property boundary. The site's resource areas connect hydrologically via a culvert under the existing railroad line off-site to the North.

The wetland system is dominant in red maple, northern spicebush, greenbrier, skunk cabbage, jewelweed, and New York fern. The adjacent upland is dominant in white oak, red maple, multiflora rose, virginia creeper, oriental bittersweet, Canada mayflower, greenbrier, and common dewberry.

According to the Mass GIS data layers for NHESP, this site is not located within Estimated or Priority Habitat of Rare Wildlife. The site is not located in an ACEC and does not have any mapped certified or potential vernal pools. The site is not mapped within an Outstanding Resource Water (ORW). A large portion of the lot is mapped within FEMA Flood Zone A: 1% annual chance of flooding, no Base Flood Elevation.

2.1 RESOURCE AREAS ON-SITE

Goddard Consulting conducted a wetland delineation on-site in June of 2022. One extensive Bordering Vegetated Wetland and an internal intermittent stream channel were delineated in the field and identified as jurisdictional resource areas under the Massachusetts Wetlands Protection Act (WPA). A full description of the on-site resource areas provided below.

2.1.1 Bordering Vegetated Wetland (BVW) and Associated Intermittent Stream

The Bordering Vegetated Wetland system on-site spans much of the Northern portions of the property. The land slopes down significantly from the existing development. At the base of the slope, the water table is significantly closer to the surface, and the area is dominated by obligate wetland species such as skunk cabbage. The stream channel is mapped on the attached USGS photos for the site. The stream enters the site underneath

the existing railroad and travels internal of the wetlands off-site to the West. The stream is located internal of the BVW, and no impacts will be proposed to the stream.

2.1.2 Buffer Zone (100-foot)

Massachusetts WPA Regulations define Buffer Zone as the “100-ft area horizontally (on a true lateral) landward of approved delineation of applicable wetland resource areas.” The WPA further states that any activities undertaken within 100 feet of an area specified in 310 CMR 10.02(1)(a) (e.g., Bank, Bordering Vegetated Wetland) will be conducted per (310 CMR 10.02(2)(b)), “in a manner so as to reduce the potential for any adverse impacts to the resource area during construction, and with post-construction measures implemented to stabilize any disturbed areas.”

The WPA Regulations [310 CMR 10.02(2)(b)] do not contain performance standards for Buffer Zone Alteration. All reasonable efforts to avoid, minimize and mitigate adverse impacts on the Buffer Zone have been considered. As buffer zone and wetland impacts are required with the proposed scope of work, wetland replication has been proposed at a 1.5 : 1 ratio to result in net improvements to the resource area during post-construction conditions.

3.0 PROPOSED PROJECT

The applicant proposes to expand on-site parking between two lots on-site, located on the eastern and western sides of the existing building. The eastern parking lot is proposed along Kenneth Welch Drive. The lot is proposed to be paved on the Southeastern portion of the site, largely outside of the 100-Foot Buffer Zone to Bordering Vegetated Wetlands. Existing parking and landscaping exists within this area. Therefore, any work in the eastern parking lot is considered a redevelopment of the parking area. The western parking lot is proposed to expand off the limited parking currently stemming off the western edge of the building. This area consists of undeveloped uplands and wetlands. This lot is proposed to measure 36,362 SF. Due to site constraints, the required square footage of additional parking in this area will require wetland fill of 4950 SF. Wetland fill was minimized to the extent practical with the currently proposed design. As wetland impacts were unable to be avoided, wetland replication is proposed at a 1.5 : 1 ratio. This is proposed to ensure post-construction conditions result in overall site improvements. The replication area was selected immediately east of the proposed fill to provide continuity with the existing resource area. The existing 177, 995 SF building on-site will remain as designed. The project is proposed to provide the site with adequate parking to meet the buildings usage.

All stormwater generated as a result of the proposed project will be managed according to the Massachusetts Stormwater Management Standards. Stormwater will be treated through deep sump catch basins and infiltration basins. Areas were designed based on infiltration testing from December of 2022. The attached stormwater report dated January 20th, 2023, contains all relevant compliance standards for both proposed parking lots on-site. The entire limit of work will be encompassed by erosion control barriers in the form of silt fencing and straw bales.

4.0 REGULATORY COMPLIANCE WITH WETLANDS PROTECTION ACT

4.1 BORDERING VEGETATED WETLANDS

<p>§10.55</p>	<p align="center">Bordering Vegetated Wetlands</p> <p>(b) Notwithstanding the provisions of 310 CMR 10.55(4)(a), the issuing authority may issue an Order of Conditions permitting work which results in the loss of up to 5000 square feet of Bordering Vegetated Wetland when said area is replaced in accordance with the following general conditions and any additional, specific conditions the issuing authority deems necessary to ensure that the replacement area will function in a manner similar to the area that will be lost:</p>	
<p align="center">Performance Standard</p>		<p align="center">Compliance</p>
<p>10.55</p>	<p>1. the surface of the replacement area to be created ("the replacement area") shall be equal to that of the area that will be lost ("the lost area");</p>	<p>The wetland replication area is proposed to measure 7,500 square feet. This is proposed at a 1.5 : 1 ratio to the proposed 4,950 square feet of wetland fill to exceed all performance standards.</p>
	<p>2. the ground water and surface elevation of the replacement area shall be approximately equal to that of the lost area;</p>	<p>The proposed wetland replication area is located along a similar portion of the extensive BVW system. This will ensure a similar final grade is achieved to maintain the surface elevations.</p>
	<p>3. The overall horizontal configuration and location of the replacement area with respect to the bank shall be similar to that of the lost area;</p>	<p>The configuration and location of the proposed replication area has been selected at the nearest feasible location to the lost area. The replication area will be designed to blend into the adjacent BVW and replace and exceed the lost area.</p>
	<p>4. the replacement area shall have an unrestricted hydraulic connection to the same water body or waterway associated with the lost area;</p>	<p>The proposed wetland replication area has been selected at the nearest possible location along the same wetland system to ensure unrestricted hydrological connections.</p>
	<p>5. the replacement area shall be located within the same general area of the water body or reach of the waterway as the lost area;</p>	<p>The proposed wetland replication area has been selected at the nearest possible location along the same wetland system to ensure unrestricted hydrological connections. The area will be located a similar distance from the intermittent stream.</p>
	<p>6. at least 75% of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons, and prior to said vegetative reestablishment any exposed soil in the replacement area shall be temporarily stabilized to prevent erosion in accordance</p>	<p>Goddard has attached a wetland replication planting plan as a supplement to the designed replication area. As part of the plan, the area will be monitored for 2 growing seasons to ensure revegetation of native species reaches the 75% threshold.</p>

	with standard U.S. Soil Conservation Service methods;	
--	-------------------------------------------------------	--

4.2 BUFFER ZONE (100-FOOT)

A Buffer Zone is defined in 310 CMR 10.04 as the “area of land extending 100 feet horizontally outward from the boundary of any area specified in 310 CMR 10.02(1)(a).” The Bordering Vegetated Wetlands on and off-site cast a jurisdictional 100-Foot Buffer Zone

The WPA Regulations do not contain performance standards for Buffer Zone Alteration (310 CMR 10.02(2)(b)). All reasonable efforts to avoid, minimize and mitigate adverse impacts on the Buffer Zone have been considered. Due to lot constraints and site requirements, work within the buffer zone is proposed only where necessary. A 1.5 : 1 ratio of wetland replication to wetland fill is proposed to ensure post-construction conditions on-site exceed that of pre-construction conditions.

5.0 **CONCLUSION**

In summary, Goddard Consulting believes that the proposed project will not have any adverse impacts on the interests identified in the Wetlands Protection Act. The project has been designed with sensitivity to the resource areas on site. Where wetland impacts are unavoidable, wetland replication has been proposed at a 1.5 : 1 ratio to ensure a net benefit to the site in post-construction conditions. An extensive planting plan is attached to ensure the area meets the required revegetation criteria. The proposed project meets all regulatory compliance standards under the Wetlands Protection Act; therefore, Goddard Consulting respectfully requests that the Lakeville Conservation Commission issue an Order of Conditions approving the proposed project.

If you have any questions, please do not hesitate to reach out.

Sincerely,

Goddard Consulting, LLC

Andrew Thibault

Andrew Thibault, WPIT, WSA
Environmental Scientist



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

Lakeville

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):

310 Kenneth Welch Drive

a. Street Address

Lakeville

b. City/Town

02347

c. Zip Code

Latitude and Longitude:

41.885442

d. Latitude

-70.94739

e. Longitude

61

f. Assessors Map/Plat Number

2-03

g. Parcel /Lot Number

2. Applicant:

a. First Name

TAC VEGA MA OWNER LLC

b. Last Name

c. Organization

3560 Lenox Road NE, Suite 1475

d. Street Address

Atlanta

e. City/Town

GA

f. State

30326

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

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

a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Andrew

a. First Name

Thibault

b. Last Name

Goddard Consulting

c. Company

291 Main Street

d. Street Address

Northborough

e. City/Town

MA

f. State

01532

g. Zip Code

(508) 393-3784

h. Phone Number

i. Fax Number

andrew@goddardconsultingllc.com

j. Email address

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

\$1000 + \$100 (bylaw)

a. Total Fee Paid

\$487.50

b. State Fee Paid

\$512.50 + \$100 (bylaw)

c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

Parking lot expansion within Bordering Vegetated Wetlands and respective 100-foot Buffer Zones

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

- 1. Single Family Home
- 2. Residential Subdivision
- 3. Commercial/Industrial
- 4. Dock/Pier
- 5. Utilities
- 6. Coastal engineering Structure
- 7. Agriculture (e.g., cranberries, forestry)
- 8. Transportation
- 9. 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 CMR10.24(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:

Plymouth

a. County

56325

c. Book

b. Certificate # (if registered land)

0319

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.



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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.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Bank	1. linear feet _____	2. linear feet _____
b. <input checked="" type="checkbox"/> Bordering Vegetated Wetland	4950 SF 1. square feet _____	7500 SF 2. square feet _____
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet _____ 3. cubic yards dredged _____	2. square feet _____

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
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. <input type="checkbox"/> 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.



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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



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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 Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

- 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

- 2021 _____
 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.2.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*

- Percentage/acreage of property to be altered:

(a) within wetland Resource Area _____
 percentage/acreage

(b) outside Resource Area _____
 percentage/acreage

- Assessor's Map or right-of-way plan of site

- 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 <https://www.mass.gov/mass-endangered-species-act-mesa-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.



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

(c) MESA filing fee (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).
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, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; 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:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

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.

c. Is this an aquaculture project? d. Yes No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



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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.



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

Lakeville

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.

Vega Strategic Site Improvements

a. Plan Title

Epstein

Timothy S. Bodah

b. Prepared By

c. Signed and Stamped by

10/24/2022

1" = 40'

d. Final Revision Date

e. Scale

Wetland Replication Planting Plan, Goddard Consulting LLC

2/27/2023

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:

59879, 59880

2/23/2023

2. Municipal Check Number

3. Check date

59875

2/23/2023

4. State Check Number

5. Check date

Epstein

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

Lakeville
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 (TAC Vega MA Owner, LLC)

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (Andrew Thibault, Goddard Consulting LLC)

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:

310 Kenneth Welch Drive	Lakeville
a. Street Address	b. City/Town
59875	\$487.50
c. Check number	d. Fee amount

2. Applicant Mailing Address:

a. First Name		b. Last Name	
TAC VEGA MA OWNER LLC			
c. Organization			
3560 Lenox Road NE, Suite 1475			
d. Mailing Address			
Atlanta	GA	30326	
e. City/Town	f. State	g. Zip Code	
_____	_____	_____	
h. Phone Number	i. Fax Number	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 2B: Parking Lot	1	\$500	\$500
Category 2G: Project Source Discharge	1	\$500	\$500

Step 5/Total Project Fee: \$1000 + \$100 (bylaw)

Step 6/Fee Payments:

Total Project Fee: \$1000 + \$100 (bylaw)
a. Total Fee from Step 5

State share of filling Fee: \$487.50
b. 1/2 Total Fee less \$12.50

City/Town share of filling Fee: \$512.50 + \$100 (bylaw)
c. 1/2 Total Fee plus \$12.50

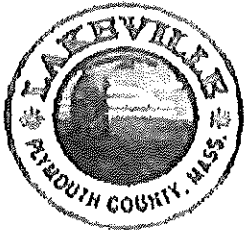
C. Submittal Requirements

- 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.)



Town of Lakeville
Town Office Building
346 Bedford Street
Lakeville, MA 02347

ABUTTERS LIST REQUEST FORM

Today's Date: 1/23/23

Date Needed: 1/31/23

Department / Company Name: Goddard Consulting LLC

Contact Person: Andrew Thibault

Contact Telephone: (603) 718-0605

Contact Fax:

Parcel ID / Location Address: 310 Kenneth Welch Drive, Lakeville, MA
Map: 61, Lot: 2-03

Book: 56325 Page: 319

Footage / Perimeter of Abutters List Request:

Conservation Commission (100')

Planning Board (500')

Zoning Board of Appeals (300')

Other _____

Certified List (First page \$10.00)

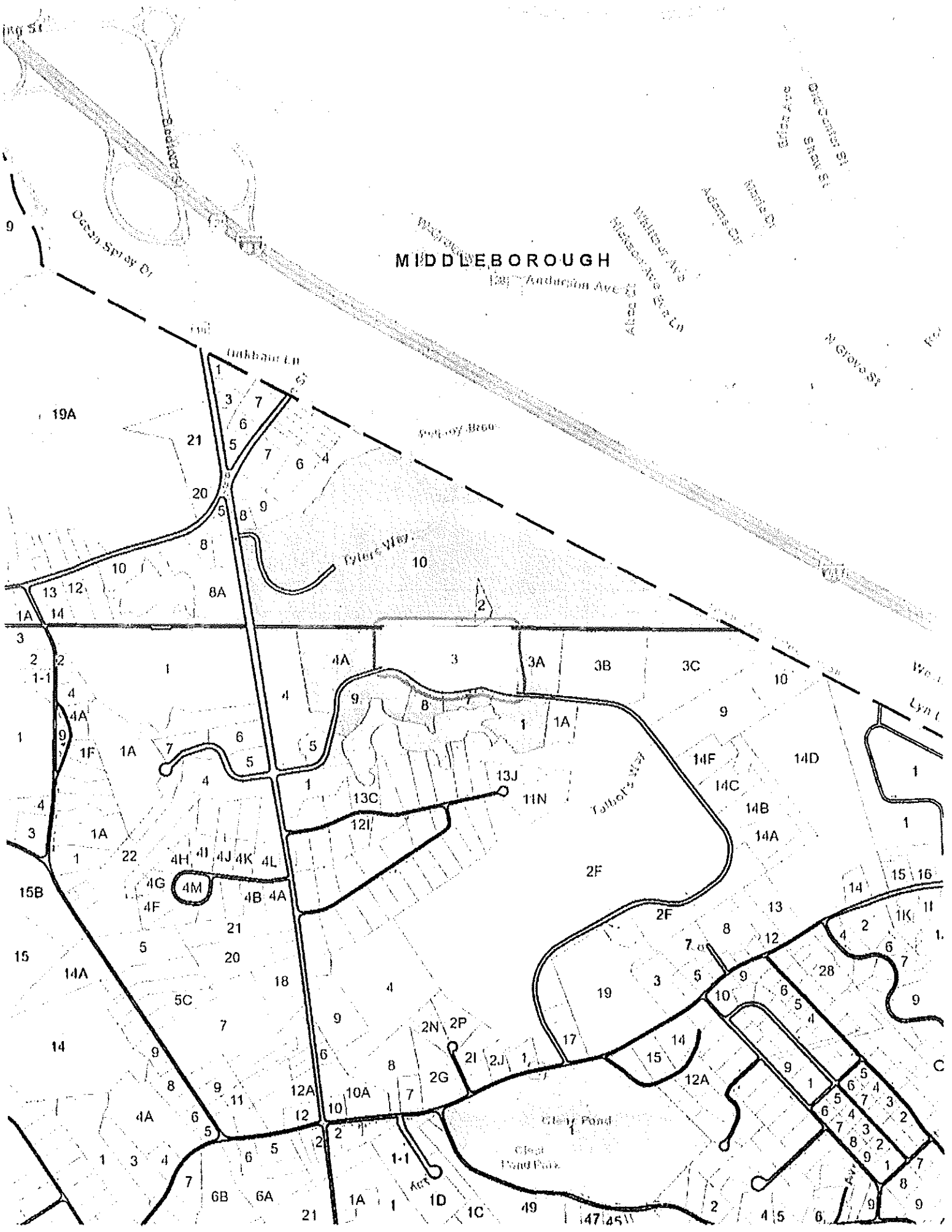
Non-Certified List (No Charge)

Notes:

Total Due: \$

Date Paid:

Date Completed:



MIDDLEBOROUGH

130 Andros Ave

Ocean Spray Dr

Oakhurst Ln

W. Grove St
 W. Grosvenor St
 W. Walnut St
 W. Green St
 W. Adams St
 W. State St
 W. Orange St

Squid

Tyler's Way

Folio's Way

Clay Pond
 Clear Pond Park

West
 Lynn St

W. Grove St

19A

1A 14

3 2 2 1-1

4 4A

1 9 1F 1A

7 6 5

4 1 13C 11N

3 1A 22 4H 4J 4K 4L

4G 4M 4B 4A

15B 4F 21 20 18

15 14A 5C 7 9 4

14 9 8 9 11 12A 10A

12 10 7 2N 2P 21 2J 1

8 2G 21 2J 1 17 15 14

14 9 8 9 12 10 9 6 5 4

14 7 7 8 12 10 9 6 5 4

14 9 8 9 12 10 9 6 5 4

14 9 8 9 12 10 9 6 5 4

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14 9 8 9 12 10 9 6 5 4

14 9 8 9 12 10 9 6 5 4

14

15 16

14 2 1K 11

4 6 7 1

9 28 12 10 9 6 5 4

14 9 8 9 12 10 9 6 5 4

14 9 8 9 12 10 9 6 5 4

14 9 8 9 12 10 9 6 5 4

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14 9 8 9 12 10 9 6 5 4

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14 9 8 9 12 10 9 6 5 4

C

47 45 11

4 5 6

9



100 foot Abutters List Report

Lakeville, MA
January 24, 2023

To the best of my knowledge and with the present records on hand in the Assessor's Office, the abutters appear to be within 100' (one hundred feet) of the applicant.

061-002-003
Map, Block, Lot of Applicant

Norman C. [Signature]
Board of Assessors

1.24.23

Subject Properties:

Parcel Number: 061-002-003
CAMA Number: 061-002-003
Property Address: 310 KENNETH W WELCH DR

Mailing Address: TAC VEGA MA OWNER LLC
3565 PIEDMONT RD NE BUILDING ONE,
#200
ATLANTA, GA 30305

Parcel Number: 061-002-003
CAMA Number: 061-002-003-1
Property Address: 310-1 KENNETH W WELCH DR

Mailing Address: TAC VEGA MA OWNER LLC
3565 PIEDMONT RD NE BUILDING ONE,
#200
ATLANTA, GA 30305

Parcel Number: 061-002-003
CAMA Number: 061-002-003-2
Property Address: 310-2 KENNETH W WELCH DR

Mailing Address: TAC VEGA MA OWNER LLC
3565 PIEDMONT RD NE BUILDING ONE,
#200
ATLANTA, GA 30305

Parcel Number: 061-002-003
CAMA Number: 061-002-003-3
Property Address: 310-3 KENNETH W WELCH DR

Mailing Address: TAC VEGA MA OWNER LLC
3565 PIEDMONT RD NE BUILDING ONE,
#200
ATLANTA, GA 30305

Parcel Number: 061-002-003
CAMA Number: 061-002-003-4
Property Address: 310-4 KENNETH W WELCH DR

Mailing Address: TAC VEGA MA OWNER LLC
3565 PIEDMONT RD NE BUILDING ONE,
#200
ATLANTA, GA 30305

Parcel Number: 061-002-003
CAMA Number: 061-002-003-5
Property Address: 310-5 KENNETH W WELCH DR

Mailing Address: TAC VEGA MA OWNER LLC
3565 PIEDMONT RD NE BUILDING ONE,
#200
ATLANTA, GA 30305

Parcel Number: 061-002-003
CAMA Number: 061-002-003-6
Property Address: 310-6 KENNETH W WELCH DR

Mailing Address: TAC VEGA MA OWNER LLC
3565 PIEDMONT RD NE BUILDING ONE,
#200
ATLANTA, GA 30305

Abutters:

Parcel Number: 024-006-004A
CAMA Number: 024-006-004A
Property Address: 520 KENNETH W WELCH DR

Mailing Address: PINK LAWRENCE W & NANCY J TRS
PINK FAMILY LIVING TRUST
182 THOMAS ST
MIDDLEBORO, MA 02346

Parcel Number: 024-006-007
CAMA Number: 024-006-007
Property Address: KENNETH W WELCH DR

Mailing Address: LAKEVILLE TOWN OF
346 BEDFORD ST
LAKEVILLE, MA 02347

Parcel Number: 024-006-008
CAMA Number: 024-006-008
Property Address: 475 KENNETH W WELCH DR

Mailing Address: GREEN PEAK LLC
54 WEST BOYLSTON ST
WORCESTER, MA 01606



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.



100 foot Abutters List Report

Lakeville, MA
January 24, 2023

Parcel Number: 024-006-009
CAMA Number: 024-006-009
Property Address: KENNETH W WELCH DR

Mailing Address: PINK LAWRENCE W & NANCY J TRS
PINK FAMILY LIVING TRUST
182 THOMAS ST
MIDDLEBORO, MA 02346

Parcel Number: 024-007-010
CAMA Number: 024-007-010
Property Address: 2 TYLER'S WAY

Mailing Address: CURTIN JOHN L & WHIPPEN-CURTIN
LAUREN A
2 TYLER'S WAY
LAKEVILLE, MA 02347

Parcel Number: 061-001-002
CAMA Number: 061-001-002
Property Address: REARCONRAIL RR BED

Mailing Address: SAWICKI HELEN P
55 RHODE ISLAND RD
LAKEVILLE, MA 02347

Parcel Number: 061-002-003A
CAMA Number: 061-002-003A
Property Address: 308 KENNETH W WELCH DR

Mailing Address: CRANBERRY CAMPUS LLC
310 KENNETH W WELCH DR
LAKEVILLE, MA 02347

Parcel Number: 061-003-001
CAMA Number: 061-003-001
Property Address: 305 KENNETH W WELCH DR

Mailing Address: 305 KENNETH WELCH FUND LLC
265 FRANKLIN ST SUITE 1001
BOSTON, MA 02110



www.cai-tech.com

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1/24/2023

Page 2 of 2

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.

- A. The name of the applicant is: **TAC VEGA MA Owner, LLC**
- B. The applicant has filed a **Notice of Intent (NOI)** with the Conservation Commission for the municipality of **Lakeville, MA**, seeking permission to perform activities within Areas Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, Section 40).
- C. The project scope is for: **The expansion of an existing parking lot within Bordering Vegetated Wetlands and respective Buffer Zones.**
- D. The address of the lot where the activity is proposed is: **310 Kenneth Welch Drive, Lakeville, MA (Map: 61, Parcel: 2-03).**
- E. Copies of the NOI application may be examined at **Lakeville Town Hall** Monday, Wednesday, and Friday, from 9AM to 12PM, or by appointment. For additional information, call **(508) 946-8823**.
- F. Copies of the NOI application may be obtained for a reasonable fee from the applicant's representative, by calling **(508) 393-3784** between the hours of **10 and 3** on the following days of the week: **M, T, W, Th., F.**
- G. Information regarding the date, time, and place of the public hearing may be obtained from **Lakeville Conservation Commission** by calling **508) 946-8823**.

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in a local newspaper publication (**Nemasket Week**)

NOTE: Notice of the public hearing, including the date, time, and place, will be posted in the City or Town Hall not less than forty-eight (48) hours in advance.

Note: You also may 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. To contact DEP, call:

Central Region: (508) 792-7650
 Southeast Region: (508) 946-2700

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

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

(to be submitted to the Massachusetts Department of Environmental Protection and the Conservation Commission)

I, Andrew Thibault, hereby certify under the pains and penalties of perjury that on 3/1/23 I gave notification to abutters in Compliance with the second paragraph of Massachusetts General Law Chapter 131, Section 40, and the DEP Guide to Abutter Notification dating April 8, 1994 in connection with the following matter:

A Notice of Intent was filed under the Massachusetts Wetlands Protection Act by TAC VEGA MA Owner, LLC with the Lakeville Conservation Commission on 2/28/23 for property located at 310 Kenneth Welch Drive, (Map 61, Parcel 2-03) in Lakeville, MA for the expansion of an existing parking lot within Bordering Vegetated Wetlands and respective Buffer Zones.

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

Andrew Thibault

(Name)

2/28/23

(Date)



Appendix B
Wetland Information

July 18, 2022
Rev. February 27, 2023

Epstein
600 West Fulton Street
Chicago, Illinois 60661

Re: Wetland Border Report
310 Kenneth Welch Drive (Map: 61 Lot: 2-03)
Lakeville, MA 02347

Dear Epstein:

Introduction

On June 1, 2022, the wetland resources were delineated on land located on or near the above-listed site (refer to enclosed locus maps). The wetland border was flagged using the criteria in the most recent edition of MA Wetland Protection Act (WPA) and Regulations 310 CMR 10.00 et al. Hydric soil indicators, vegetation changes, hydrological indicators, and topography were all considered for delineation purposes.

An extensive Bordering Vegetated Wetland System and a portion of an internal intermittent stream were delineated in the field with series GC A1- A100 and GC MAHW 1 – GC MAHW 55. The A-series wetland is dominant in red maple, northern spicebush, greenbrier, skunk cabbage, jewelweed, and New York fern. The adjacent upland is dominant in white oak, red maple, multiflora rose, virginia creeper, oriental bittersweet, Canada mayflower, greenbrier, and common dewberry. The intermittent stream flows internal of the A-series BVW. The wetlands and internal stream are protected under the MA Wetlands Protection Act.

According to the Mass GIS data layers for NHESP, this site is not located within Estimated or Priority Habitat of Rare Wildlife. The site is not located in an ACEC and does not have any mapped certified or potential vernal pools. A large portion of the lot is mapped within FEMA Flood Zone A: 1% annual chance of flooding, no Base Flood Elevation.

The titles of attached documents are as follows:

- DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form
- *Orthophoto View of Site*, Goddard Consulting, LLC, 4/12/22
- *Orthophoto View of Site with FEMA Flood Zone*, Goddard Consulting, LLC, 4/12/22
- *USGS of Site*, Goddard Consulting, LLC, 4/12/2022

Section 1. Regulatory Framework, Implications, and Delineation Methodology

1.1 Wetlands Protection Act (WPA)

Inland resource areas were delineated in accordance with relevant federal, state, and local regulations. As stated in 310 CMR (2)(a), "Bordering Vegetated Wetlands are freshwater wetlands which border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetation community which occur in each type of freshwater wetland are specified in M.G.L. c 131 sec. 40."

The methodology used to delineate Bordering Vegetated Wetlands is detailed in: (1) the BVW Policy "BVW: Bordering Vegetated Wetlands Delineation Criteria and Methodology," issued March 1, 1995; and (2) "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A Handbook," produced by the Massachusetts Department of Environmental Protection, dated March 1995.

