TOWN OF MIDDLEBURY

Conservation Commission
1212 Whittemore Road
Middlebury, Connecticut 06762
(203) 577-4162 ph
(203) 598-7640 fx

REGULAR MEETING
MINUTES
Tuesday, February 28, 2023
7:30 P.M.

REGULAR MEMBERS PRESENT
Mary Barton, Vice Chairwoman
George Tzepos
Peggy Gibbons
Joseph Martino
Curtis Bosco

REGULAR MEMBERS ABSENT
Paul Bowler, Chairman
Brian Stroby

ALSO PRESENT
John Calabrese, P.E.
Deborah Seavey, W.E.O.

I. CALL TO ORDER

Vice Chairwoman Barton called the Regular Meeting to order at 7:30 p.m. She then initiated roll call. All members were present, with the exception of Chairman Paul Bowler and Brian Stroby.

II. ACTION ON MINUTES

January 31, 2023 Regular Meeting

Motion: to accept the Minutes of the January 31, 2023 Regular Meeting. Made by Curtis Bosco, seconded by George Tzepos. Unanimous Approval.

III. OLD BUSINESS

1. Application #492 – 20 Juniper Road

There was no one present and discussion was tabled until the next meeting.

2. Application #493 – 404 Tucker Hill Road

Vice Chairwoman Barton confirmed that a revised site plan was submitted.

Motion: to approve application #493 – 404 Tucker Hill Road per the Draft Resolution. Made by Curtis Bosco, seconded by George Tzepos.
Discussion:
Vice Chairwoman Barton asked if a provision for the wetland markings was part of the resolution.

Deborah Seavey, W.E.O. replied that it needed to be added.

Vice Chairwoman Barton requested that the motion be amended to add the wetland markers.

Motion: to amend the previous motion to add the provision that wetland markers be added. Made by Curtis Bosco, seconded by George Tzepos. Unanimous Approval.

3. Permit Modification #481 – 39 Sandy Beach Road

Application was withdrawn.

AGENDA
Motion: to move Permit Modification #461-A and Application #494 above Application #490. Made by Curtis Bosco, seconded by Joseph Martino. Unanimous Approval.

IV. NEW BUSINESS

1. Permit Modification #461-A – 1582 Straits Turnpike

Peter Amara joined the meeting via zoom.

Vice Chairwoman Barton questioned if he had a proposed site plan to share on the screen.

Peter Amara stated that he did not and that it was his understanding that his application would be accepted this evening. The original design of the previously approved medical/office building, which was approximately 6,500 square foot footprint, has been changed to an estimated 2,000 square foot footprint. It will be the same type of building with two (2) stories with a walkout in the rear on the second level and the street level facing Straits Turnpike. While he did not have the precise drainage calculations, he confirmed they were done by Scott Meyers, P.E. of Meyers Associates P.C.

Vice Chairwoman Barton stated that Scott Meyers, P.E. would need to be present at the next meeting.

Motion: to accept Permit Modification #461-A – 1582 Straits Turnpike. Made by George Tzepos, seconded by Joseph Martino. Unanimous Approval.

2. Application #494 – 600 Middlebury Road

Joseph Dinova shared that he wanted to clean up the river between his two (2) buildings on Hop Brook. There were some downed trees and he does not want to do any extensive planting because he does not want to dig up the dirt although he would like to put in some wildflowers. He would also like to clean up some of the Japanese Cane and lay down some woodchips.

Vice Chairwoman Barton stated that his application is not very detailed.

Joseph Dinova added that he took dead trees down as they were a hazard to people. At this point, he does not want to remove any trees, only put in some wildflowers and clean it up.

Vice Chairwoman Barton stated that he needs to submit a detailed sequence of construction. She recommended that he meet with staff to ensure his detailed plan is adequate.

Joseph Dinova agreed to do so.

Motion: to accept application #494 – 600 Middlebury Road. Made by George Tzepos, seconded by Curtis Bosco. Unanimous Approval.

III. OLD BUSINESS

4. Application #490 – 555 Christian Road/764 Southford Road

Vice Chairwoman Barton stated that an extension was granted at the last meeting. The commission hired Soil Scientist George Logan as a third party reviewer.

George Logan, Soil Scientist with REMA Ecological Services, LLC reviewed his attached report dated February 22, 2023 which was generated following his site visits of February 3rd and 18th. He pointed out a typographical error on page 2 of his report "During REMA's February 8, 2023….." and that the correct date is actually February 3, 2023. Following said site visit and email correspondence sent to Matt Sanford, Professional Soil Scientist and Wetland Scientist with SLR, 99 Realty Drive, Cheshire, CT 06410 by way of town counsel, Matt Sanford conducted additional wetland boundary verification and delineations and provided the attached report dated February 16, 2023. Subsequently, Mr. Logan returned to the site on February 18, 2023. Two (2) things not mentioned in his report, he did review Mr. Sanford's wetland report and agrees with it for the most part, however, he would have done something different to differentiate between the functions of the wetlands. He also does not believe there will be a significant adverse impact on functions and values. He conveyed his understanding that it is an impact when looking at it from the perspective of the amount of square footage of wetlands being taken. While he did not mean to discount them, the functionality needs to be compared. With respect to the wetland mitigation plan being proposed, his view is that it will not be too difficult to create provided a professional is present to supervise. He voiced his opinion that in some instances, five (5) years is not adequate and suggested that more detailed implementation notes be added to the mitigation plan as well. He verified that if impervious surfaces were reduced, you would have less generation of a pollutant load. The screen channel protection mentioned by the intervenors could be important to look at more so for off-site. He acknowledged that literature exists that lighting does have an impact on invertebrates and amphibians. He clarified that he looked at the existing conditions as well as proposed conditions. He stressed the importance of maintaining the wetland creation and the prevention of an influx of invasive species. He confirmed that all of the wetlands that were delineated are CT wetlands, therefore this commission regulates all of them. All of them, except for the isolated wetlands, are regulated by the U.S. Army Corps of Engineers.

Attorney Edward (Ned) Fitzpatrick of 203 Church Street, Suite 4, Naugatuck, CT 06770 spoke on behalf of the applicant and emphasized that his is a matter of science and for the experts. He confirmed that many of George Logan's recommendations have been incorporated.

Matt Sanford, Professional Soil Scientist and Wetland Scientist with SLR, 99 Realty Drive, Cheshire, CT 06410 stated that upon Mr. Logan's receipt of Mr. Sanford's report dated February 16, 2023 (see attached), Mr. Logan returned to the site and performed test pits and ultimately requested that Mr. Sanford return to the site. In turn, he went on to review his most recent report, dated February 28, 2023 (see attached). Per Mr. Logan's recommendations, the modifications include an increased impact to Wetlands WM and WF (approximately 600 square feet) and the mitigation area was adjusted as well. He

then proceeded to review his Snake Management Plan dated February 28, 2023 (see attached). Based on their findings, they have no reason to believe that there are any state listed snakes on the site. However, they are aware that there is a potential for common snakes on the site and provided the plan out of an abundance of caution and he acknowledged it would require the expertise of a qualified herpetologist.

Ryan McEvoy, P.E. with SLR, 99 Realty Drive, Cheshire, CT 06410 provided and reviewed the series of attached exhibits (EXB. A – EXB. D, WR-1 & WR-2). He confirmed that they are prepared to make the necessary modifications per the recommendation of Mr. Logan that the stormwater basins be retrofitted to be more of a Bioretention style basin using the guidance of University of New Hampshire studies as well as the inclusion of off-line hydrodynamic separators referenced in his report. Which represent their intentions to maintain hydrology to wetland areas. They will implement the recommendations with regard to how to treat the bottom of the stormwater basins including the bioretention filter media and underlaid with a gravel crushed stone base with an underdrain within that base. He confirmed that the additional wetland that was delineated has been accounted for in the mitigation plan as well.

Vice Chairwoman Barton questioned if the applicant looked into constructing a smaller building with a smaller amount of impervious area.

Ryan McEvoy, P.E. replied that they did look at different options on the site, including developing in different areas of the property. He clarified that his statement was not part of an alternative proposal, but added that there are other available areas of the site that could be developed as part of the application. He went on to add that what they concerned themselves with is the functions and values of the areas that they are looking to put the building in. While impacting certain wetlands, it is being offset by mitigation efforts that would enhance the ability and overall quality of the wetlands on the site. He believes their proposal makes the most sense from the perspective of the wetland delineations. He went on to describe the various steps of how stormwater is managed from it being captured from the impervious surfaces, handled and ultimately treated prior to entering the wetland areas.

Vice Chairwoman Barton questioned John Calabrese, P.E. if there was a stormwater management plan including in the plans as well as maintenance.

John Calabrese, P.R. replied that he believes there is and confirmed that he will look at it prior to the next meeting.

Vice Chairwoman Barton requested that Attorney Fitzpatrick explain why a group site walk did not take place,

Attorney Fitzpatrick confirmed that a request was made to have a site walk which would include members of the public and it was discussed with the applicant who is the contract purchaser of the property. They do not have the appropriate insurances to ensure that everyone would be covered and there were concerns about a large number of people visiting the site which the applicant does not even own. Legally there is no requirement that it take place and the applicant feels that they have met all of the requirements by ensuring that the individual members could visit the site with staff. They felt that the commission could accomplish what it needed to by looking as the members are the ones that make the judgments. It was not something this commission decided to do, it was the applicant's decision.

Attorney Keith Ainsworth of 51 Elm Street, Suite 201, New Haven, CT 06510 and legal counsel to Middlebury Small Town Alliance, LLC, spoke on their behalf. He conveyed his understanding that members of the public were not permitted to walk the site but expressed his concern with the fact that the professionals hired by his client were not extended the opportunity.

Attorney James Strub, counsel for the Conservation Commission, stated that if the applicant, through the owner or contract purchaser, does not want to allow members of the public on site, it includes the intervenor. That is why one of his recommendations was that there was not a full site visit by the commission members as it would constitute a quorum, therefore a meeting. He felt that would put the intervenor in a strange position. Members going out individually allows them the opportunity to investigate the property being discussed, which is part of this commission's investigative functions. He does not believe that the intervenor or the public has a right to go on the site without the permission of the applicant.

Attorney Ainsworth stated that just because the applicant has an option to deny them access, does not mean they can't allow them; it is not prohibited. It also doesn't mean that the Commission couldn't have done a group site walk thus creating a public hearing, which would then require that the public be allowed. He added that he believes his client would have agreed to keep the rest of the public out and allow only their experts. They also had a herpetologist willing to address the possibility of state listed snakes on site, but site access would be required. Printouts from Natural Diversity Data Base (NDDB) state that it is not a comprehensive, complete or definitive source and contain only what has been reported due to past observations at said locations. He feels it would be appropriate to look during the times of year when suspected species might be found, early fall or spring in this case. His clients hired a soil scientist, Dr. Steven Danzer, to review the plans and Steven Trinkaus, P.E., who performed some pollutant removal calculations on the proposed stormwater system. As a result, they believe that the proposed system will

be discharging pollutants that are harmful to the receiving watercourses and wetlands, both on and off site.

Vice Chairwoman Barton questioned what the missing content of his letter dated February 27, 2023 (see attached).
Second paragraph, second sentence:
I want to supplement the comments this office made at the previous hearing in January. Many of the concerns raised which were dismissed by the applicant's soil scientist, have proven to be

Attorney Ainsworth replied that the paragraph should end with "well founded".

Steven Trinkaus, P.E., 114 Hunters Ridge Road, Southbury, CT 06488 spoke on behalf of Middlebury Small Town Alliance, LLC. He commented that the bioretention systems are a low impact development practice and are designed to accept water from the first inch of rainfall, not beyond that. He believes that the use of them where you have dry detention ponds is a misapplication of the technology and will not function as intended. He stated that the bottom of the basins are well below the hardpan layer and will ultimately be in ground water. Bioretention media is mostly sand and if you pond water on top of the sandy media, the outcome will be a fine layer of sediment on top of the media and it takes less than eight of an inch of fine sediment to cause a system to clog. It is his opinion that bioretention with infiltration is not an appropriate use in any of the basins for reasons pointed out in his letter dated February 24, 2023 (see attached). He added that the original proposal by the applicant does not address water quality and the modifications using the bioretention data from UNH is inappropriate and will fail extremely quickly.

Vice Chairwoman Barton asked Mr. Trinkaus what his thoughts were on green roofs.

Steven Trinkaus, P.E., replied that their primary function is to reduce the HVAC cost within the building because it insulates the building and are not effective at reducing runoff volume in the northeast.

Curtis Bosco questioned if a pervious surface would be better suited for the site to which Mr. Trinkaus stated it would not. Mr. Bosco then asked if Mr. Trinkaus would be able to design a filtration system that would be adequate for the proposal.

Steven Trinkaus, P.E. replied that it is not his job to solve the applicant's problem or design their site. His job is to say works and what doesn't work. He went on to state that this site is very problematic due to the changes in elevation and the fact that they are trying to construct a big level area on a site that is not level. Many wetland corridors are dispersed throughout the site. He believes it could be done, but telling them how is not his job.

Steven Danzer, PhD, Soil Scientist & Wetland Scientist of Steven Danzer, PhD & Assoc., LLC, 9 Fara Drive, Stamford, CT 06905 spoke on half of the intervenors. He emphasized that the Natural Diversity Data Base (NDDB) is not a systematic evaluation of every site/property in the state of CT but rather a best guess repository of previous observations in certain areas. While he believes is to be very useful, just because state listed species are not listed on the site, does not mean they do not exist. He requested that the applicant amend their February 28, 2023 letter re: Snake Management as follows:
From:
Therefore, there is no reason to believe that state listed snakes are present on or adjacent to this site.
To:
Based on their review of the NDDB, we found no reason to believe that state listed snakes are present on or adjacent to this site.
He continued to state that the reality is that if you brought a qualified herpetologist out onto the site, they may or may not find potential or a natural state listed species. Therefore, he believes it is still an open question. He proceeded to review his report dated February 25, 2023 (see attached).

Attorney Ainsworth reminded the commission that their regulations direct an applicant to try other alternative measures to avoid wetland impact. He believes the proposed project involves a significant impact and that there are other ways to do the project without the same degree of impact.

Vice Chairwoman Barton acknowledged that at the November 29, 2022 meeting, the commission opted not to have a public hearing but since the last two (2) meetings, there has been a vast amount of information presented and it is clearly in the public interest. She went on to cite a portion of Section 9 and added that she thinks it is significant and definitely in the public interest. Therefore, it would be prudent for the commission to determine it's significant and schedule a public hearing. This commission will not be able to look at prudent and feasible alternatives unless it's determined significant.

Motion: to determine the application is a significant activity and is in the public interest to hold a Public Hearing for March 28, 2023 for Application #490 – 555 Christian Road/764 Southford Road. Made by Peggy Gibbons, seconded George Tzepos.

Discussion:
Curtis Bosco questioned what information would come out of having a Public Hearing that this commission has not already heard.

Vice Chairwoman Barton replied that the applicant would be responsible to provide feasible and prudent alternatives and currently they are not. She questioned if there is a

different way to design the site. Presently, they are not required to. Alternatively, the commission could make a decision based on the application that was submitted, but it seems as though more information is added at every meeting. She added that if there is a significant activity, referencing Section 9.1 and 7.6, they have to provide feasible and prudent alternatives. She expressed her belief that it would be prudent for the commission to do it as so much information has been provided and does not think it is unreasonable. She acknowledged that they are within the timeframe and could hold a public hearing on March 28, 2023, close it on April 25, 2023 and make a decision in May. She emphasized that that this commission's responsibility is to look at the impact of the wetlands. Much information was submitted and an intervenor was allowed to present, but due to the significant activity and the obvious public interest, it would require the applicant to provide some feasible and prudent alternatives to what they are proposing.

Curtis Bosco questioned if the applicant could, on their own, present an alternative.

Vice Chairwoman Barton replied that they do not have to and that Mr. McEvoy this evening mentioned that he was not providing an alternative. She understands that they are doing what their client wants, but it is not this commission's responsibility to do what the client wants. If there is an impact to the wetlands and if there is a different way to do this

George Tzepos voiced his concerns with all of the information provided and having to make a decision by April 7, 2023 if no public hearing is scheduled.

Vice Chairwoman Barton confirmed that scheduling a public hearing would also give the commission more time.

Curtis Bosco questioned if the applicant is being prevented from offering an alternative plan.

Attorney James Strub, Town Counsel, confirmed that the applicant can do whatever the applicant chooses to do. He went on to clarify the following:

- It is up to this commission to determine if there is a significant impact on the wetlands.

- If it is so determined and a public hearing is scheduled, the applicant would be obligated to provide feasible and prudent alternatives, which may or may not be helpful to the commission.

- The commission could hold a public hearing if the commission determines that it is in the public interest to do so.

He went on to state that if the public hearing is held under public interest and not a finding that there may be a significant impact, then the applicant could argue that they still do not have to provide feasible and prudent alternatives.

Curtis Bosco added that the commission could deny the application.

Attorney James Strub replied that the commission could have different reasons for denying an application and acknowledged that much testimony was provided from both sides.

Vice Chairwoman Barton reiterated her thoughts.

George Tzepos voiced his concerns with respect to stormwater treatment testimony provided and believes more information is needed.

Attorney James Strub clarified the various timeframes associated with holding a public hearing.

Vice Chairwoman Barton stated that they could provide one but that's not what is here. Its significant activity and in the public interest.

Attorney James Strub confirmed that are no extension left and the public statements could be given a time limit.

Unanimous Approval.

V. ADJOURNMENT

Motion: to adjourn the meeting at 10:20 p.m. Made by Curtis Bosco seconded by George Tzepos. Unanimous Approval.

Filed Subject to Approval,

Respectfully Submitted,

Rachelle Behuniak, Clerk

Original to Brigitte Bessette, Town Clerk
cc: Conservation Commission Members
Debbie Seavey, W.E.O.
Mark Lubus, Building Official
John Calabrese, P.E.
Terry Smith, P&Z Chairman
Curtis Bosco, Z.E.O.
Attorney Robert Smith, WPCA

RESOLUTION/REPORT

Application #493 404 Tucker Hill Road

WHEREAS: The Middlebury Conservation Commission for the Town of Middlebury has received an application on January 25, 2022 from Paul Fabion map entitled "Zoning Location Survey – Proposed Studio" dated November 18, 2018 with latest revision dated received February 8, 2023;

WHEREAS: The Commission has considered the proposed activity, application and all documents and reports submitted by or on behalf of the applicant.

WHEREAS: Field inspections were conducted by Commission members;

WHEREAS: The Commission finds based on evidence received that the proposed activity does conform to the purposes and requirements of the Inland Wetlands Commission;

WHEREAS: The Commission finds on the basis of the record that a feasible and prudent alternative does not exist. In making this finding, the commission considered factors and circumstances as set forth in Section 10.2;

NOW THEREFORE, BE IT RESOLVED That the Middlebury Conservation Commission approves the above application with the following conditions:

(1) The proposed activity that consists of construction of a 22'x20' studio building within the upland review area will not have a substantial impact on the regulated area.

(2) Prior to wetland permit issuance, two permanent wetland markers shall be installed along the disturbance limits.

(3) The applicant shall notify the enforcement officer forty-eight (48) hours prior to the commencement of work and upon its completion.

(4) Timely implementation and maintenance of sediment and erosion control measures are a condition of this approval. All sediment and erosion control measures must be maintained until all disturbed areas are stabilized.

(5) No equipment or material including without limitation, fill, construction materials, or debris, shall be deposited, placed or stored in any wetland or watercourse on or off site unless specifically authorized by this approval.

(6) All work and all regulated activities conducted pursuant to this approval shall be consistent with the terms and conditions of the wetland permit. Any structures, excavation, fill, obstructions, encroachments or regulated activities not specifically identified and authorized shall constitute a violation of this approval and may result in its modification, suspension, or revocation.

(7) It is the applicant's responsibility to give notification to the Army Corps of Engineers and the Department of Environmental Protection if necessary.

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

February 22, 2023

Ms. Deborah Seavey
Wetlands Official
Middlebury Town Hall
1212 Whittemore Road
Middlebury, CT 06762

RE: 3RD PARTY APPLICATION REVIEW
Proposed Southford Park – Timex Site
555 Christian Road & 764 Southford Road, Middlebury, CT
REMA Job #: 23-2579-MDL28

Dear Ms. Seavey:

At the request of the Town of Middlebury's Conservation Commission (a.k.a., Inland Wetlands & Watercourses Agency), REMA ECOLOGICAL SERVICES ("REMA") has been asked to review the plans and other supporting documentation for an application for activities within regulated wetlands and their upland review areas (URAs), for two proposed warehouse and distribution buildings, at the above-referenced +/-112-acre site. Our review is based on the following:

1. Two site investigations at the subject site, on February 3rd and 18th, 2023.
2. A *Soil Scientist Report*, prepared by SLR International Corp. (SLR), of Cheshire, Connecticut, dated November 2022.
3. A SLR *Drainage Report*, dated December 22, 2022, and revised January 24, 2023.
4. A set of plans dated November 28, 2022, and revised through January 24, 2023 prepared by SLR, consisting of 29 sheets.
5. A SLR report entitled "*Additional Wetland Boundary Verification/Delineation*," dated February 16, 2023.

6. An application review report by Trinkaus Engineering, LLC, of Southbury, Connecticut, dated January 27, 2023.
7. A SLR response letter addressing comments by John Calabrese, P.E., regarding the development proposal, dated January 27, 2023.
8. The online viewing of the video recording of the January 31, 2023 Conservation Commission meeting.

Prior to the fieldwork at the subject site, REMA conducted an initial desktop study and analyses of existing secondary-source data, including, but not limited to, U.S. Geological Survey (USGS) topographic quadrangle maps, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), U.S. Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS) Soil Survey data, most recent color aerial photographs (leaf-off), and other data layers available from on-line sources such as Connecticut Environmental Conditions Online (CTECO), and UConn's MAGIC (Map and Geographic Information Center) site.

WETLAND DELINEATIONS

During REMA's February 8, 2023 site visit, much of the delineated wetland boundaries depicted on the submitted plans were reviewed for accuracy. We concentrated on those wetlands which would be disturbed per the development plans (e.g., CT-1 through CT-4, CT-C)[1], as well as those wetland boundaries, proximal to proposed disturbances (e.g., FED-A, FED-B, FED-C, and CT-D).

Overall, we found the wetland delineations to be substantially correct, as reviewed in the field. However, a few areas were observed where additional wetlands could occur, or where a delineated wetland boundary may have had to be revised. Also, the western wetland boundary of the southern portion of Federal Wetland A, above which the compensatory wetland mitigation is proposed, had not been recently delineated, so review was not possible at the time.

Following our February 3, 2023 site visit, we provided SLR, through the Town Attorney, three figures (see Figures 1, 2, and 3, attached), showing the three areas (i.e., Areas A, B, and C)

[1] The nomenclature of wetland areas is derived from the figures found in the Soil Scientist Report.

were we requesting additional reviews for wetlands or wetland boundary delineations and adjustments. The following was communicated regarding these areas:

> Area A: Four areas dominated by reed canary grass where poorly drained profiles were observed.
>
> Area B: Areas westerly of the delineated wetland boundary, in moderately thick barberry understory, where poorly drained profiles were observed. We hung blue survey flagging in some of the areas.
>
> Area C: We would request that the soil scientist delineate this boundary, and not rely on previous delineations, since the wetland mitigation area is right up against this wetland. This will ensure that there is no disturbance of the existing poorly drained regulated soils.

In response to this request, SLR conducted additional wetland boundary verifications and delineations, and provided their results in a letter/report dated February 16, 2023. This report provided graphical representations of the areas investigated, as well as the locations of several test pits and auger holes.

On February 18, 2023, REMA returned to the site, and to the same areas (i.e., Areas A, B, and C), to verify the data submitted by SLR. All of the SLR test pits in the existing mowed field to the east of the Timex building were left open for review. REMA reviewed most of the SLR test pits, but also further explored the soils and opened five additional test pits (i.e., Test Pits A through E). The photo logs and descriptions for these additional five soil test pits are attached.

In general, we agree with SLR's descriptions at these areas with the following additions:

1. REMA Test Pit C, just downgradient of the newly delineated wetland pocket (i.e., CT-WET-WM-1 to WM-4), revealed poorly drained soil profiles. Thus, this wetland would extend downgradient no more than 15 feet (see Photos 5 and 6, attached).

2. REMA Test Pit D, just upgradient of SLR delineated wetland pocket (i.e., WF-1 to WF-4), revealed poorly drained soil profiles. Thus, this wetland would extend upgradient no more than 15 feet (see Photos 7 and 8, attached).

3. REMA Test Pit E, just upgradient of SLR Test Pit 8, revealed somewhat poorly drained soils, not a regulated wetland (see Photos 9 and 10, attached). However, per SLR's February 16, 2023 letter/report (see also SLR Photo Nos. 21, 22, and 23), soils at SLR Test Pit 8 are poorly drained. REMA asks why additional borings were not logged in this area, and why a wetland delineation was not undertaken.

On February 18, 2023, REMA also re-visited one of the areas (i.e., Area B) depicted in Figure 2, that had been forwarded to SLR on February 4, 2018. As had been mentioned in our communication at that time, poorly drained profiles had been observed during the February 3, 2023, site visit. REMA developed and logged four additional test holes (i.e., Test Holes 100, 200, 300, and 400), within a linear shallow depressional area in the landscape, approximately 60 to 70 feet westerly of the delineated boundary for Federal Wetland B (see Figure A, attached). While these, more or less, equally spaced test holes, are representative, REMA is of the opinion that a wetland area, which may or may not connect to Federal Wetland B, exists at this location (also see attached annotated photo log).

REMA also reviewed the adjustments to the wetland boundary at the "head" of Federal Wetland B, in the vicinity of re-hung wetland boundary markers W-B-30 to W-B-34. REMA would have extended the delineation to a single point, along an obvious through flow, roughly 20 feet upgradient, to the previously hung blue REMA flag (see Photo 12, attached). However, with the recent SLR adjustments REMA believes that this wetland delineation is substantially correct.

Finally, REMA checked the new SLR delineation along the western side of Federal Wetland A, which would be adjacent to proposed compensatory wetland mitigation area (i.e., flags WZ-193 through WZ-199). While we did not check every single flag, one flag (WZ-195) was found to be roughly 12 to 15 feet downgradient of the actual wetland boundary. We put up an unnumbered green/blue flag to denote the wetland boundary (see Photo 11, attached).

POTENTIAL HYDROLOGIC IMPACTS

One of the categories of *potential adverse physical impacts* to regulated wetlands, often overlooked, is that of impacts resulting from changes to wetland hydrology, most often denial of sufficient groundwater or surface water flows to a wetland, which could lead to its "dewatering," or conversely, and much less often, to overflooding, which can kill vegetation,

and drastically alter the wetland habitat. At the site we already have an example of the former category of impact at Connecticut State Isolated Wetland C. Based on the testimony by the applicant's wetlands professional, Mr. Matthew Sanford, this wetland is dominated by non-hydrophytic (i.e., "wetland") plants, particularly in the woody understory. Also, there was no evidence of an active water table. The suggestion has been made that this "dewatering" has taken place due to the existing development, and specifically the upgradient roadway and its drainage system, which is likely diverting shallow groundwater flow, as well as surface flows, away from this wetland.

Similar hydrologic concerns have now surfaced due to the proposed development. The most potentially acute is that of a portion of Federal Wetland B, then a hillside portion of Federal Wetland A, then the northern portion of Federal Wetland C, and finally, off-site wetlands to the west of the property and its prominent glacial drumlin, upon which the Timex building is situated.

The surficial geology of the site factors greatly into the formation and hydrology of the site's wetlands. According to geologic maps, including CTECO, the great majority of the site is underlain by thick till (i.e., > 10 feet deep) deposits (see Figure 4, attached). Moreover, the USDA-NRCS Web Soil Survey indicates that the soil types at the site are derived from lodgement till, and have a "hardpan." Typically, wetlands that form on the hillsides of these geologic features, derive their hydrology from shallow groundwater flow, as infiltrated precipitation, "rides" the hardpan and discharges to the ground surface in wetland areas. In these areas the "ground-shed" is largely coincident with the "surface-watershed." Another phenomenon is that quite often in the interface between thick and thin glacial till deposits, something that is experienced off-site to the west, groundwater discharge can be much more prominent, and is often permanent or semi-permanent. We often find natural springs and spring houses in such areas.

The central, hillside section of Federal Wetland B, from about wetland boundary marker W-B-24, to about wetland boundary marker W-B-19, is a predominately *seasonally saturated* forested wetland, which derives much of its hydrology from contributions from its watershed, including shallow groundwater discharge. The intermittent stream that forms through this wetland, is fed by contributions from both groundwater and surface water, including discharge from and existing detention basin (i.e., DB-1). Under proposed conditions, a significant portion of the existing watershed to the west and northwest of this section of Federal Wetland B, will be cut-off, and much of it covered by impervious surfaces (i.e., parking areas, and

roadway). REMA recommends that the applicant consider bringing some water, after appropriate treatment, to this section of Federal Wetland B, to ensure that its hydrologic regime will be maintained. The use of infiltrative level spreaders would also be appropriate.

Similarly, Connecticut Wetland B, and the western, hillside portion of Federal Wetland A, will also have a significant portion of their watersheds, which contribute to their existing hydrologic regime, covered by impervious surfaces, including building and roadways. Based on the submitted plans these developed areas will flow away from these wetlands to proposed stormwater management basins. As with Federal Wetland B, REMA recommends that additional water is introduced above these wetland areas, after appropriate treatment, to ensure that the hydrology of these hillside discharge wetlands be maintained.

At the far southwestern section of the site, the northern portion of Federal Wetland C, which by the way, discharges towards the north, not the south – a topographic saddle exists here – is a headwaters forested wetland, with potential vernal pool habitat characteristics, a subject that we will return to below. The concern here is not necessarily one of potential dewatering, but primarily the need to understand the size of the watershed under existing conditions compared to the watershed under proposed conditions. REMA would ask that the applicant provide this comparison, including graphical representations.

Finally, there appear to be at least two distinct, hillside forested wetlands off-site to the west of the subject site, within 300 to 450 feet, or possibly closer (see Figure 5, attached). How will the site development plan ensure that these significant hillside wetlands, which rely both on seasonal groundwater discharge and overland flow, not be hydrologically impacted? Can the applicant graphically show what portion of the site currently sheds towards these off-site wetlands, and what the post-construction condition be per the submitted plans?

POTENTIAL WATER QUALITY IMPACTS

Another potential category of *adverse physical impacts* to regulated wetlands and watercourses pertains to the degradation of their water quality. Stormwater runoff from impervious surfaces of development (e.g., commercial, residential) sites has the potential of degrading the water quality (i.e., surface and groundwater) of regulated resources. Generation of potential pollutants on impervious surfaces typically results from vehicular traffic over them. The more the "axle-miles" or the movements of vehicles over impervious surfaces, the higher is the potential loading of runoff constituents, including sediment, nutrients, heavy metals, and the

like. In Connecticut, designers of stormwater management facilities, for water quality control, rely, to a great extent, on the guidelines set forth in CT DEEP's Stormwater Quality Manual (2004) ("the Manual"). The general understanding is that if the stormwater management facilities are properly sited, configured, and sized, and include above-ground, vegetated, primary treatment systems, in accordance with the guidelines, adverse impacts upon the water quality of regulated areas are not expected.

However, the designer must also take into consideration the relative sensitivity of the receiving surface waters, that is, the regulated wetlands or watercourses. For instance, the lower section of a warm-water perennial watercourse, with an urbanized watershed, with much impervious surfaces, is not as sensitive as a cold-water, first-order perennial stream, that has a watershed with less than 5% impervious surfaces, or a headwaters, hillside seepage forested wetland.

At the subject site, Federal Wetland A, discharges to Long Meadow Brook, via Avalon Farm Pond, while Federal Wetlands B and C, discharge to two Eightmile Brook sub-watersheds. Federal Wetland B, and the southern portion of Federal Wetland C, flow to the Kissawaug Swamp, and its unnamed perennial watercourse, while the northern portion of Federal Wetland C, discharges to a wetland and unnamed perennial watercourse, that flows to the Eightmile Brook via a culvert under North Benson Road.

In each case, the receiving wetlands and watercourses are considered "headwaters," but their sensitivity is likely variable, based on a variety of factors, including field observations by REMA. From a water quality perspective, the surface waters (i.e., wetlands and watercourses) that would be receiving treated discharge from the new stormwater facilities, are moderately sensitive, and the perennial watercourses associated with each watershed, further downgradient from the subject site, would be protected from water quality impacts, including potential thermal impacts, should the proposed stormwater management facilities comply very closely with the Manual guidance. To this we will return below.

However, there is one regulated resource that based on its landscape position, and obvious and potential hydrological and ecological characteristics, make it the most sensitive resource associated with the subject site, in regards to water quality. This is the northern section of Federal Wetland C, which, for the most part, is located immediately off-site to the west. Based on our field investigation of February 3, 2023, this headwaters, seasonally flooded forested wetland, also appears to be a vernal pool habitat (see Figure 6, attached).

Because it is a headwaters wetland, at the very top of the watershed, and because it is seasonally flooded and its watershed is forested and completely undeveloped, any development within its contributing watershed has the potential of adverse impacts. Moreover, due to the high likelihood that this wetland is also a vernal pool habitat, the sensitivity of this resource is heightened. It is well understood that water quality impacts to vernal pool habitats can result in even the elimination of such a habitat as a breeding pool for obligate amphibians, such as wood frog and Ambystomatid salamanders.

As mentioned above, we need to get an understanding of the pre- and post-watersheds to this resource. We need to not only ensure that existing water quality is conserved, but also that hydrology is maintained at current levels of not only volume, but also duration. To little water will result in adverse impacts, but also due to the high likelihood of this resource being a vernal pool, too much water will also be potentially detrimental.

It is clear from the submitted plans, and from the Drainage Report, that a significant acreage of impervious surfaces are being routed to Detention Basin 110, which discharges to the wetland resource in question. We do not believe that this basin is, as currently designed, capable of reducing the concentrations of runoff constituents, such as nutrients and heavy metals, to levels that there will not be a degradation of water quality. Therefore, REMA recommends that the applicant consider an alternative stormwater quality system, namely a Bioretention ISR (Internal Storage Reservoir), as detailed and tested by the University of New Hampshire's Stormwater Center (UNH-SC) (see attached standard detail). Based on real world testing this enhanced bioretention system does exceptionally well in reducing both nutrient and heavy metal concentrations.

For the balance of the proposed detention basins, including Detention Basins 510, 420, and 320, we would recommend that they all be converted to standard bioretention basins, with underdrains, following the specification promulgated by UNH-SC, including the newest filter media specification, and appropriate pre-treatment, including off-line hydrodynamic separators, as recommended by Trinkaus Engineering, LLC. It is REMA's professional opinion, that should the aforementioned recommendations be implemented, water quality impacts to all of the receiving waters associated with the subject site will be minimized.

We thank you for the opportunity of reviewing this proposal before the Town and its landuse commissions. Please call us with any questions on the above

Respectfully submitted,

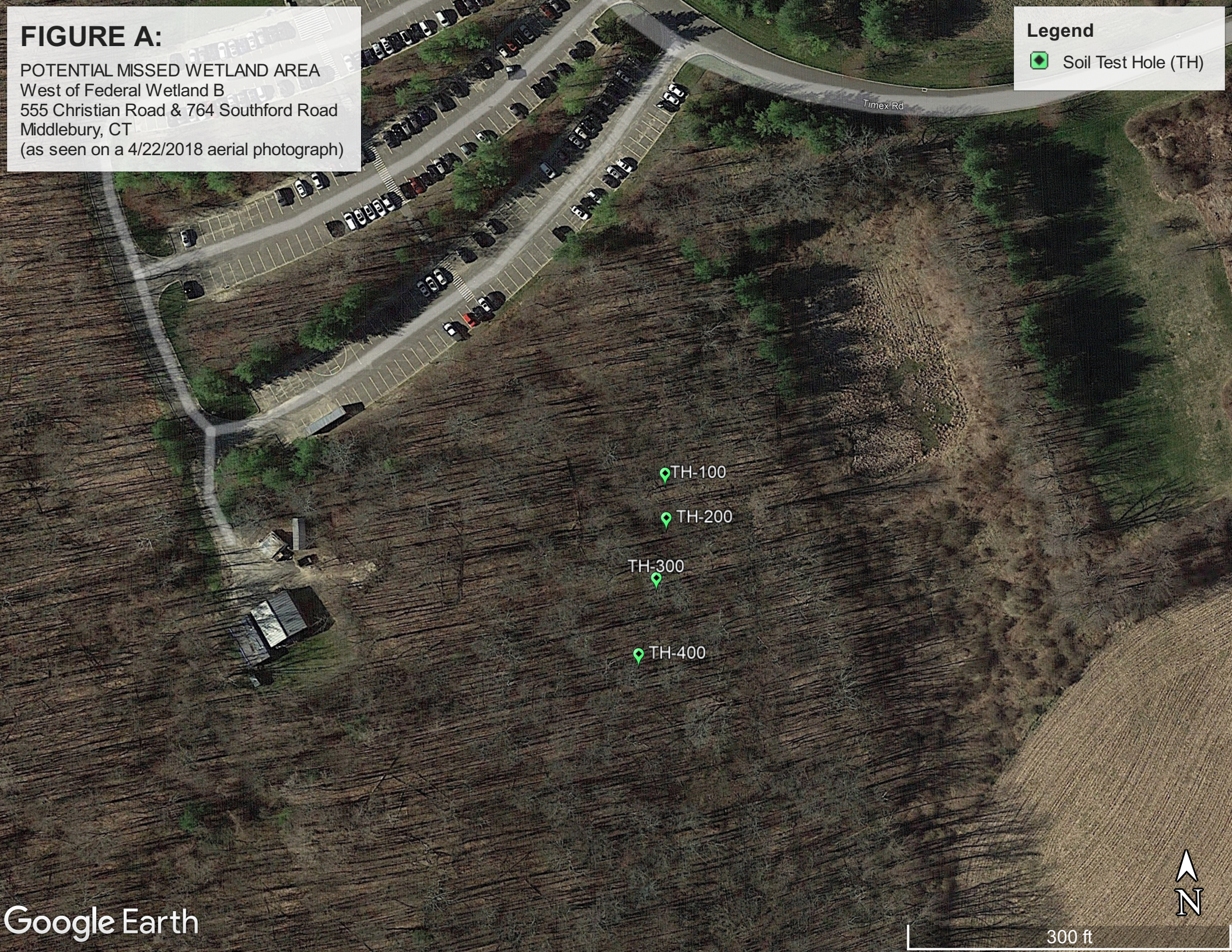
Rema Ecological Services, LLC

George T. Logan, MS, PWS, CSE
Professional Wetland Scientist (#581)
Registered Soil Scientist, Certified Senior Ecologist (ESA)

Attachments: Figures A, 1 through 6; Photos 1 to 21; Standard Detail – Bioretention ISR

FIGURE A:

POTENTIAL MISSED WETLAND AREA
West of Federal Wetland B
555 Christian Road & 764 Southford Road
Middlebury, CT
(as seen on a 4/22/2018 aerial photograph)