Section 2. Description of Regulated Inland Resource Area

- | | |
|-------------------------------------------------------------------|-----------------------------------------------------------------------|
| <input type="checkbox"/> Bank | <input checked="" type="checkbox"/> Bordering Vegetated Wetland (BVW) |
| <input type="checkbox"/> Land Under Water Bodies and Waterways | <input type="checkbox"/> Land Subject to Flooding |
| <input checked="" type="checkbox"/> Riverfront Area | <input type="checkbox"/> Isolated Vegetated Wetlands |
| <input checked="" type="checkbox"/> Buffer Zone | <input type="checkbox"/> Estimated Habitats of Rare Wildlife |
| <input type="checkbox"/> Vernal Pool (Certified and/or Potential) | <input type="checkbox"/> Priority Habitats of Rare Species |

The table below provides the Flag Numbers, Flag Type, and Wetland Types and Locations for the BVW resources delineated.

Riverfront Area	Buffer Setback	Flag Numbers	Flag Type	Wetland Types and Locations
No	100-Foot Buffer Zone	GC A1-A100	Blue Wetland Flags	Boundary of BVW on the northern section of the site
No	100-Foot Buffer Zone	GC MAHW 1 – GC MAHW 55	Pink Wetland Flags	Mean Annual High Water of internal intermittent stream

2.1 Vegetation

The A-series wetland is dominant in red maple (FAC), northern spicebush (FACW), greenbrier (FAC), skunk cabbage (OBL), jewelweed (FACW), and New York fern (FAC). The adjacent upland is dominant in white oak (FACU), red maple (FAC), multiflora rose (FACU), Virginia creeper (FACU), oriental bittersweet (UPL), Canada mayflower (FACU), greenbrier (FAC), and common dewberry (FACU).

2.2 Hydrology

The A-series BVW borders an intermittent stream that flows off-site in the rear of the site. Evidence of surface water and soil saturation within the wetlands include ponded BVW, water-stained leaves, saturated soils, and hydric soils such as Scarboro muck.

2.3 Soils

Consistent with the NRCS survey, soils identified on the property include Raynham Silt Loam and Freetown Muck. Upgradient of the BVW, sandy loam was found from 0-8 inches at soil horizon A and an upland matrix of sandy loam was found from 8-16 inches at soil horizon B. Downgradient of the BVW, Freetown muck was found from 0-20 inches at soil horizon O, which is indicative of saturated conditions. Water was found at the surface throughout the BVW system.

2.4 Topography

Additional site information about elevation and changes in slope that inform delineation of BVW boundary points can be found in the attached topographic maps provided by the U.S. Geological Survey.

Section 3. Buffer Zone

Buffer Zone is defined in 310 CRM 10.04 as the “area of land extending 100 feet horizontally outward from the boundary of any area specified in 310 CMR 10.02(1)(a).” The Bordering Vegetated Wetland System casts a 100-foot Buffer Zone on-site. The intermittent stream is a jurisdictional resource area with a 100-foot Buffer Zone. However, as the stream is internal of the wetland resource area, no further buffer zone will extend from the stream.

Section 4. FEMA Flood Zones

The MassGIS National Flood Hazard Layer provided by the Federal Emergency Management Agency (FEMA) depicts a 1% Annual Chance of Flooding on a portion of the lot, with no Base Flood Elevation. BLSF is defined in 310 CMR 10.57 (2)(a)(1) as “an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds

or lakes. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetlands.” This area is not regulated as Bordering Land Subject to Flooding (BLSF), as it is not classified as a 100-year flood zone.

Section 5. Findings

Based on these hydric soil indicators, vegetation, hydrological indicators, and topography, Series GC A1-A100 was found to be the boundary of BVW on the northern portion of the site. GC MAHW 1 – MAHW 55 was found to be the Mean Annual High-Water Line of the intermittent stream internal of the BVW system. No other wetland resource areas were discovered during a full site review.

To reiterate, this site is not located within Estimated or Priority Habitat of Rare Wildlife. The site is not located in an ACEC and does not have any mapped certified or potential vernal pools. A large portion of the lot is mapped within FEMA Flood Zone A: 1% annual chance of flooding, no Base Flood Elevation.

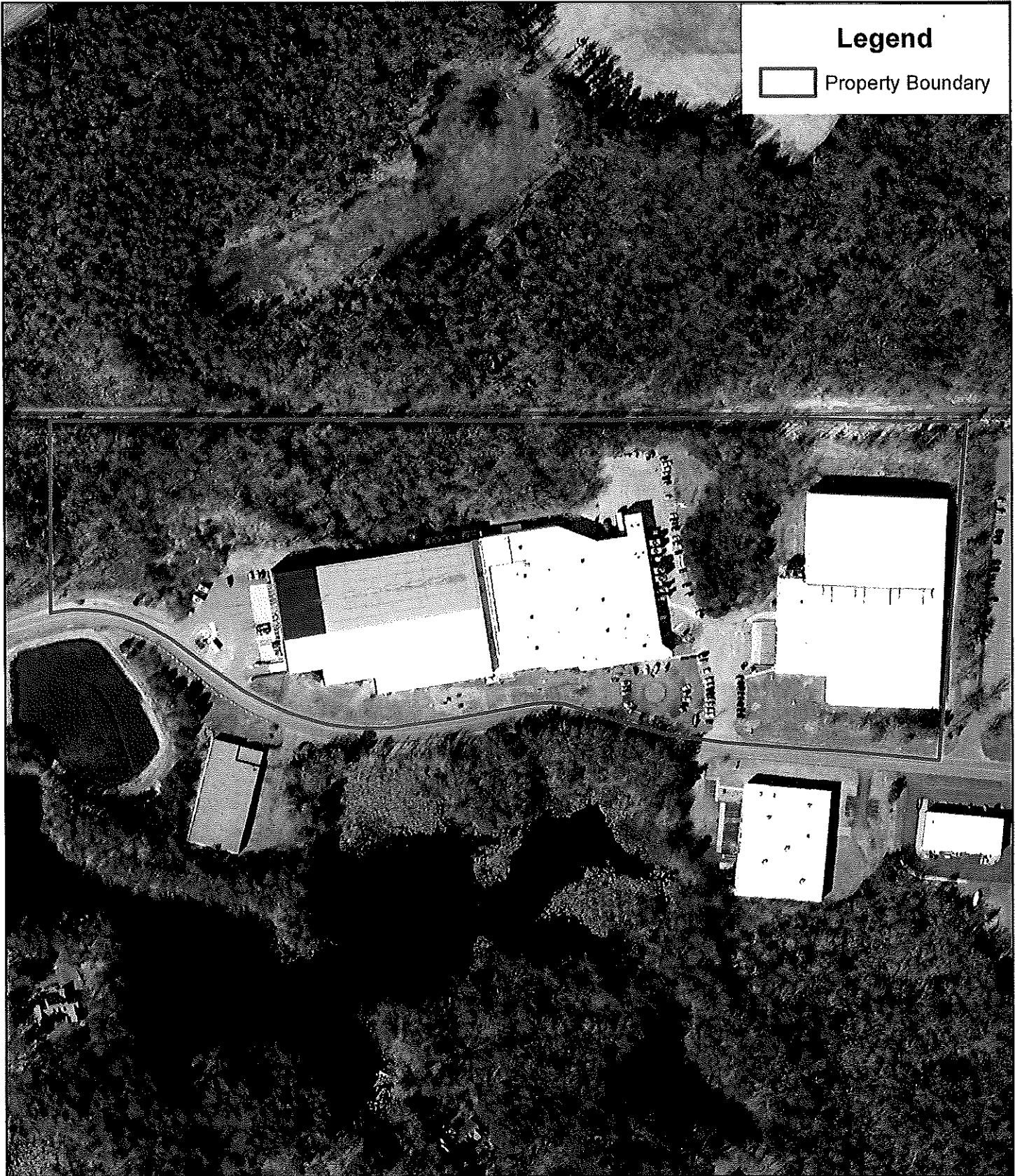
Sincerely,

Goddard Consulting, LLC

Andrew Thibault

Andrew Thibault, WPIT, WSA

Environmental Scientist



Legend

Property Boundary

Date: 2/23/2023

GC Job Number:
146-6A

**Notice of Intent
Orthophoto View of Site**

0 125 250
 Feet

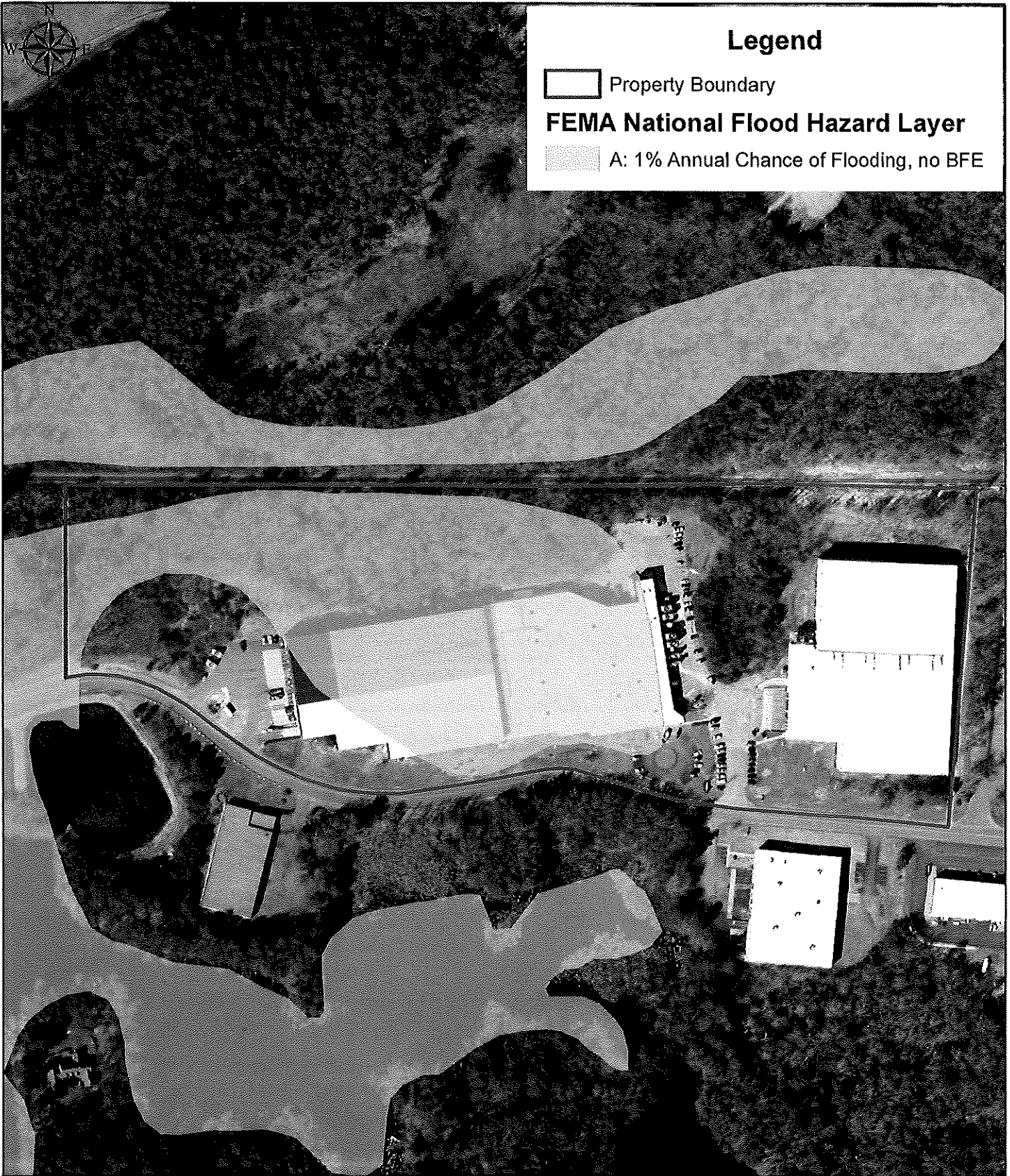
1 in = 250 ft

Figure 1

GODDARD CONSULTING
 Strategic Wetland Permitting LLC

310 Kenneth Welch Drive
 Lakeville, MA 02347

Map: 61, Lot: 2-03



Legend



Property Boundary

FEMA National Flood Hazard Layer



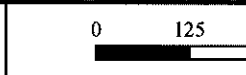
A: 1% Annual Chance of Flooding, no BFE

Date: 2/23/2023

GC Job Number:
146-6A

**Notice of Intent
Orthophoto View of Site
With FEMA Flood Zone**

310 Kenneth Welch Drive
Lakeville, MA 02347

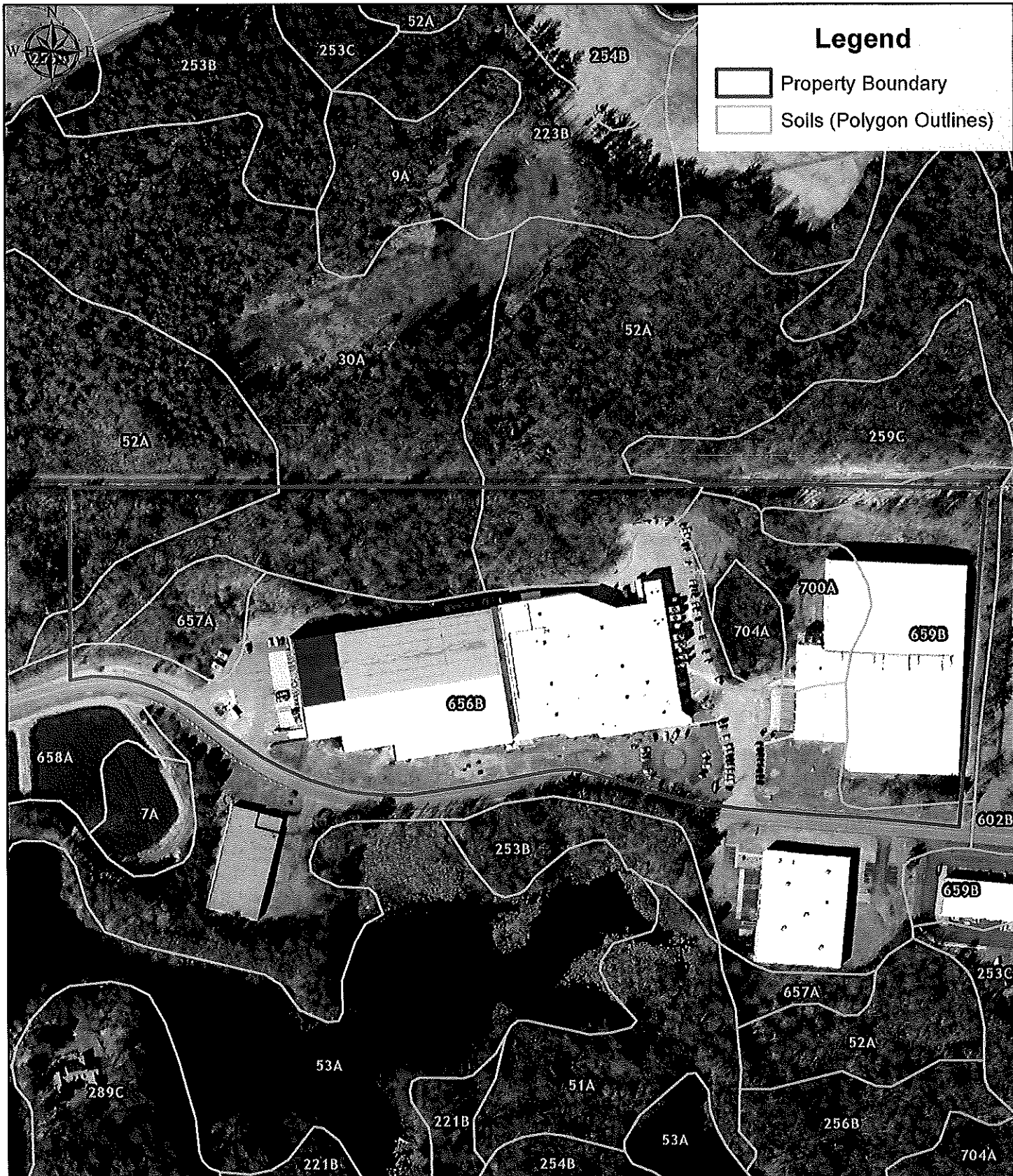


1 in = 250 ft

Map: 61, Lot: 2-03

Figure 2

GODDARD CONSULTING
Strategic Wetland Permitting LLC



Legend

- Property Boundary
- Soils (Polygon Outlines)

Date: 2/23/2023

GC Job Number:
146-6A

**Notice of Intent
Orthophoto View of Site
With NRCS Soil Survey**

0 125 250
Feet

GODDARD CONSULTING
Strategic Wetland Permitting LLC

310 Kenneth Welch Drive
Lakeville, MA 02347

1 in = 250 ft

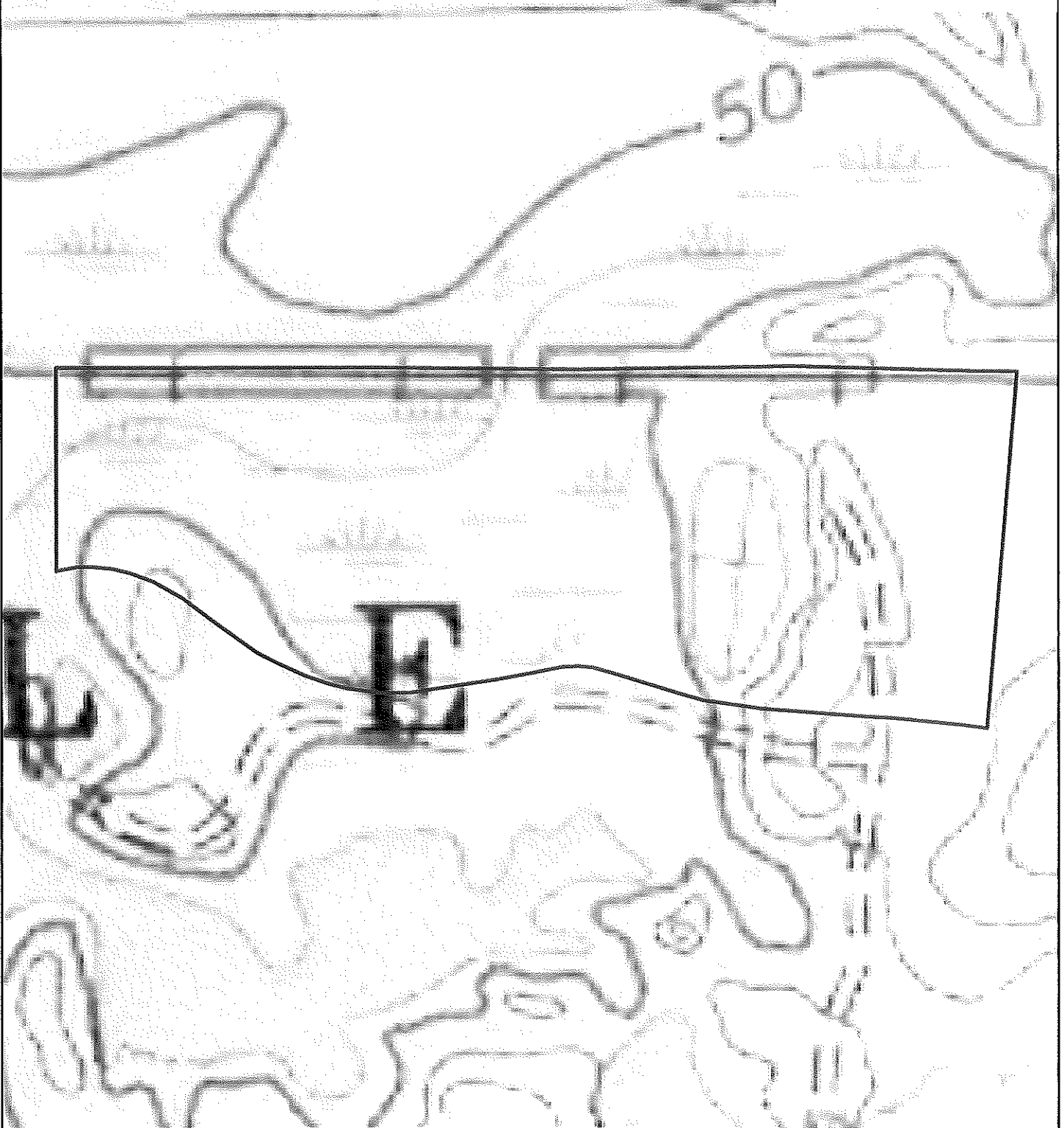
Map: 61, Lot: 2-03

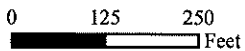

Figure 3



Legend

 Property Boundary

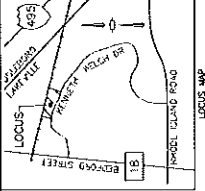
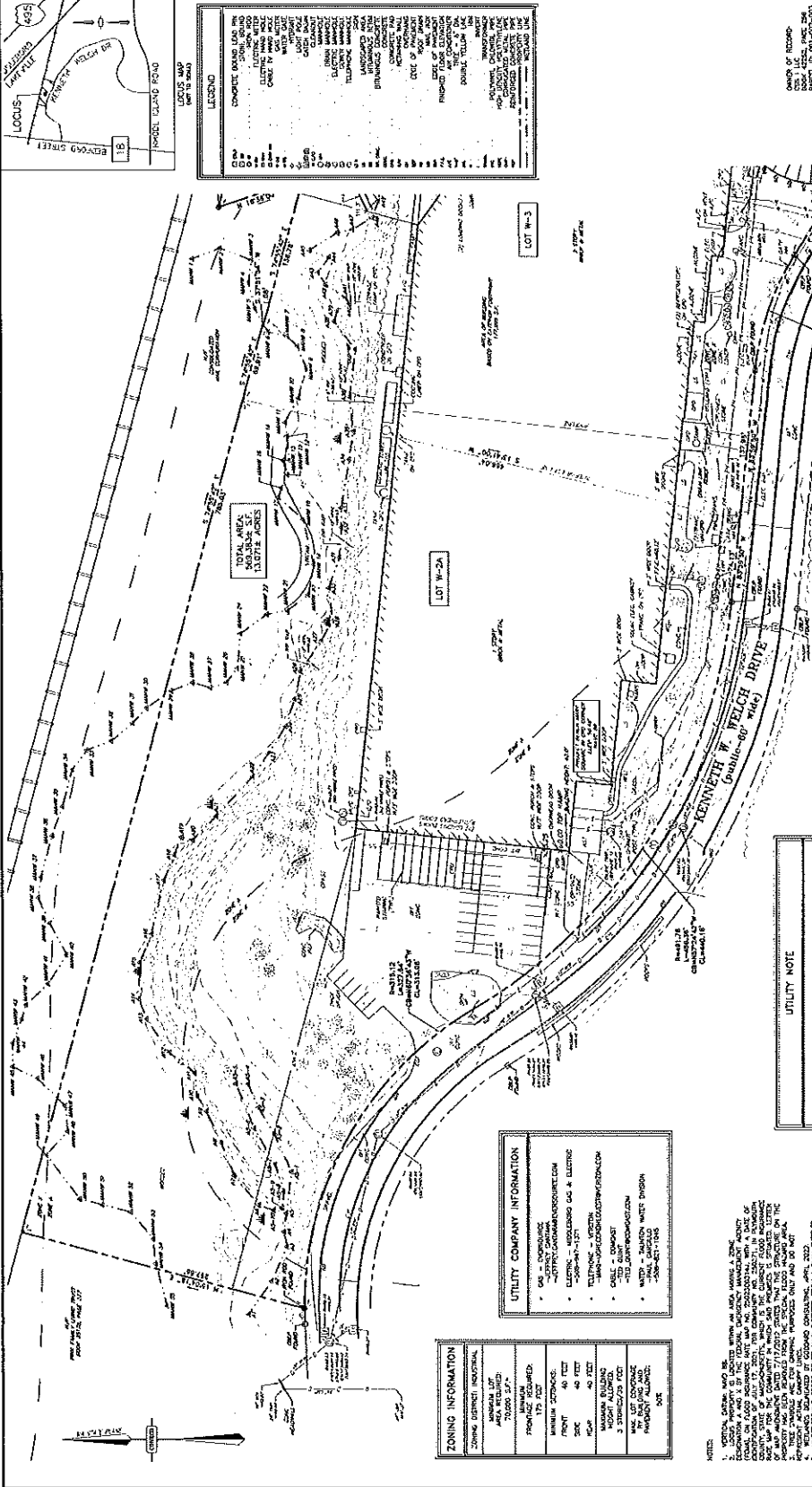


Date: 2/23/2023	GC Job Number: 146-6A	<h2>Notice of Intent USGS of Site</h2>	 0 125 250 Feet	<h2>Figure 4</h2>
			310 Kenneth Welch Drive Lakeville, MA 02347	
			Map: 61, Lot: 2-03	



Appendix C

Plans and Stormwater Calculations



LEGEND

CHANCE DRAINAGE (DASHED LINE)
 CONCRETE DRIVE (SOLID LINE)
 ELECTRIC WIRE (DASHED LINE WITH 'E')
 GAS WIRE (DASHED LINE WITH 'G')
 WATER WIRE (DASHED LINE WITH 'W')
 SEWER WIRE (DASHED LINE WITH 'S')
 TELEPHONE WIRE (DASHED LINE WITH 'T')
 RAILROAD TRACK (SOLID LINE WITH CROSS-TICKS)
 FENCE (DASHED LINE WITH CROSS-TICKS)
 DRIVE (SOLID LINE)
 DRIVE (DASHED LINE)
 DRIVE (DOTTED LINE)
 DRIVE (DASHED LINE WITH CROSS-TICKS)
 DRIVE (DOTTED LINE WITH CROSS-TICKS)
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 DRIVE (DOTTED LINE WITH CROSS-TICKS)
 DRIVE (DASHED LINE WITH CROSS-TICKS)
 DRIVE (DOTTED LINE WITH CROSS-TICKS)

OWNER OF RECORD

310 KENNETH W. WELCH DRIVE
 LAKEVILLE, MA
 01903-0000

EXISTING CONDITIONS

310 KENNETH W. WELCH DRIVE
 LAKEVILLE, MA

RECORDED NO. 019030000
 SHEET NO. 01 OF 02

EPSTEIN GLOBAL

PLAN REFERENCES

1. PLAN NO. 104 OF 2000

CONECO
 Engineers & Scientists
 450 Main Street, Lakeville, MA 01903
 Phone: 978-947-8800
 Fax: 978-947-8801

PROJECT INFORMATION

Project: 310 KENNETH W. WELCH DRIVE
 Owner: VEGA
 Civil Engineer: [Name]
 Electrical Engineer: [Name]

UTILITY NOTE

The location of all underground utilities shown on this plan are the location of available records for the year of utility construction, which may vary from the actual location of the utilities at the time of construction. The utility company should be contacted for the most current utility information. (1-800-344-7233) prior to construction.

DRAIN _____ G.W. _____ C
 SEWER _____ ELECTRIC _____ E
 TELEPHONE _____ GAS _____ G
 WATER _____ FENCE MARK _____ FM

UTILITY COMPANY INFORMATION

- GAS - CONQUEST
- ELECTRIC - CONQUEST
- WATER - WELLS
- SEWER - WELLS
- TELEPHONE - WELLS
- CABLE - COMCAST
- WASTE - WASTE WATER DIVISION
- FENCE - WELLS

ZONING INFORMATION

ZONING DISTRICT: INDUSTRIAL

MINIMUM SETBACKS:
 FRONT: 40 FEET
 SIDE: 40 FEET
 REAR: 40 FEET

MAXIMUM BUILDING HEIGHT ALLOWED: 35 FEET

MAX. LOT COVERAGE BY BUILDING AREA: 75%

MAX. LOT COVERAGE BY TOTAL LOT AREA: 75%

NOTES

1. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
2. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
3. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
4. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
5. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
6. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
7. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
8. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
9. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.
10. VERIFY ALL UTILITIES BEFORE ANY CONSTRUCTION.