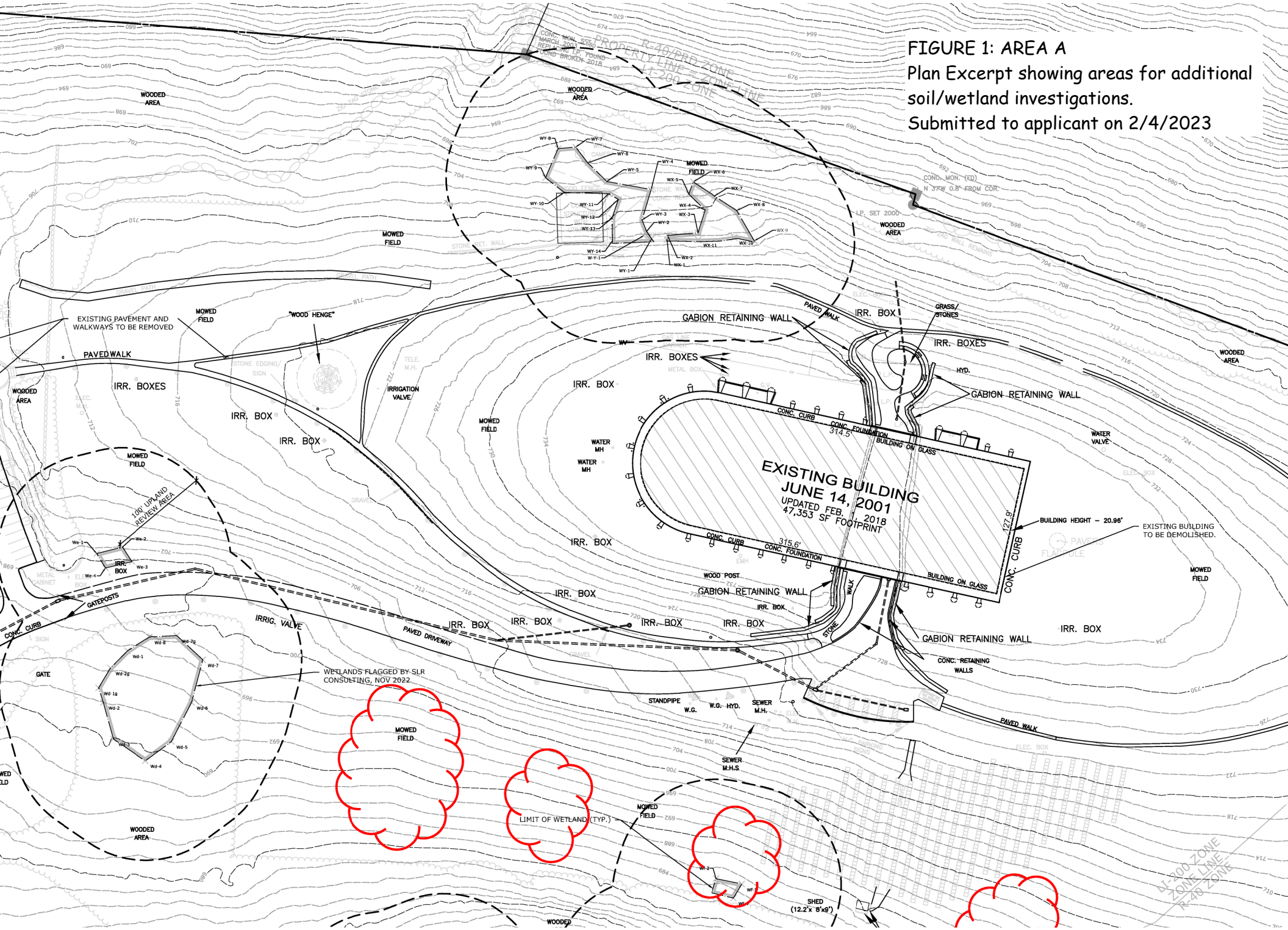


FIGURE 1: AREA A
Plan Excerpt showing areas for additional soil/wetland investigations.
Submitted to applicant on 2/4/2023

FIGURE 2: AREA B
Plan Excerpt showing areas for additional soil/wetland investigations.
Submitted to applicant on 2/4/2023

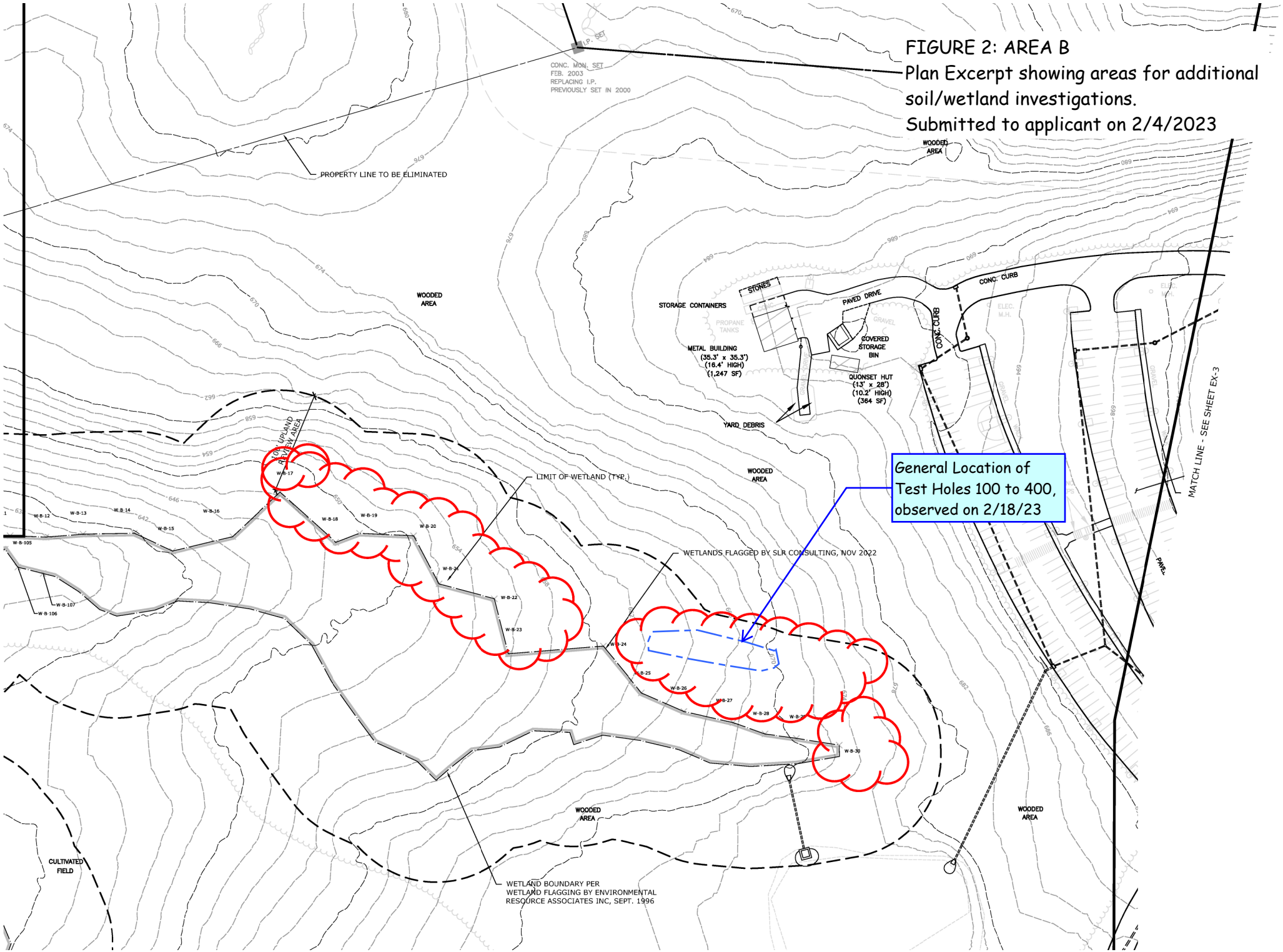
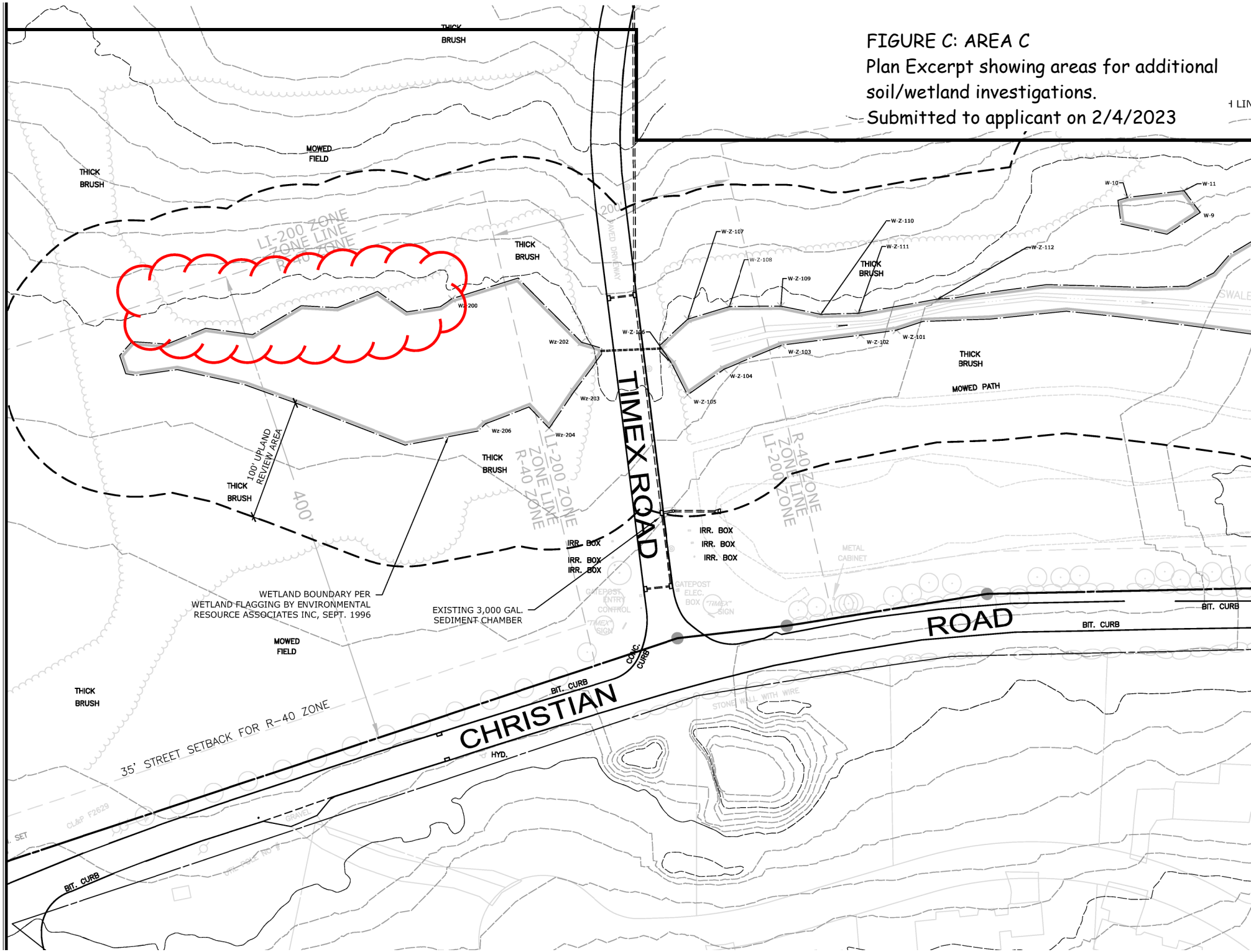


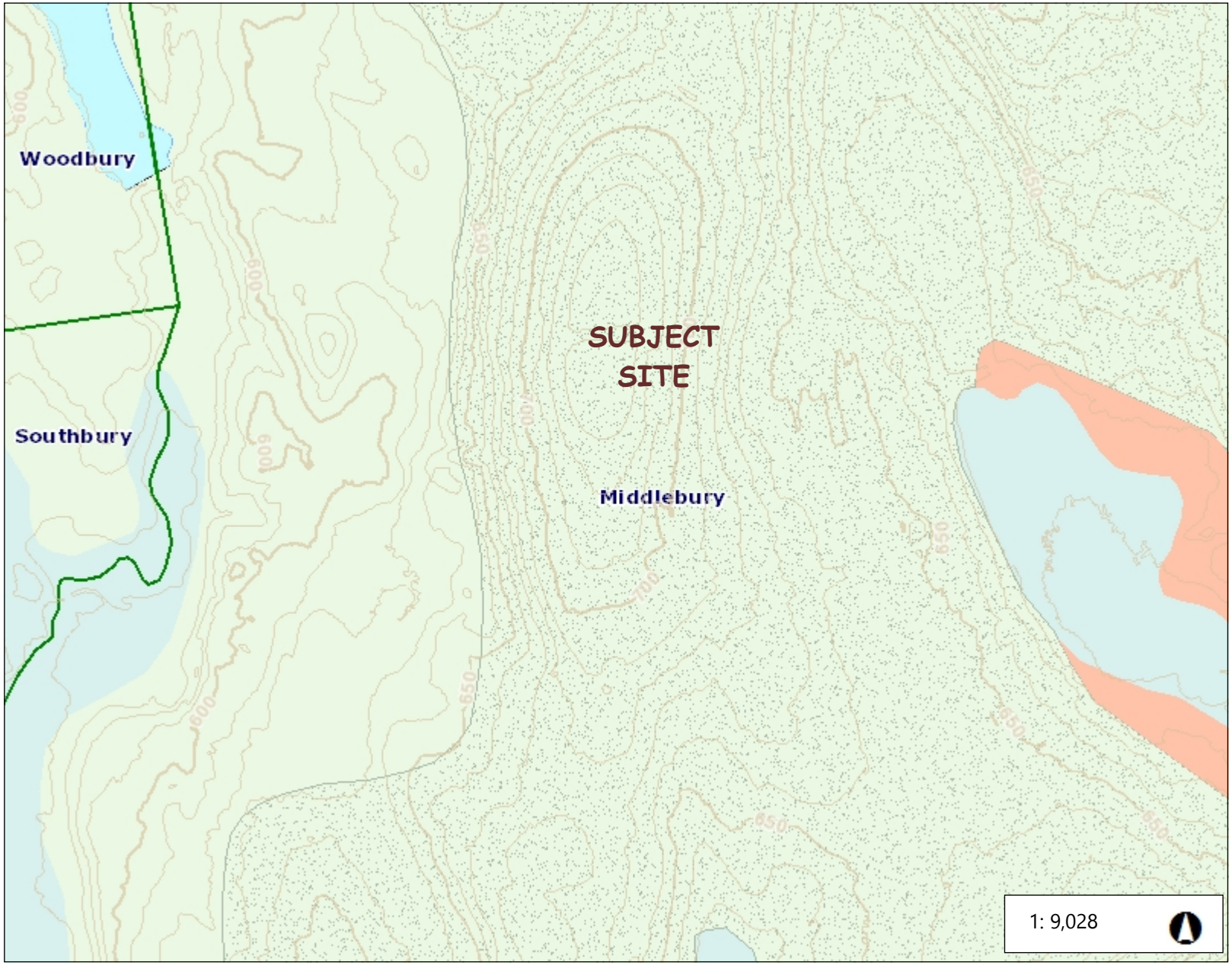
FIGURE C: AREA C
Plan Excerpt showing areas for additional soil/wetland investigations.
Submitted to applicant on 2/4/2023



CT Environmental Conditions Online

FIGURE 4: SURFICIAL GEOLOGY MAP

555 Christian Road & 764 Southford Road, Middlebury, CT



Legend

Town Boundary

- State Boundary
- Town Boundary
- Coastline

Parcels for Protected Open Sp

Surficial Materials

- Thin Till
- Thick Till
- End moraine deposits
- Fines (very fine sand, silt, and clay)
- Gravel
- Sand and Gravel
- Sand
- Gravel overlying Sand and Gravel
- Gravel overlying Sand
- Sand and Gravel overlying Sand
- Sand and Gravel overlying Sand ov
- Sand overlying Gravel
- Sand overlying Sand and Gravel
- Gravel overlying Sand overlying Fir
- Gravel overlying Fines
- Sand and Gravel overlying Sand ov
- Sand and Gravel overlying Fines
- Sand overlying Fines
- Fines overlying Sand and Gravel
- Fines overlying Sand

Notes

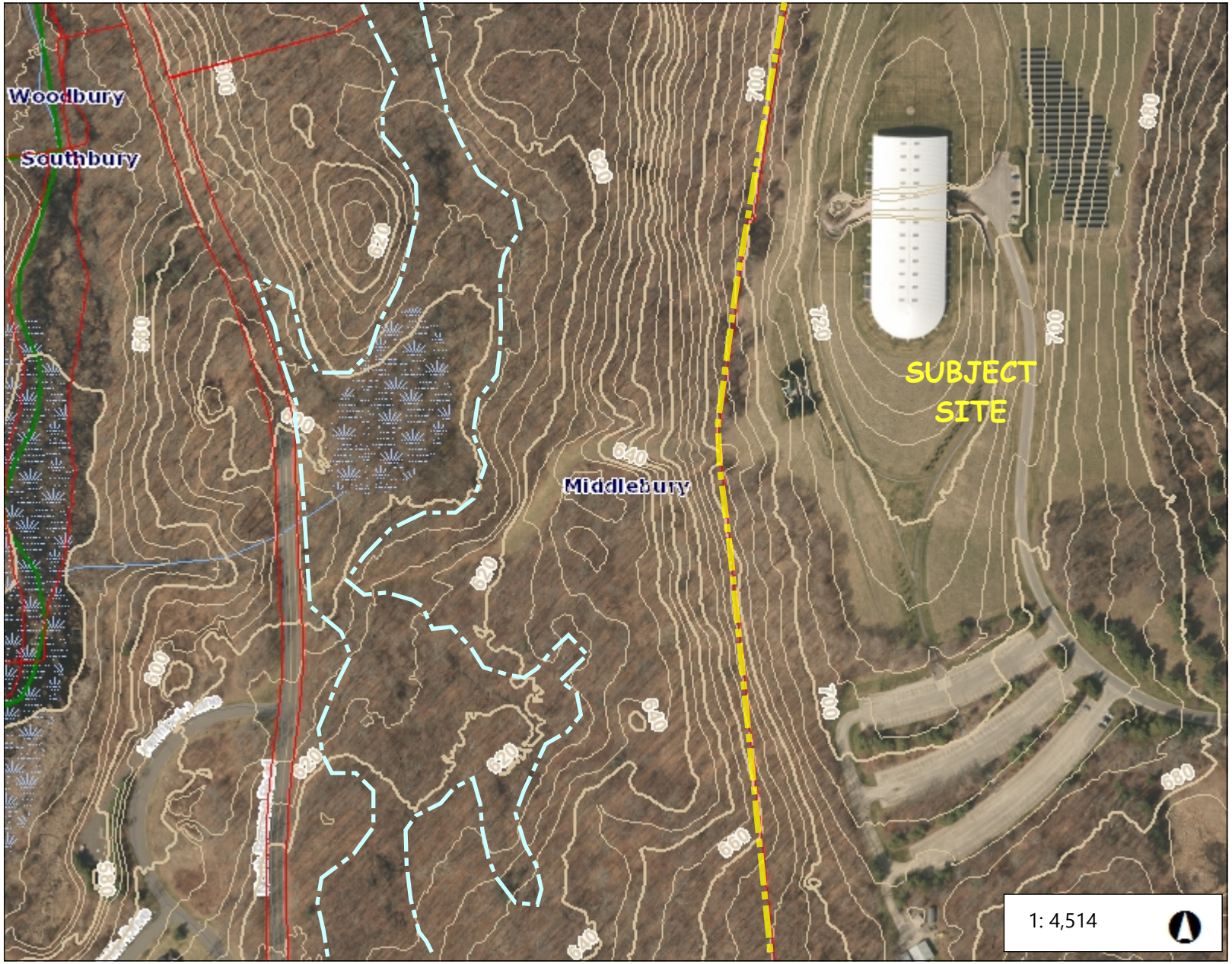
0.3 0 0.14 0.3 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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

CT Environmental Conditions Online

FIGURE 5: POTENTIAL HILLSIDE WETLANDS TO WEST
555 Christian Road & 764 Southford Road, Middlebury, CT



Legend

- Parcels for Protected Open Sp
- Town Boundary
  - State Boundary
  - Town Boundary
  - Coastline
- Geographic Names7
- Geographic Place 3
- Airport
  - Airport
  - Heliport
- Railroad
- Streets
  - Interstate Highway
  - US Highway
  - State Highway
  - Primary limited-access
  - Ramp
  - Street
  - Ferry crossing
- County Line
  - State Boundary
  - County Boundary
  - Coastline
- County Name
- Town Line
  - State Boundary

Notes

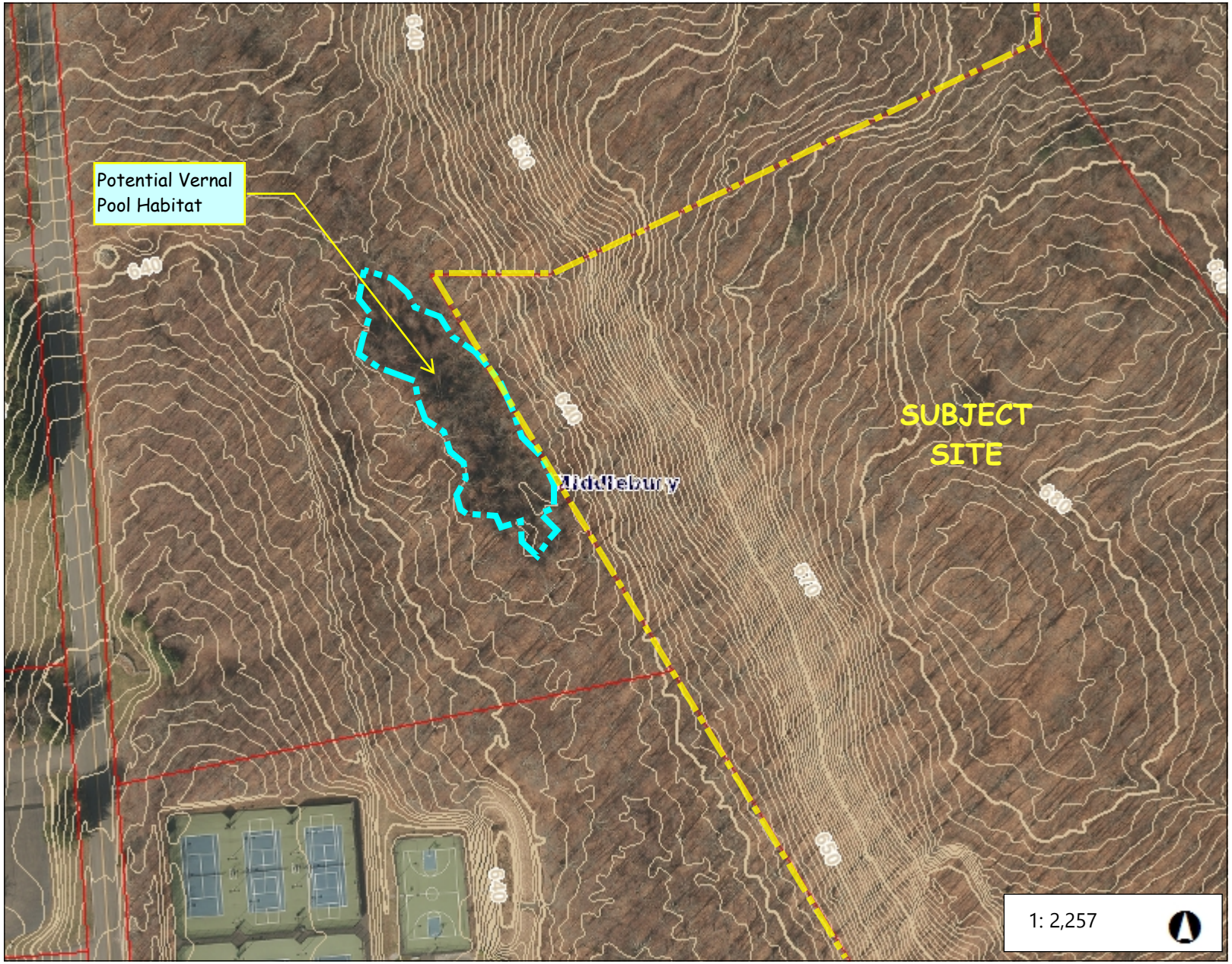
0.1 0 0.07 0.1 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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

CT Environmental Conditions Online

FIGURE 6: POTENTIAL VERNAL POOL WETLAND
555 Christian Road & 764 Southford Road, Middlebury, CT



Legend

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

Notes

0.1 0 0.04 0.1 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** WESTERLY	**PHOTO NO.:** 1

TEST PIT A; located approximately 20 feet easterly (donwgradient) of SLR Test Pit #2, in dense reed canary grass; periodically mowed

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 2

TEST HOLE A: Dominant Matrix color within B horizon to a depth of 20 inches from surface is 10YR 6/3, with a few 10YR 6/2 inclusion; somewhat poorly drained; not a regulated wetland

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** NORTHWESTERLY	**PHOTO NO.:** 3

TEST PIT B; located approximately 22 feet easterly (donwgradient) of SLR Test Pit #4, in dense reed canary grass; periodically mowed

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 4

TEST PIT B: Dominant Matrix color within B horizon to a depth of 20 inches from surface is 10YR 5/3 and 10YR 5/4; somewhat poorly drained to moderately well drained; not a regulated wetland

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** SOUTHWESTERLY	**PHOTO NO.:** 5

TEST PIT C; located approximately 10 feet easterly (donwgradient) of SLR delineated wetland pocket (WM-1 to WM-4)

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 6

TEST PIT C: Dominant Matrix color within B horizon to a depth of 20 inches from surface is 10YR 4/3 and 10YR 4/2, with >5% low chroma mottles (10YR 7/1), and more than 10% high chroma mottles (10YR 5/6); poorly drained; this is a regulated wetland, which would expand the SLR delineated wetland by no more than 15 feet downgradient (easterly)

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** EASTERLY	**PHOTO NO.:** 7

TEST PIT D; located at the mid-point between SLR delineated wetland pocket (WF-1 to WF-4), and SLR Test Pit #6

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 8

TEST PIT D: Dominant Matrix color within B horizon to a depth of 20 inches from surface is 10YR 5/3 and 10YR 5/2, with >10% high chroma mottles (10YR5/6); poorly drained; this is a regulated wetland, which would expand the SLR delineated wetland by no more than 15 feet upgradient (westerly)

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** NORTHWESTERLY	**PHOTO NO.:** 9

TEST PIT E; located at the mid-point between SLR Test Pit #8 (a wetland test pit) and SLR Test Pit #9 (and upland test pit)

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 10

TEST PIT E: Dominant Matrix color within B horizon to a depth of 20 inches from surface is 10YR 5/3 and 10YR 5/4, with <10% 10YR5/2 inclusions; somewhat poorly drained, not a regulated wetland.

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** EASTERLY	**PHOTO NO.:** 11

SLR wetland delineations of the westerly boundary of Federal Wetland A; generally found accurate. However, this flag (WZ-195) would need to be pulled upgadient by 12 to 15 to take in the poorly drained soils at this location. See gree/blue flag by REMA.

DATE: February 18, 2023	**FACING:** NORTHEASTERLY	**PHOTO NO.:** 12

This is the northern tip of Federal Wetland B, where SLR expanded the wetland northerly (upgradient). However, the REMA blue flag (see arrow) would indicate that the wetland tip was somewhat further to the north by a few additional feet.

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** EASTERLY	**PHOTO NO.:** 13

TEST HOLE 100; located to the west of Federal Wetland B (see Figure A), in a shallow linear topographical depression

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 14

The dominant matrix color at TH-100 to 20 inches below the ground surface is 10YR 5/1 and 5/2, with few high chroma mottles; this is a poorly drained profile, of a regulated wetland area.

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** EASTERLY	**PHOTO NO.:** 15

TEST HOLE 200; located to the west of Federal Wetland B (see Figure A), in a shallow linear topographical depression

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 16

The soil matrix color at TH-200 between 17 and 20 is 10YR 5/3 and 5/2, with low chroma mottles (10YR 6/1) and high chroma mottles (10YR 6/6 and 6/8) more than 50% of the pedon; this is a poorly drained profile of a regulated wetland area.

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** NORTHEASTERLY	**PHOTO NO.:** 17

TEST HOLE 300; located to the west of Federal Wetland B (see Figure A), in a shallow linear topographical depression

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 18

The soil matrix color at TH-300 between 16 and 20 is 10YR 5/3 and 5/2, with low chroma mottles (10YR 6/1) and high chroma mottles (10YR 6/6 and 6/8) for more than 50% of the pedon; this is a poorly drained profile of a regulated wetland area. Note also manganese staining in closeup.

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**

DATE: February 18, 2023	**FACING:** WESTERLY	**PHOTO NO.:** 19

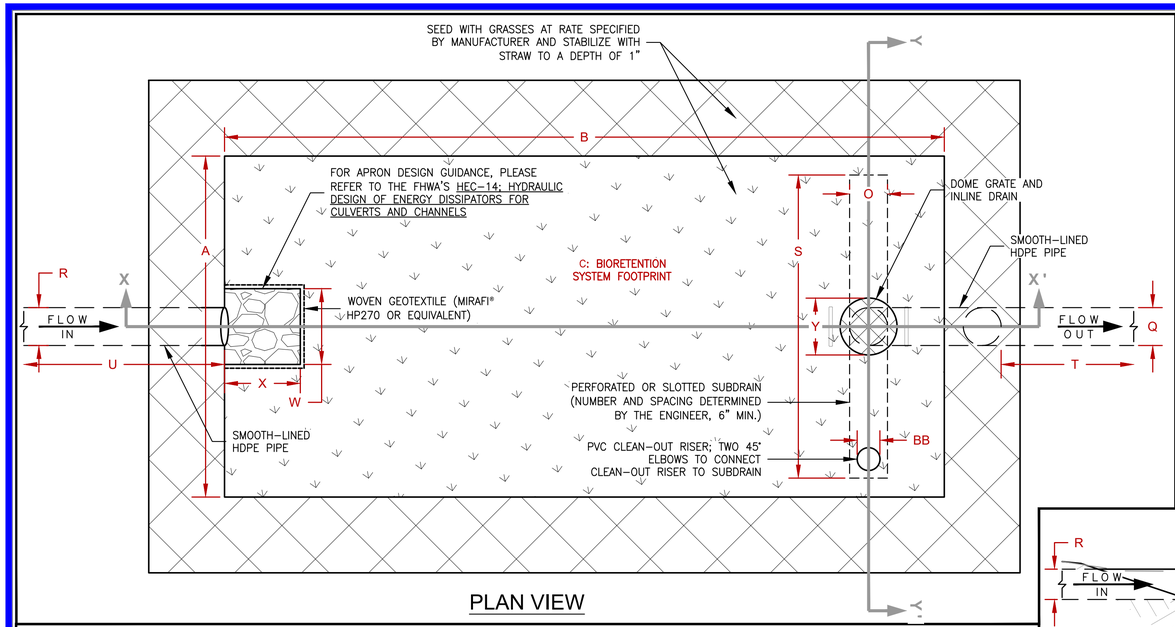
TEST HOLE 400; located to the west of Federal Wetland B (see Figure A), in a shallow linear topographical depression, and a few feet easterly of SLR Auger Hole-3; original REMA blue flag in background

DATE: February 18, 2023	**FACING:** n/a	**PHOTO NO.:** 20

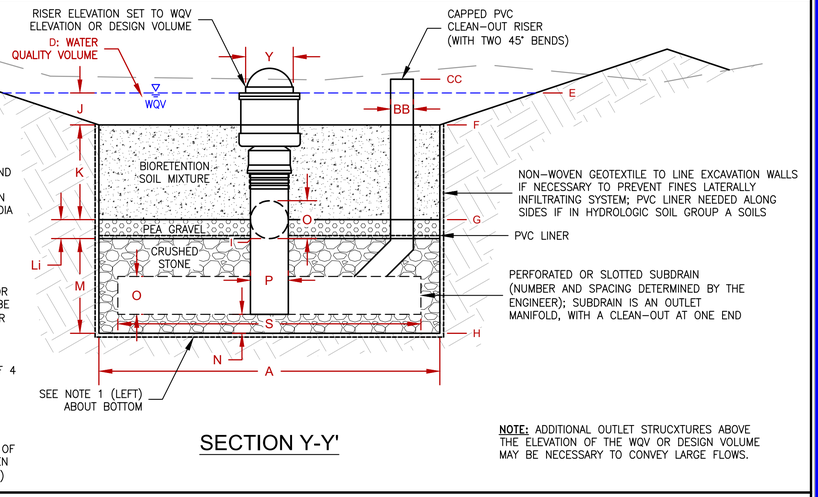
The soil matrix color at TH-400 between 16 and 20 is 10YR 6/3 and 6/2, with low chroma mottles (10YR 6/1) and high chroma mottles (10YR 5/6 and 4/6) for about 50% of pedon; this is a poorly drained profile of a regulated wetland area. We note that higher chroma matrix was observed below 20 inches within the firm to very firm till (C-horizon); the diagnostic horizon depth goes to 20 inches; this wetland is perched on the dense till.

REMA	**SITE/LOCATION:** Proposed Southford Park 555 Christian Road & 764 Southford Road Middlebury, Connecticut **INVESTIGATOR(S):** George T. Logan, MS, PWS, CSE	REMA JOB NO.: 23-2579-MDL28	**ANNOTATED PHOTO LOG**
DATE: February 3, 2023	**FACING:** WESTERLY	**PHOTO NO.:**	**21**

Potential Vernal Pool Habitat; just west of westerly property boundary; will be receiving discharge from proposed Detention Basin 110.



PLAN VIEW



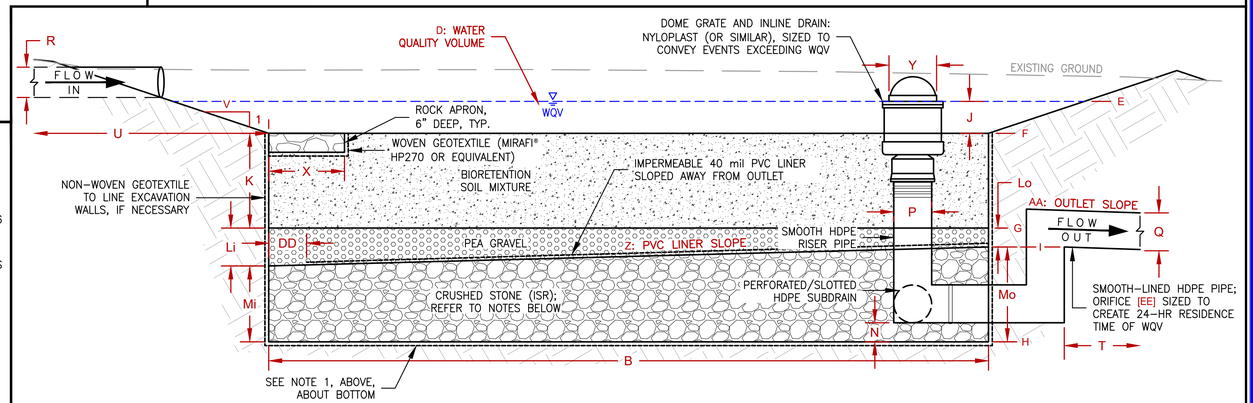
SECTION Y-Y'

NOTE 1: BOTTOM PERMEABILITY AND LINER
IF A NATIVE, LOW HYDRAULIC CONDUCTIVITY SOIL (k_s<0.03ft/day) IS NOT PRESENT BELOW THE PEA GRAVEL ELEVATION, A LOW PERMEABILITY LINER OR SOIL SHOULD BE USED TO MINIMIZE INFILTRATION AND PRESERVE HORIZONTAL FLOW IN THE STONE. THIS LINER EXTENDS FROM THE BASE OF THE EXCAVATION TO ABOVE THE TOP OF THE BIORETENTION SOIL MEDIA LAYER. IF GEOTECHNICAL TESTS CONFIRM THE NEED FOR A LINER, ACCEPTABLE OPTIONS INCLUDE:

a. SOIL COMPACTION; 6–12 in CLAY SOIL (MINIMUM 15% PASSING THE #200 SIEVE AND A MAXIMUM PERMEABILITY OF 1x10–5 cm/s)
b. A 40 mil PVC LINER WITH SAND BEDDING AND/OR NON-WOVEN GEOTEXTILE. PVC LINERSEAMS MAY BE WELDED, TAPED (WATERPROOF ROOFING TAPE), OR OVERLAPPED (MINIMUM ONE FOOT). THE PERFORMANCE OBJECTIVE IS TO CREATE AND MAINTAIN AN ANAEROBIC ZONE IN THE STONE*
c. A BENTONITE LAYER WITH MINIMUM THICKNESS OF 4 in
d. USE OF CHEMICAL ADDITIVES (SEE NRCS AGRICULTURAL HANDBOOK #386, DATED 1961)
e. OR AN OTHERWISE PREPARED DESIGN BY A PROFESSIONAL ENGINEER

*IF ENGINEER BELIEVES THE PVC LINER IS AT RISK OF PUNCTURE, THE LINER MAY BE SANDWICHED BETWEEN NON-WOVEN GEOTEXTILE OR SAND (3 in THICKNESS)

NOTE: ADDITIONAL OUTLET STRUCXTURES ABOVE THE ELEVATION OF THE WQV OR DESIGN VOLUME MAY BE NECESSARY TO CONVEY LARGE FLOWS.



SECTION X-X'

NOTES:

1. FOR FULL BIORETENTION STORMWATER SYSTEM SPECIFICATIONS, PLEASE REFER TO THE UNH STORMWATER CENTER'S BIORETENTION SPECIFICATIONS PUBLICATION, DATED FEBRUARY 2017, FOUND AT: https://www.unh.edu/unhsc/sites/default/files/media/unhsc_bsm_spec_2-28-17_0.pdf
2. SYSTEM FOOTPRINT NEED NOT BE RECTANGULAR. ANY SHAPE IS POSSIBLE. THESE DETAILS USE THE RECTANGULAR SHAPE AS AN EXAMPLE.
3. THESE DETAILS ARE NOT TO SCALE; FOR DIMENSIONS AND SPECIFICATIONS, REFERENCE EACH LETTER TO THE TABLE OF METRICS.
4. BIORETENTION SOIL MIX SHALL NOT BE PLACED UNTIL AFTER ENGINEERING APPROVAL AND INSPECTION OF SUBGRADE.
5. BIORETENTION SYSTEM IS RECOMMENDED TO HAVE PRETREATMENT (FOREBAY, SWALE, OR OTHER APPROVED STRUCTURE). PRETREATMENT IS REQUIRED FOR PROJECTS REQUIRING ALTERATION OF TERRAIN (AOT) PERMITTING.
6. PLANT THE SYSTEM AS SPECIFIED; AT A MINIMUM, SEED THE SYSTEM FLOOR AND SIDE SLOPES WITH RYE GRASS MIXTURE CONTAINING PERENNIAL AND WINTER RYES, AT A RATE SPECIFIED BY THE MANUFACTURER. STABILIZE THE SLOPES WITH STRAW TO A DEPTH OF 1".
7. GENERAL CONSTRUCTION GUIDELINES:
   - 7.1. VERIFY THAT NO FOREIGN OR DELETERIOUS MATERIAL OR LIQUID SUCH AS PAINT, PAINT WASHOUT, CONCRETE SLURRY, ASPHALT/CONCRETE LAYERS OR CHUNKS, CEMENT, PLASTER, OILS, GASOLINE, DIESEL FUEL, PAINT THINNER, TURPENTINE, TAR, ROOFING COMPOUND, SOLID WASTE, OR ACID HAS BEEN DEPOSITED IN PLANTING SOIL (BIORETENTION MEDIA OR LOAM ON SIDE SLOPES).
   - 7.2. PROCEED WITH PLACEMENT OF ANY SUBSURFACE MATERIALS ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
   - 7.3. COMPACT EACH BLENDED LIFT OF BIORETENTION SOIL MEDIA TO 75% OF MAXIMUM STANDARD PROCTOR DENSITY ACCORDING TO ASTM D698.
   - 7.4. GRADE SOIL MEDIA TO A SMOOTH, UNIFORM SURFACE PLANE WITH LOOSE, UNIFORMLY FINE TEXTURE. ROLL AND RAKE, REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES.
   - 7.5. LIGHTLY COMPACT FINISHED FLOOR ELEVATION AND FINISHED SLOPES USING THE BUCKET OF AN EXCAVATOR, NON-MOTORIZED ROLLER, HAND TAMP, OR OTHER MEANS, THEN ROUGHEN SURFACE WITH A RAKE TO LOOSEN SOILS BEFORE SEEDING.
   - 7.6. DO NOT COMPACT THE SUBGRADE AT THE BOTTOM OF EXCAVATION UNLESS PERMEABILITY EXCEEDS $1x10^{-5}$ cm/s
8. BIORETENTION SOIL MEDIA (BSM) MIXTURE SPECIFICATIONS:
   - 8.1. STICKS AND ROOTS SHOULD BE MINIMIZED IN THE BSM MIXTURE, AND PREFERABLY LIMITED TO NOTHING LARGER THAN 4.76 mm (0.187 in).
   - 8.2. DEBRIS AND OTHER FOREIGN MATERIALS SHOULD BE MINIMIZED.
   - 8.3. ORGANIC MATTER SHOULD MAKE UP A MINIMUM OF 3% BY VOLUME AND A MAXIMUM 8% BY VOLUME OF THE BSM.
   - 8.4. BSM MIXTURE SHOULD HAVE A SOIL REACTION pH OF 6 TO 7.
   - 8.5. CATION EXCHANGE CAPACITY (CEC) OF BSM SHOULD BE A MINIMUM OF 10 meq PER 100 mL AT A pH OF 7.0.
9. IF BSM IS PURCHASED FROM A MANUFACTURER, BSM MIXTURE SHALL NOT CONTAIN THE FOLLOWING:
   - 9.1. UNACCEPTABLE MATERIALS: CONCRETE SLURRY, CONCRETE LAYERS OR CHUNKS, CEMENT, PLASTER, BUILDING DEBRIS, ASPHALT, BRICKS, OILS, GASOLINE, DIESEL FUEL, PAINT THINNER, TURPENTINE, TAR, ROOFING COMPOUND, ACID, SOLID WASTE, OR OTHER EXTRANEOUS MATERIALS THAT ARE HARMFUL TO PLANTS.
   - 9.2. UNSUITABLE MATERIALS: STONES, ROOTS, PLANTS, SOD, CLAY LUMPS, OR POCKETS OF COARSE SAND THAT EXCEED A COMBINED MAXIMUM OF 5% BY DRY WEIGHT OF THE MANUFACTURED SOIL.
   - 9.3. LARGE MATERIALS: STONES, CLODS, ROOTS, CLAY LUMPS EXCEEDING 0.187 in (4.76 mm) IN ANY DIMENSION.
10. ORGANIC SOIL AMENDMENTS:
    - 10.1. NO COMPOST SHOULD BE USED IN THE PLANTING MIX (USED ON THE SIDE SLOPES AND SURROUNDING AREA) UNLESS SPECIFIED BY THE ENGINEER.
    - 10.1. SPHAGNUM PEAT: PARTIALLY DECOMPOSED SPHAGNUM PEAT MOSS, FINELY DIVIDED OR OF GRANULAR TEXTURE WITH 100% PASSING THROUGH A 1/2–in (13 mm) SIEVE, WITH A pH OF 3.4 TO 4.8.
    - 10.2. WOOD DERIVATIVES: SHREDDED WOOD, WOOD CHIPS, GROUND BARK, OR WOOD WASTE; OF UNIFORM TEXTURE AND FREE OF STONES, STICKS, SOIL, OR TOXIC MATERIAL.
11. THE CRUSHED STONE LAYER SHOULD CONSIST OF AASHTO #5 STONE (3/4–in).
12. THE VOLUME OF WATER CONTAINED ABOVE THE BSM ELEVATION AND BELOW THE HIGH FLOW SPILLWAY IS STATISTICALLY DESIGNED TO HOLD A SPECIFIC RUNOFF VOLUME.
13. THE DESIGN VOLUME ABOVE THE BSM IS PREFERABLY THE WQV. THIS VOLUME MAY NOT BE ACHIEVABLE FOR RETROFIT INSTALLATIONS