THEODORE S. BOWEN, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF MASSACHUSETTS



Project
 310 KENNETH W. WELCH DRIVE
 LAKEVILLE, MA 01903

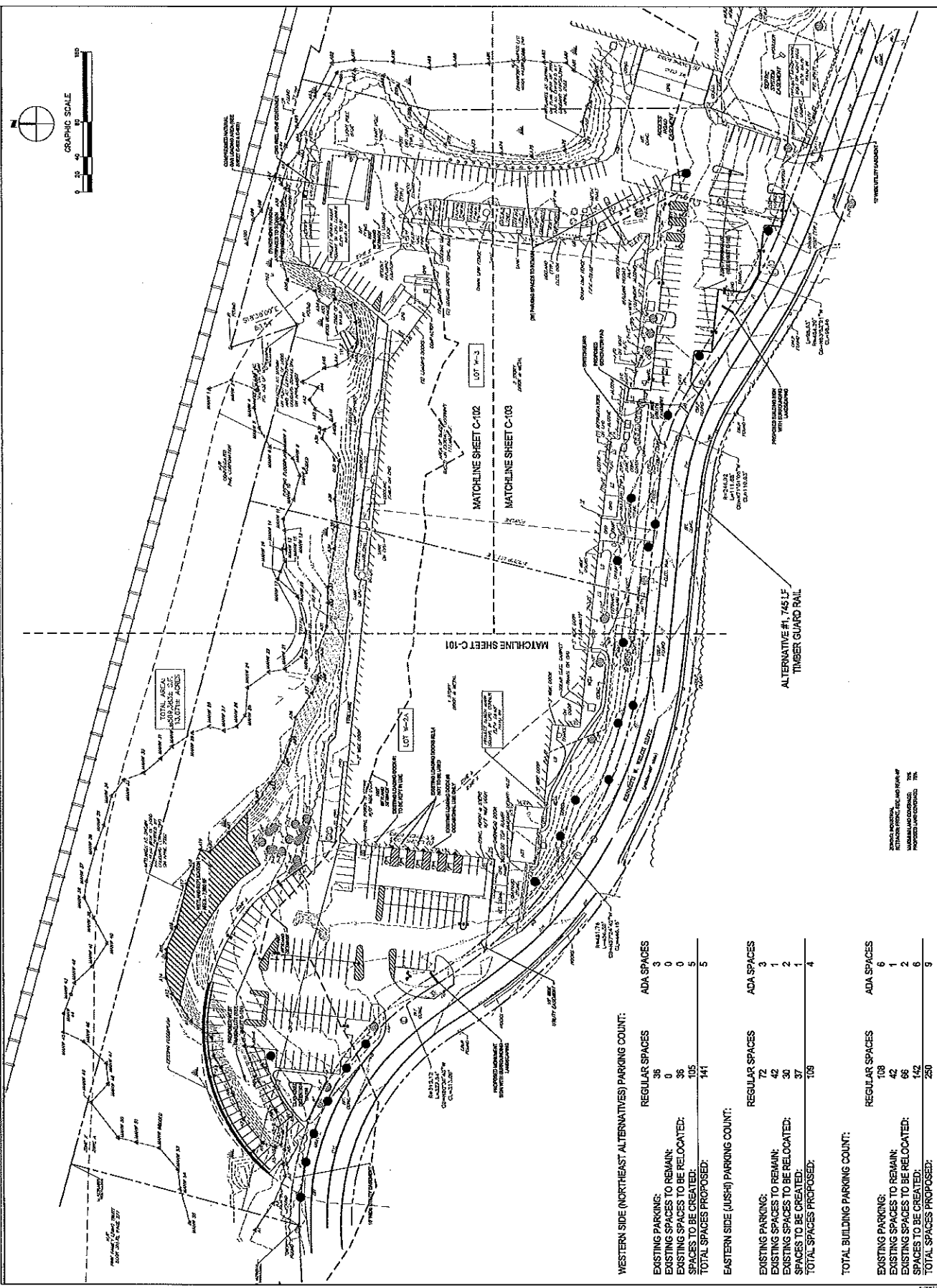
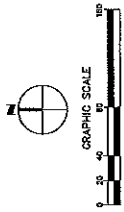
Owner
 VEGA
 100 Main Street
 Lakeville, MA 01903

Civil Engineer
 Theodore S. Bowen, P.E.
 100 Main Street
 Lakeville, MA 01903

Electrical Engineer
 Theodore S. Bowen, P.E.
 100 Main Street
 Lakeville, MA 01903

EXISTING CONDITIONS
 PLAN 1 OF 2

C-011



WESTERN SIDE (NORTHEAST ALTERNATIVES) PARKING COUNT:

	REGULAR SPACES	ADA SPACES
EXISTING PARKING:	36	3
EXISTING SPACES TO REMAIN:	0	0
EXISTING SPACES TO BE RELOCATED:	36	0
SPACES TO BE CREATED:	105	5
TOTAL SPACES PROPOSED:	141	5

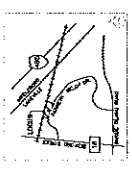
EASTERN SIDE (JUSHI) PARKING COUNT:

	REGULAR SPACES	ADA SPACES
EXISTING PARKING:	72	3
EXISTING SPACES TO REMAIN:	42	1
EXISTING SPACES TO BE RELOCATED:	30	2
SPACES TO BE CREATED:	37	4
TOTAL SPACES PROPOSED:	109	4

TOTAL BUILDING PARKING COUNT:

	REGULAR SPACES	ADA SPACES
EXISTING PARKING:	108	6
EXISTING SPACES TO REMAIN:	42	1
EXISTING SPACES TO BE RELOCATED:	66	2
SPACES TO BE CREATED:	142	6
TOTAL SPACES PROPOSED:	250	9

NOTES: 1. ALL SPACES SHALL BE CONFORMANT WITH THE ADA. 2. ALL SPACES SHALL BE CONFORMANT WITH THE ADA. 3. ALL SPACES SHALL BE CONFORMANT WITH THE ADA.



PROJECT NO.	2217
PROJECT NAME	T. RUSSELL
DATE	11/11/11
DESIGNED BY	A. COUTY
CHECKED BY	D. WEST
DATE	11/11/11

EPSTEIN
 ENGINEERING
 1000 S. GARDEN AVENUE
 SUITE 100
 ANAHEIM, CA 92805
 TEL: 714.933.8800
 FAX: 714.933.8801
 WWW.EPSTEIN-ENG.COM

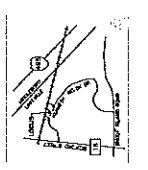
VEGA
 CIVIL ENGINEERING
 1000 S. GARDEN AVENUE
 SUITE 100
 ANAHEIM, CA 92805
 TEL: 714.933.8800
 FAX: 714.933.8801
 WWW.VEGA-ENG.COM

OVERALL SITE LAYOUT PLAN
C-100



Owner: THE RUSSELL COMPANY
Project: THE RUSSELL COMPANY
Site: 1000 S. GARDEN AVENUE, SUITE 100, ANAHEIM, CA 92805
Scale: AS SHOWN
Drawn: A. COUTY
Checked: D. WEST
Date: 11/11/11

NOTES:
 1. ALL DIMENSIONS ARE TO FACE OF CONCRETE FINISH UNLESS OTHERWISE NOTED.
 2. SEE ARCHITECTURAL DRAWINGS FOR BUILDING FINISHES.

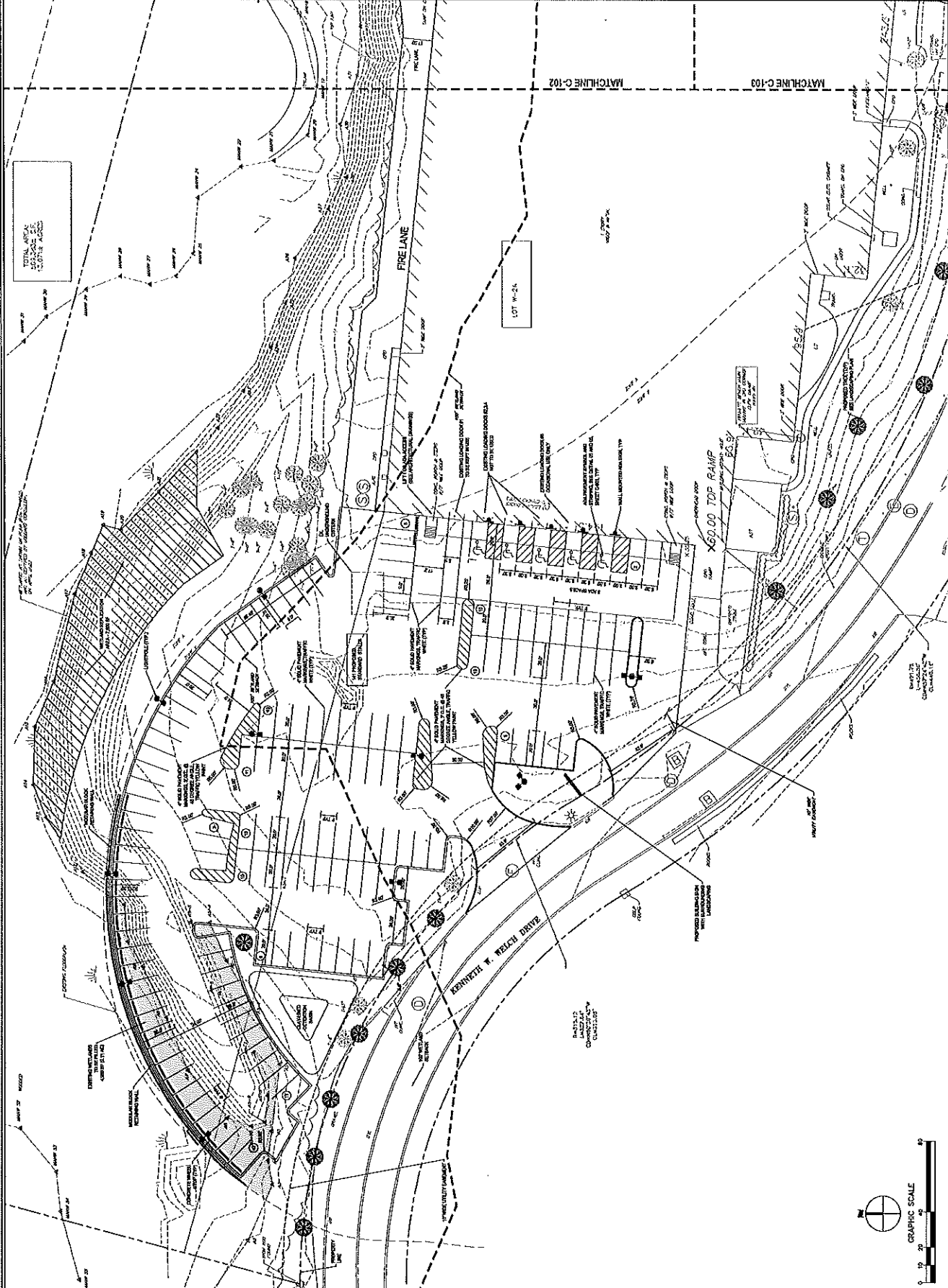


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3	08/15/10	ISSUED FOR PERMITTING
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50	08/15/10	ISSUED FOR PERMITTING

EPSTEIN
 ENGINEERS
 1000 PINE RIDGE DRIVE
 FARMINGTON, CT 06030
 TEL: 860.634.1100
 FAX: 860.634.1101
 WWW.EPSTEIN-ENG.COM

PROJECT NUMBER: 2007-007
PROJECT MANAGER: T. RUSSELL
DATE: 08/15/10
CADREVISION: D. 08/17/10

STIE LAYOUT PLAN
C-101



VEGA

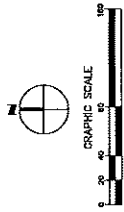
Project:
 1000 PINE RIDGE DRIVE
 FARMINGTON, CT 06030

Owner:
 1000 PINE RIDGE DRIVE
 FARMINGTON, CT 06030

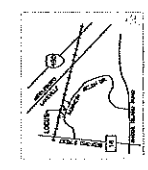
Electrical Engineer:
 1000 PINE RIDGE DRIVE
 FARMINGTON, CT 06030

Civil Engineer:
 1000 PINE RIDGE DRIVE
 FARMINGTON, CT 06030

Graphic Scale:
 0 10 20 40
 FEET



	100% PORTLAND CEMENT CONCRETE FINISH
	100% PORTLAND CEMENT CONCRETE
	100% PORTLAND CEMENT CONCRETE
	100% PORTLAND CEMENT CONCRETE
	100% PORTLAND CEMENT CONCRETE
	100% PORTLAND CEMENT CONCRETE
	100% PORTLAND CEMENT CONCRETE

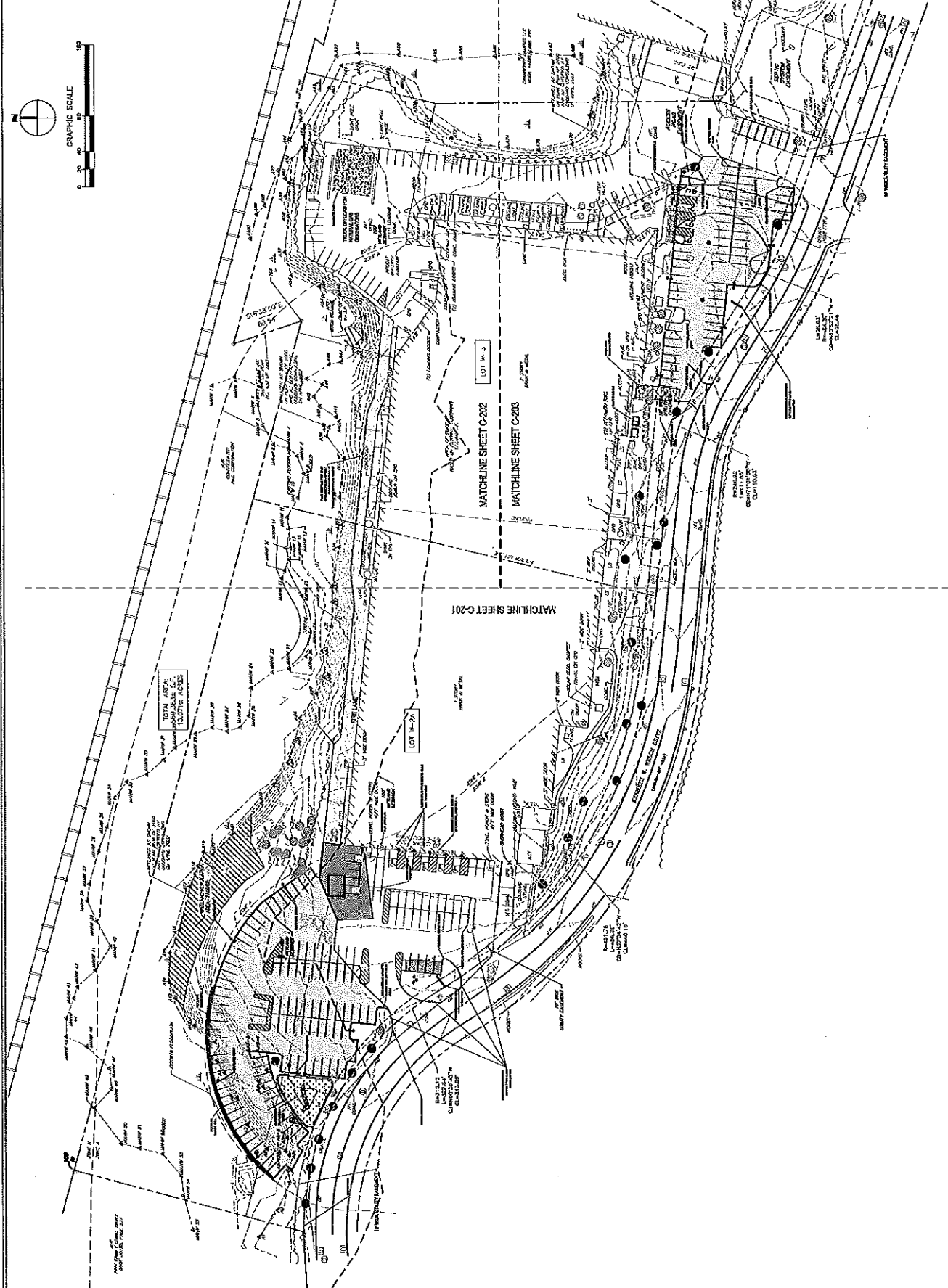


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EPSTEIN
 Civil Engineering
 1000 West 10th Street
 Suite 200
 Oklahoma City, Oklahoma 73106
 Phone: (405) 948-1100
 Fax: (405) 948-1101
 www.epsteininc.com

PROJECT NUMBER: 2017
 PROJECT NAME: T. REBELETT
 DRAWING: A. OUTLET
 CHECKED BY: G. MAST

OVERALL SITE PAVING
 PLAN
C-200



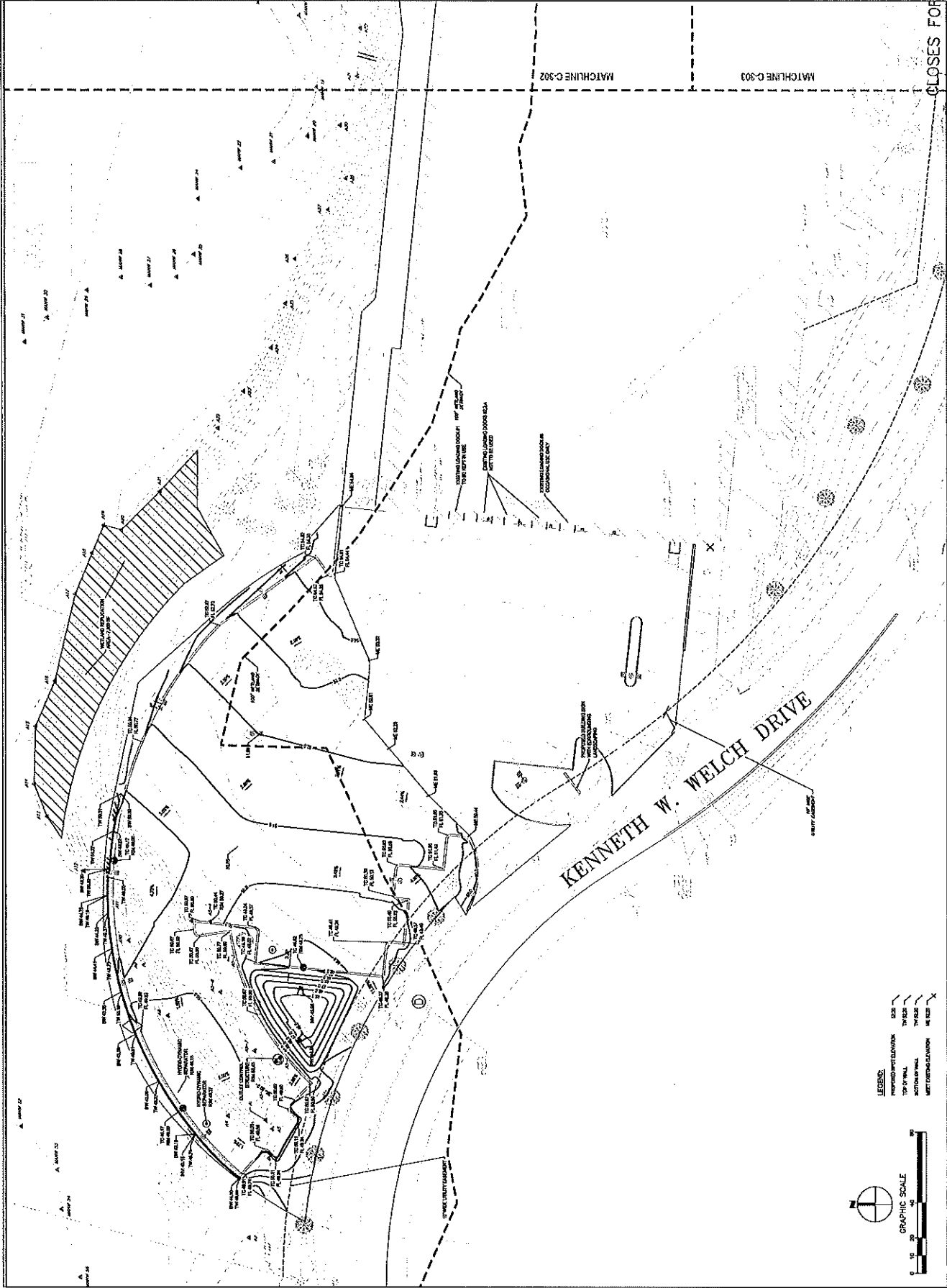
VEGA
 CONSULTING ENGINEERS
 1000 West 10th Street
 Suite 200
 Oklahoma City, Oklahoma 73106
 Phone: (405) 948-1100
 Fax: (405) 948-1101
 www.vega-engineers.com

Electrical Engineer
 Name: [Redacted]
 License No.: [Redacted]
 State: Oklahoma

Civil Engineer
 Name: [Redacted]
 License No.: [Redacted]
 State: Oklahoma

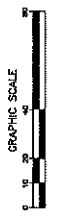
Owner
 Name: [Redacted]
 License No.: [Redacted]
 State: Oklahoma

Project
 Name: [Redacted]
 License No.: [Redacted]
 State: Oklahoma



LEGEND

- PROPOSED BAPT ELEVATION
- TOP OF WALL
- BOTTOM OF WALL
- MEET EXISTING ELEVATION
- EXIST
- TOP FASB
- TOP FASB
- ME B237



VEGA

Civil Engineer

Project: [Project Name]

Owner: [Owner Name]

Electrical Engineer: [Engineer Name]

Civil Engineer: [Engineer Name]

[Project Details]

EPSTEIN

[Company Name]

[Address]

[Phone Number]

[Fax Number]

[Email Address]

[Website]

[Professional Seal]

C-301

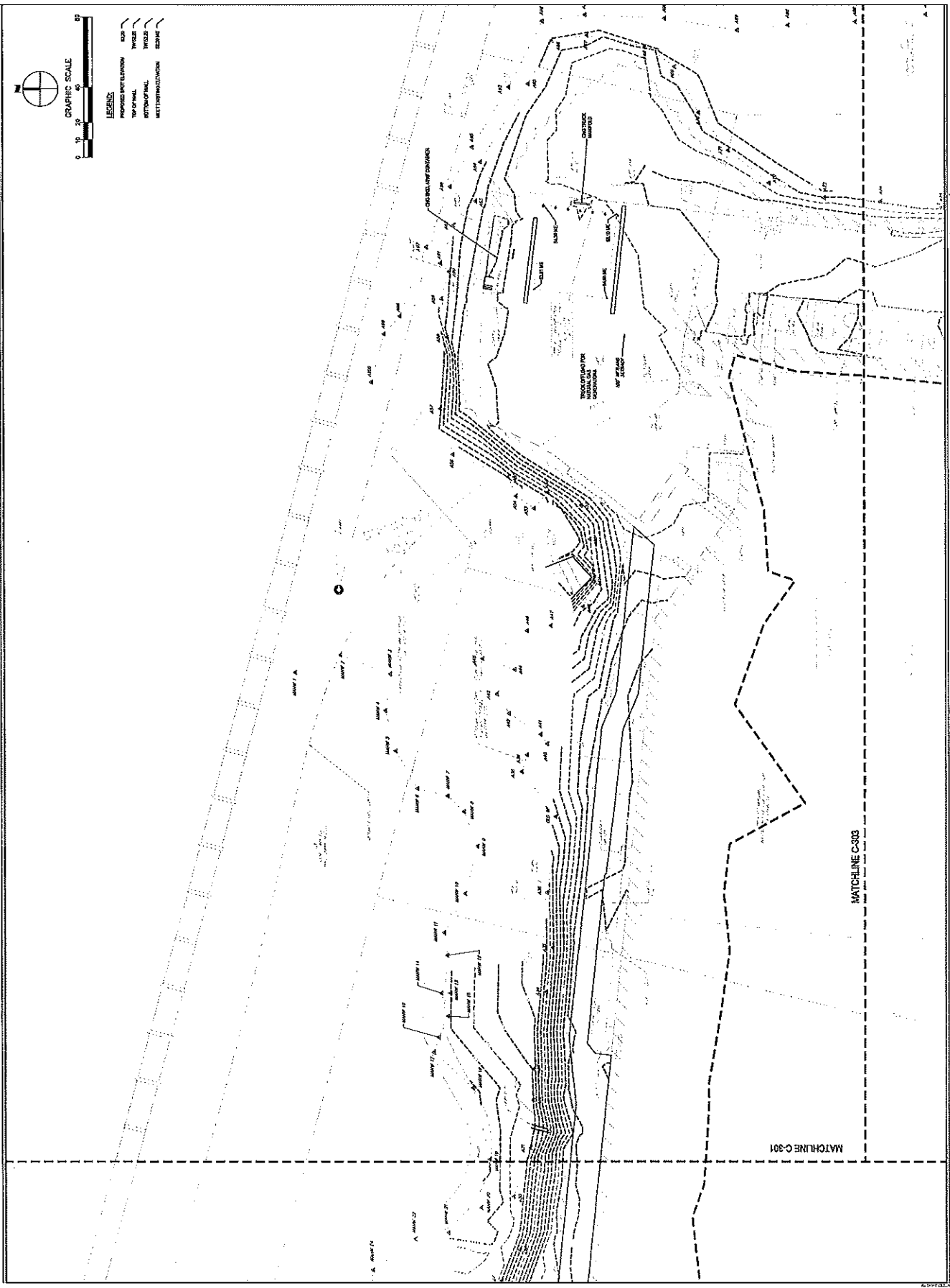
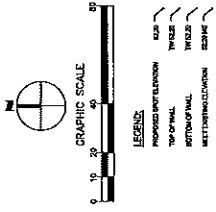
GRADING PLAN

CLOSES FOR

MATCHLINE C-303

MATCHLINE C-302

KENNETH W. WELCH DRIVE



NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10	NO. 11	NO. 12	NO. 13	NO. 14	NO. 15	NO. 16	NO. 17	NO. 18	NO. 19	NO. 20	NO. 21	NO. 22	NO. 23	NO. 24	NO. 25	NO. 26	NO. 27	NO. 28	NO. 29	NO. 30
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EPSTEIN

Project Manager: J. RUSSELL
 Designer: J. RUSSELL
 Checker: A. GUTLEY
 Date: 12/21/2011

PROJECT NUMBER: 2200
 PROJECT MANAGER: J. RUSSELL
 DESIGNER: J. RUSSELL
 DRAWN BY: A. GUTLEY
 CHECKED BY: B. KESTY

DATE: 12/21/2011
 TIME: 10:00 AM
 PROJECT: EPSTEIN

GRADING PLAN

VEGA

Project
 VEGA
 10000 N. 15th Ave., Suite 100
 Aurora, CO 80012
 (303) 426-7000
 www.vega.com

Owner
 VEGA
 10000 N. 15th Ave., Suite 100
 Aurora, CO 80012
 (303) 426-7000
 www.vega.com