BIORETENTION SYSTEM DESIGN METRICS

ID	DESIGN PARAMETER	MIN	DESIGN	UNITS
A	SYSTEM FLOOR WIDTH			FT
B	SYSTEM FLOOR LENGTH			FT
C	BIORETENTION FOOTPRINT AREA			SF
D	WATER QUALITY VOLUME			CF
E	WQV AND RISER CAP ELEVATION			FT
F	SYSTEM FLOOR ELEVATION			FT
G	BOTTOM BSM ELEVATION			FT
H	BOTTOM STONE ELEVATION			FT
I	TOP STONE/OUTLET INVERT ELEVATION			FT
J	WQV PONDING DEPTH			IN
K	BSM MEDIA DEPTH	18		IN
Li	INLET END PEA GRAVEL DEPTH			IN
Lo	OUTLET END PEA GRAVEL DEPTH	3		IN
Mi	INLET END CRUSHED STONE DEPTH			IN
Mo	OUTLET END CRUSHED STONE DEPTH	14		IN
N	SUBDRAIN DEPTH ABOVE BOTTOM	4		IN
O	PERFORATED SUBDRAIN DIAMETER	6		IN

BIORETENTION SYSTEM DESIGN METRICS

ID	DESIGN PARAMETER	MIN	DESIGN	UNITS
P	RISER PIPE DIAMETER	6		IN
Q	OUTLET PIPE DIAMETER	6		IN
R	INFLOW PIPE DIAMETER			IN
S	PERFORATED SUBDRAIN LENGTH			FT
T	OUTLET PIPE LENGTH			FT
U	INFLOW PIPE LENGTH			FT
V	SLOPE GRADE (RUN PER 1ft RISE)			FT
W	ROCK APRON WIDTH			FT
X	ROCK APRON LENGTH			FT
Y	RISER DOME GRATE DIAMETER			IN
Z	PVC LINER SLOPE			%
AA	OUTLET PIPE SLOPE			%
BB	CLEAN-OUT RISER DIAMETER			IN
CC	CLEAN-OUT RISER ELEVATION			FT
DD	PVC LINER GAP	0.1*B		FT
EE	OUTLET PIPE ORIFICE DIAMETER	1		IN

ACCEPTABLE PARTICLE SIZE DISTRIBUTION OF FINAL BIORETENTION SOIL MIX

MEDIA TYPE	SIEVE #	SIZE (in)	SIZE (mm)	% PASSING
COARSE SAND	4	0.187	4.76	100
MEDIUM SAND	10	0.079	2.00	95
FINE SAND	40	0.017	0.42	40–15
SILTS	200	0.003	0.075	10–20
CLAYS	<200	PAN	PAN	0–5

BIORETENTION SOIL MEDIA COMPONENTS:*

– AMOUNTS MIXED BY TOTAL VOLUME
- 60–85% – SAND (0.5 TO 2.0 mm) (SEE SPECS ABOVE)
- 15–25% – LOAM OR TOPSOIL
- 3–8% – ORGANIC MATTER
- 0–5% – WATER TREATMENT RESIDUALS OR IRON FILINGS**

*ALTERNATELY, USE MEDIA SPECIFIED IN THE ALTERATION OF TERRAIN RULES, Env–Wq 1508.07(k)
**THIS IS AN AMENDMENT USED FOR ENHANCED PHOSPHORUS ADSORPTION

INTERNAL STORAGE RESERVOIR (ISR) NOTES:

- THE HYBRID BIORETENTION SYSTEM HARBORS AN ANAEROBIC INTERNAL STORAGE RESERVOIR FOR NITROGEN REMOVAL.
- THE ISR IS SEPARATED BY AN IMPERMEABLE PVC LINER BETWEEN THE PEA GRAVEL AND CRUSHED STONE LAYERS.
- THE PVC LINER SLOPES FROM THE OUTLET TOWARDS THE INLET TO MAXIMIZE STORAGE RETENTION AND PROVIDE EXTRA TREATMENT/FILTER TIME VIA PLUG FLOW THROUGH CRUSHED STONE.
- DESIGN GUIDELINES FOR THE SUBSURFACE GRAVEL WETLAND SPECIFICATIONS (UNHSC, 2016) IDENTIFIED THAT THE WATER VOLUME IN THE ISR BE AT LEAST 0.26*WQV [WATER QUALITY VOLUME], OR 26% OF THE WQV.
- PVC LINER THICKNESS OF 40 TO 60 mil, PREFERABLY SEAMLESS. IF SEAMS ARE UNAVOIDABLE, THE SEAMS SHOULD BE SEALED.

UNIVERSITY OF NEW HAMPSHIRE STORMWATER CENTER

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No.	Date	Revision
02	10 Sept 2019	DES Revisions
01	12 Mar 2019	Initial design

Designed: JCB | Checked: TPB/JJH | Approved: TPB/JJH

GRAPHIC SCALE
N/A - DRAWING NOT TO SIZE
Original Drawing Size = 34 x 22 in.

Project:
STANDARD DETAIL BIORETENTION ISR
STORMWATER SYSTEM

Date: 21 FEB 2020

Sheet No. 01 of 01

February 16, 2023

Ms. Deborah Seavey
Wetlands Official
Middlebury Town Hall
1212 Whittemore Road
Middlebury, CT 06762

Re: Additional Wetland Boundary Verification/Delineation
Southford Park – Timex Site
Middlebury, Connecticut
SLR: #141.20970.00002

Dear Ms. Seavey,

SLR International Corporation (SLR) received an initial email dated February 4, 2023, from the Town Attorney of Middlebury requesting wetland delineation confirmation at several locations within a mowed field located east of the existing Timex building, and areas located along the eastern and northern edges of Federal Wetland B, and the resetting of wetland flags along a portion of Federal Wetland A adjacent to the proposed wetland mitigation area. Marked-up pdfs were provided as part of the email. The request was generated by George Logan of REMA Ecological Services, LLC (REMA), whom has been retained by the town as an independent reviewer for the wetlands permit application for the proposed Southford Park Development project located at 152 Christian Road in Middlebury, Connecticut. It is our understanding that Mr. Logan completed a site walk on the subject parcel on February 3, 2023.

SLR delineated wetlands and watercourses on this site in October and November 2022 and summarized our results in a report that was submitted as part of the wetland permit application that is pending before the Middlebury Inland Wetlands and Watercourse Commission. Based on the email and mapping mentioned above, Matthew Sanford, a Registered Soil Scientist and Professional Wetland Scientist, with SLR, completed followup field investigations on February 13 and 14, 2023, to assess the areas identified by Mr. Logan as potentially containing poorly drained and/or very poorly drained soils. The field conditions during SLR site visits were sunny with approximate air temperatures of 50 degrees Fahrenheit. The ground was frost free and snow free, making conditions suitable to assess the soil drainage classes on site.

Methods

As part of the additional field investigations the following equipment was used to evaluate the soils within the areas identified by Mr. Logan. These included Natural Resources Conservation Service (NRCS) soil survey maps, a tape measure, a 15-inch-long hand spade with wood handle, Dutch augur, Munsell color chart, handheld Global Positioning System (GPS) unit with submeter accuracy, cell phone for photos, colored tape, and field book.

Existing Mowed Field

Mr. Logan set out green and blue flags at areas along the field that he felt needed additional review as it relates to the drainage class of the soils. Each of these flags were located by GPS. Test pits were completed adjacent to each of these flags using a combination of the hand spade and Dutch Augur at each of the flagged locations. Test pits were completed to an approximate depth of 24 inches below the soil surface.

Federal Wetland B

Mr. Logan set blue flags at areas along the northern and eastern limits of Federal Wetland B that he felt needed additional review of the drainage class of the soils in these flagged areas. Each of these blue flags were field located using GPS. A Dutch augur was used to evaluate the soil conditions within Federal Wetland B. The augur was advanced to an approximate depth of 24 inches or refusal (i.e., large stones).

Federal Wetland A

SLR set new wetland flagging along the western edge of Federal Wetland A per the request. One blue flag was set by Mr. Logan along this wetland. Soils were examined by a Dutch augur to an approximate depth of 24 inches, and pink wetland flagging was affixed to sturdy vegetation to demarcate the wetland boundary. The blue flag and pink wetland flag locations were then recorded with a GPS unit.

Results

Existing Mowed Field

The existing mowed field located east of the Timex Building and service road has been mapped by the NRCS as a Paxton and Montauk soil that has a drainage class of well drained. A majority of this field consists of Paxton and Montauk glacial till soils. It should be noted that glacial till soils can become compacted over time through anthropogenic activities, such as plowing and/or mowing, and can cause the formation of a restrictive layer within the soil solum, which may result in groundwater breakout and/or perched water table that allow soils to exhibit redoximorphic features such as depletions and/or concentrations. The formation of such redoximorphic features can be attributed to a seasonally high water table. Based on our review of historical aerials this field has been plowed, hayed, and pastured for likely well over 100 or more years. These historical and ongoing mowing activities have help shaped the soils that have formed along this field. Vegetation can be used as an indicator of wetness within soils; however, vegetation alone cannot determine whether an area is in fact wetland. Per the State of Connecticut Inland Wetlands and Watercourses Act, CGS 22a-36 through 45, in order for a soil to qualify as a wetland the soil must be classified as poorly drained, very poorly drained, and/or alluvial. There are no alluvial soils associated with the mowed field as mentioned above the soils in the field are classified as glacial till.

There are several troughs along this field that have a combination of facultative wet and facultative upland plants. There are several patches of nonnative invasive reed canary grass (*Phalaris arundinacea**)***, a facultative wet plant, that are found within the mowed field. These reed canary grass-dominated patches also have Queen Anne's Lace (*Daucus carota*), a typical upland plant, and common milkweed (*Asclepias syriaca),* an upland plant intermixed but at much lower densities than the grass. Additionally, SLR observed

three small clumps of soft rush (*Juncus effusus*) in one of the reed canary grass patches, which is a facultative wetland plant. There were four troughs that Mr. Logan identified on the mapping provided by email. As has been stated, Mr. Logan set blue and green flags within the troughs that he felt warranted further investigation of the soil drainage classification. Test pits were completed across the slope and in the areas flagged by Mr. Logan. Ten hand shovel/Dutch augur test pits were completed within the various troughs. These test pits are shown on the attached Figure 1 – Test Pit Locations. In addition to test pits, Dutch augur holes were completed in and around the areas in question for further confirmation of the observations being made within the test pits. The results of the test pits are presented on Table 1-1. A photo log of each of the test pit cores is appended.

Table 1-1 Mowed Field Soil Test Pit Data -Timex Site, Middlebury CT

Test Pit ID	Soil Horizon	Soil Horizon Depth (inches)	Soil Matrix Color and Percentage	Redoximorphic Features Percentage within Soil Matrix (if present)	Soil Texture	Active Water Table within 24 inches of soil solum	Comments	Depleted Matrix
Test Pit #1	Ap	0-12	10YR 3/2 – (100%)	None	Fine Sandy Loam	None Observed	Hardpan with cobbles and gravel at 12-inches, friable, many roots	N
	Bw	12-24	10YR 4/4 – (100%)	None	Fine Sandy Loam	None Observed	Soil is moist/saturated at approximately 20-inches	N
Test Pit #2	Ap	0-13	10YR 3/1 (99%)	Few, Distinct 7.5YR 4/6 – (1%) – C	Fine Sandy Loam	None Observed	Hardpan with cobbles and gravel at 13-inches, friable, many roots	N
	Bw1	13-16	10YR 4/3 (73%) 10YR 3/3 (20%)	Few, Faint 10YR 5/2 – (5%) – D Few, Distinct 7.5YR 4/6 – (2%) - C	Fine Sandy Loam	None Observed		N
	Bw2	16-25	10YR 4/3 (70%) 10YR 3/3 (15%)	Few, Faint 10YR 5/2 – (5%) – D Common, Distinct 7.5YR 4/6 – (10%)-C	Fine Sandy Loam	None Observed	Soil is moist/saturated at approximately 18-inches	N
Test Pit #3	Ap	0-12	10YR 3/2 (100%)	None	Fine Sandy Loam	None Observed	Hardpan with cobbles and gravel at 12-inches, friable, Many roots	N
	Bw1	12-23	10YR 4/3 (98%)	Few, Faint 7.5YR 4/6 – (2%) - C	Fine Sandy Loam	None Observed		N
	Bg	24+	10YR 6/2 (50%) 10YR 5/6 (50%)	See matrix colors	Fine Sandy Loam	None observed	Soil is moist/saturated at approximately 15-inches	Y
Test Pit #4	Ap	0-12	10YR 3/2 (100%)	None	Fine Sandy Loam	None observed	Hardpan with cobbles and gravel at 12-inches, friable, many roots	N
	Bw1	12-18	10YR 4/4 (100%)	None	Fine Sandy Loam	None observed		N
	Bw2	18-24	10YR 4/3 (93%)	Few, Faint 10YR 5/2 – (2%) – D Few, Faint 7.5YR 4/6 – (5%) - C	Fine Sandy Loam	None observed	Soil is moist/saturated at approximately 14-inches	N
Test Pit #5	Ap	0-12	10YR 3/2 (99%)	Few, Faint 7.5YR 4/6 – (1%) - C	Fine Sandy Loam	None observed	Hardpan with tight packed cobbles and gravel at 12-inches, friable, many roots	N
	Bg	12-24	10YR 6/2 (50%) 2.5Y 5/3 (49%)	Few, Distinct 7.5YR 4/6 – (1%) - C	Fine Sandy Loam	None observed	Soil is moist/saturated at approximately 12-inches	Y
Test Pit #6	Ap	0-12	10YR 3/2 (100%)	None	Fine Sandy Loam	None observed	Hardpan with cobbles and gravel at 12-inches, friable, many roots	N
	Bw	12-24	10YR 4/3 (80%)	Common, Distinct 10YR 5/2 – (20%) – D	Fine Sandy Loam	None observed	Soil is moist/saturated at approximately 12-inches	N
Test Pit #7	Ap	0-6	10YR 3/1 (99%)	Few, Distinct 7.5YR 4/6 – (1%) - C	Fine Sandy Loam	None observed	Hardpan with tight packed cobbles and gravel at 6-inches, friable, many roots	N
	Bg	6-24	10YR 6/2 (60%) 10YR 4/3 (35%)	Few, Distinct 7.5YR 4/6 – (5%) - C	Fine Sandy Loam	None observed	Soil is moist/saturated at surface	Y
Test Pit #8	Ap	0-10	10YR 3/2 (100%)	None	Fine Sandy Loam	None observed	Soil is moist/saturated at surface	N
	Bw	10-24	10YR 4/3 (100%)	None	Fine Sandy Loam	Water Table at 12 inches		N
Test Pit #9	Ap	0-12	10YR 3/2 (100%)	None	Fine Sandy Loam	None observed	Hardpan with cobbles and gravel at 12-inches, friable, many roots	N
	Bw	12-24	10YR 4/3 (96%)	Few, Faint 10YR 5/2 – (2%) – D Few, Faint 7.5YR 4/6 – (2%) - C	Fine Sandy Loam	None observed	Soil is moist/saturated at approximately 12-inches	N
Test Pit #10	Ap	0-12	10YR 3/2 (99%)	Few, Distinct 7.5YR 4/6 – (1%) – C	Fine Sandy Loam	None observed	Hardpan with cobbles and gravel at 12-inches, friable, many roots	N
	Bw1	12-14	10YR 4/3 (70%)	Many, Distinct 10YR 5/2 – (30%)-D	Fine Sandy Loam	None Observed		N
	Bw2	14-24	10YR 4/3 (90%)	Common, Distinct 10YR 5/2 – (10%)-D	Fine Sandy Loam	None observed	Soil is moist/saturated at approximately 12-inches	N

Notes: D=Depletions, C =Concentrations Blue Shading = represents Depleted Matrix less than 24 inches below soil surface

Based on the soil test pit program completed along the mowed field, two test pit locations qualified as a poorly drained soil, meaning the dominant matrix color of the soil has a chroma of 2 or less between the A horizon, which at this site started on average at approximately 12 inches below the surface down to approximately 24 inches, which on this site is considered the lower B horizon. Many of the test pits had redoximorphic features present well above 24 inches; however, the dominant matrix color was a chroma of 3 or greater in cases except Test Pits #5 and #7. As such, these soils do not qualify as having a depleted matrix and cannot be classified as a poorly drained or very poorly drained soil and should not be considered wetlands by the state definitions. Test Pit #5 was completed in an area that Mr. Logan had identified as being potentially poorly drained, and based on our results, this area does in fact meet the state wetland definitions of a poorly drained soil and as such, this area was flagged in the field on February 13. 2023. This state wetland area has been added to the plans and is represented by wetland flags WM-1 through WM-4. Test Pit #7 was completed within the previously delineated wetland located adjacent to the solar panels and has been represented on the plans and in our reports with wetland flags WA-1 through WA-4. A test pit was completed within this wetland to show both the differences in the matrix color when compared to Test Pits 1, 2, 3, 4, 6, 8, 9 and 10 and the consistency of matrix color found at Test Pit #5. If the troughs within the field were taxonomically classified, most would be considered a Woodbridge soil series inclusion with Wetland WM and WA being classified as a Ridgebury soil series inclusion.