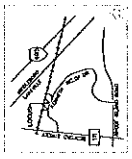
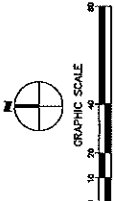
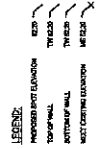
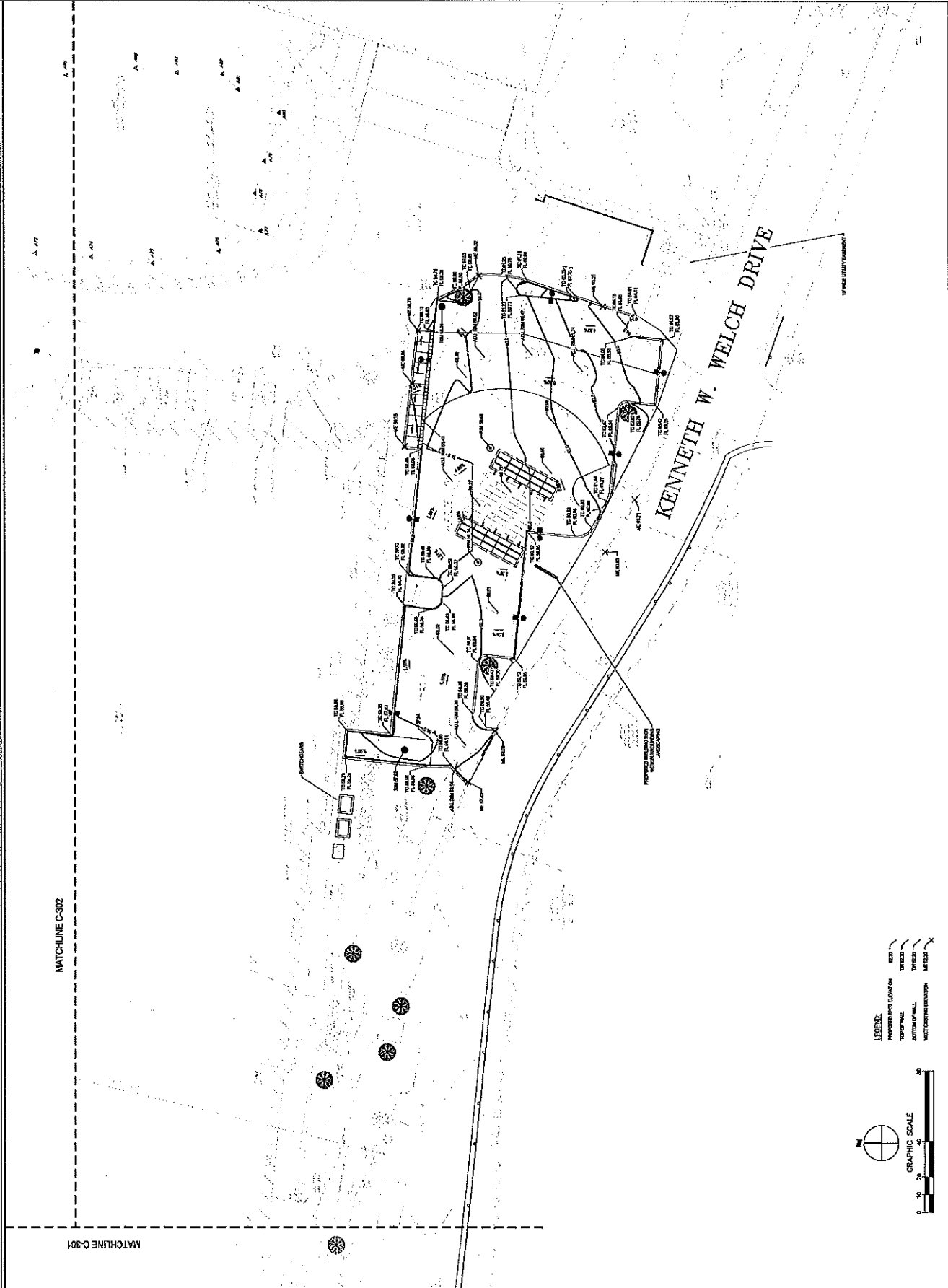
Civil Engineer
 VEGA
 10000 N. 15th Ave., Suite 100
 Aurora, CO 80012
 (303) 426-7000
 www.vega.com

Electrical Engineer
 VEGA
 10000 N. 15th Ave., Suite 100
 Aurora, CO 80012
 (303) 426-7000
 www.vega.com

C-302

MATCHLINE C-302

MATCHLINE C-301



NO.	REVISIONS
1	ISSUED FOR PERMITS
2	ISSUED FOR CONSTRUCTION
3	ISSUED FOR RECORD
4	ISSUED FOR AS-BUILT
5	ISSUED FOR FINAL REVIEW
6	ISSUED FOR FINAL APPROVAL

EPSTEIN

Project: _____
 Location: _____
 Date: _____

PROJECT NUMBER: 2017
 PROJECT MANAGER: T. RUSSELL
 DESIGNER: J. GIBSON
 COMPANY: A. GIBSON
 CHECKED BY: D. GIBSON

GRADING PLAN



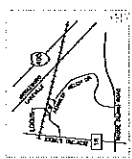
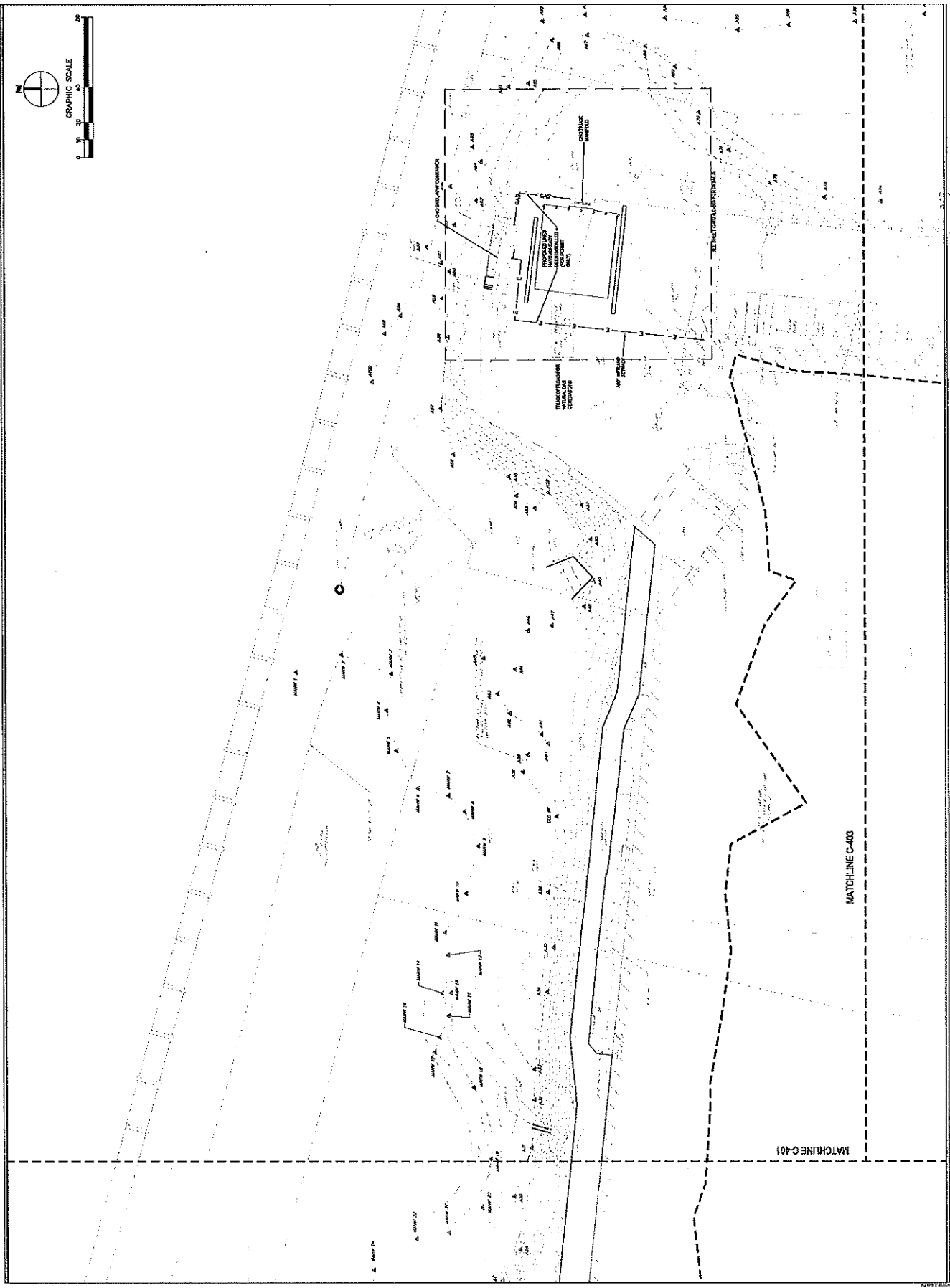
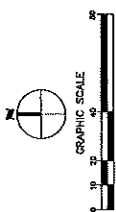
Electrical Engineer
 Name: [Name]
 License No.: [Number]
 State: [State]

Civil Engineer
 Name: [Name]
 License No.: [Number]
 State: [State]

Owner
 Name: [Name]
 Address: [Address]
 City: [City], State: [State]

Project
 Name: [Name]
 Location: [Location]

C-303



DATE:	10/15/2010
PROJECT:	INDUSTRIAL DEVELOPMENT
CLIENT:	INDUSTRIAL DEVELOPMENT
PROJECT NUMBER:	22007
PROJECT MANAGER:	E. RUSSELL
FILE TYPE:	E. RUSSELL
DRAWN BY:	A. SUTLEY
CHECKED BY:	D. SUTLEY

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 ENGINEERS
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 DENVER, CO 80202
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 FAX: 303.733.8801
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PROJECT NUMBER: 22007
 PROJECT MANAGER: E. RUSSELL
 FILE TYPE: E. RUSSELL
 DRAWN BY: A. SUTLEY
 CHECKED BY: D. SUTLEY

SITE UTILITY PLAN



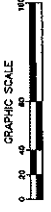
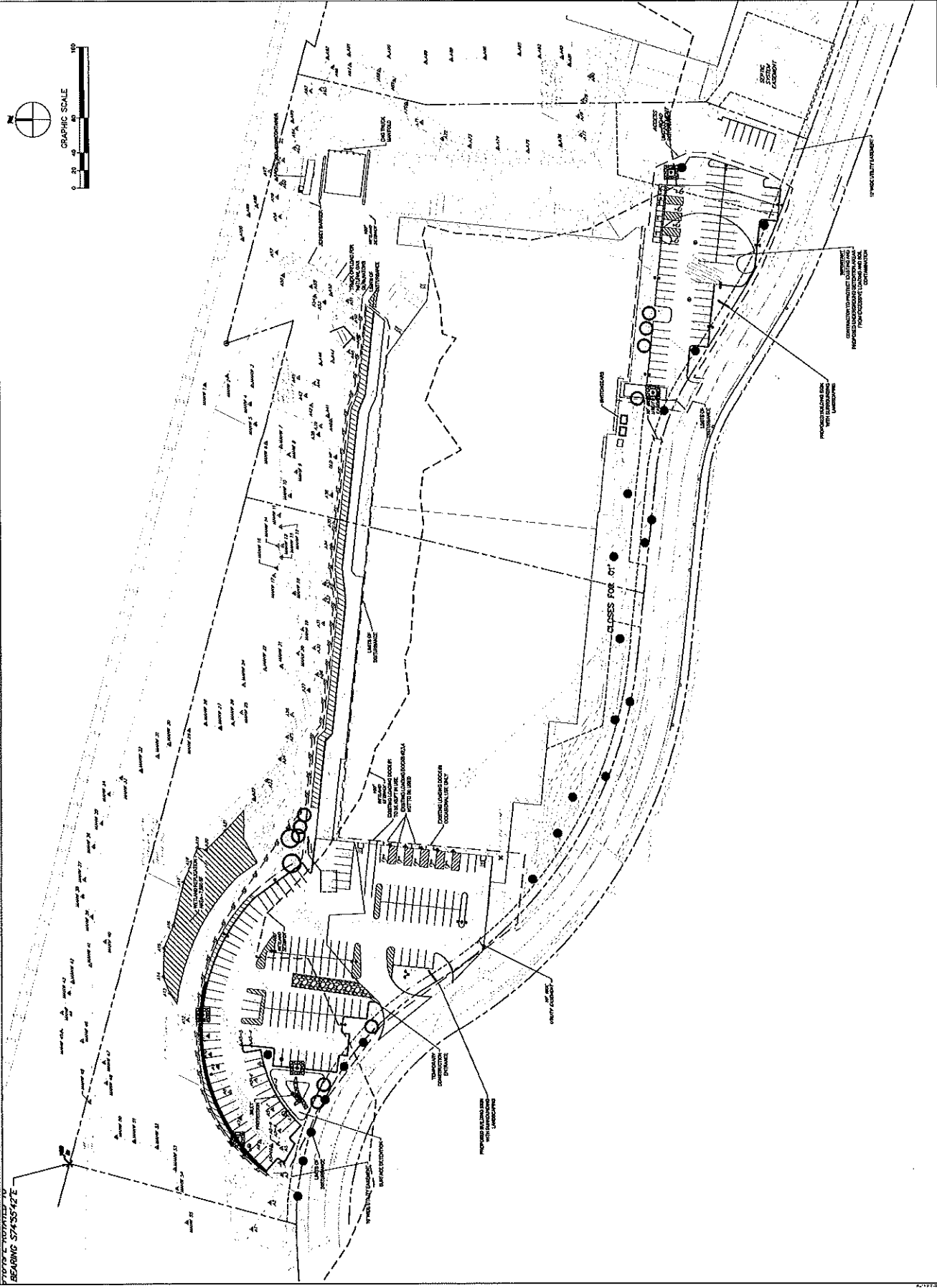
Owner:
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Civil Engineer:
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 DENVER, CO 80202
 PH: 303.733.8800

Electrical Engineer:
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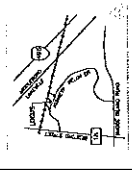
Project:
 VEGA
 10000 W. 10TH AVE.
 DENVER, CO 80202
 PH: 303.733.8800

FIGURE PROVIDED TO BEARING STATION 42E



LEGEND

	TEMPORARY PROTECTION WITH DRAINAGE
	SLOPE PROTECTION
	SILT FENCE
	VEGETATION PLANT PROTECTION
	TRAIL PROTECTION
	STORMWATER DRAINAGE
	SILT FENCE



PROJECT NUMBER:	2717
PROJECT MANAGER:	T. RUSSELL
DATE:	11/20/01
DESIGNED BY:	D. HART
CHECKED BY:	D. HART

EPSTEIN

10000
1000
100
10
1

PROJECT NUMBER:	2717
PROJECT MANAGER:	T. RUSSELL
DATE:	11/20/01
DESIGNED BY:	D. HART
CHECKED BY:	D. HART

OVERALL EROSION AND SEDIMENT CONTROL PLAN

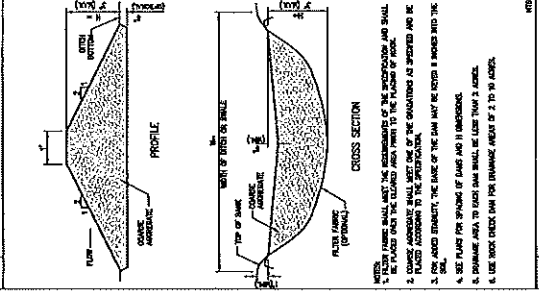
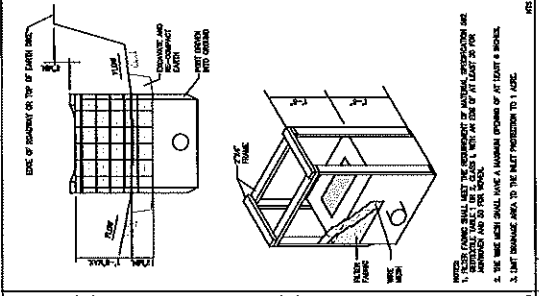
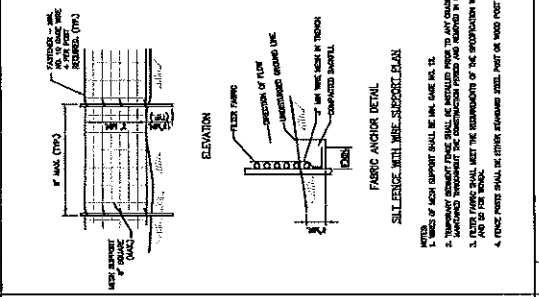
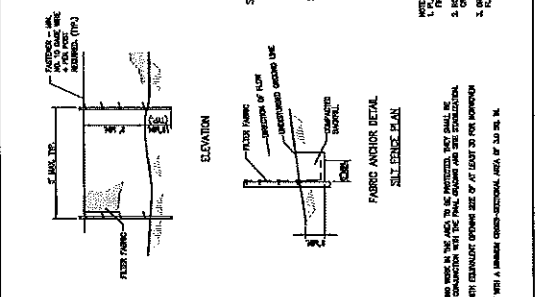
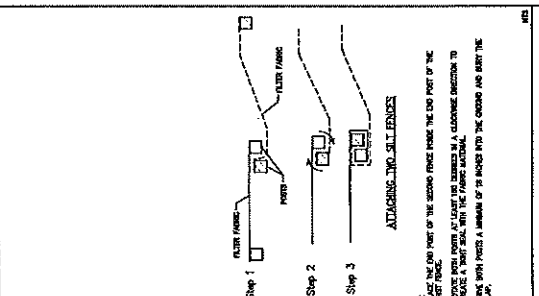
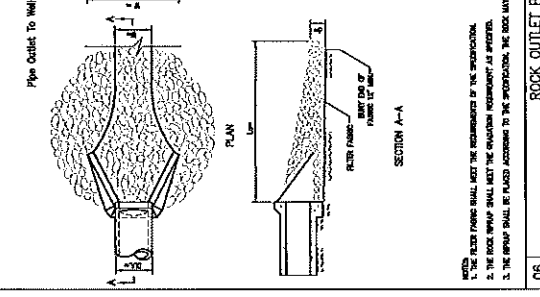
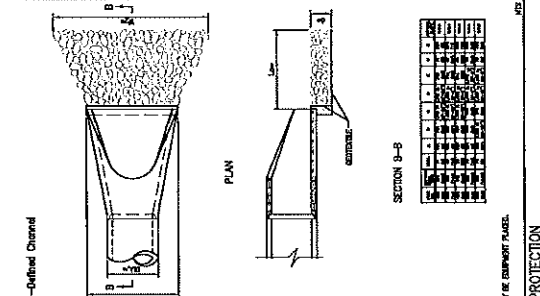
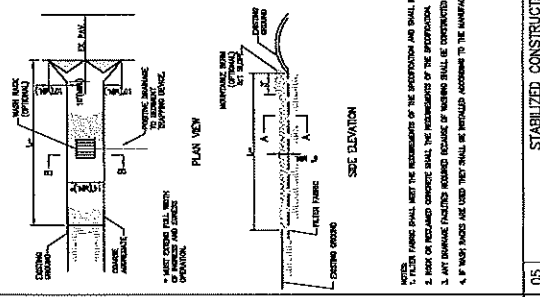
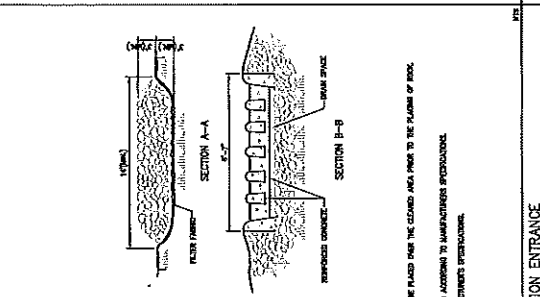
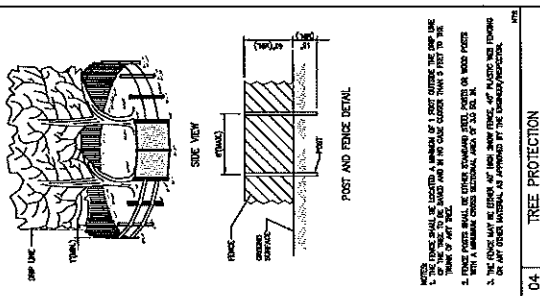
C-500



Owner:
 PROJECT: [unreadable]
 ADDRESS: [unreadable]
 CITY: [unreadable]

Chief Engineer:
 NAME: [unreadable]
 ADDRESS: [unreadable]
 CITY: [unreadable]

Electrical Engineer:
 NAME: [unreadable]
 ADDRESS: [unreadable]
 CITY: [unreadable]



03 ROCK CHECK DAM-COARSE AGGREGATE 02 INLET PROTECTION - FABRIC DROP 01 FABRIC ANCHOR DETAIL 05 STABILIZED CONSTRUCTION ENTRANCE 04 TREE PROTECTION

06 ROCK OUTLET PROTECTION 07 SILT FENCE

08 PIPE OUTLET TO WELL-OUTLET CHANNEL

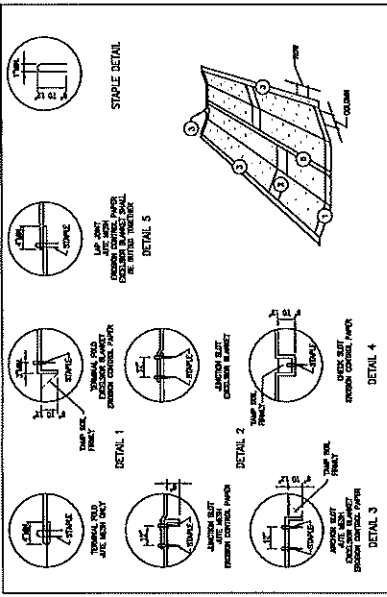
09 POST AND FENCE DETAIL

10 ATTACHING TWO SILT FENCES

11 FABRIC ANCHOR DETAIL

12 FABRIC ANCHOR DETAIL

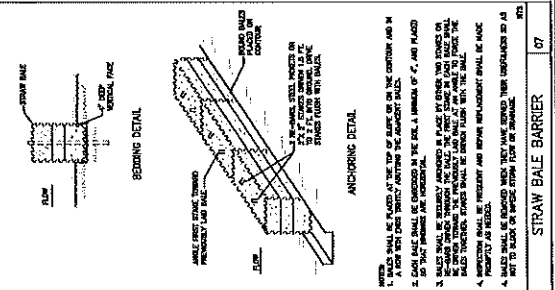
13 ATTACHING TWO SILT FENCES



NOTES:

1. ALL EROSION CONTROL FABRIC SHALL BE STAPLED TO THE SUBSTRATE WITH EACH END OF STAPLES OF ANGLE THAT IS NOT LESS THAN 45 DEGREES TO THE FABRIC. STAPLES SHALL BE STAPLED TO THE SUBSTRATE WITH EACH END.
2. EROSION CONTROL FABRIC SHALL BE SEWN TOGETHER AT CORNERS AND ALONG EDGES.
3. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER BRIDGE SURFACE TO NOT EXCEED 1/2" TO 1" THICKNESS. EROSION CONTROL FABRIC SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.
4. ALL TYPICAL DIPS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

EROSION BLANKET



STRAW BALE BARRIER

NOTES:

1. STRAW BALE SHALL BE PLACED ON TOP OF SAND OR ON THE COTTON AND IN A ROW WITH OTHER STRAW BALE ANCHORING STRIPS.
2. EACH BALE SHALL BE CHECKED IN THE END, A MINIMUM OF 4', AND PLACED IN A ROW WITH OTHER STRAW BALE ANCHORING STRIPS.
3. STRAW BALE SHALL BE CHECKED ANCHORED IN PLACE BY OTHER TWO BALE OR MORE STRAW BALE THROUGH THE BALE. THE FIRST STRAW BALE SHALL BE CHECKED THROUGH THE BALE. THE SECOND STRAW BALE SHALL BE CHECKED THROUGH THE BALE. THE THIRD STRAW BALE SHALL BE CHECKED THROUGH THE BALE.
4. ANCHORING STRIP SHALL BE PLACED AT THE TOP OF EACH END OF THE COTTON AND IN A ROW WITH OTHER STRAW BALE ANCHORING STRIPS.
5. STRAW BALE SHALL BE CHECKED WHEN THEY HAVE BECOME THEIR USUAL COLOR AND AS NOT TO BLACK OR WHITE STRIP FOR ANCHORING.

Electrical Engineer
 Name: [Redacted]
 License No.: [Redacted]

Civil Engineer
 Name: [Redacted]
 License No.: [Redacted]

Owner
 Name: [Redacted]
 License No.: [Redacted]

Project
 Name: [Redacted]
 License No.: [Redacted]

VEGA

STEIN

STEIN

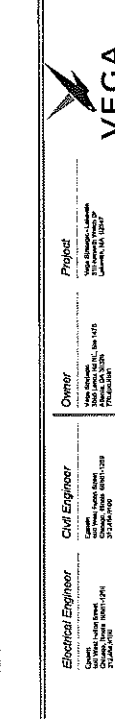
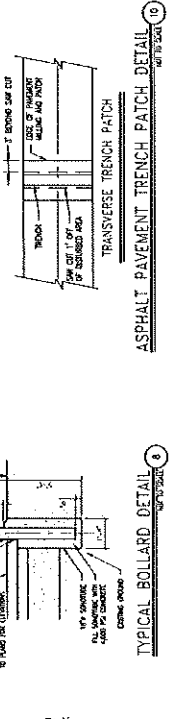
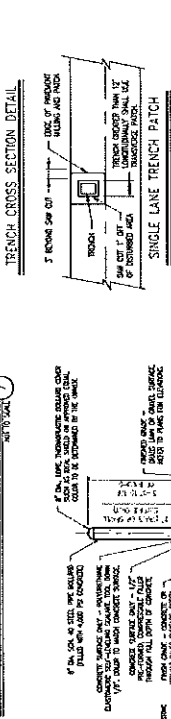
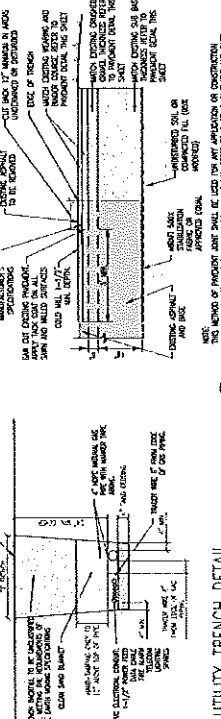
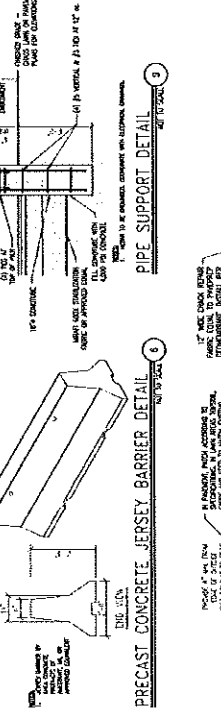
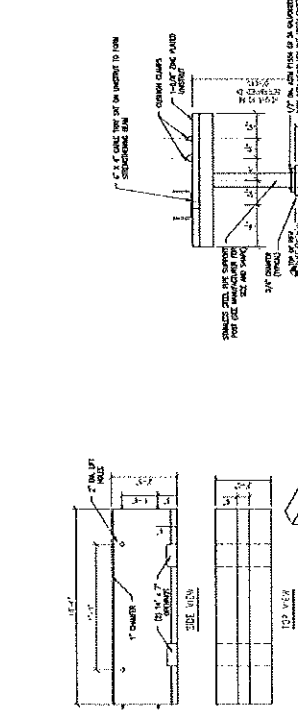
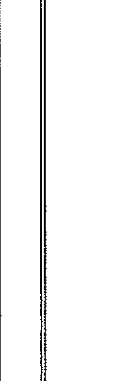
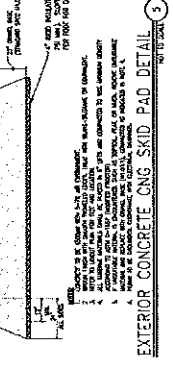
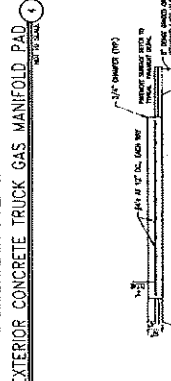
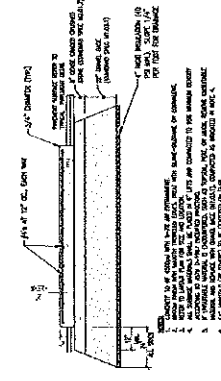
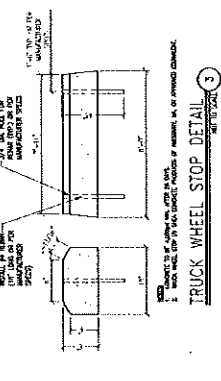
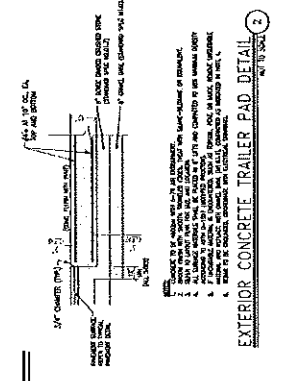
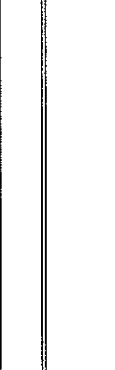
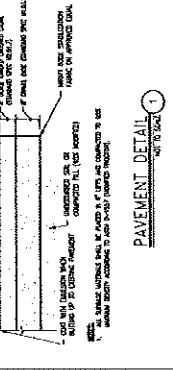
STEIN

SITE/EARTHWORK SPECIFICATIONS

1. PRIOR TO THE START OF THE WORK, A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE CONTRACTOR, OWNER, AND ALL OTHER AGENCIES INVOLVED IN THE PROJECT TO DISCUSS THE PROJECT AND THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES INVOLVED IN THE PROJECT.
2. ALL EXISTING UTILITIES SHALL BE IDENTIFIED AND MARKED PRIOR TO THE START OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES. ANY UNIDENTIFIED UTILITIES SHALL BE STOPPED IMMEDIATELY AND THE LOCATION SHALL BE REPORTED TO THE ENGINEER.
3. ALL EXISTING UTILITIES SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE PROJECT. ANY UTILITIES THAT ARE DAMAGED OR DISRUPTED SHALL BE REPAIRED TO ORIGINAL CONDITION OR BETTER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES INVOLVED IN THE PROJECT.
4. ALL EXISTING UTILITIES SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE PROJECT. ANY UTILITIES THAT ARE DAMAGED OR DISRUPTED SHALL BE REPAIRED TO ORIGINAL CONDITION OR BETTER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES INVOLVED IN THE PROJECT.
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9. ALL EXISTING UTILITIES SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE PROJECT. ANY UTILITIES THAT ARE DAMAGED OR DISRUPTED SHALL BE REPAIRED TO ORIGINAL CONDITION OR BETTER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES INVOLVED IN THE PROJECT.
10. ALL EXISTING UTILITIES SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE PROJECT. ANY UTILITIES THAT ARE DAMAGED OR DISRUPTED SHALL BE REPAIRED TO ORIGINAL CONDITION OR BETTER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES INVOLVED IN THE PROJECT.

ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
1	1" CONC. CURB	LF	100	
2	1" CONC. CURB	LF	100	
3	1" CONC. CURB	LF	100	
4	1" CONC. CURB	LF	100	
5	1" CONC. CURB	LF	100	
6	1" CONC. CURB	LF	100	
7	1" CONC. CURB	LF	100	
8	1" CONC. CURB	LF	100	
9	1" CONC. CURB	LF	100	
10	1" CONC. CURB	LF	100	

CONCRETE SHALL BE PLACED AND COMPACTED TO THE SPECIFIED FINISH. ALL CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS. ALL CONCRETE SHALL BE TESTED FOR STRENGTH AND COMPACTION. ALL CONCRETE SHALL BE PLACED AND COMPACTED TO THE SPECIFIED FINISH. ALL CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS. ALL CONCRETE SHALL BE TESTED FOR STRENGTH AND COMPACTION.



NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITS	10/1/20
2	REVISED FOR COMMENTS	10/15/20
3	REVISED FOR COMMENTS	10/20/20
4	REVISED FOR COMMENTS	10/25/20
5	REVISED FOR COMMENTS	10/30/20
6	REVISED FOR COMMENTS	11/5/20
7	REVISED FOR COMMENTS	11/10/20
8	REVISED FOR COMMENTS	11/15/20
9	REVISED FOR COMMENTS	11/20/20
10	REVISED FOR COMMENTS	11/25/20

ENGINEERING
 TCHWALEY ENGINEERS, P.L.C.
 300 EAST 10TH AVENUE
 SUITE 200
 DENVER, CO 80202
 (303) 733-1100
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PROJECT INFORMATION
 PROJECT NAME: COLD STORAGE SOLUTIONS
 PROJECT NUMBER: 22177
 PROJECT LOCATION: 17 HAVENHURST DRIVE, TOWN OF LAUREL, MARYLAND
 PROJECT OWNER: T. HANCOCK
 PROJECT ARCHITECT: A. CONLEY
 PROJECT ENGINEER: D. JENY

SITE DETAILS
 SHEET NO. C2.0
 SHEET TOTAL: 10

VEGA
 VEGAFLEX
 VEGA 61
 VEGA 62
 VEGA 63
 VEGA 64
 VEGA 65
 VEGA 66
 VEGA 67
 VEGA 68
 VEGA 69
 VEGA 70

EPSTEIN
 17 HAVENHURST DRIVE
 TOWN OF LAUREL, MARYLAND 20708
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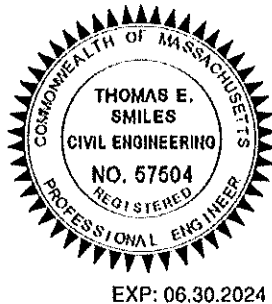
Stormwater Management Report

for

Vega Strategic
Parking Lot Improvements
310 Kenneth W. Welch Drive
Lakeville, MA 02347



January 20, 2023



A handwritten signature in black ink, appearing to read "Thomas E. Smiles".

Thomas E. Smiles, P.E.
MA License Number: 57504

A. Epstein and Sons International, Inc.
600 West Fulton Street
Chicago, Illinois 60661-1199

(312) 454-9100
(312) 559-1217 fax

Stormwater Management Report

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Appendix

- Figure 1 - Site Location Map
- Figure 1.A – Tenant Location Map
- Soils Map
- Infiltration Tests

Stormwater Management Report

Project Summary

Vega Strategic owns the building at 310 Kenneth W. Welch Drive in Lakeville, Massachusetts located east of Bedford St. and south of I495, Blue Star Memorial Highway (See Figure 1 – Site Location Map). The site consists of 13.07 acres (569,385 square feet) and is zoned Industrial. Vega Strategic leases portions of the building to three (3) separate tenants – Northeast Alternatives, Seatrade, and Jushi Holdings. (See Figure 1.A – Tenant Location Map). There are existing parking areas on the site for each business, but additional parking is required to accommodate the employees so that they don't have to park off site or on the street. Vega Strategic is proposing to enlarge each parking area to provide a total of 236 parking stalls on site, to accommodate the anticipated employee count, with the flexibility to increase to 250 spaces as tenant parking requirements increase. The proposed improvements will comply with the *City of Lakeville By-Laws* and the *Massachusetts Stormwater Management Standards*. The site is currently zoned light industrial use.

Existing Conditions

The existing ground cover consists of approximately 95,410 square feet of wetlands (17%), 98,030 square feet of pavement (17%), 178,535 square feet of building (31%), and 197,410 square feet of pervious area (35%). Within the developed area of the site, including the proposed area of improvements, the soil types consist of Urban Land Complex, 0 to 8 percent slope (soil group B), Raynham Silt Loam, 0 to 3 percent slope (soil group C/D), and Aquepts, 0 to 3 percent slope (soil group D). Beyond the existing and proposed developed areas, the remainder of the site consists of a variety of soil types including, Udipsammets, Freetown Muck, Freetown and Swansea Coarse Sands, and Carver Loamy Coarse Sand. (See Figure 2 – Soils Map).

The allowable velocity for design flows over these soils is 3.0 feet/second for silt loam as indicated in USDA Part 654 National Engineering handbook, Chapter 8.

Stormwater Management Report

Infiltration Testing Results

Goddard Consulting LLC performed infiltration testing on December 8th and 9th of 2022. In the east parking lot, a falling head test was conducted at TP#8. The ground was so impervious that it would not hold any water. A second test was done at TP#12 and the resulting infiltration rate was 58.6 inches per hour. Using a factor of Safety of 2.0, the design infiltration rate to be used will be 29.3 inches per hour. for the west parking lot, seven (7) test pits and three (3) test bores were conducted within prospective areas for detention and infiltration. None of these tests resulted in infiltration that was above the minimum acceptable rate of 0.17 inches per hour. it was concluded that infiltration is not an option in the west parking lot. The results of the infiltration testing can be found in the Appendix

The site is generally level in an east-to-west direction. From the existing building, the site slopes away in all directions with the high point being at the edge of the building.

Proposed Conditions

Considering the site as a whole, the building area will remain at the same existing square footage of approximately 178,535 square feet. The ground cover will consist of approximately 154,285 square feet of pavement, 146,720 square feet of pervious and landscaped areas, and the remaining wetlands at 89,845 square feet. In order to achieve the required parking for Northeast Alternatives and Seatrade, the west parking lot will be expanded to an extent that will require filling of approximately 4,950 square feet of wetlands.

The proposed improvements will consist of converting a portion of the west loading dock area to an employee parking lot for Northeast Alternatives and Seatrade who are occupying the west half of the building. The existing pavement will remain and additional pavement will be added to the west to maximize the parking count. The east circular parking area at the east end of the site will be reconfigured and enlarge for Jushi Holdings who is occupying a portion of the east half of the

Stormwater Management Report

building. The improvements and drainage conditions are further described as follows:

West Parking Area (Tenant -Northeast Alternatives and Seatrade)

The west parking area is divided into two (2) separate drainage areas. One is the existing pavement to remain that sheet drains to the southwest into Kenneth W. Welch Drive. This drainage area will remain the same and continue to discharge overland into Kenneth W. Welch Drive. The second drainage area consists of the new pavement that is being added to the west, which will drain overland south and west. Stormwater runoff will be intercepted by perimeter curbs and directed into deep sump curb inlets that will collect and pretreat the runoff before routing it to the proposed detention basin. After the detention basin, runoff enters the outlet control structure which reduces flow to below pre-developed conditions, then to a hydro-dynamic separator, then outlets to the existing wetland at the edge of the parking lot. The outlet pipe of the underground detention basin will restrict the flow to less than the pre-development discharge from the site.

East Parking Area (Tenant - Jushi Holdings)

The east parking area is located south of the east end of the existing building. This parking lot, being an enlargement to the existing circular parking area, will maintain the original drainage pattern. Stormwater will drain overland to proposed inlets that will collect the runoff and drain it to an underground detention system. The existing arch-type detention system will remain, and additional arch chambers will be added to account for the additional required storage volume. Infiltration will be utilized to retain all stormwater runoff and direct it into the ground below.

Stormwater Management Report

Compliance with the Massachusetts Stormwater Management Standards

The west parking lot addition will discharge westward toward the existing wetland area, and the east parking lot addition will infiltrate into the surrounding soils, complying with the requirements of the Massachusetts Stormwater Management Standards as described below:

Standard 1 – No Untreated Discharges or Erosion to Wetlands

West parking lot

Runoff from the west parking lot is treated by both deep sump catch basins and a hydrodynamic separator, removing more than 80% TSS before discharging to the wetlands. Runoff will also not exceed the pre-developed rate of runoff or volume for the 2-year, 10-year and 100-year 24-hour storm events, and velocity will not exceed 2 FPS for the 10-year 24-hour storm event. This is achieved by designing the outlet pipe to have no more than a 2% slope, and adding a 10 foot wide level spreader per volume 2, chapter 2, of the Massachusetts Stormwater Handbook at the outlet location.

East parking lot

Although none of the runoff from the east parking lot is directed to any wetlands, Stormwater is treated by deep sump catch basins and an infiltration basin before entering the soil.

Standard 2 – Peak Rate Attenuation

West parking lot

The proposed stormwater management system has been designed so that the post-development peak discharge rates do not exceed the pre-development peak discharge rates for each of the 2-year, 10-year, and 100-year, 24-hour storm events utilizing TR-20 hydrograph modelling. In order to control the post-development runoff, a detention basin is placed on the southwest section of the parking lot and is connecting to an outlet control structure. Pre-developed flows for the 2-year, 10-year and 100-year, 24-hour storms are 1.33 CFS, 2.39 CFS, and 3.77 CFS, respectively. Post-developed flows for the

Stormwater Management Report

2-year, 10-year and 100-year, 24-hour storms are 1.30 CFS, 2.32 CFS, and 3.71 CFS, respectively.

East parking lot

All pre-developed flows within the existing parking lot area were infiltrated into the soil. With the addition pavement, the infiltration system needed to be expanded to continue to allow all parking lot runoff to infiltrate into the soil. There is no runoff leaving the site from the east parking lot.

Standard 3 – Stormwater Recharge

West parking lot

For the west parking lot, it was found a majority of the area had no infiltration capabilities, specifically at the proposed location of the detention basin. Due to these factors, it is not possible to infiltrate any runoff from the west parking lot.

East parking lot

Near the existing infiltration bed in the east parking lot, it was found that at a depth of 84" the infiltration rate was 29.3 inches per hour, well above the minimum 0.17 inches per hour infiltration rate provided in Volume 3, Chapter 1, of the Massachusetts Stormwater Management Standards for type B soils. Table 2.3.2 shows that the recharge volume required is 944 CF (see in Calculations) and must drain within a 72 hour period. 100% of the Stormwater runoff from the parking lot is infiltrated into the soil as Stormwater recharge.

Standard 4 – Total Suspended Solids Removal

Prior to discharging into the ground through infiltration or discharging off-site, the storm sewer and detention system has been design to remove a minimum of 80% of the annual average post-construction load of total suspended solids (TSS).

West parking lot

The proposed parking lot area will flow through a deep sump catch basin at each Stormwater collection location, removing 25% of TSS. After passing through the detention basin, the discharge flows through a hydrodynamic separator which removes 80% of TSS, removing a total of 85% of the

Stormwater Management Report

TSS (see in Calculations). There is no TSS removal in the normally-dry surface detention basin. When the Stormwater is discharged to the wetlands, the TSS removed is 85%.

East parking lot

The center of the proposed parking lot area will flow through an existing "First Defense" hydrodynamic separator which removes 80% of TSS, then directly to the infiltration bed. The remainder of the parking lot area will also flow through a "First Defense" hydrodynamic separator at each inlet location which removes 80% TSS, then use tailwater pressure to flow through one of two manholes then into the infiltration bed. Because it is possible that stormwater could remain in the storm sewer between the additional hydrodynamic separators and the manholes, the manholes have no bottom to allow for infiltration of the excess Stormwater that does not reach the infiltration bed. Using a factor of Safety of 2, The open-bottom catch basins and infiltration basin all have a design infiltration rate of 29.3 inches per hour, and will remove 80% of the remaining TSS, totaling 96% TSS removal (see in Calculations)

Standard 5 – Higher Potential Pollutant Load

The site is a land use with higher potential of pollutant load due to it being light industrial. This requires the water quality volume to equal 1.0 inch of runoff times the total impervious area. Suitable treatments for this standard include deep sump catch basins, hydrodynamic separators, and infiltration basins, which are all used on the site to treat and detain Stormwater runoff.

West parking lot

The impervious area of the west parking lot is 1.19 acres, which requires 4,320 CF of storage (see in Calculations). Because only 25% of TSS have been removed from the runoff when it enters the detention basin, the basin is lined with a 3-foot thick clay layer to minimize soil contamination as required by Volume 1, Chapter 1, of the Massachusetts Stormwater Management Standards.

East parking lot

The impervious area of the east parking lot is 0.54 acres, which requires 1,960 CF of storage (see in Calculations). All runoff entering the infiltration bed has had a minimum of 80% of TSS removed.

Stormwater Management Report

Because more than the 44% of TSS has been removed, the bed does not require any additional lining per Volume 1, Chapter 1, of the Massachusetts Stormwater Management Standards.

Standard 6 – Discharges Within The Zone II or Interim Wellhead Protection Area

This standard does not apply because the site is not within Zone II or the Interim Wellhead Protection Area

Standard 7 – Maximum Extent Practicable

All Stormwater management measures are provided to the maximum extent practicable.

West parking lot

In the west parking lot, deep sumps are used in strategic locations to capture the maximum amount of storm runoff and remove 25% of the TSS in the process. The detention basin is sized to contain up to the 100-year storm event and release it at a lower flow than the 2-year, 10-year, and 100-year pre-development release rates. The hydrodynamic separator is also placed after the detention basin to remove 80% of any remaining TSS from the catch basins, or anything that enters the system via the detention basin. Due to the location of the only proposed detention basin, it is not possible to infiltrate any runoff directly into the soil.

East parking lot

All three structures that capture Stormwater runoff in the east parking lot are also hydrodynamic separators, which insures that all runoff is treated for 80% TSS removed. The infiltration is sized to hold the required 1,960 CF of water quality storage, and also allows for all runoff to infiltrate at a rate of 2.55 CFS.

Standard 8 – Erosion and Sediment Control

Sediment and Erosion Control practices are to be used during this project, including straw bale barriers, inlet and outlet protection, silt fences and a temporary stabilized construction entrance.

Stormwater Management Report

Standard 9 – Operation and Maintenance

An Operation and Maintenance plan was created for this project and includes information on the maintenance of the deep sump catch basins, detention and infiltration basin, and hydrodynamic separators. In short, the catch basins and detention basins will need to be checked for debris after each heavy storm, all debris and sediments to be vacuumed out of the catch basins once it reaches a level half way between the bottom of the structure and lowest invert, and all debris and sediments to be removed from the detention basin once runoff has subsided and when the sediment level is over 12". The hydrodynamic separators need to be inspected quarterly, floatables to be removed quarterly, and sediments to be removed once per year.

Standard 10 – Illicit Discharges

This standard does not apply because there are no illicit discharges into the stormwater management system.

Stormwater Management Report

Pipe and Inlet Design Criteria

Both the storm sewer pipe and inlets are designed for a 10-year storm frequency. Runoff to each inlet is calculated using the Rational Method, $Q = CIA$, where Q is the runoff in cubic feet per second, C is the composite runoff coefficient, I is the rainfall intensity in inches per hour, and A is the drainage area in acres. Inlets are spaced to accept the runoff for the 10-year storm frequency with a maximum ponding depth over the inlet of no more than 3 inches.

The storm sewer pipes are designed for gravity flow. Gravity flow through the pipes is calculated using Manning's Equation, $Q = 1.486AR^{2/3}S^{1/2}/n$, where Q is the flow in cubic feet per second, A is the flow area in square feet, R is the hydraulic radius, S is the slope of the energy grade line in feet per foot, and n is the roughness coefficient.

Detention Basin Design Criteria

The detention basin is designed to contain the post-development runoff from the 2, 10, and 100-year, 24 hour storm events and discharge the stormwater at a controlled rate equal to or less than the predevelopment runoff as required by the Massachusetts Stormwater Handbook.

Stormwater Management Report

Hydrology

Summary Table of Existing and Proposed Runoff

Drainage Area	Runoff, Q (cfs)		
	2-yr	10-yr	100-yr
West – Existing	1.33	2.39	3.77
West – Proposed	1.30	2.33	3.71
East-Existing	0.10	0.28	0.56
East-Proposed	100% Infiltration		

Stormwater Management Report

Description of Existing Drainage Areas

West Parking Area

The existing area of the site that contains the existing parking lot to be redeveloped and the area for the proposed parking lot addition consists of approximately 1.27 acres consisting of pavement, grass, brush, and trees. This area drains overland to an existing grass swale located west of the site, upland from the existing wetlands area. This swale discharges to the south to an existing ditch that runs along the north side of Kenneth W. Welch Drive

Area (Ac)	1.27		
Runoff Curve Number, CN	86		
Rational C	0.44		
Time of Concentration, T _c (min.)	23.3		
	<u>2yr</u>	<u>10yr</u>	<u>100yr</u>
Rainfall (in) 24-hour	3.2	4.9	7.1
Runoff, Q (cfs)	1.33	2.39	3.77

East Parking Area

The existing east parking lot drainage area consists of approximately 0.23 acres consisting of asphalt pavement, and 0.47 acres consisting of landscaping and grass. A portion of the existing drainage area is routed to the existing detention system while the rest of the area drains overland offsite.

Area (Ac)	0.70		
Runoff Curve Number, CN	78		
Rational C	0.45		
Time of Concentration, T _c (min.)	11.7		
	<u>2yr</u>	<u>10yr</u>	<u>100yr</u>
Rainfall (in) 24-hour	3.2	4.9	7.1
Runoff, Q (cfs)	0.10	0.28	0.56

Stormwater Management Report

Description of Proposed Drainage Areas

West Parking Area

The proposed west portion of the west parking lot (drainage area tributary to the detention) consists of approximately 1.27 acres consisting of asphalt pavement and some grass area. The lot is divided up into four (4) subareas, three (3) of which drain to curb inlets which then route to the surface detention basin, and one (1) being the detention basin itself and surrounding grass area.

Area (Ac)	1.27		
Runoff Curve Number, CN	97		
Rational C	0.91		
Time of Concentration, T _c (min.)	5.7		
	<u>2yr</u>	<u>10yr</u>	<u>100yr</u>
Rainfall (in) 24-hour	3.2	4.9	7.1
Proposed Release Rate, Q (cfs)	1.30	2.33	3.71

East Parking Area

The proposed east parking lot drainage area consists of approximately 0.50 acres consisting of asphalt pavement. The lot is divided up into three (3) subareas that each drain to an inlet that discharges to the underground detention system. The point of discharge of this area is infiltration into the ground.

Area (Ac)	0.50		
Runoff Curve Number, CN	94		
Rational C	0.80		
Time of Concentration, T _c (min.)	5.0		
	<u>2yr</u>	<u>10yr</u>	<u>100yr</u>
Rainfall (in) 24-hour	3.2	4.9	7.1

All proposed runoff is contained on site and infiltrated into the ground.

Stormwater Management Report

Description of Proposed Detention Systems

West Detention System

The surface detention is southwest of the parking lot and consists of a normally dry grass-bottom basin with an available storage volume of 4,775 cubic feet. The outfall control structure is a multi-stage outlet structure designed to address the 2-year, 10-year, and 100-year storm events by use of a weir wall with two circular orifices. The structure is located north-west of the detention basin and has an open lid to allow for emergency overflow for storms in excess of the 100-year design frequency. During the 100-year storm event the detention system stores approximately 4,320 cubic feet of stormwater up to a high water elevation of 48.67. The release rate during the 100-year storm event is 3.71 CFS.

East Detention System

The east detention system is consists of underground detention located in the central portion of the parking lot and consists of plastic arch chambers and open-graded stone around the chambers. During the 100-year storm event the detention system stores approximately 0.01 acre-feet of stormwater. The system is designed to completely infiltrate. The infiltration rate for the system is calculated from taking 50% of the 58.6 in/hr percolation tests done at the site, allowing us to use an infiltration rate of 29.3 in/hr. A First Defense hydro-dynamic separator system by Hydro international, and two open bottom catch basins, all just upstream of the infiltration system, ensure that all water is pretreated before entering the detention system.