Federal Wetland B

In addition to assessing additional areas in the mowed field, Mr. Logan requested additional assessment of four areas associated with Federal Wetland B, which is represented by the wetland flag sequence W-B-#. Mr. Logan affixed blue flagging in areas that he wanted SLR to review for potential expansion of the existing delineated wetland boundary. Figure 2 illustrates the soil core locations and map edits for this wetland area.

Wetland Flag Area W-B-30

The first location that was reassessed was located at the headwaters of an intermittent watercourse and forested seep wetland that ended in the field with Wetland Flag W-B-30. The area in question is located approximately 1 foot higher in elevation than wetland flag W-B-30 location, and the area is vegetated with red maple (*Acer rubrum*), shagbark hickory (*Carya ovata*), multiflora rose (*Rosa multiflora*), common spicebush (*Lindera benzoin*), and Japanese barberry (*Berberis thunbergii*). No active surface water flow, stained leaves, and/or ground water breakout were noted within this area. Three Dutch augur samples were completed within this area, and it was found that the soils had a 6-inch-thick A Horizon with a matrix color of 10YR 3/1 and a Bg horizon of 10YR 4/2. As such, SLR extended the wetland flags in this area and included a new location for W-B-30 and additional flags W-B-31 through W-B-34. This wetland boundary modification has been added to the plans.

Area near Wetland Flags W-B-25 and W-B-26

The next area is located between wetland flags W-B-25 and W-B-26 and is located in a topographically flat area that has approximately 0.5 percent slope that slopes towards the existing wetland boundary. Portions of this area are extremely stony. No active signs of surface flow, stained leaves, or groundwater breakout was found within this area. One blue flag was set by Mr. Logan at this location. His blue flag was located approximately 60 feet northwest from W-B-25 and approximately 60 feet west from W-B-26. SLR completed six Dutch augur holes between the wetland flags noted above and the Mr. Logan's blue flag. The soil cores showed 6-inch-thick A horizons with a 10YR 3/2 matrix color and B horizons from 6 to 24 inches that were 10YR 4/4 with few, faint 7.5 YR 4/6 concentrations and few distinct 10YR 5/2 depletions in the upper 12 inches of the soil solum; however, it was found that below 12 inches the soil profile were mostly devoid of redox features and were well above a 2 chroma matrix. An active groundwater table was encountered in this area at approximately 12 inches. Vegetation consisted of shagbark hickory, red maple, sugar maple (*Acer saccharum*), American hornbeam (*Carpinus caroliniana*), dead American elm (*Ulmus americana*), dead white ash (*Fraxinus americana*), multiflora rose, Japanese barberry, common spicebush, Christmas fern (*Polystichum acrostichoides*), mosses, and grasses. No active surface flow or groundwater breakout was present. Based on our numerous soil cores within this area, the soils do not qualify as a poorly drained and/or very poorly drained soil. Lastly, SLR completed an additional augur sample at the wetland boundary near wetland flag W-B-25 and found the soils to have a depleted B horizon approximately 6 inches below the soil surface, confirming that the wetland boundary line is correct at this location. The wetland soil at W-B-25 is a poorly drained Ridgebury soil. The area that Mr. Logan flagged would be classified as a moderately well drained Woodbridge soil.

Wetland Flag W-B-23

Mr. Logan hung one blue flag at this location. The area is extremely stony and is vegetated with common spicebush and Japanese barberry. There was no active surface water flow or groundwater breakout present. The soils have a 6-inch-thick A horizon with a 10YR 3/1 matrix color and a B horizon that was difficult to augur given the interlocking stones and cobbles at this location. Based on the topography and moist A horizon, SLR relocated wetland flag W-B-23 to the blue flag that Mr. Logan had set in the field. This wetland boundary update has been added to the plan.

Wetland Flags W-B-17 through W-B-21

This area consists of a forested upland plateau that slopes down towards the existing wetland boundary. The area is vegetated with American elm, red maple, sugar maple, shagbark hickory, burning bush (*Euonymus alatus*), Japanese barberry, and common spicebush. There is no evidence of surface flow, stained leaves, and/or groundwater breakout along this area. Soil cores completed within this area showed a 6-inch-thick A horizon with 10YR 3/2 soil matrix color and B horizons that were 10YR 4/4 down to 24 inches with little to no redoximorphic features. No adjustments to wetland flags W-B-17 through W-B-19 were required. SLR did find that wetland flag W-B-20 appeared to be missing in the field. Upon further

investigation, SLR noticed a pink wetland flag wedged below large branches of a recent tree throw. This flag was difficult to find and appears to have slipped off its original branch due to the tree throw. So, it would make sense that Mr. Logan would have questioned the area near wetland flag W-B-20 since the flag was not easily visible. SLR reset wetland flag W-B-20 to its original location and no changes to the wetland boundary are required.

Federal Wetland A

Mr. Logan requested that SLR set pink wetland flags along Federal Wetland A specifically along the area proposed as a wetland mitigation area. SLR set flags WZ-193 through WZ-199 in the field. These are demarcated by pink wetland flags attached to sturdy vegetation. These wetland flags number have been added to the plan set.

Conclusion

SLR completed additional soil test pits and soil cores at locations recommended by the town's third party technical reviewer, and the results indicate that most of the locations within the mowed field do not qualify as a poorly drained or very poorly drained soil, with the exception of a small wetland pocket that was delineated on February 13, 2023, and is represented by wetland flag sequence WM-1 through WM-4. In addition, some minor wetland boundary adjustments were made along Federal Wetland B and these adjustments are reflected on the plans. Lastly, pink wetland flags were hung along the Federal Wetland A boundary, and these have been added to the plans. SLR wants to thank Mr. Logan for the expeditious and thorough review of the wetland boundaries on this site. SLR hopes that this letter provides the soil data and clarification on wetland boundary adjustments to help the Middlebury Inland Wetland Commission to continue its deliberation for the pending Southford Park wetlands permit.

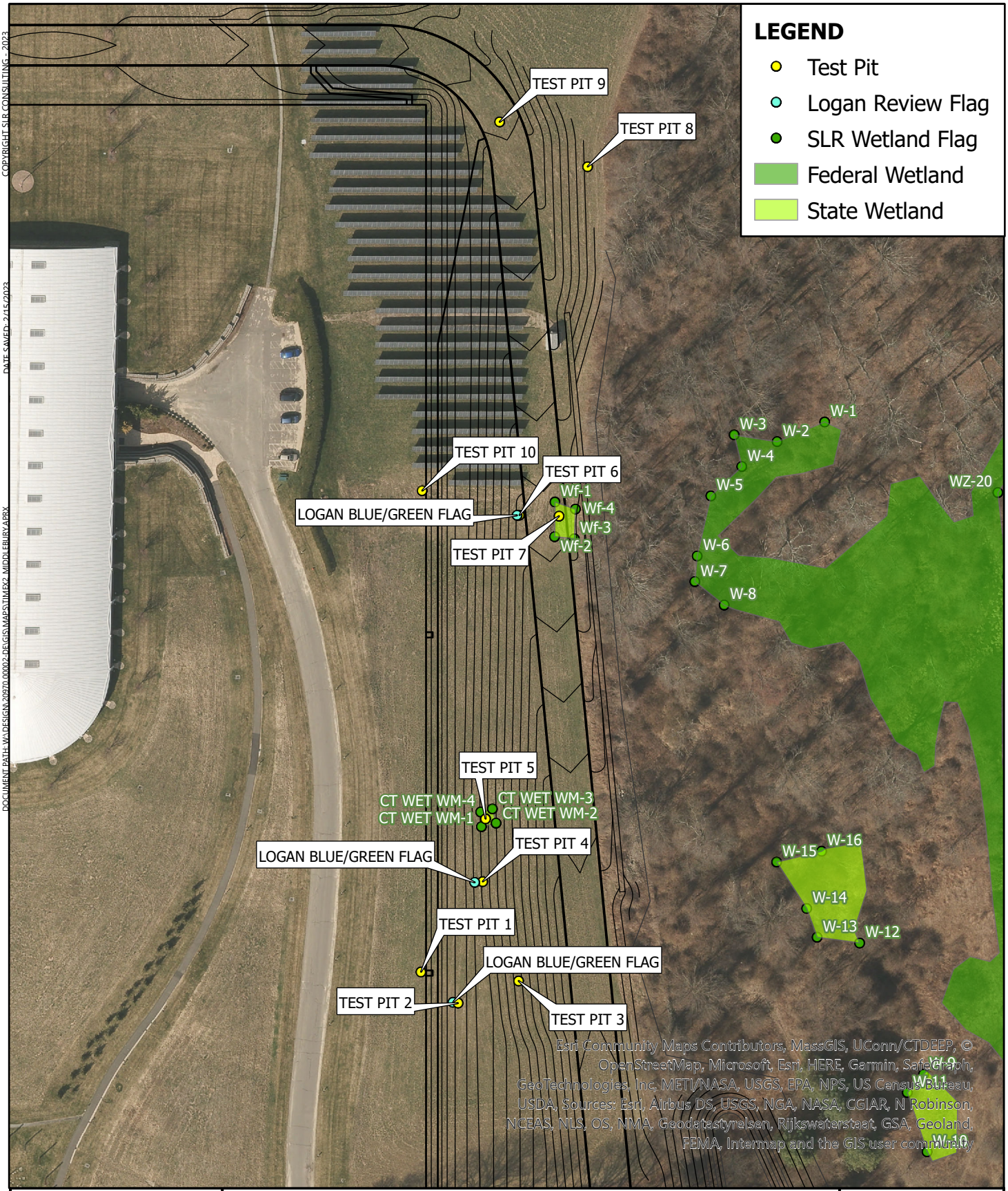
Sincerely,

SLR International Corporation

Matthew Sanford, RSS, PWS
US Manager of Ecology

Enclosures:
Figure 1
Figure 2
Photolog

20970.00002.f1623.ltr.docx



SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773

WETLAND REVIEW - MOWED FIELD AREA

555 CHRISTIAN ROAD AND 764 SOUTHFORD ROAD
ATLANTIC MANAGEMENT CORPORATION

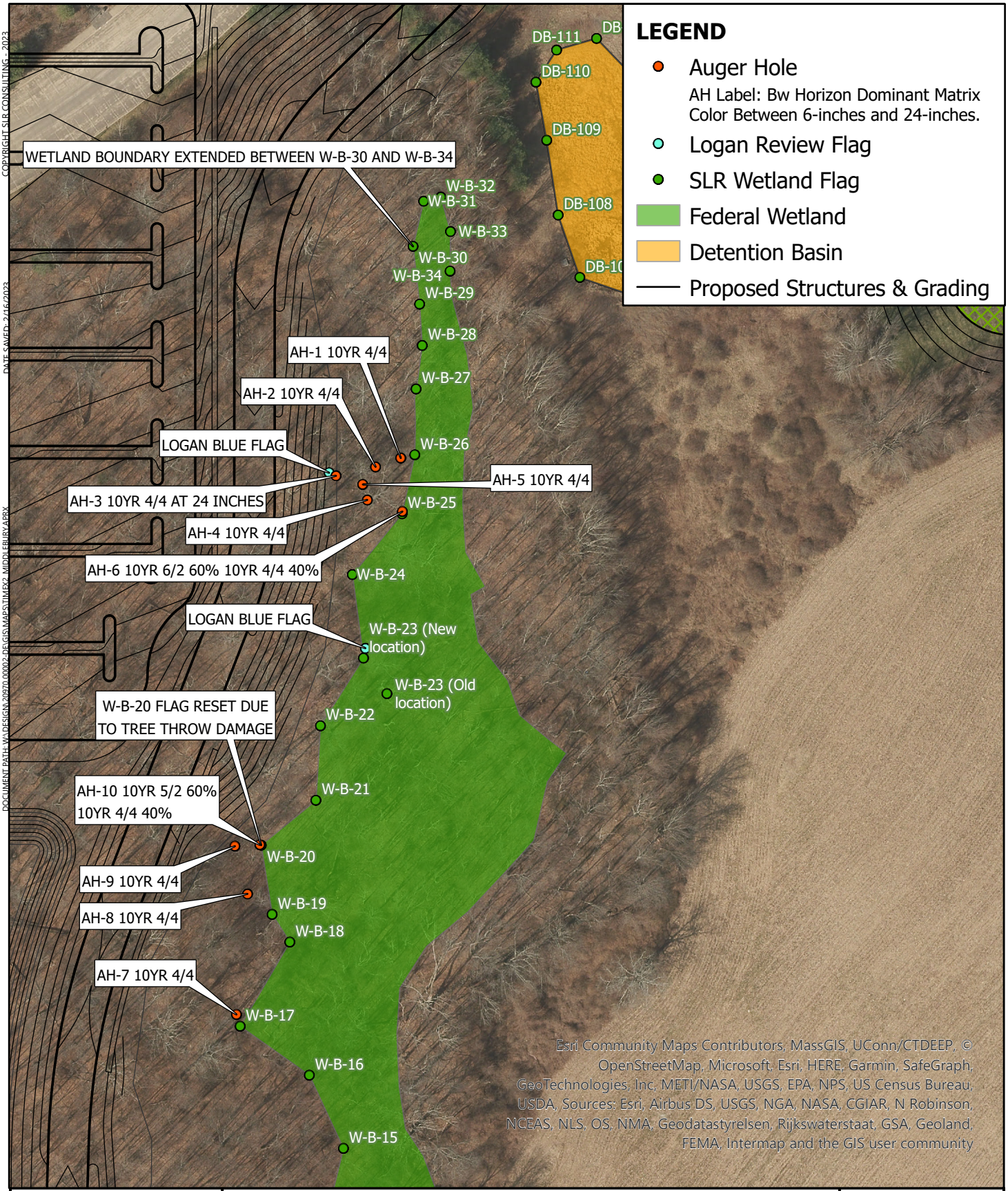
555 CHRISTIAN ROAD AND 764 SOUTHFORD ROAD
MIDDLEBURY. CONNECTICUT

N

0 100
Feet

SCALE 1" = 100'
DATE 2/16/2023
PROJ. NO. 141.20970.00002

FIG. 1



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203.271.1773

WETLAND REVIEW - FEDERAL WETLAND B

555 CHRISTIAN ROAD AND 764 SOUTHFORD ROAD
ATLANTIC MANAGEMENT CORPORATION
555 CHRISTIAN ROAD AND 764 SOUTHFORD ROAD
MIDDLEBURY. CONNECTICUT

N

0 100
Feet

SCALE 1" = 100'
DATE 2/16/2023
PROJ. NO. 141.20970.00002

FIG. 2

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
1	2/13/23

Direction Photo Taken:

West

Description:

Mowed Field east of Timex Service Road and Building

Test Pit #1 Location. Upgradient from Mr. Logan Blue and Green Flag in reed canary grass trough

Photo No.	**Date:**
2	2/13/23

Direction Photo Taken:

West

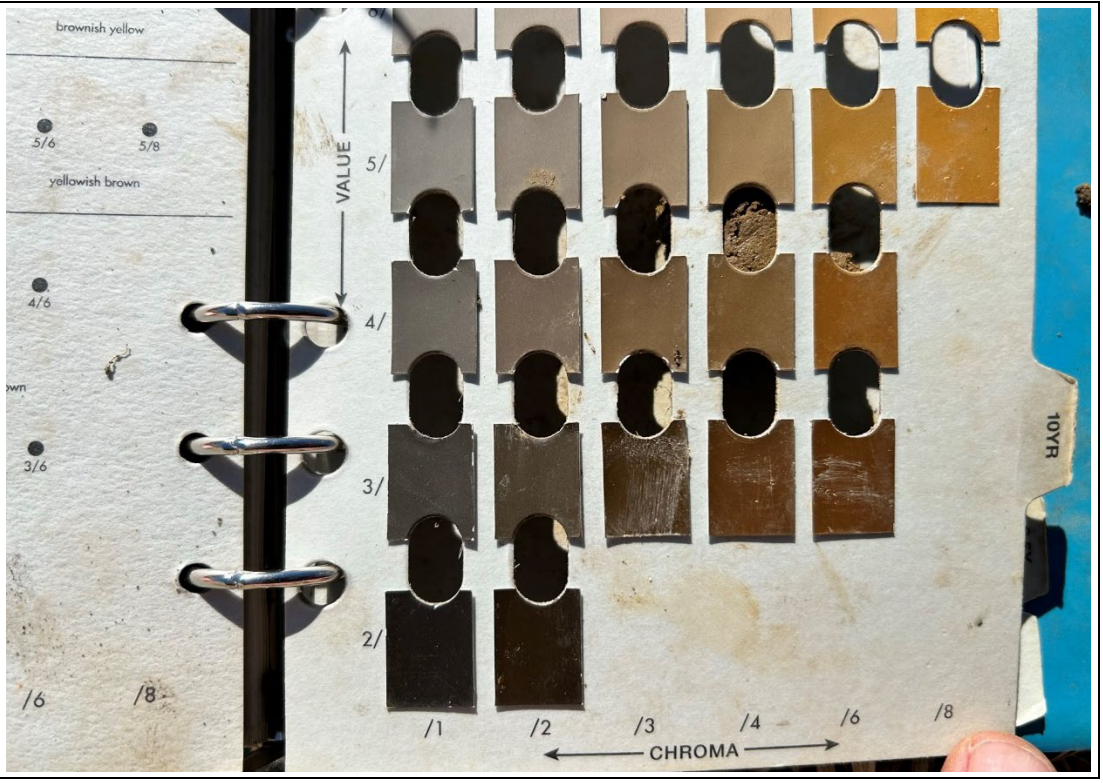
Description:

Mowed Field east of Timex Service Road and Building

Test Pit #1 Location.

Munsell Color Chart

Soil core – 0" to 24"
Bw from 12-24'-Matrix
Color is 10YR 4/4 – (100%)



PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
3	1/27/23

Direction Photo Taken:

West

Description:

Mowed Field east of Timex Service Road and Building

Test Pit #2 Location.
Mr. Logan Blue and Green Flag in background of hole.
Test Pit core in front of hole.

Photo No.	**Date:**
4	2/13/23

Direction Photo Taken:

West

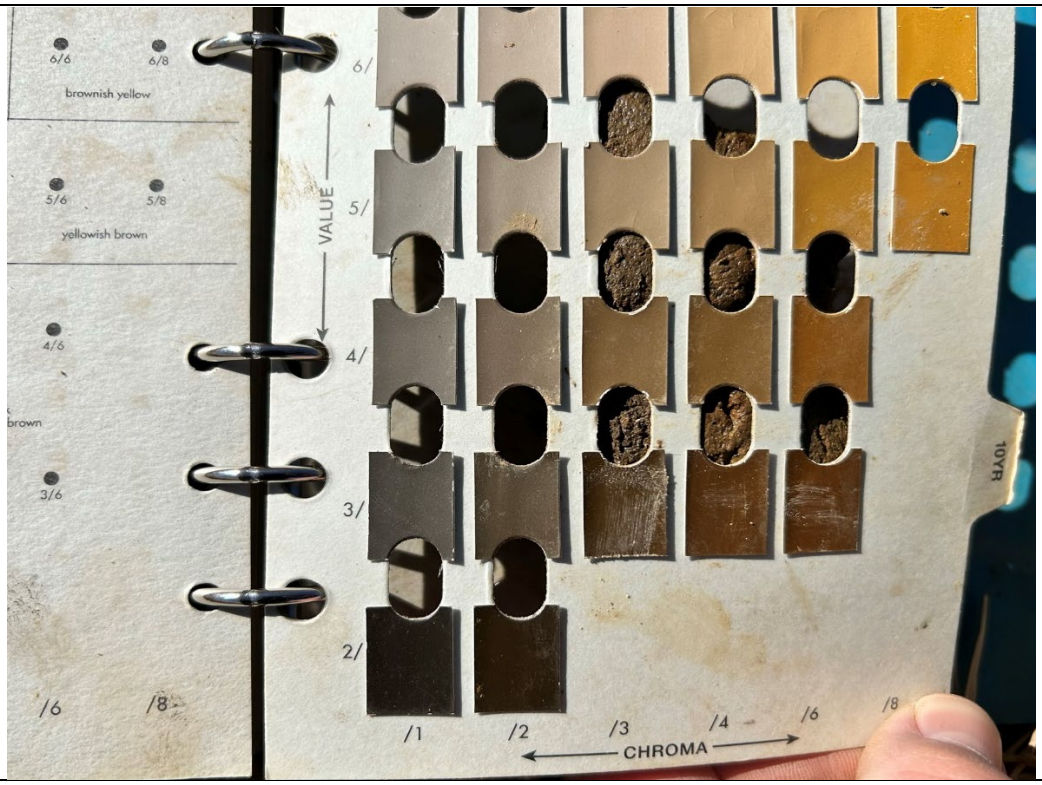
Description:

Mowed Field east of Timex Service Road and Building

Test Pit #2

Munsell Color Chart

Dominant matrix color within the B horizon is 10YR 4/4 with some 10YR 3/3 inclusions.



SLR

PHOTOGRAPHIC LOG

Client Name: Southford Park	**Site Location:** Timex Site – Middlebury, CT	**Project No.** 141.20970.00002

Photo No. 5	**Date:** 2/13/23

Direction Photo Taken:

Not Applicable

Description:

Test Pit #3
Downgradient from Test Pit #2 within reed canary grass trough.

Notice matric color change at appox. 24” to a 50% 10YR 5/6 and 50% 10YR 6/2 which is showing a depleted matrix. However this matrix begins at 24-inches, therefore this does not qualify as a poorly

Photo No. 6	**Date:** 2/13/23

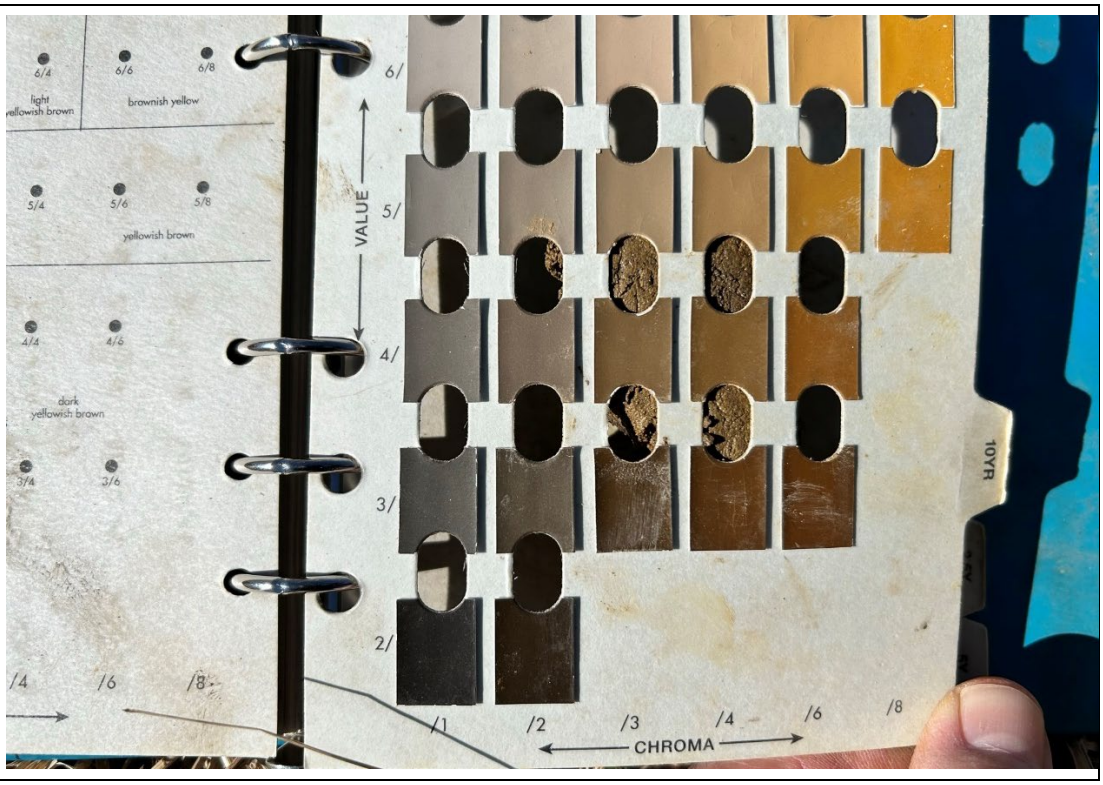
Direction Photo Taken:

Not Applicable

Description:
Test Pit #3

Munsell Color Chart

Dominant matrix color within the B horizon is 10YR 4/3 and 10YR 4/4 between 12” to 24” below the soil surface.



PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
7	2/13/23

Direction Photo Taken:

West

Description:

Mowed Field east of Timex Service Road and Building

Test Pit #3 Location.
Mr. Logan Blue and Green Flag in background of hole

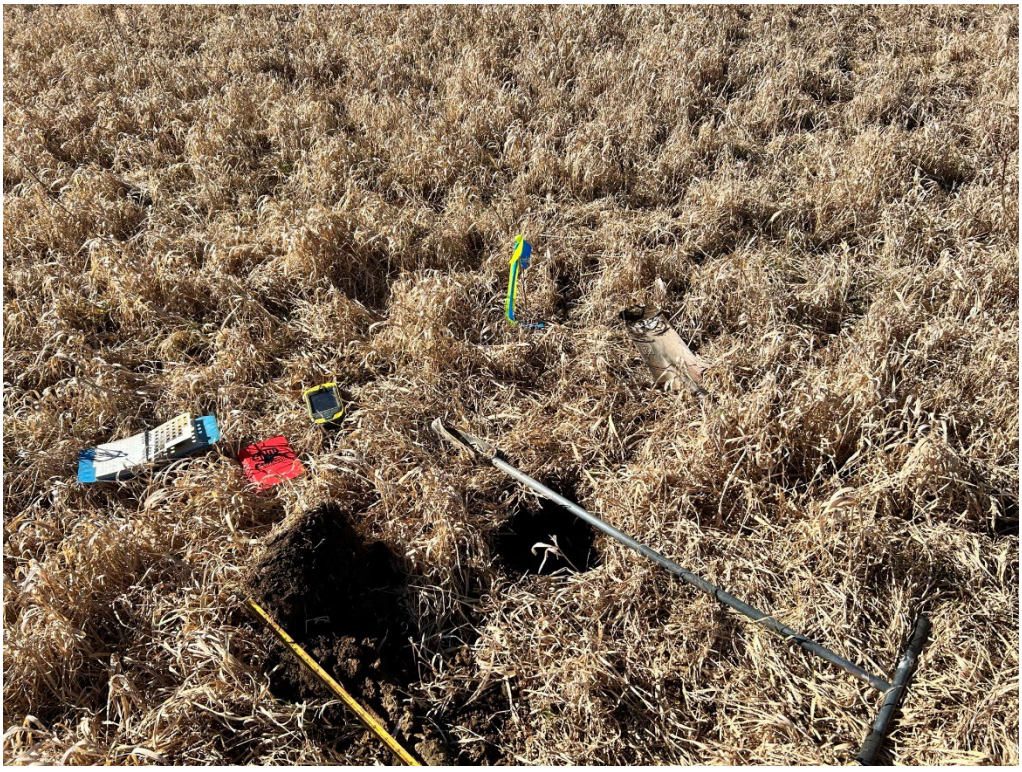


Photo No.	**Date:**
8	1/13/23

Direction Photo Taken:

Not Applicable

Description:

Test Pit #4
Dominant matrix color within the B horizon is 10YR 4/3 and 10YR 4/4 between 12” to 24” below the soil surface.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
9	1/27/23

Direction Photo Taken:

Not Applicable

Description:
Test Pit #4

Munsell Color Chart

Dominant matrix color within the B horizon is 10YR 4/3 and 10YR 4/4 between 12" to 24" below the soil surface.

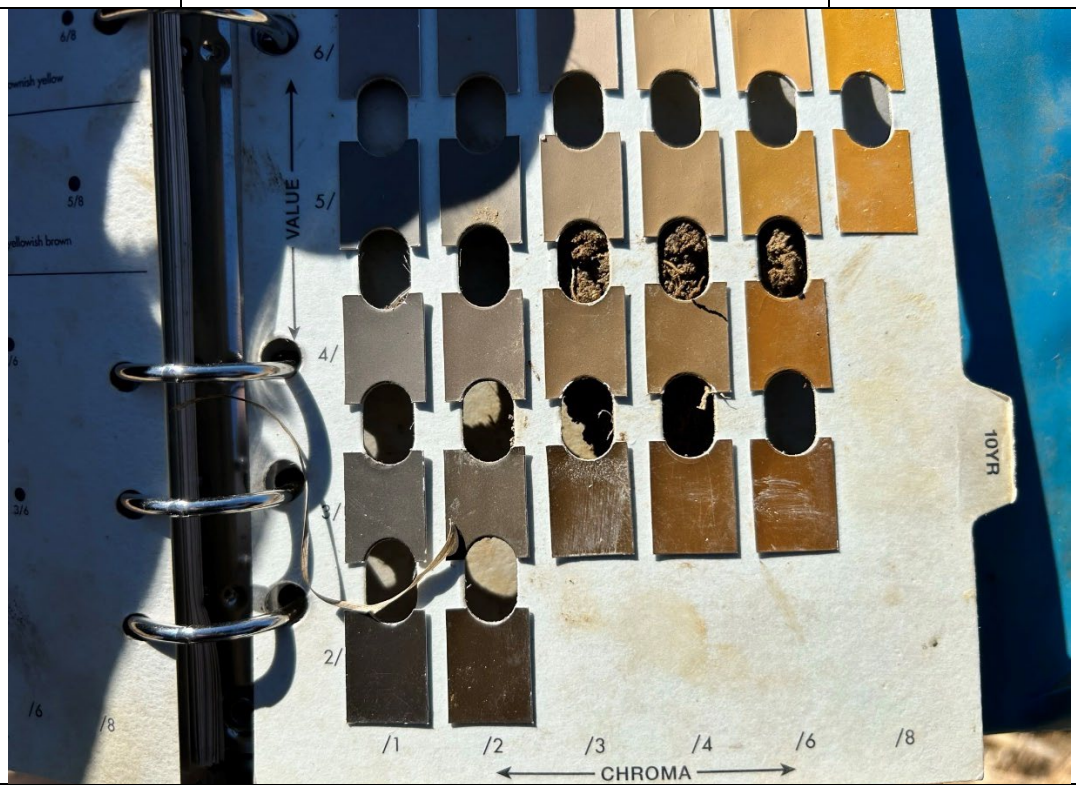


Photo No.	**Date:**
10	1/27/23

Direction Photo Taken:

South

Description:
Test Pit #5

Area north of Logan Blue/Green Flag. Another Reed Canary grass trough
.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
11	2/13/23

Direction Photo Taken:

South

Description:

. Test Pit #5

Dominate matrix color changes from 10YR 4/3 to 10YR 5/2 (50%) and 2.5 Y 5/3 (49%) around 12 inches below soil surface and would classify as a poorly drained soil.

Photo No.	**Date:**
12	2/13/23

Direction Photo Taken:

Not applicable

Description:

Test Pit #5

Close up of soil with 50% depleted matrix color. .

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
13	2/13/23

Direction Photo Taken:

Not Applicable

Description:

Test Pit #5

Close up of soil with 50% depleted matrix color. .

Photo No.	**Date:**
14	2/13/23

Direction Photo Taken:

Not applicable

Description:

Test Pit #5

Close up of soil with 50% depleted matrix color. .

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
15	2/13/23

Direction Photo Taken:

Northwest

Description:

Test Pit #6

Logan Blue/Green Flag in background/upgradient from Test Pit. Another Reed Canary grass trough.

Photo No.	**Date:**
16	2/13/23

Direction Photo Taken:

Not applicable

Description:

Test Pit #6

Large cobbles at10-12 inches. Dominate matrix color 10YR 4/3 with 10YR 5/2 depletions present.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
17	2/13/23

Direction Photo Taken:

South

Description:

Test Pit #6

Munsell Color Chart

Dominant matrix color between 12” and 24” is 10YR 4/3.

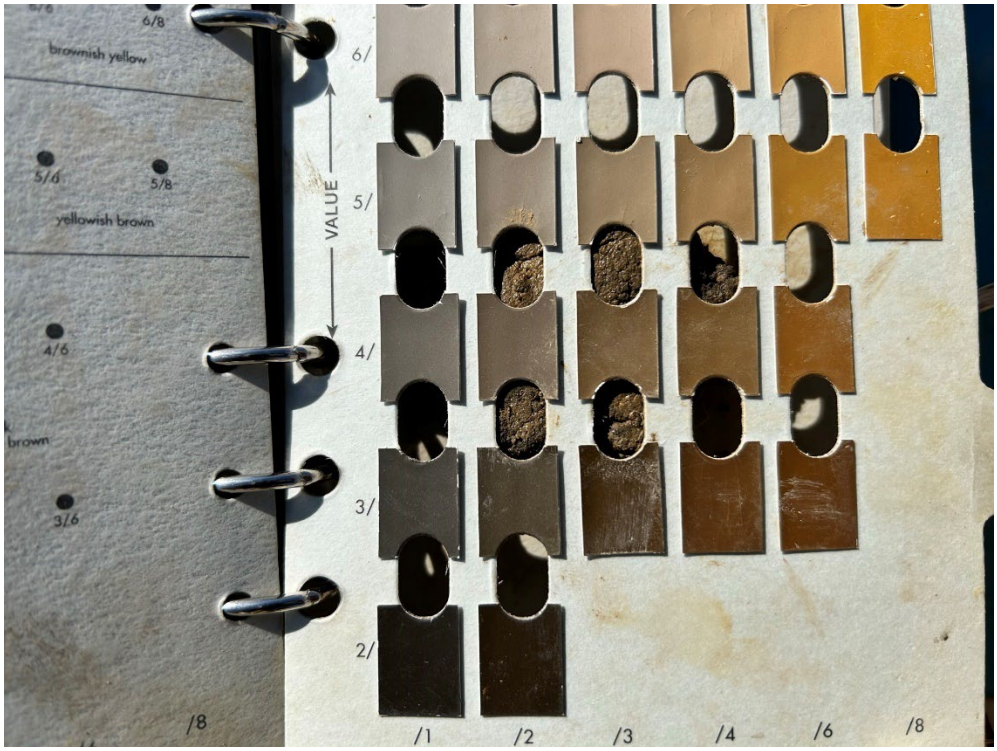


Photo No.	**Date:**
18	2/13/23

Direction Photo Taken:

Description:

Test Pit #7

Dominate matrix color 10YR 5/2 (60%) and 10YR 4/3 (35%) 12 inches below soil surface and would classify as a poorly drained soil. This test pit was completed within the existing field wetland delineated in November 2022.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
19	2/13/23

Direction Photo Taken:

South

Description:

Test Pit #7

Close up of soil within wetland. 60% depleted matrix color.

Photo No.	**Date:**
20	2/13/23

Direction Photo Taken:

South

Description:

Test Pit #8

Area north of solar panels. No blue and green flags present, but was marked on Mr. Logan's map for additional confirmation.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
21	2/13/23

Direction Photo Taken:

Not Applicable

Description:

Test Pit #8

Soils between 10” and 24” have a dominate matrix color of 10YR 4/3.

Photo No.	**Date:**
22	2/13/23

Direction Photo Taken:

Not applicable

Description:

Test Pit #8

Munsell Color Chart

Dominate matrix color changes from 10YR 4/3 to 10YR 5/2 (50%) and 2.5 Y 5/3 around 12 inches below soil surface and would classify as a poorly drained soil.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
23	2/13/23

Direction Photo Taken:

Not Applicable

Description:

Test Pit #8

Active water table observed in test pit holw at approximately 12-inches.

Photo No.	**Date:**
24	2/13/23

Direction Photo Taken:

Not applicable

Description:

Test Pit #9

Located north side of solar panels within reed canary grass patch.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
23	2/13/23

Direction Photo Taken:

Not Applicable

Description:

Test Pit #9

Dominant matrix color 10YR 4/3 between 12 and 24 inches below the soil surface.

Photo No.	**Date:**
24	2/13/23

Direction Photo Taken:

North

Description:

Revised wetland boundary at northern end of Federal Wetland B. Mr. Logan's blue flag in background. Wetland flags W-B-30 through W-B-34 were extended up to Mr. Logan's blue flags.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
25	2/13/23

Direction Photo Taken:

Northwest

Description:

No revision to wetland boundary based on soil augur holes/cores completed. Mr. Logan's blue flag is located in background.

Photo No.	**Date:**
26	2/13/23

Direction Photo Taken:

Not applicable

Description:

Typical dominant matrix color 10YR 4/4 between Mr. Logan's flag and W-B-25 and W-B-26.

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
27	2/13/23

Direction Photo Taken:

Not Applicable

Description:

Typical dominant matrix color 10YR 4/4 between Mr. Logan's flag and W-B-25 and W-B-26. This soil collected between 6 and 24 inches. Depletions 10 YR 5/2 are present within upper 24 inches but are less than 50% of the matrix color. Water table was observed at 12 inches and soil was soupy upon extraction.

Photo No.	**Date:**
28	2/13/23

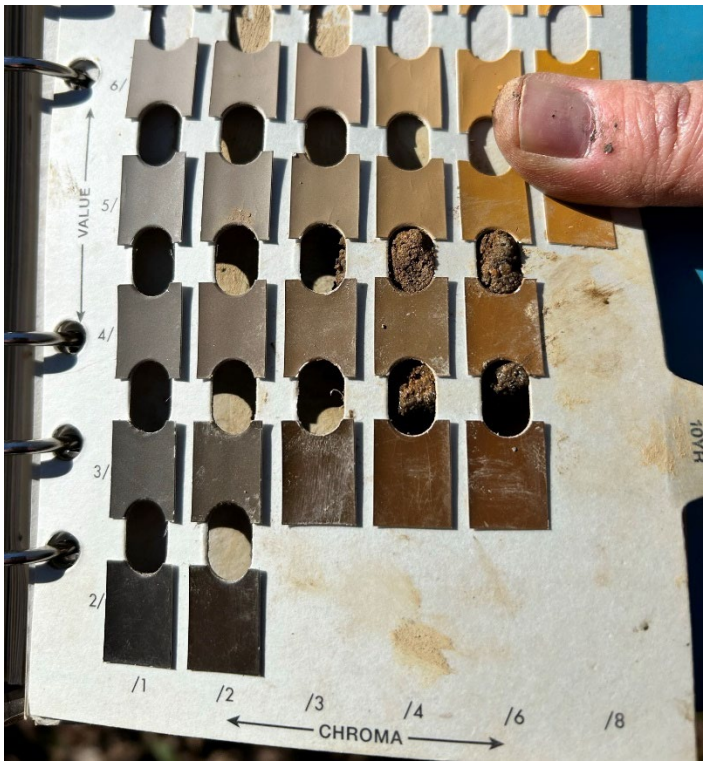
Direction Photo Taken:

Not applicable

Description:

Munsell Color Chart

Typical dominant matrix color 10YR 4/4 between Mr. Logan's flag and W-B-25 and W-B-26. This soil collected between 6 and 24 inches.



PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
29	2/13/23

Direction Photo Taken:

Norrthwest

Description:

Mr. Logans blue flag located west of wetland flag W-B-23. SLR moved our November 2022 W-B-23 flag out to Mr. Logans blue flag location.

Photo No.	**Date:**
30	2/13/23

Direction Photo Taken:

Northeast

Description:

Tree throw area that had dislodged wetland flag W-B-20. SLR reset the wetland flag. No modifications to wetland boundary were required.

February 28, 2023

Ms. Deborah Seavey
Wetlands Official
Middlebury Town Hall
1212 Whittemore Road
Middlebury, CT 06762

Re: Response to Third Party Technical Wetland Application Review
Southford Park – Timex Site
555 Christian Road and 764 Southford Road
Middlebury, Connecticut
SLR: #141.20970.00002

Dear Ms. Seavey,

SLR International Corporation (SLR) received a third-party wetland application letter dated February 22, 2023, from the REMA Ecological Services, LLC regarding George Logan's (the proprietor of REMA) review of the project site, wetland boundaries, wetland permit application, wetland boundary verification letter prepared by SLR dated February 16, 2023, and associated project plans. As part of his review, Mr. Logan completed a followup site visit to assess the test pits and wetland boundary adjustments made in the field by SLR on February 13 and 14, 2023. Based on his follow up site visit, Mr. Logan requested that additional adjustments be made to the existing wetland boundaries at three areas and requested review of a forested slope area near Federal Wetland B.