Stormwater Management Report

Calculations

Massachusetts Stormwater Management Standards 3; recharge volume calculations

NRCS HYDROLOGIC SOIL TYPE	APPROX. SOIL TEXTURE	TARGET DEPTH FACTOR (F)
A	sand	0.6-inch
B	loam	0.35-inch
C	silty loam	0.25-inch
D	clay	0.1-inch

West parking lot

Type B – 20,549 SF * (0.35/12) = 599 CF

Type C – 4,496 SF * (0.25/12) = 94 CF

Type D – 30,123 SF * (0.10/12) = 251 CF

599 + 94 + 251 = 944 CF total recharge volume requirement

East parking lot

Type B – 30,489 SF * (0.35/12) = 889 CF recharge volume requirement

Stormwater Management Report

Massachusetts Stormwater Management Standards 4; water quality volume calculations and TSS removal

West parking lot

1.19 AC impervious area = $51,836 \text{ SF} * (1/12) = 4,320 \text{ CF}$ total water quality volume requirement

5,031 CF water quality storage provided for 1" of runoff

Minimum TSS removal rate = 80%

Deep sump catch basin = 25% TSS removal

Hydrodynamic separator = 80% TSS removal

First Routed through deep sump catch basin removing 25%. Remaining 75% sent to hydrodynamic separator. 80% of the remaining 75% is removed in the HDS, meaning an overall 60% is removed in the HDS. $25\% + 60\% = 85\%$ TSS removed

East parking lot

0.543 AC impervious area = $23,653 \text{ SF} * (1/12) = 1,971 \text{ CF}$ total water quality volume requirement

2,034 CF water quality storage provided for 1" of runoff

Minimum TSS removal rate = 80%

Leaching manhole = 80% TSS removal

Hydrodynamic separator = 80% TSS removal

First Routed through hydrodynamic separator catch basin removing 80%. Remaining 20% sent to leaching manhole. 80% of the remaining 20% is removed in the leaching manhole, meaning an overall 16% is removed in the manhole. $80\% + 16\% = 96\%$ TSS removed

Stormwater Management Report

Pipe Design

Storm Sewer Computation Sheet

Gravity Flow Using Manning's Formula

PIPE DESIGN - 10 YR GRAVITY

Manning's "n" value = 0.013

Prepared By: AO

Checked By: TRP

From Struct	To Struct	Incr. Area A (ac)	Avg. Runoff Coeff. C	Accum. Equiv. Area	Time to Upper End (min)	Rainfall Intensity I (in/hr)	Total Runoff Q (cfs)	Pipe Diam. (in)	Pipe Slope (%)	Full Capacity Q (cfs)	Full Velocity V (ft/sec)	q0/q1	v0/v1	Actual Velocity V (ft/sec)	Pipe Length (ft)	Time Thru Pipe (min)	Invert Up (ft)	Invert Down (ft)	Rim Up (ft)	Rim Down (ft)
	CB-6	0.39	0.95	0.39	5.00	4.90	1.82	12	0.53	2.58	3.29	0.70	1.10	3.62	103	0.47	45.75	45.21	49.00	49.11
	CB-7	0.20	0.95	0.20	5.00	4.90	0.93	12	0.52	2.58	3.28	0.36	0.91	2.98	103	0.58	45.75	45.21	49.00	49.11
	MH-5	0.00	0.95	0.59	5.58	4.90	2.75	15	0.53	4.70	3.83	0.58	1.05	4.00	20	0.08	45.21	45.10	49.11	48.75
	CB-4	0.60	0.95	1.19	5.66	4.90	5.54	18	0.50	7.43	4.20	0.75	1.11	4.67	11	0.04	45.10	45.05	48.75	
	FES-2	0.08	0.95	1.27	5.70	4.90	5.91	15	1.28	7.31	5.96	0.81	1.13	6.73	16	0.04	44.50	44.30		49.00
	OCS	0.00	0.95	1.27	5.74	4.90	2.33	12	0.50	2.53	3.22	0.92	1.15	3.72	55	0.25	44.30	44.02	49.00	49.27
	HYD	0.00	0.95	1.27	5.99	4.90	2.33	18	0.05	2.35	1.33	0.99	1.16	1.55 *	9	0.10	43.30	43.30	49.27	

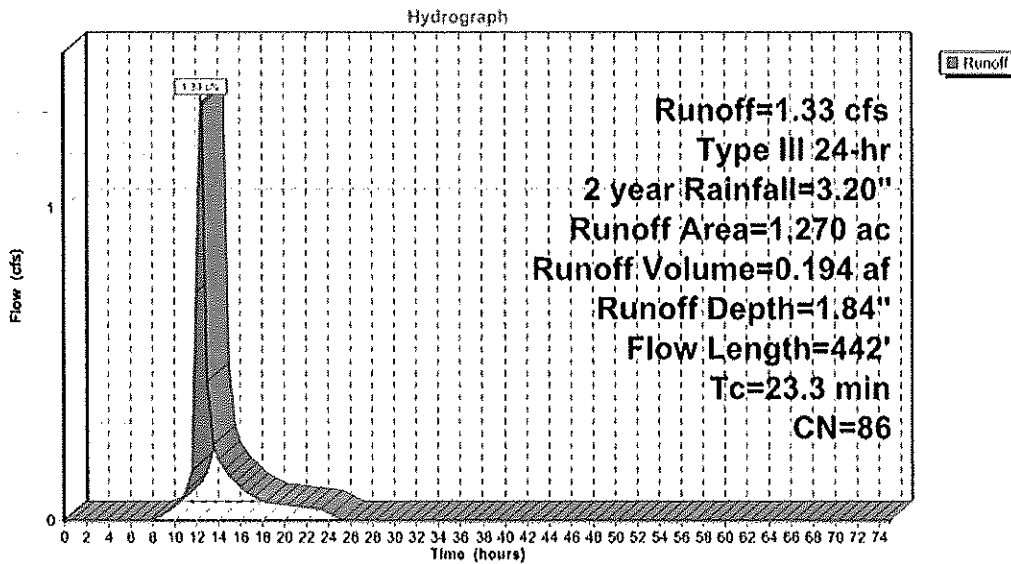
* LESS THAN 2 FPS PROVIDED AT
DISCHARGE TO KEEP BELOW THE
ALLOWABLE SOIL VELOCITY

Stormwater Management Report

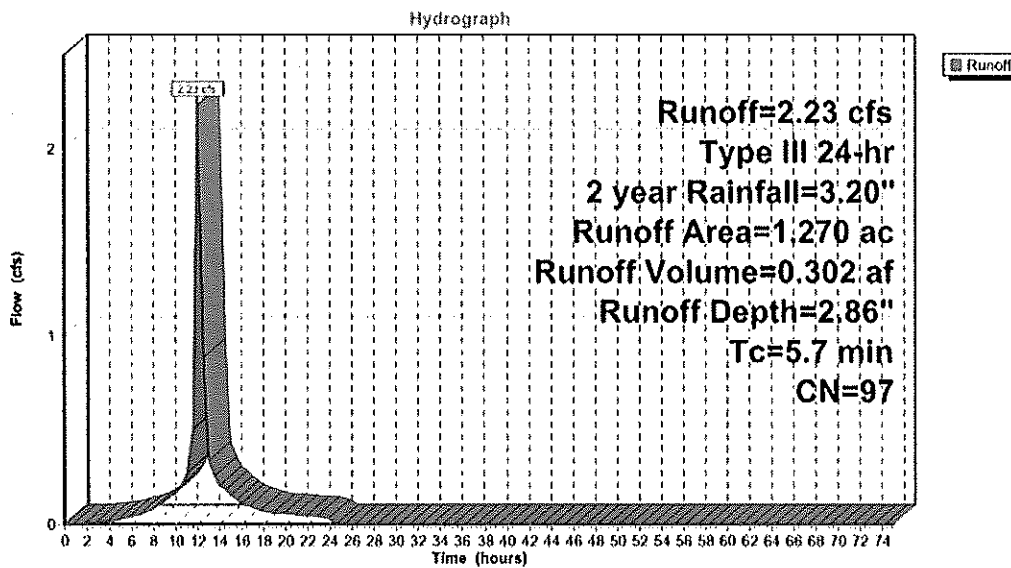
Hydrographs

West Parking lot – Pre Developed 2-year storm

Subcatchment 1S: pre

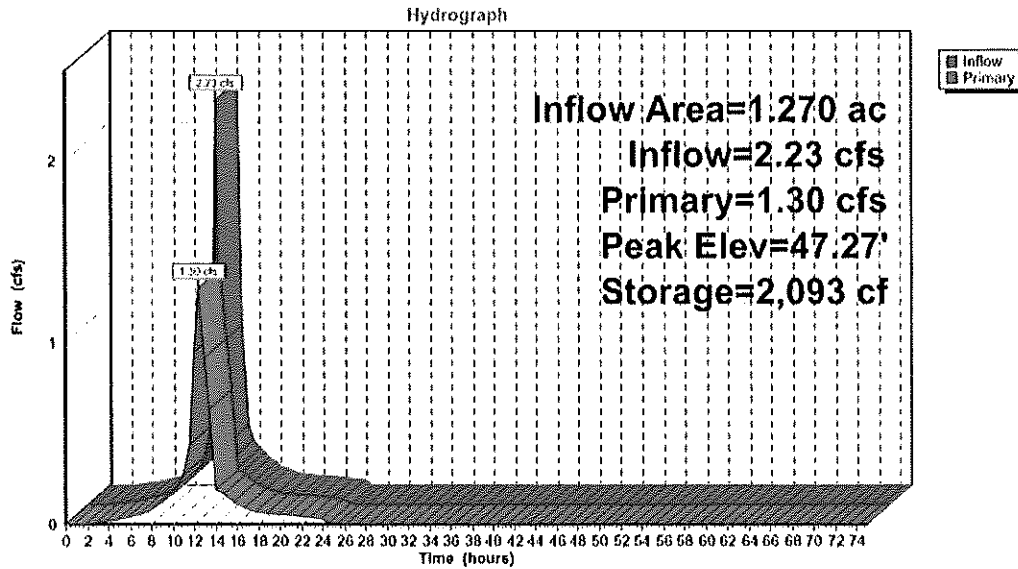


West Parking lot – Post Developed 2-year storm

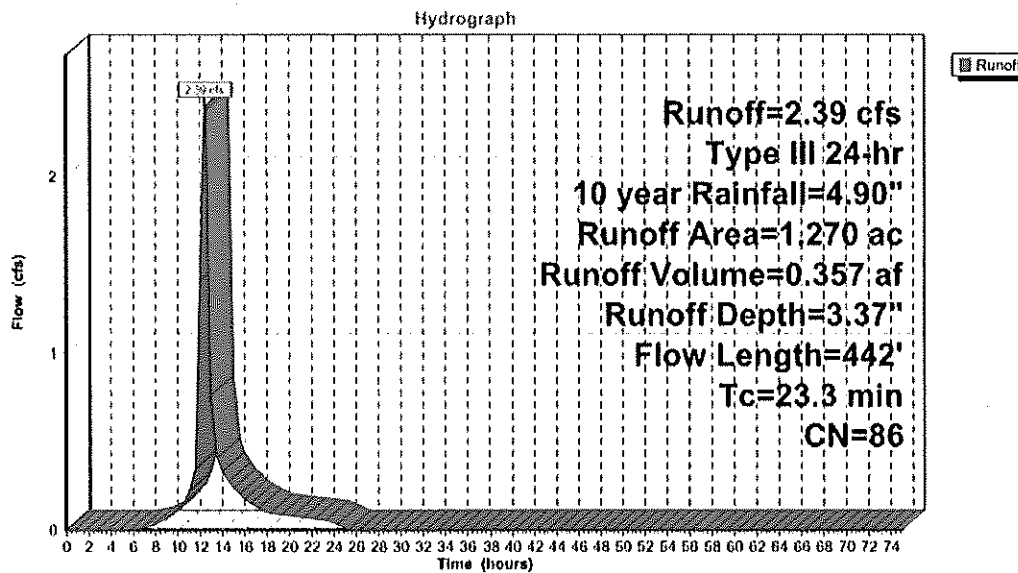


Stormwater Management Report

West Parking lot – Detention Basin 2-year storm

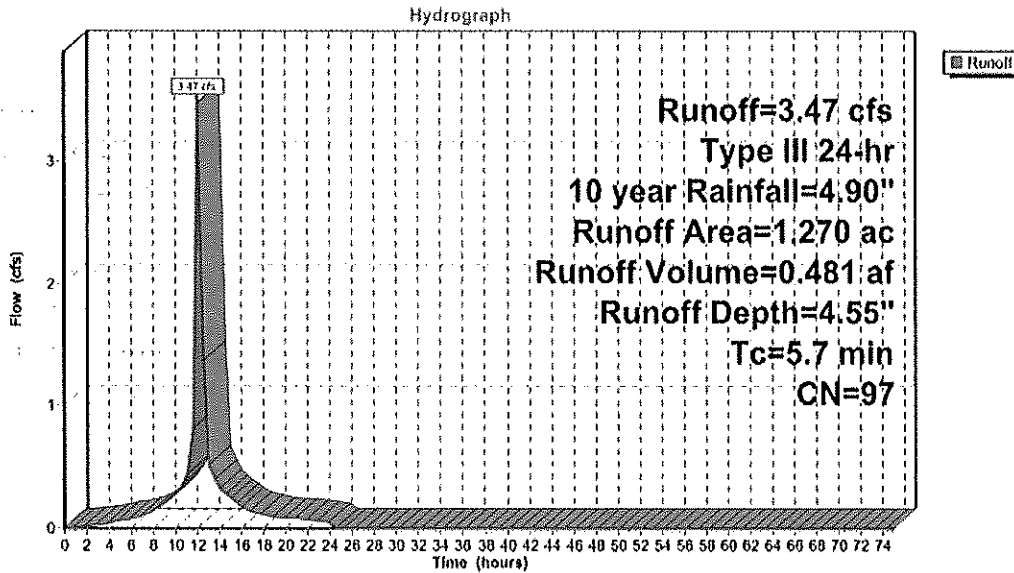


West Parking lot – Pre Developed 10-year storm

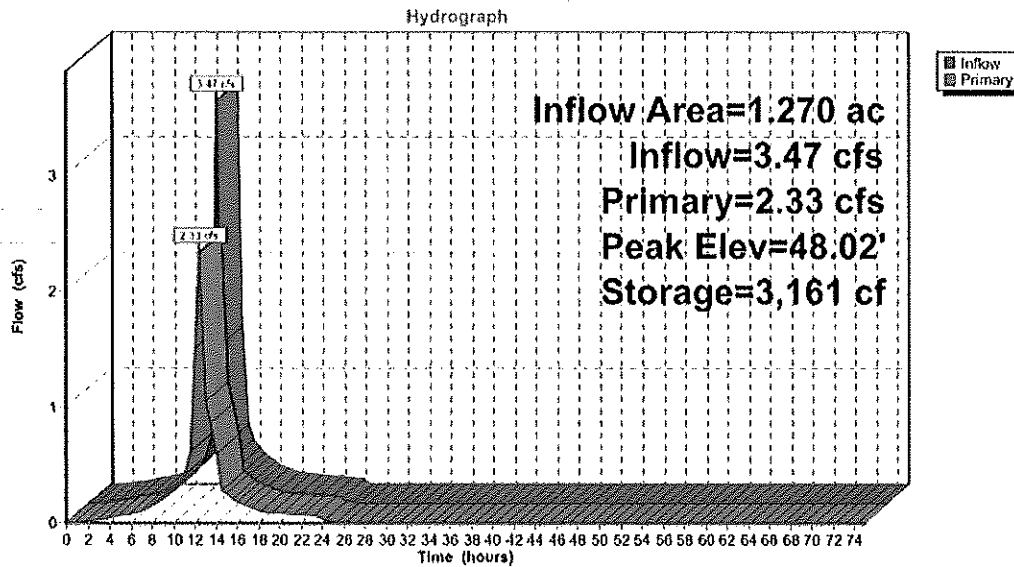


Stormwater Management Report

West Parking lot – Post Developed 10-year storm

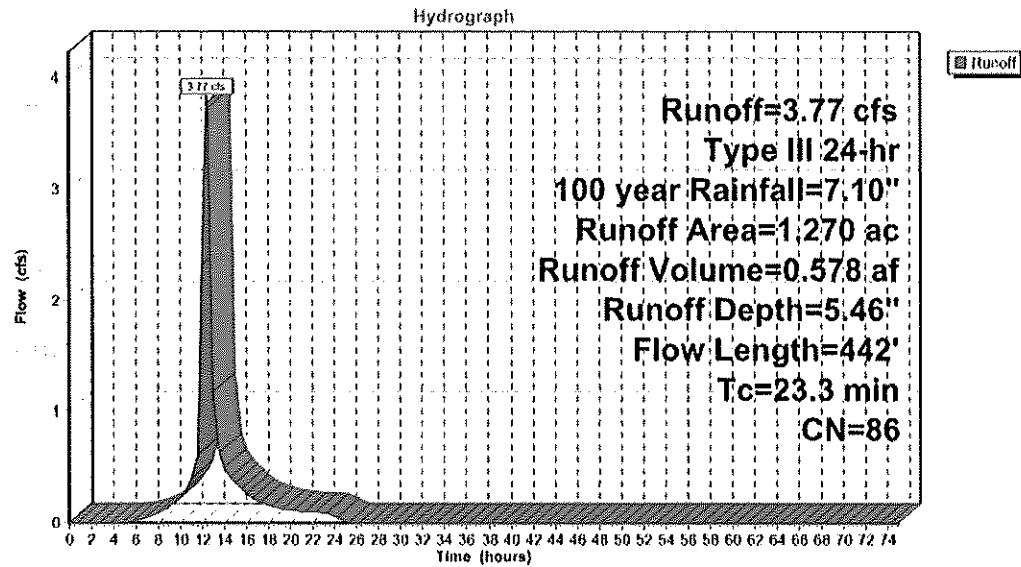


West Parking lot – Detention Basin 10-year storm

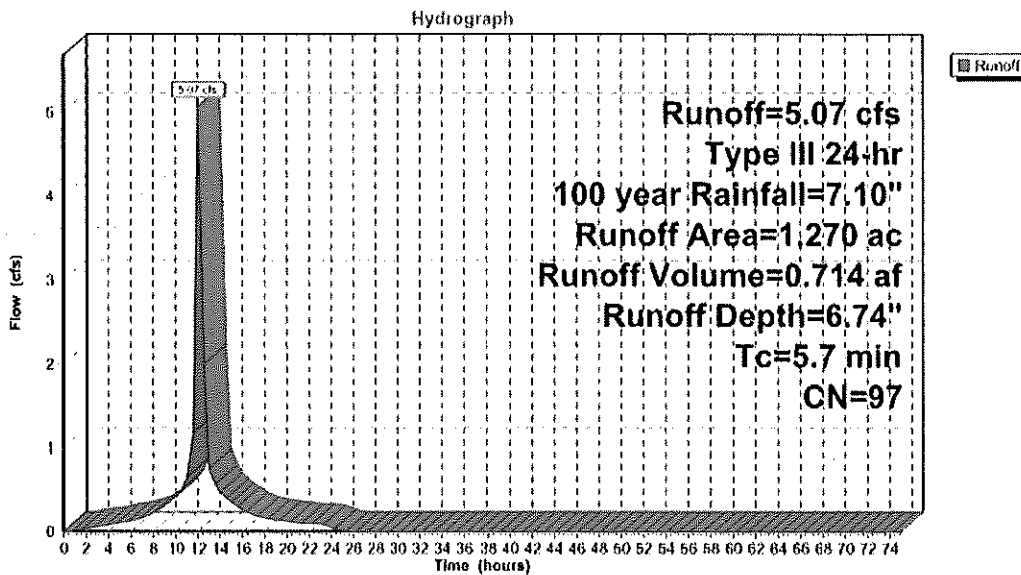


Stormwater Management Report

West Parking lot – Pre Developed 100-year storm

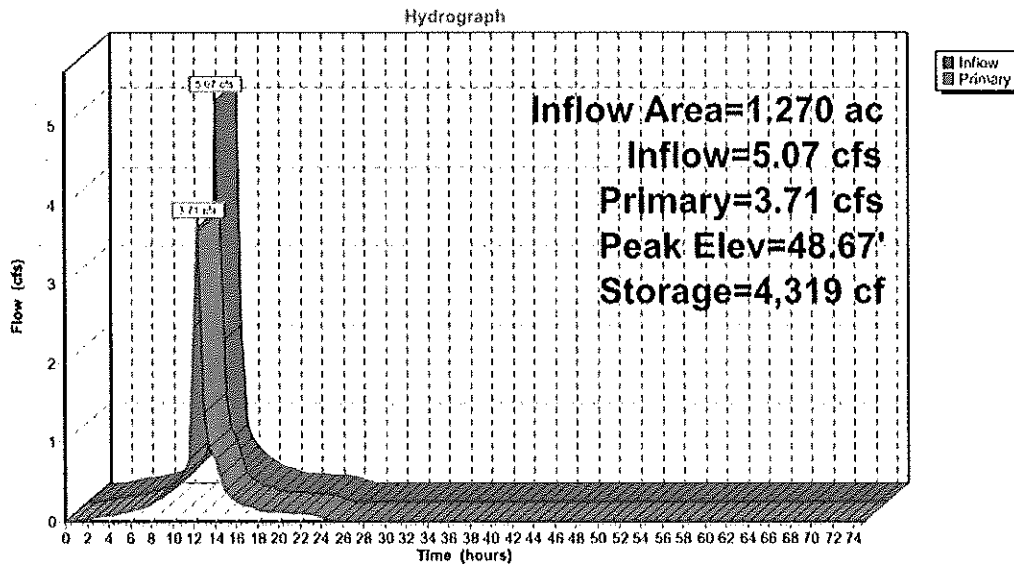


West Parking lot – Post Developed 100-year storm



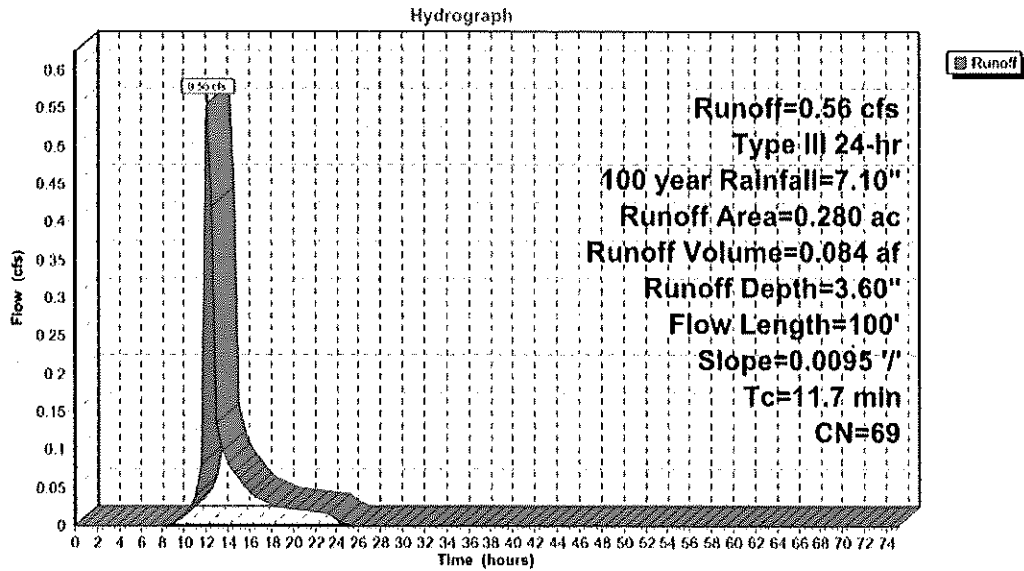
Stormwater Management Report

West Parking lot – Detention Basin 100-year storm

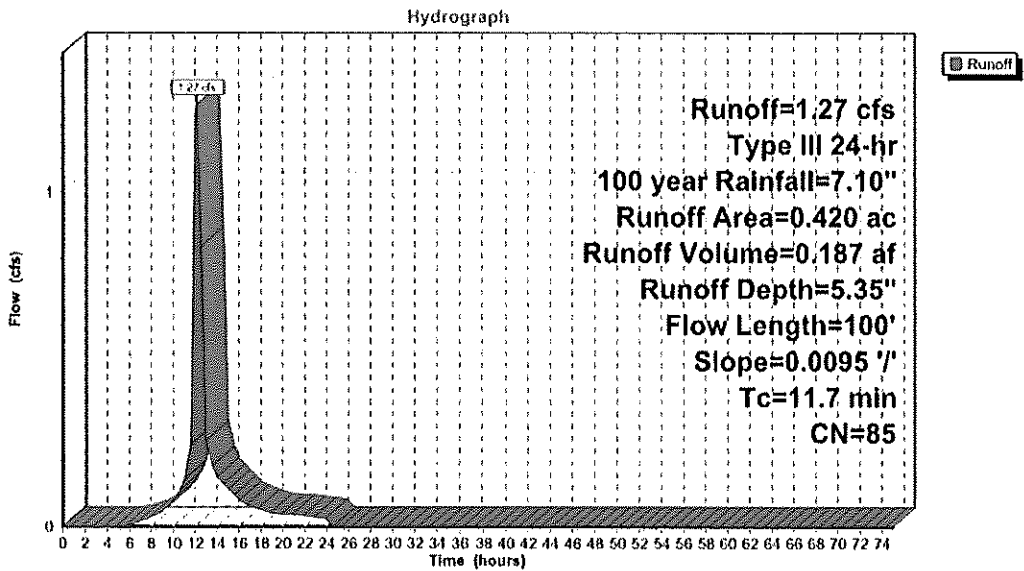


Stormwater Management Report

East Parking lot Offsite – Pre Developed 100-year storm

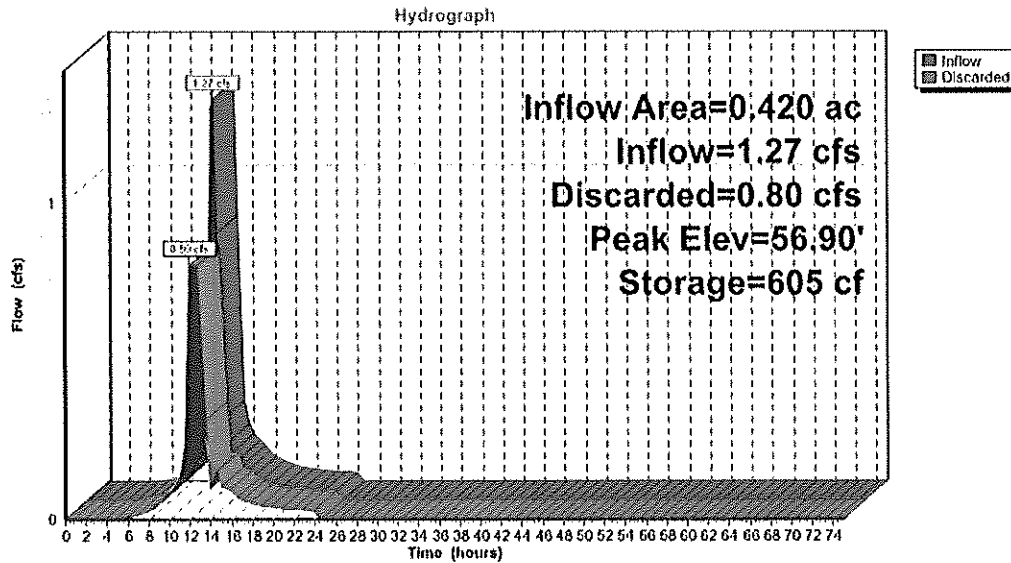


East Parking lot to Basin – Pre Developed 100-year storm

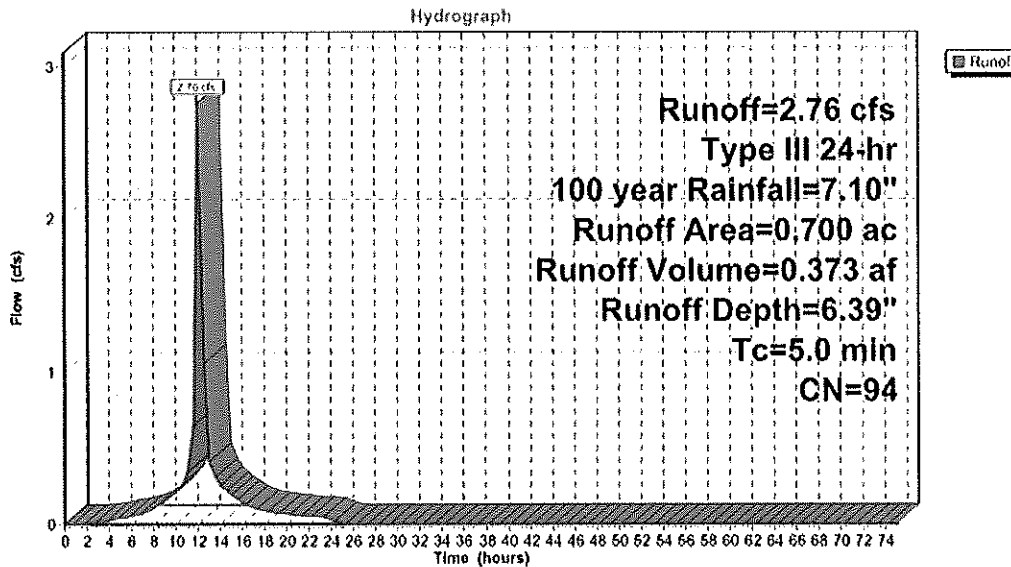


Stormwater Management Report

East Parking lot – Existing Infiltration Basin 100-year storm

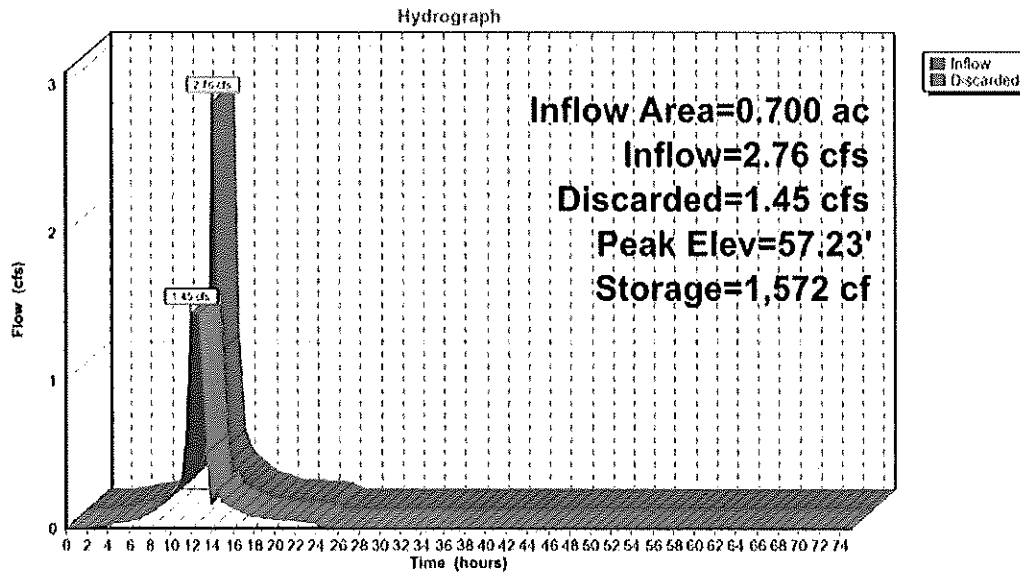


East Parking lot – Post Developed 100-year storm



Stormwater Management Report

East Parking lot – Proposed Infiltration Basin 100-year storm

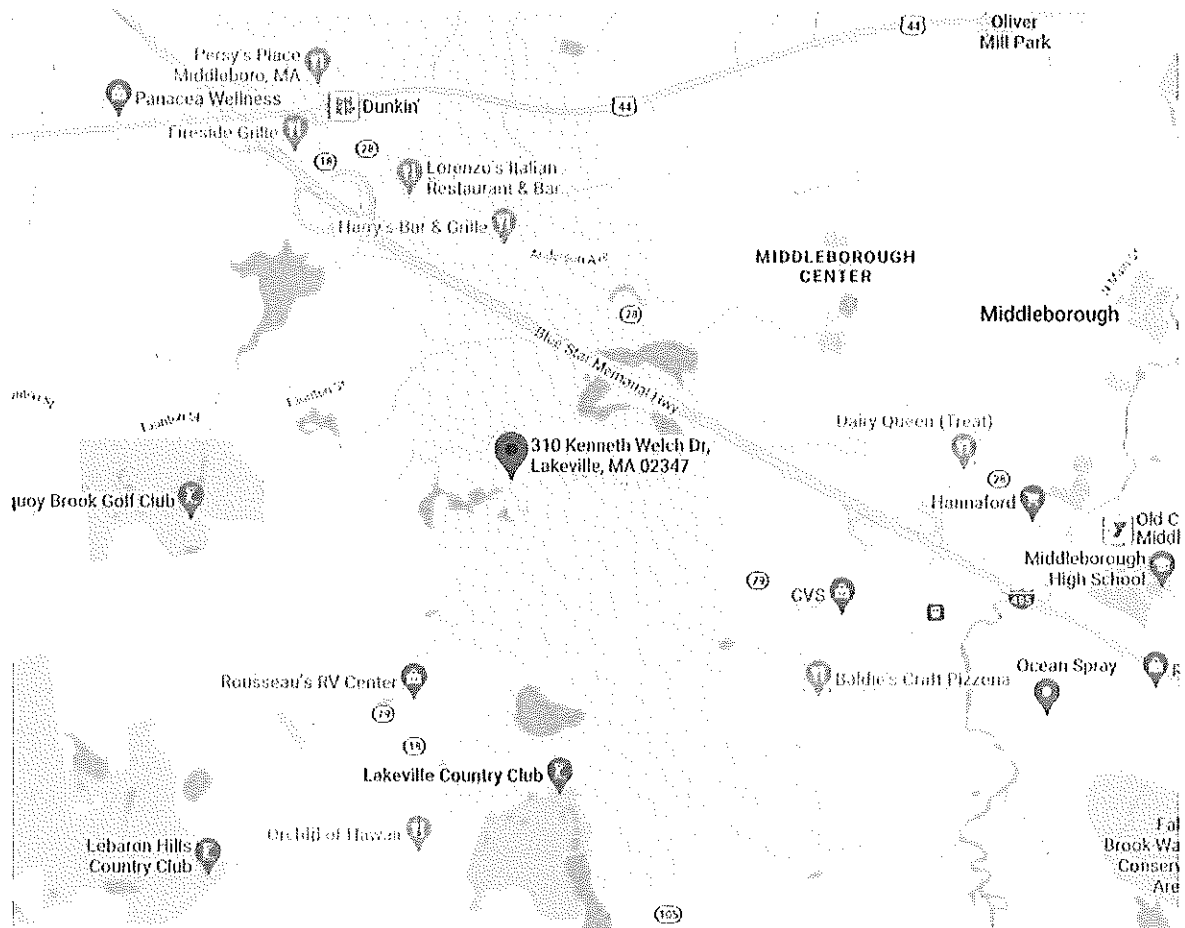


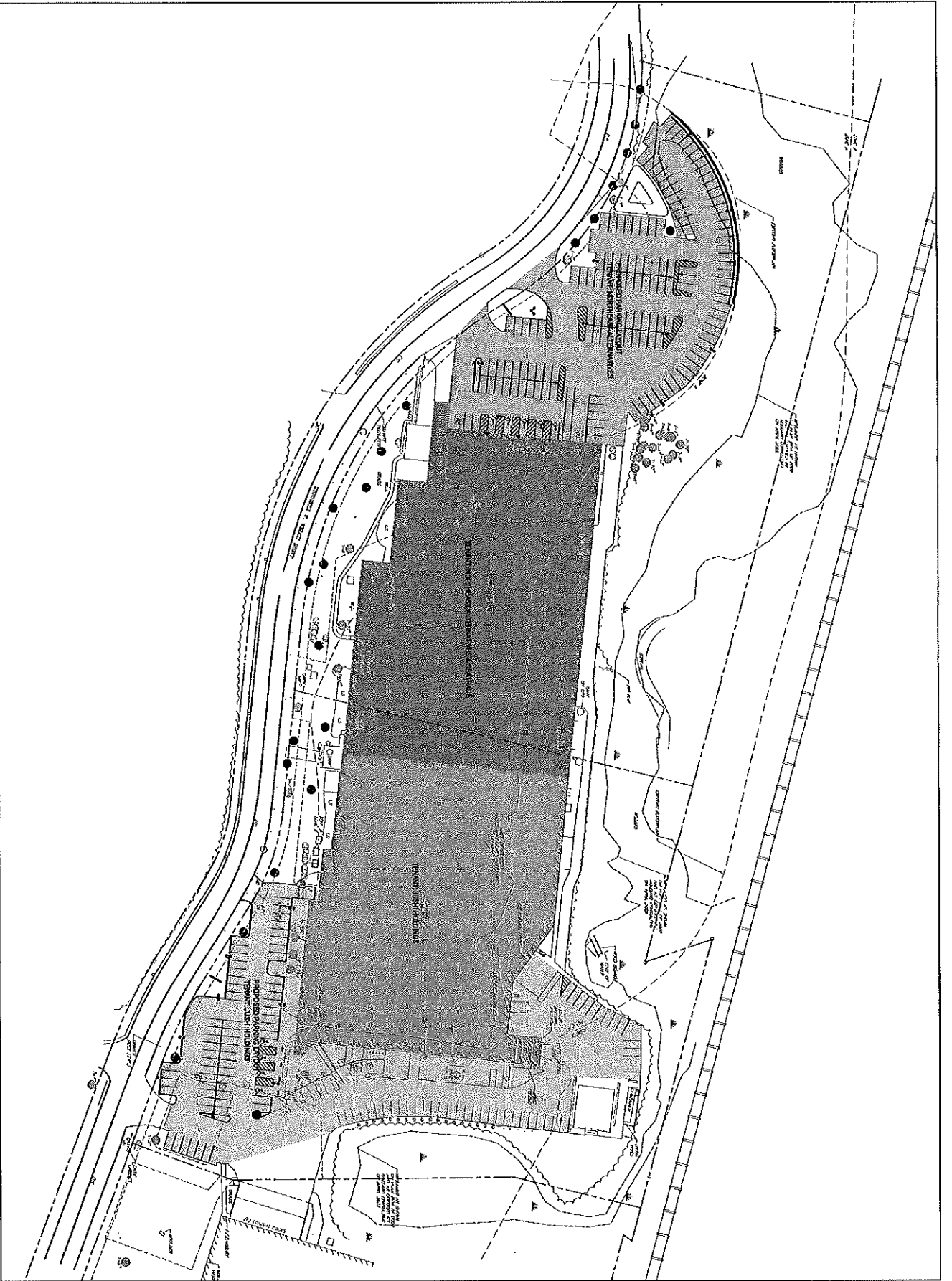
Stormwater Management Report

Appendix

Stormwater Management Report

Site Location

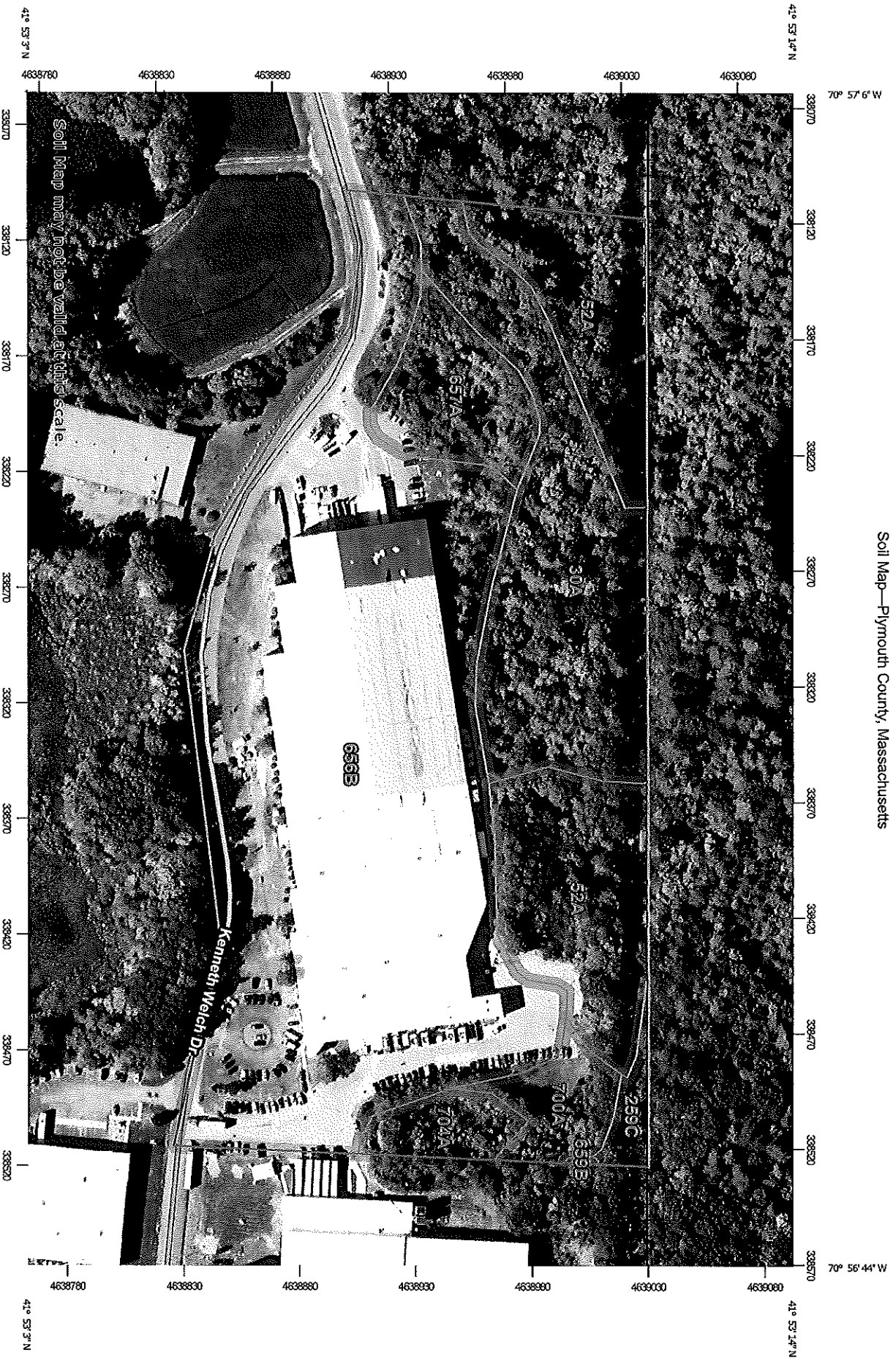




Stormwater Management Report

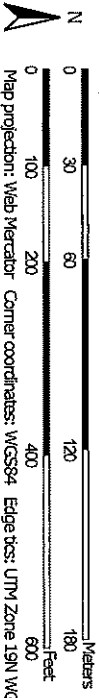
Soils Map

Soil Map—Plymouth County, Massachusetts

































































Soil Map may not be valid at this scale.

Map Scale: 1:2,320 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

 Area of Interest (AOI)	 Area of Interest (AOI)	 Spoil Area
 Soils	 Soil Map Unit Polygons	 Stony Spot
 Soil Map Unit Lines	 Soil Map Unit Lines	 Very Stony Spot
 Soil Map Unit Points	 Soil Map Unit Points	 Wet Spot
 Special Point Features	 Blowout	 Other
 Borrow Pit	 Borrow Pit	 Special Line Features
 Clay Spot	 Clay Spot	 Water Features
 Closed Depression	 Closed Depression	 Streams and Canals
 Gravel Pit	 Gravel Pit	 Transportation
 Gravelly Spot	 Gravelly Spot	 Rails
 Landfill	 Landfill	 Interstate Highways
 Lava Flow	 Lava Flow	 US Routes
 Marsh or swamp	 Marsh or swamp	 Major Roads
 Mine or Quarry	 Mine or Quarry	 Local Roads
 Miscellaneous Water	 Miscellaneous Water	 Background
 Perennial Water	 Perennial Water	 Aerial Photography
 Rock Outcrop	 Rock Outcrop	
 Saline Spot	 Saline Spot	
 Sandy Spot	 Sandy Spot	
 Severely Eroded Spot	 Severely Eroded Spot	
 Sinkhole	 Sinkhole	
 Slide or Slip	 Slide or Slip	
 Sodic Spot	 Sodic Spot	

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: www.nrcs.usda.gov/wss
 Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Plymouth County, Massachusetts
 Survey Area Data: Version 15, Sep 9, 2022

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

Date(s) aerial images were photographed: Sep 26, 2020—Oct 15, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
30A	Raynham silt loam, 0 to 3 percent slopes	3.0	16.6%
52A	Freetown muck, 0 to 1 percent slopes	2.9	16.2%
259C	Carver loamy coarse sand, 8 to 15 percent slopes	0.2	1.1%
656B	Udorthents - Urban land complex, 0 to 8 percent slopes	10.1	56.0%
657A	Aquepts, 0 to 3 percent slopes	0.9	5.1%
659B	Udorthents, 0 to 8 percent slopes, gravelly	0.0	0.1%
700A	Udipsamments, wet substratum, 0 to 3 percent slopes	0.5	2.9%
704A	Freetown and Swansea coarse sands, 0 to 3 percent slopes, sanded surface and inactive	0.4	2.2%
Totals for Area of Interest		18.0	100.0%

Stormwater Management Report

Infiltration Testing

Deep Observation Hole Number: TP#1 Hole # 12/5/22 Date Sunny, Low 40s Weather

Land Use Woodland (e.g., woodland, agricultural field, vacant lot, etc.) Trees Vegetation None Surface Stones (e.g., cobbles, stones, boulders, etc.) 3% Slope (%)
 Description of Location: See attached Sketch, edge of woods along roadway shoulder

Soil Parent Material: Coarse-loamy human transported material over sandy and gravely glaciofluvial deposits Outwash Plain Landform FS Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No If yes: 66 Depth to Weeping in Hole 72 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 18 (in)

Soil Log

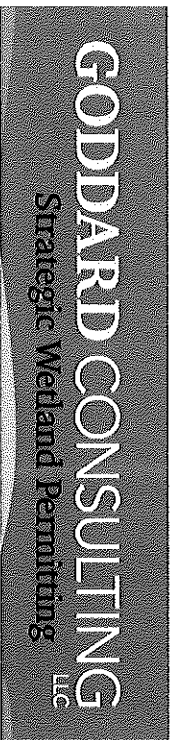
Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other	
				Depth	Color	Percent	Gravel	Cobbles & Stones				
0-12	A	Sandy Loam	10YR3/3						Massive	Friable		
12-46	C1	Fine Loamy Sand	10YR5/6	18		10%	-	-	Massive	Friable		
				Cnc :								
				Dpl:								
46-88	C2	Fine Sand	10YR6/3	Cnc :			-	-	Single Grain	Loose		
				Dpl:								
				Cnc :								
88-102	C3	Medium sand	10YR6/3	Dpl:			20%	-	Single Grain	Loose		
				Cnc :								
				Dpl:								

Additional Notes:
 No refusal.

Deep Observation Hole Number: TP#2 Hole # _____

Date 12/5/22

Weather Sunny, Low 40s



Land Use Woodland
(e.g., woodland, agricultural field, vacant lot, etc.)

Trees _____

None

Surface Stones (e.g., cobbles, stones, boulders, etc.)

Slope (%) 3%

Description of Location: See attached Sketch,

Soil Parent Material: Coarse-loamy human transported material over sandy and gravely glaciofluvial deposits

Outwash Plain
Landform

FS
Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No

If yes: 12 Depth to Weeping in Hole

NA Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 47 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other	
				Depth	Color	Percent	Gravel	Cobbles & Stones				
0-47"	Fill	-	-									
47-72"	C	Very Fine Loamy Sand	10YR6/2	47								
				Cnc :								
				Dpl:								
				Cnc :								
				Dpl:								
				Dpl:								

Additional Notes:
Weeping likely due to compacted fill material. Pipes left in TP#1, #3, #7 and #7B to observe groundwater

Deep Observation Hole Number: **TP#3** Hole # **12/5/22** Date **12/5/22** Sunny, Low 40s Weather **None** Slope (%) **3%**

Land Use **Woodland** (e.g., woodland, agricultural field, vacant lot, etc.) **Trees** **Vegetation** **None** Surface Stones (e.g., cobbles, stones, boulders, etc.)

Description of Location: **See attached Sketch, edge of woods along roadway shoulder**

Soil Parent Material: **Coarse-loamy human transported material over sandy and gravely glaciofluvial deposits** **Outwash Plain** **FS** Position on Landscape (SU, SH, BS, FS, TS, Plain) **Landform**

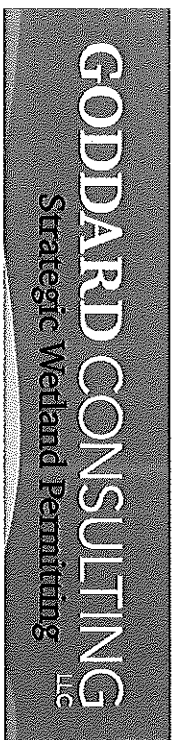
Groundwater Observed: Yes No If yes: **54"** Depth to Weeping in Hole **67"** Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): **64 (in)**

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-62"	Fill	-	-								
62-64"	Ab	Sandy Loam	10YR3/2								
64-88"	C1	Medium Sand	10YR6/3	64			10%	20%			Gravel up to 8"
88-96"	C2	Very fine loamy sand	10YR6/2								

Additional Notes:
Weeping likely due to compacted fill material. Pipes left in TP#1, #3, #7 and #7B to observe groundwater



Deep Observation Hole Number: TP#7
Hole #

12/5/22
Date

Sunny, Low 40s
Weather

Land Use Woodland
(e.g., woodland, agricultural field, vacant lot, etc.)

Trees
Vegetation

None
Surface Stones (e.g., cobbles, stones, boulders, etc.)

3%
Slope (%)

Description of Location: See attached Sketch,

Soil Parent Material: Coarse-loamy human transported material over sandy and gravelly glaciofluvial deposits

Outwash plains
Landform

FS
Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No

If yes: 24 Depth to Weeping in Hole

70 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 40 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features		Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Gravel	Cobbles & Stones			
0-28	Fill	-	-							
28-40	Ab	Sandy Loam	10YR2/1							
40-96	C	Very fine loamy sand	10YR6/2	40"						
				Cnc : <u>:10YR5/8</u>						
				Dpl: _____						
				Cnc : _____						
Additional Notes:										

Deep Observation Hole Number: TP#7A Hole #

12/5/22 Date

Sunny, Low 40s Weather

Land Use Woodland
(e.g., woodland, agricultural field, vacant lot, etc.)

Trees
Vegetation

None
Surface Stones (e.g., cobbles, stones, boulders, etc.)

3%
Slope (%)

Description of Location: See attached sketch

Soil Parent Material: Coarse-loamy human transported material over sandy and gravelly glaciofluvial deposits

Outwash Plains
Landform

FS
Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No

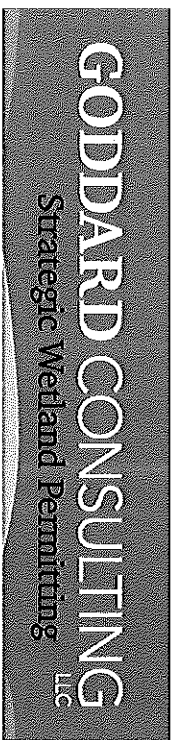
If yes: 60 Depth to Weeping in Hole

Z2 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 56 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-42	Fill	-	-								
42-56	Ab	Sandy Loam	10YR3/3								
56-96	C1	Fine Loamy Sand	10YR6/1	56							
96-112	C2	Very fine loamy sand	10YR6/2								
Additional Notes:											



Deep Observation Hole Number: TP#7B

Hole #

12/5/22
Date

Sunny, Low 40s
Weather

Woodland

(e.g., woodland, agricultural field, vacant lot, etc.)

Trees

Vegetation

None

Surface Stones (e.g., cobbles, stones, boulders, etc.)

3%

Slope (%)

Description of Location: See attached Sketch

Soil Parent Material: Coarse-loamy human transported material over sandy and gravely glaciofluvial deposits

Coarse-loamy human transported material over sandy and gravely glaciofluvial deposits

Outwash Plains
Landform

FS

Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No

If Yes: 66 Depth to Weeping in Hole

72 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 34 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-8	A	Sandy Loam	10YR3/3				-	-	Massive	Friable	
				Cnc : _____							
				Dpi: _____							
8-25	C1	Fine Loamy Sand	10YR6/3				-	-	Massive	Friable	
				Cnc : _____							
				Dpi: _____							
25-68	C2	Medium Sand	10YR5/8 to 10YR6/2	34		10%	-	-	Single Grain	Loose	
				Cnc : 10YR5/8							
				Dpi: _____							
68-84	C3	Very fine loamy sand	10YR6/3				-	-	Massive	Firm	
				Cnc : _____							
				Dpi: _____							
				Cnc : _____							
				Dpi: _____							

Additional Notes:
 Color transition in C2 shows groundwater movement.

Deep Observation Hole Number: **TP#7C** Hole # **12/5/22** Date **Sunny, Low 40s** Weather

Land Use **Woodland** (e.g., woodland, agricultural field, vacant lot, etc.) **Trees** Vegetation **None** Surface Stones (e.g., cobbles, stones, boulders, etc.) **3%** Slope (%)

Description of Location: **See attached Sketch**

Soil Parent Material: **Coarse-loamy human transported material over sandy and gravelly glaciofluvial deposits** **Outwash Plains** Landform **FS** Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No If yes: **64** Depth to Weeping in Hole **72** Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): **20 (in)**

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-12	A	Sandy Loam	10YR3/3						Massive	Friable	
12-34	C1	Very find sand	10YR6/2	20		10%			Massive	Friable	
34-96	C2	Very fine Loamy sand	10YR6/3						Massive	Firm	

Additional Notes:

Deep Observation Hole Number: TP#7D Hole # 12/9/22 Date Sunny, Low 40s Weather

Land Use Woodland (e.g., woodland, agricultural field, vacant lot, etc.) Trees None Surface Stones (e.g., cobbles, stones, boulders, etc.) 3% Slope (%)
 Description of Location: See attached Sketch Vegetation None Surface Stones (e.g., cobbles, stones, boulders, etc.)

Soil Parent Material: Coarse-loamy human transported material over sandy and gravelly glaciofluvial deposits Outwash Plains FS Position on Landscape (SU, SH, BS, FS, TS, Plain)
Landform

Groundwater Observed: Yes No If yes: 50 Depth to Weeping in Hole 72 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 22 (in) Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-10	Fill	-	-	Cnc : Dpl:			-	-	-		
10-14	Ab	Sandy Loam	10YR3/3	Cnc : Dpl:			-	-	Massive	Friable	
14-22	B/C	Fine Sand	10YR5/6	Cnc : Dpl:			-	-	Single Grain	Loose	
22-56	C1	Medium Sand	10YR5/3	Cnc : Dpl:	22		-	-	Single Grain	Loose	
56-96	C2	Very Fine Loamy Sand	10YR6/1	Cnc : Dpl:			-	-	Massive	Firm	
Additional Notes:											

Deep Observation Hole Number: TP#ZE Hole # 12/9/22 Date Sunny, Low 40s Weather

Land Use Woodland (e.g., woodland, agricultural field, vacant lot, etc.) Trees None Vegetation None Surface Stones (e.g., cobbles, stones, boulders, etc.) 3% Slope (%)

Description of Location: See attached Sketch

Soil Parent Material: Coarse-loamy human transported material over sandy and gravelly glaciofluvial deposits Outwash Plains Landform Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No If yes: 58 Depth to Weeping In Hole 66 Depth to Standing Water In Hole

Estimated Seasonal Ground High Water (ESGHW): 30 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color- (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-26	Fill	-	-	Cnc : Dpl:			-	-	-		
26-30	Ab	Sandy Loam	10YR3/2	Cnc : Dpl:			-	-	Massive	Friable	
30-52	C1	Fine Sand	10YR5/6	Cnc :10YR6/8 Dpl:			-	-	Single Grain	Loose	
52-84	C2	Medium Sand	10YR5/2	Cnc : Dpl:			-	-	Single Grain	Loose	
84-112	C3	Very Fine Sandy Loam	10YR6/1	Cnc : Dpl:			-	-	Massive	Firm	

Additional Notes:

Deep Observation Hole Number: TP#7E Hole # 12/9/22 Date Sunny, Low 40s Weather

Land Use Woodland (e.g., woodland, agricultural field, vacant lot, etc.) Trees Vegetation None Surface Stones (e.g., cobbles, stones, boulders, etc.) 3% Slope (%)

Description of Location: See attached Sketch

Soil Parent Material: Coarse-loamy human transported material over sandy and gravelly glaciofluvial deposits Outwash Plains Landform FS Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No If yes: 50 Depth to Weeping in Hole 60 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 32 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-24	Fill	-	-								
24-30	Ab	Sandy Loam	10YR3/3	Cnc :					Massive	Friable	
				Dpl:							
30-42	C1	Very fine sand	10YR5/2	Cnc : 7.5YR5/8		10%		Massive	Friable		
				Dpl:							
42-120	C2	Very fine loamy sand	10YR6/2	Cnc :				Massive	Firm	Color change, but texture was the same	
				Dpl:							

Additional Notes:

Deep Observation Hole Number: TP#7G Hole # 12/9/22 Date Sunny, Low 40s Weather

Land Use Woodland (e.g., woodland, agricultural field, vacant lot, etc.) Trees None Surface Stones (e.g., cobbles, stones, boulders, etc.) 3%
 Description of Location: See attached Sketch Vegetation None Slope (%)

Soil Parent Material: Coarse-loamy human transported material over sandy and gravelly glaciofluvial deposits Outwash Plains Landform FS Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No If yes: 45 Depth to Weeping In Hole 68 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 21 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-16	Fill	-	-								
16-21	Ab	Sandy Loam	10YR3/2								
21-45	C1	Very fine sand	10YR5/4	21	Cnc : Dpi:	Cnc :10YR5/8	10%				
45-58	C2	very fine loamy sand	10YR6/1		Cnc : Dpi:						
58-74	C3	Very fine loamy sand	10YR6/2		Cnc : Dpi:						

Additional Notes:

Deep Observation Hole Number: TP#7H
 Hole #

12/9/22
 Date

Sunny, Low 40s
 Weather

Land Use Woodland
 (e.g., woodland, agricultural field, vacant lot, etc.)
 Description of Location: See attached Sketch

Trees
 Vegetation

None
 Surface Stones (e.g., cobbles, stones, boulders, etc.)

3%
 Slope (%)

Soil Parent Material: Coarse-loamy human transported material over sandy and gravelly glaciofluvial deposits

Outwash Plains
 Landform

FS
 Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No

If yes: 32 Depth to Weeping in Hole

52 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 18 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-14	Fill	-	-								
				Cnc : _____							
				Dpl: _____							
14-18	Ab	Sandy Loam	10YR3/3						Massive	Friable	
				Cnc : _____							
				Dpl: _____							
18-32	C1	Very fine sand	10YR5/4	18		10%			Massive	Friable	
				Cnc :5YR5/8							
				Dpl: _____							
32-50	C2	Medium Sand	10YR5/2						Single Grain	Loose	
				Cnc : _____							
				Dpl: _____							
50-96	C3	Very Fine Loamy Sand	10YR6/2						Massive	Firm	
				Cnc : _____							
				Dpl: _____							

Additional Notes:

Deep Observation Hole Number: **TP#8**
 Hole #

12/8/22
 Date

Sunny, Low 40s
 Weather

Land Use

Parking Lot
 (e.g., woodland, agricultural field, vacant lot, etc.)

None
 Vegetation

None
 Surface Stones (e.g., cobbles, stones, boulders, etc.)

1%
 Slope (%)

Description of Location:

Parking Lot, right side of center gravel circle

Soil Parent Material:

Coarse-loamy human transported material

Outwash Plains
 Landform

FS
 Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No

If yes: 106 Depth to Weeping In Hole

106 Depth to Standing Water In Hole

Estimated Seasonal Ground High Water (ESGHW):

106 (in)

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-46	Fill	-	-								
46-48	Ab	Sandy Loam	10YR3/2						Massive	Friable	
48-112	C	Gravelly coarse sand	10YR4/3	112		None Observed	20%	-	Single Grain	Loose	
					Cnc : Dpt:						
					Cnc : Dpt:						
					Cnc : Dpt:						
					Cnc : Dpt:						

Additional Notes:

Deep Observation Hole Number: TP#12 Hole # 12/8/22 Date 12/8/22 Sunny, Low 40s Weather

Land Use Parking Lot (e.g., woodland, agricultural field, vacant lot, etc.) None Vegetation None Surface Stones (e.g., cobbles, stones, boulders, etc.) None Slope (%) 1%

Description of Location: Parking Lot, left side of center gravel circle

Soil Parent Material: Coarse-loamy human transported material Outwash Plains Landform FS Position on Landscape (SU, SH, BS, FS, TS, Plain)

Groundwater Observed: Yes No If yes: 112 Depth to Weeping in Hole 112 Depth to Standing Water in Hole

Estimated Seasonal Ground High Water (ESGHW): 112 (in)

Soil Log

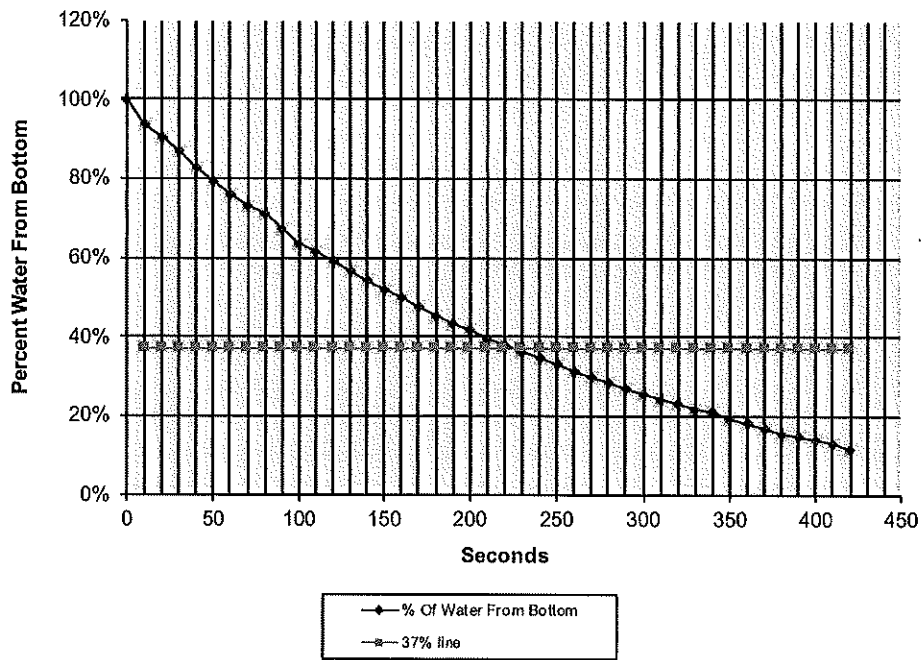
Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-50	Fill	-	-	Cnc : Dpl:			-	-	-		
50-56	Ab	Sandy Loam (mixed)	10YR3/2	Cnc : Dpl:			-	-	Massive	Friable	
56-90	C1	Gravelly Medium Sand	10YR5/3	Cnc : Dpl:			20%	-	Single Grain	Loose	
90-120	C2	Coarse sand	10YR6/2	Cnc : Dpl:		None observed	20%	-	Single Grain	Loose	
				Cnc : Dpl:							
				Cnc : Dpl:							

Additional Notes:

FALLING HEAD PERMEABILITY TEST

Project:		310 Kennenth Welch Drive, Lakeville, MA					
Location:		TP#7D-C1					
Performed By:		Mark R. Arnold SE#14414		Date:	9-Dec-22		
Witnessed By:							
TP#7D-C1				Time (Seconds)	Depth From Top of Pipe (Ft)	% Depth From Top	% Of Water From Bottom
				0	0	0%	100%
				10	0.15	6%	94%
				20	0.23	10%	90%
				30	0.32	13%	87%
				40	0.42	17%	83%
				50	0.50	21%	79%
				60	0.58	24%	76%
				70	0.65	27%	73%
				80	0.70	29%	71%
				90	0.79	33%	67%
				100	0.88	36%	64%
				110	0.93	38%	62%
				120	0.99	41%	59%
				130	1.05	43%	57%
				140	1.11	46%	54%
				150	1.16	48%	52%
				160	1.21	50%	50%
				170	1.27	53%	47%
				180	1.32	55%	45%
				190	1.37	57%	43%
				200	1.41	58%	42%
				210	1.46	60%	40%
				220	1.50	62%	38%
				230	1.54	64%	36%
				240	1.58	65%	35%
				250	1.62	67%	33%
				260	1.66	69%	31%
				270	1.70	70%	30%
				280	1.73	72%	28%
				290	1.77	73%	27%
				300	1.80	74%	26%
				310	1.83	76%	24%
				320	1.86	77%	23%
				330	1.89	78%	22%
				340	1.91	79%	21%
				350	1.95	81%	19%
				360	1.98	82%	18%
				370	2.01	83%	17%
				380	2.04	84%	16%
				390	2.06	85%	15%
				400	2.08	86%	14%
				410	2.10	87%	13%
				420	2.14	89%	11%

FALLING HEAD PERMEABILITY HT 1 TRIAL#1



Find Permeability Km

Where:

$$Km = \frac{\pi(D)}{11(T)}$$

and:

$$D (ft) = 0.333$$

$$T (sec) = 230$$

$$Km = 0.0004135 \text{ ft/sec}$$

or

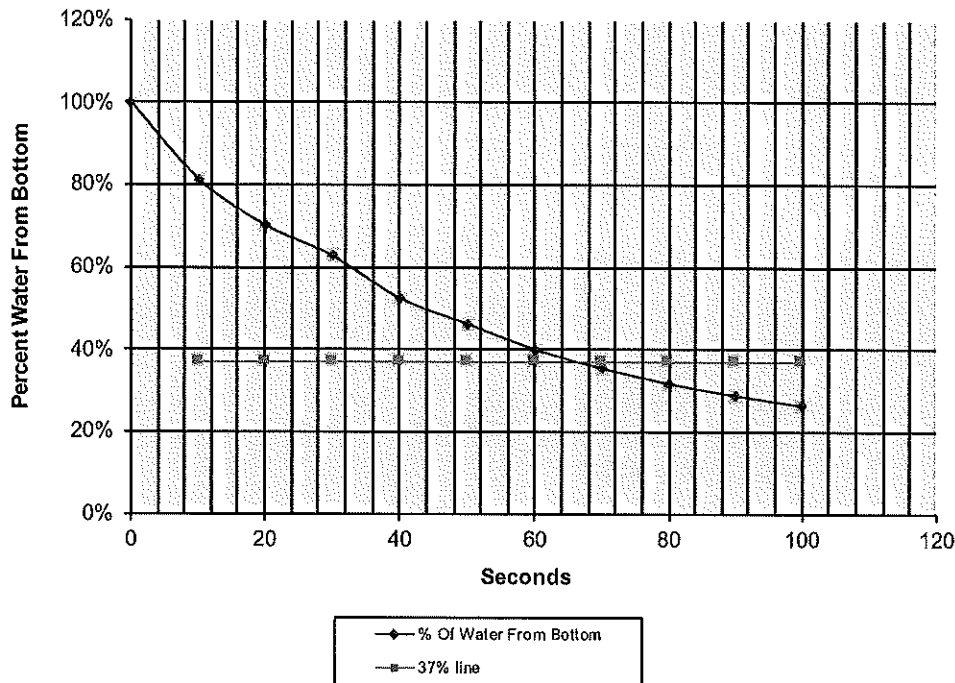
$$4.13E-04 \text{ ft/sec}$$

Using a Factor of Safety of: 2

$$Km = 2.07E-04 \text{ ft/sec}$$

$$8.93E+00 \text{ in/hr}$$

FALLING HEAD PERMEABILITY HT 1 TRIAL#1



Find Permeability Km

Where:

$$K_m = \frac{\pi(D)}{11(T)}$$

and:

$$D \text{ (ft)} = 0.333$$

$$T \text{ (sec)} = 70$$

$$K_m = 0.0013586 \text{ ft/sec}$$

or

$$1.36E-03 \text{ ft/sec}$$

Using a Factor of Safety of: 2

$$K_m = 6.79E-04 \text{ ft/sec}$$

$$2.93E+01 \text{ in/hr}$$

February 27, 2023

WETLAND REPLICATION PLAN

for

310 Kenneth W. Welch Drive, Lakeville MA 02347

310 Kenneth Welch Drive
Lakeville, MA
Map: 61 Lot: 2-03

PURPOSE:

CONSTRUCTION DOCUMENT

PREPARED FOR:

TAC Vega MA Owner LLC
3560 Lenox Road NE, Suite 1475
Atlanta, GA 30326

All construction work discussed in this document shall be supervised by a qualified wetland scientist with a minimum of five years' experience.

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I. EXISTING BORDERING VEGETATED WETLAND

The site of the proposed project consists of 1 land parcel, totaling +/- 569,383 SF. A 177,995 SF industrial building with an associated parking lot currently sits on-site within the 100-Foot Buffer Zone to Bordering Vegetated Wetlands. The existing pavement areas measure 107,874 SF of impervious surfaces on-site. Parking is limited to small lots located on the eastern and western portions of the site. A raised elevation upland portion of the site is located adjacent to the Eastern parking lot. The remainder of the site to the North is forested, undeveloped land. Bordering Vegetated Wetlands span much of the Northern section of the site. Hydrology stems from an internal intermittent stream near the northern property boundary. The site's resource areas connect hydrologically via a culvert under the existing railroad line off-site to the North.

The wetland system is dominant in red maple, northern spicebush, greenbrier, skunk cabbage, jewelweed, and New York fern. The adjacent upland is dominant in white oak, red maple, multiflora rose, virginia creeper, oriental bittersweet, Canada mayflower, greenbrier, and common dewberry.

II. WETLAND REPLICATION AREAS

References: See Site Plans approved

A. LOCATION:

One extensive Wetland Replication Area is proposed on-site, measuring 7500 SF. The Replication Area is proposed adjacent to wetland flags A12 to A22. As part of the project, 4950 SF of wetland fill is required to meet the proposed design. The proposed replication area is designed to meet a 1.5 : 1 ratio of replication to fill to ensure the post-construction site conditions exceed pre-construction conditions. An extensive planting plan is attached as part of the replication work proposed on-site. Erosion controls will be installed along the limit of work.

The location of the replication was selected for the following reasons:

- The area can easily be accessed from the back of the proposed parking lot. As a result, very few shrubs and brush will be removed or trampled to reach the Wetland Replication Area. The proposed project will create the work area to allow machinery to easily access the Wetland Replication Area.
- The area directly abuts the existing BVW with similar vegetation and soil conditions as the impact area.

- The area within the forest was desirable for wetland replication due to the shade from surrounding large trees which will keep the wetland environment at a natural, cool temperature.
- The close proximity to BVW will allow the replication area to blend into a similar landscape provided nearby.
- This location allows the replicated wetland to fulfill more functions and values on a greater scale than the existing BVW, particularly in the sense of flood control due to its greater size and mild slope. The BVW replication area will provide protection of the following benefits: public or private water supply, ground water supply, flood control, storm damage prevention, prevention of pollution, and plant or wildlife habitat.
- Alternative areas were discussed throughout the property, but none provided the same benefits as the current proposed area. Access would not have been as easy, and the benefits of the surrounding landscape would not nearly be as beneficial as the extended BVW proposed. Further proximity to BVW and lack of shade from overstory canopy trees would have led to a less successful and desirable environment for a wetland replication area.

The following steps may be completed congruently to ensure transplanted vegetation is immediately planted.

B. GENERAL INSTALLATION PROCEDURES:

Supervision: All work within the replication area shall be supervised by a qualified wetland scientist with a minimum of five years' experience. Wetland scientist shall submit qualification for approval by the Conservation Commission prior to the commencement of work that requires supervision. The supervisor shall submit monitoring reports to the Conservation Commission as described below. Reports shall contain details of all work performed and photographs of completed conditions.

Timing: Work shall take place ideally when the wetland impact area is not saturated. If necessary, a dewatering plan shall be approved by the Conservation Commission. The construction and installation of the replication area should be accomplished during the spring or fall growing seasons (between April 16 and May 31 or between September 16 and October 30). Planting during these periods is highly recommended. The replication area grading is advised not to commence unless the contractor can guarantee completion of the work within the replication area within the same season.

Step 1: Stake Limits of Work, Confirm Wetland Flags in Place & Install ECB – At Replication Area

Staking out limits of work and confirmation of wetland flags are planned for the replication area. Erosion control barriers shall then be installed in the form of staked siltation fence and mulch sock (or similar invasive-free barrier) placed at the limit of work for the replication area. These will remain in place and be maintained until the areas are completely stabilized and then may be removed after approval of the Conservation Commission. Wetland scientist shall have authority to require additional erosion control measures if deemed necessary.

Step 2a: Identify Shrubs, Woody Debris, and Boulders to be re-used in Replication Area

The wetland scientist shall identify and flag any native wetland shrubs within the replication area and the BVW impact area that may be dug up and stockpiled for use as additional plantings in the

replication area. Any flagged specimens shall be removed and stockpiled in a designated area outside the replication area. Any large woody debris (rotting logs and tree stumps), moss covered boulders/rocks, ferns (such as cinnamon fern), and other ground cover shall also be identified and flagged for stockpiling and subsequent addition to the replication area. Wetland trees that lie or stand along the edge of the replication area may be preserved at the discretion of the wetland scientist.

Step 2b: Remove Trees and Vegetation

Once flagged trees, shrubs and woody debris specimens have all been removed and stockpiled, clear and remove all remaining vegetation within the replication areas in preparation for excavation and grading.

Step 3: Excavation of Wetland Soils at BVW Impact Areas

Prior to any soil excavation, a storage area for soil and leaf litter shall be prepared; soil shall not be stored in buffer zone. Topsoil, leaf litter, and subsoil shall be stockpiled separately. Wetland soils from the BVW impact area will be excavated and transported to the replication area. The soils immediately surrounding the BVW impact area will also be transplanted to the replication area and will be placed along the inner border of the replication area to create a natural transition from upland to wetland soils.

Step 4: Excavation of Replication Area

An excavator or backhoe shall remove existing soils up to the edge of the proposed replication area boundary, to a depth at which redoximorphic features become visible in the C-horizon at the soil surface and at least one foot below proposed final grade, all of which shall be supervised and directed by the wetland scientist. Final grading will range from 45 to 47 feet as favorable hydrological conditions are reached. The general topography around the areas is a defined incline, so it is expected groundwater will be reached at the desired depths. Soils in the area are anticipated to be smoothly excavated with machinery, and the limit of work provides close access to the replication area. Topsoil and subsoil shall be removed from the area for re-use elsewhere in the project site or removed from the site. Subsoil of the C-horizon shall be loosened prior to Step 5 to ensure soils aren't compacted prior to topsoil placement.

Step 5: Final Grading of Replication Area

Upon removal of existing soils down to the proper depth (as determined by the wetland scientist), the organic soil from the BVW impacts area will be placed within the replication area. If soils from the impact area are not sufficient, supplemental soils shall be imported, sourced from composted organic materials, and shall consist of a 50:50 mix of loam and organic material with an organic content between 12 and 20%. Topsoil shall be placed within the replication area to a depth 6-12" and even with the surrounding proposed elevation on design plan, to be determined by the supervising wetland scientist. Final grade shall be confirmed to be proper by the wetland scientist prior to plantings. Placement of soil shall be such that no equipment drives over or compacts placed soils. Final grading will result in micro relief of pits and mounds. Topography will create areas that pool and flood during heavy rain events and also see water near the surface during the wet season.

Step 6: Place Woody Debris and Boulders

Woody debris, stags, and moss-covered boulders currently lay on site in the proposed replication area. These shall be preserved and randomly placed throughout the replication area to provide cover for wildlife.

Step 7: Planting

Selected species, especially grasses and sedges, may be transplanted from the BVW impact area into the replication area provided that the time of year and duration of plants' time out of soil is appropriate for survival of transplants. Precise citing of plants may be determined by the wetland scientist in the field prior to installation. All plantings (reference the planting list from section C) shall be distributed randomly throughout the area; trees spaced at 10-15' on center; shrubs spaced at 6-12' on center. Shrubs shall be planted in clumps of 3 the same species. As a rule, plants of the same species will be placed in groupings that more closely mimic natural conditions. Trees shall be planted on mounds and shrubs in depressions. Stockpiled shrubs will be placed first. All other plantings will be removed from burlap sacks, wire cages and plastic containers prior to planting. Each plant will have its roots loosened prior to planting to encourage root growth away from the planting bulb. Leaf litter shall be spread throughout area if available. Wetland seed mix shall be scattered evenly by hand throughout the replication area. Once all work is complete an erosion control barrier will be installed to enclose the replication area on the access side of the replication area.

Step 8: As-built

Interim as-built plans, complete with one-foot contours, spot elevations, surface area, and cross sections of the replication area shall be prepared by a Registered Professional Land Surveyor of the Commonwealth and submitted to the Commission within 30 days of completion of final grading.

Step 9: Erosion Controls Removal

Once the replication area is stable, a request shall be submitted to the Conservation Commission to remove the erosion controls around the wetland replication areas. Upon approval of stabilization, erosion controls shall be removed promptly, and any significant disturbance shall be seeded with a wetland seed mix as specified in section C.

Step 10: Replication Monitoring

a. **Seasonal monitoring reports** shall be prepared for the replication area by a qualified wetland scientist for a period of 2 additional years after installation or every year until a COC is issued by the Lakeville Conservation Commission. This monitoring program will consist of early summer and early fall inspections and will include photographs and details about the vitality of the replication areas. Monitoring reports shall be submitted to the Commission by the end of each year. Monitoring reports shall describe, using narratives, plans, and color photographs, the physical characteristics of the replication area with respect to stability, soil characteristics (i.e. horizons, depths, texture, percent gravel and rock, organic matter, Munsell hue, value and chroma, consistence and evidence of hydrologic influence), survival of vegetation and plant mortality, aerial extent and distribution, species diversity and vertical stratification (i.e. herb, shrub and tree layers). Invasive species will be documented if present and removed.

b. **At least 75% of the surface area** of the replication areas shall be re-established with indigenous plant species within two growing seasons. If the replication area does not meet the 75% re-vegetation requirement by the end of the second growing season after installation, the Applicant shall submit a remediation plan to the Commission for approval that will achieve replication goals, under the supervision of a Wetland Specialist. This plan must include an analysis of why the area has not successfully re-vegetated and how the Applicant intends to resolve the problem.

C. PLANTING LIST:
Proposed Plantings for Replication Area (7500 s.f.)

Common Name	Scientific Name	Number	Size
Trees (n= 33)*			
Red Maple (FAC)	<i>Acer rubrum</i>	11	4-5'
Yellow Birch (FAC)	<i>Betula alleghaniensis</i>	11	4-5'
Swamp White Oak (FACW)	<i>Quercus bicolor</i>	11	4-5'
Shrubs (n=75)*			
Highbush Blueberry (FACW)	<i>Vaccinium corymbosum</i>	15	3 gal. pot
Maleberry (FACW)	<i>Lyonia ligustrina</i>	15	3 gal. pot
Sweet Pepperbush (FAC)	<i>Clethra alnifolia</i>	15	3 gal. pot
Northern Arrowwood	<i>Viburnum dentatum</i>	15	3 gal. pot
Northern Spicebush	<i>Lindera benzoin</i>	15	3 gal. pot
Seed Mix			
New England Wetland Plants WETMIX or equivalent*	Replication area	1	3 lbs

*Planting species and seedmixes may be substituted with Conservation Commission approval with similar native species with the same wetland indicator status if certain species are unavailable.

D. CONCLUSIONS

The BVW wetland impact area will be mitigated at a ratio of 1.5 : 1 to ensure net improvements are made to the resource area. Native trees and shrubs have been selected for planting due to the ecosystem services they provide. Habitat cover, food, and pollinator habitat will be created and enhanced through the proposed wetland replication area. All local, state and federal statutory interests and performance standards have been protected and will be met by the project, as described above.

If you have any questions, please do not hesitate to reach out.

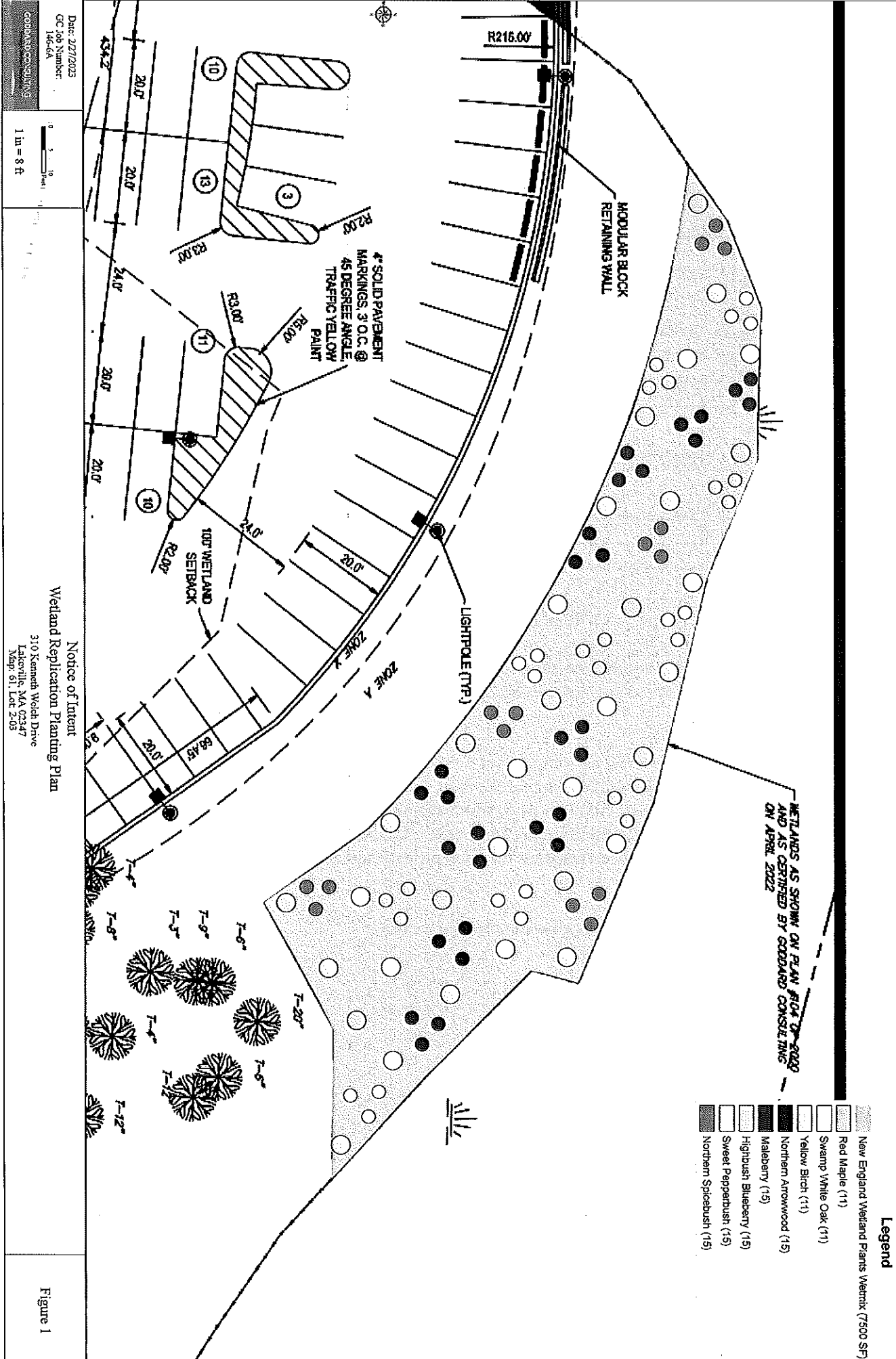
Sincerely,

Goddard Consulting, LLC

Andrew Thibault

Andrew Thibault, WPIT, WSA

Environmental Scientist



WETLANDS AS SHOWN ON PLAN FROM 07-2000 AND AS CERTIFIED BY GEORGE CONSULTING ON APRIL 2022

- Legend**
- New England Wetland Plants Wetmix (7500 SF)
 - Red Maple (11)
 - Swamp White Oak (11)
 - Yellow Birch (11)
 - Northern Arrowwood (15)
 - Malebary (15)
 - Highbush Blueberry (15)
 - Sweet Pepperbush (15)
 - Northern Spicebush (15)

Date: 2/27/2023
 GC Job Number: 146-6A
 COMPANY: CONRAD CONSULTING

0 5 10 Feet
 1 in = 8 ft

Notice of Intent
 Wetland Replication Planting Plan
 310 Kenneth Walsh Drive
 Lakeville, MA 02347
 Map: 61, Lot 2-05

Figure 1