Matthew Sanford, a Registered Soil Scientist and Professional Wetland Scientist, with SLR, completed a followup field investigation on February 27, 2023, to evaluate the areas identified by Mr. Logan in his February 22 letter. The field conditions during the SLR February 27 site visit was sunny with approximate air temperature of 38 degrees Fahrenheit. The ground was frost free and snow free, making conditions suitable to assess the soil drainage classes on site.

Wetland Boundary Adjustments

Existing Mowed Field

Mr. Logan requested that the farm field wetland that includes wetland flag sequences WF and WM be extended by approximately 15 feet. At wetland WF, SLR relocated flags WF-1 and WF-2 approximately 16 feet upslope from each of these flags previous locations. The new flag locations were field surveyed with a GPS unit and are shown on attached Figure 1. At Wetland WM, SLR added two additional flags, WM-5 and WM-6, approximately 15 feet downgradient from flags WM-2 and WM-4. This adjustment is noted on Figure 1. Photos of each of these wetland adjustments are provided in the attached photo log.

Federal Wetland B

Mr. Logan set pink-colored Test Pit flags labeled TP-100 through TP-400 in the field within a forested sloped drainage trough. Based on his review, the soils within this trough had a matrix that had a 50 percent depleted matrix, thereby classifying the soil at this location as Ridgebury poorly drained soil. Based on SLR auguring, we concur that there are pockets of poorly drained soils and somewhat poorly drained soils within this sloped feature. As such, SLR has set new wetland flags along this feature, and the wetland is represented by wetland flags WT-1 through WT-13. This new wetland is illustrated on Figure 2.

Federal Wetland A

Mr. Logan requested that wetland flag WZ-195 be located approximately 11 feet or so upgradient from its current location. He stated that he set a blue and green flag at the location where he wanted this flag moved to. When I arrived at flag WZ-195, there was no green and blue flag present; however, I did find his blue and green flag located adjacent to wetland flag WZ-197. The distance between SLR's pink wetland delineation flag and Mr. Logan's blue and green flag was approximately 5 feet. In fact, his flags were tied on the same multiflora rose shrub, just a different branch than SLR's pink flagging. SLR moved our pink flag to Mr. Logan's green and blue flag and recorded this new flag position with a GPS unit. This flag and boundary adjustment has been updated on the project plans.

SLR Soil Test Pit #8

Mr. Logan pointed out that the photo log that SLR had attached to our February 16, 2023, wetland boundary verification letter had indicated that Soil Test Pit #8 Photo 22 indicated that the soil had a Munsell chroma color that was depleted. This was a cut and paste error on this particular photo within the photo log. As indicated in Table 1-1 Mowed Field Soil Test Pit Data – Timex Site from SLR's February 16, 2023, letter Test Pit #8 had a Bw horizon that consisted of a dominant matrix color of 10YR 4/3 with no redox present. The soil core photo (No. 21) clearly shows a bright yellow soil from approximately 10 inches down to 24 inches with no depleted matrix present. In addition, no redoximorphic features were found. An active water table was found at 12 inches. Based on the soil color and lack of redoximorphic features, this soil would likely classify as a Paxton soil. Moreover, Photo 22 shows a chroma value of 3, which does not qualify as a poorly drained soil. Lastly, vegetation at this location appeared to be mostly upland plant species, including the presence of broad-leaved plantain and upland grasses. No facultative wetland (i.e., reed canary grass) or obligate wetland vegetation was observed at this test pit location. There are no wetland soils located at Test Pit #8. SLR has corrected the photo log, specifically Photo No. 22 picture description, and has appended this revision to this letter.

Conclusion

SLR made adjustments to existing wetland boundaries per Mr. Logan's comments and has revised these boundaries on the project site plan. Mr. Logan has additional comments within his technical review letter specifically related to existing and proposed hydrologic conditions of this site that will be addressed by the SLR civil engineering team. SLR wants to thank Mr. Logan for the expeditious and thorough review of the wetland boundaries on this site. SLR hopes that this letter provides the wetland boundary adjustments

requested by Mr. Logan to help the Middlebury Inland Wetland Commission continue its deliberation for the pending Southford Park wetlands permit.

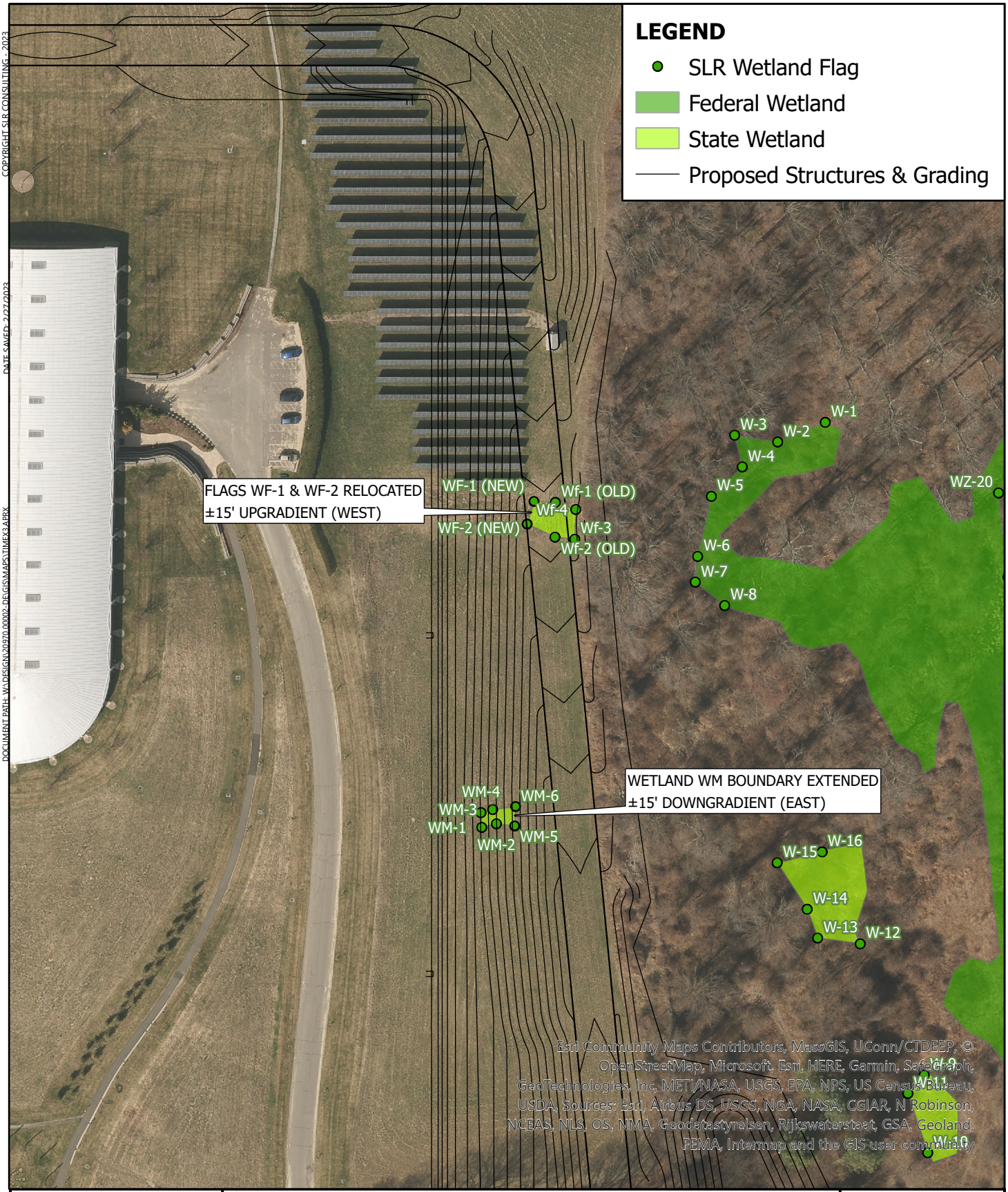
Sincerely,

SLR International Corporation

Matthew Sanford, RSS, PWS
US Manager of Ecology

Enclosures:
Figure 1
Figure 2
Photolog
Corrected Photo 22 (from February 16, 2022 Photolog)

20970.00002.f2823.ltr.docx



SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773

WETLAND REVIEW - MOWED FIELD AREA

555 CHRISTIAN ROAD AND 764 SOUTHFORD ROAD
ATLANTIC MANAGEMENT CORPORATION

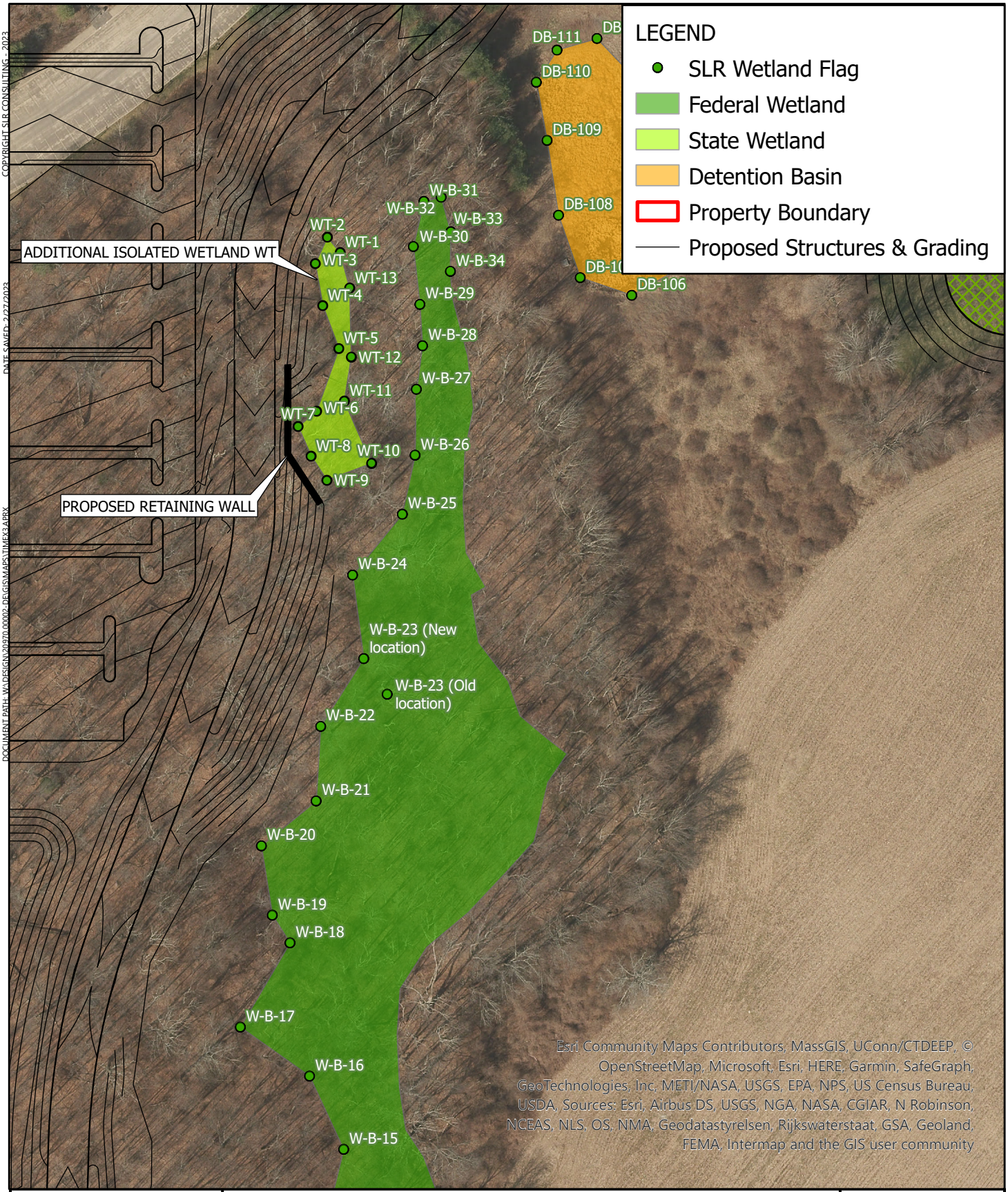
555 CHRISTIAN ROAD AND 764 SOUTHFORD ROAD
MIDDLEBURY. CONNECTICUT

N

0 100
Feet

SCALE 1" = 100'
DATE 2/28/2023
PROJ. NO. 141.20970.00002

FIG. 1



SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773

WETLAND REVIEW - FEDERAL WETLAND B

555 CHRISTIAN ROAD AND 764 SOUTHFORD ROAD
ATLANTIC MANAGEMENT CORPORATION
555 CHRISTIAN ROAD AND 764 SOUTHFORD ROAD
MIDDLEBURY. CONNECTICUT

N

0 100
Feet

SCALE 1" = 100'
DATE 2/28/2023
PROJ. NO. 141.20970.00002

FIG. 2

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
21	2/13/23

Direction Photo Taken:

Not Applicable

Description:

Test Pit #8

Soils between 10” and 24” have a dominate matrix color of 10YR 4/3.

Photo No.	**Date:**
22	2/13/23

Direction Photo Taken:

Not applicable

Description:

Test Pit #8

Munsell Color Chart

Dominate matrix color is 10YR 4/3 (100%). No redox present within upper 24 inches of soil solum.

Photo No. 22 Revised Soil Description 2-28-2023

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
1	2/27/23

Direction Photo Taken:

Southwest

Description:

Mowed Field east of Timex Service Road and Building

Wetland WM added flags WM-5 and WM-6 downgradient from WM-2 and WM-4

Photo No.	**Date:**
2	2/27/23

Direction Photo Taken:

North

Description:

Mowed Field east of Timex Service Road and Building

Wetland WF

Extended flags uphill by approximately 15 and 16 feet respectively. Reset wetland flags WF-1 and WF-2. Flags were set between Logan's Blue/Green flag and his pink test pit flag.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	Date:
3	2/27/23

Direction Photo Taken:

South

Description:

Federal Wetland A

Wetland Flag WZ-197 placed by SLR on February 14, 2023 and George Logan Blue/Green Flag that he placed on February 18, 2023 along west side of Federal Wetland A

Photo No.	Date:
4	2/27/23

Direction Photo Taken:

South

Description:

Federal Wetland A

Wetland Flag WZ-197 reset by SLR on February 27, 2023 to George Logan's Blue/Green Flag that he placed on February 18, 2023 along west side of Federal Wetland A

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Southford Park	Timex Site – Middlebury, CT	141.20970.00002

Photo No.	**Date:**
5	2/27/23

Direction Photo Taken:
East

Description:
Delineated additional Wetland WT on February 27, 2023 and is represented by flags WT-1 through WT-13. Forested slope wetland.

Photo No.	**Date:**
6	2/27/23

Direction Photo Taken:
North

Description:
Wetland WT represented by flags WT-1 through WT-13. Forested slope wetland.

February 28, 2023

Ms. Deborah Seavey
Wetlands Official
Middlebury Town Hall
1212 Whittemore Road
Middlebury, CT 06762

Re: Snake Management Plan
Southford Park – Timex Site
555 Christian Road and 764 Southford Road
Middlebury, Connecticut
SLR: #141.20970.00002

Dear Ms. Seavey,

SLR International Corporation (SLR) has developed a Snake Management Plan for the Southford Park site, out of an abundance of caution and based on concerns that have been raised by the community related to snakes during the wetland permit application meetings, which are currently ongoing before the Middlebury Inland Wetlands Commission. It should be noted that the Connecticut Department of Energy & Environmental Protection (CTDEEP) Natural Diversity Data Base (NDDB) program database system has been reviewed for the potential for listed flora and/or fauna species on the project site. According to the latest NDDB December 2022 publicly available maps, the project site is not located within NDDB polygon area of concern (see attached map). This means that no recorded sightings of a listed species by a qualified ecologist, herpetologist, botanist, etc. have been reported to the CTDEEP NDDB program. Therefore, there is no reason to believe that state listed snakes are present on or adjacent to this site. Although we do not believe the site supports listed snake species, we do expect that the site may support an assemblage of common snake species including the following:

- eastern garter snake (*Thamnophis s. sirtalis)*
- Dekay's brown snake (*Storeria dekayi dekayi*)
- eastern milksnake (*Lampropeltis t. triangulum)*
- eastern ratsnake (*Pantherophis alleghaniensis*)
- northern black racer (*Coluber c. constrictor*)
- northern redbelly snake (*Storeria o. occipitomaculata*)
- northern ring necked snake (*Diadophis punctatus edwardsii)*

Based on the potential for snakes to be present on this site, the applicant is proposing to implement a Snake Management Plan as part of the project site plans. This Snake Management Plan includes the installation of a construction barrier, which consists of geotextile silt fence to be installed along the perimeter of the proposed project disturbance. In addition to this silt fence, the applicant will follow the

recommendations that the CTDEEP has developed for protecting snakes within proposed construction sites. The following snake management notes will be added to the final site plan set.

SNAKE MANAGEMENT NOTES

1. A QUALIFIED HERPETOLOGIST SHALL BE RETAINED TO SURVEY/SWEEP THE AREAS ALONG THE LIMITS OF DISTURBANCE PRIOR TO ANY CONSTRUCTION. THIS SHALL OCCUR IMMEDIATELY PRIOR TO (WITHIN 24 HOURS), THEN IMMEDIATELY FOLLOWING THE INSTALLATION OF THE EROSION AND SEDIMENTATION CONTROL BARRIER.
2. EXCLUSIONARY PRACTICES WILL BE REQUIRED TO PREVENT ANY SNAKE ACCESS INTO CONSTRUCTION AREAS. THESE MEASURES WILL NEED TO BE INSTALLED AT THE LIMITS OF DISTURBANCE.
3. EXCLUSIONARY FENCING MUST BE AT LEAST 20 INCHES TALL AND MUST BE SECURED TO AND REMAIN IN CONTACT WITH THE GROUND AND BE REGULARLY MAINTAINED (AT LEAST BI-WEEKLY AND AFTER MAJOR WEATHER EVENTS) TO SECURE ANY GAPS OR OPENINGS AT GROUND LEVEL THAT MAY LET ANIMAL PASS THROUGH. DO NOT USE PLASTIC WEB OR NETTED SILT FENCE.
4. ALL STAGING AND STORAGE AREAS, OUTSIDE OF PREVIOUSLY PAVED LOCATIONS, REGARDLESS OF THE DURATION OF TIME THEY WILL BE UTILIZED, MUST BE REVIEWED TO REMOVE INDIVIDUALS AND EXCLUDE THEM FROM RE-ENTRY.
5. ALL CONSTRUCTION PERSONNEL WORKING WITHIN SNAKE HABITAT MUST BE APPRISED OF THE SPECIES DESCRIPTION, THE POSSIBLE PRESENCE OF SNAKES, AND INSTRUCTED TO RELOCATE SNAKES FOUND INSIDE WORK AREAS OR NOTIFY THE APPROPRIATE AUTHORITIES (I.E., HERPETOLOGIST) TO RELOCATE INDIVIDUALS.
6. ANY SNAKES ENCOUNTERED WITHIN THE IMMEDIATE WORK AREA SHALL BE CAREFULLY MOVED TO AN ADJACENT AREA OUTSIDE OF THE EXCLUDED AREA, AND FENCING SHOULD BE INSPECTED TO IDENTIFY AND REMOVE ACCESS POINTS.
7. IN AREAS WHERE SILT FENCE IS USED FOR EXCLUSION, IT SHALL BE REMOVED AS SOON AS THE AREA IS STABLE TO ALLOW FOR REPTILE PASSAGE TO RESUME.
8. THE CONTRACTOR OR CONSULTING HERPETOLOGIST MUST SEARCH THE WORK AREA EACH MORNING PRIOR TO ANY WORK BEING DONE.
9. ANY CONFIRMED SIGHTINGS OF SNAKES SHOULD BE REPORTED TO THE CONSULTING HERPETOLOGIST.

We are hopeful that the above recommended Snake Management Plan will provide assurances to the protection of snakes during the construction phases of the project. If you have any questions related to the above-noted Snake Management Plan, please do not hesitate to call me at (203) 271-1773.

Sincerely,

SLR International Corporation

Matthew Sanford, RSS, PWS
US Manager of Ecology

Enclosures:
CTDEEP NDDB December 2022 – Middlebury

20970.00002.f2823.ltr-smp.docx

Natural Diversity Data Base Areas

MIDDLEBURY, CT

December 2022

State and Federal Listed Species

Critical Habitat

Town Boundary

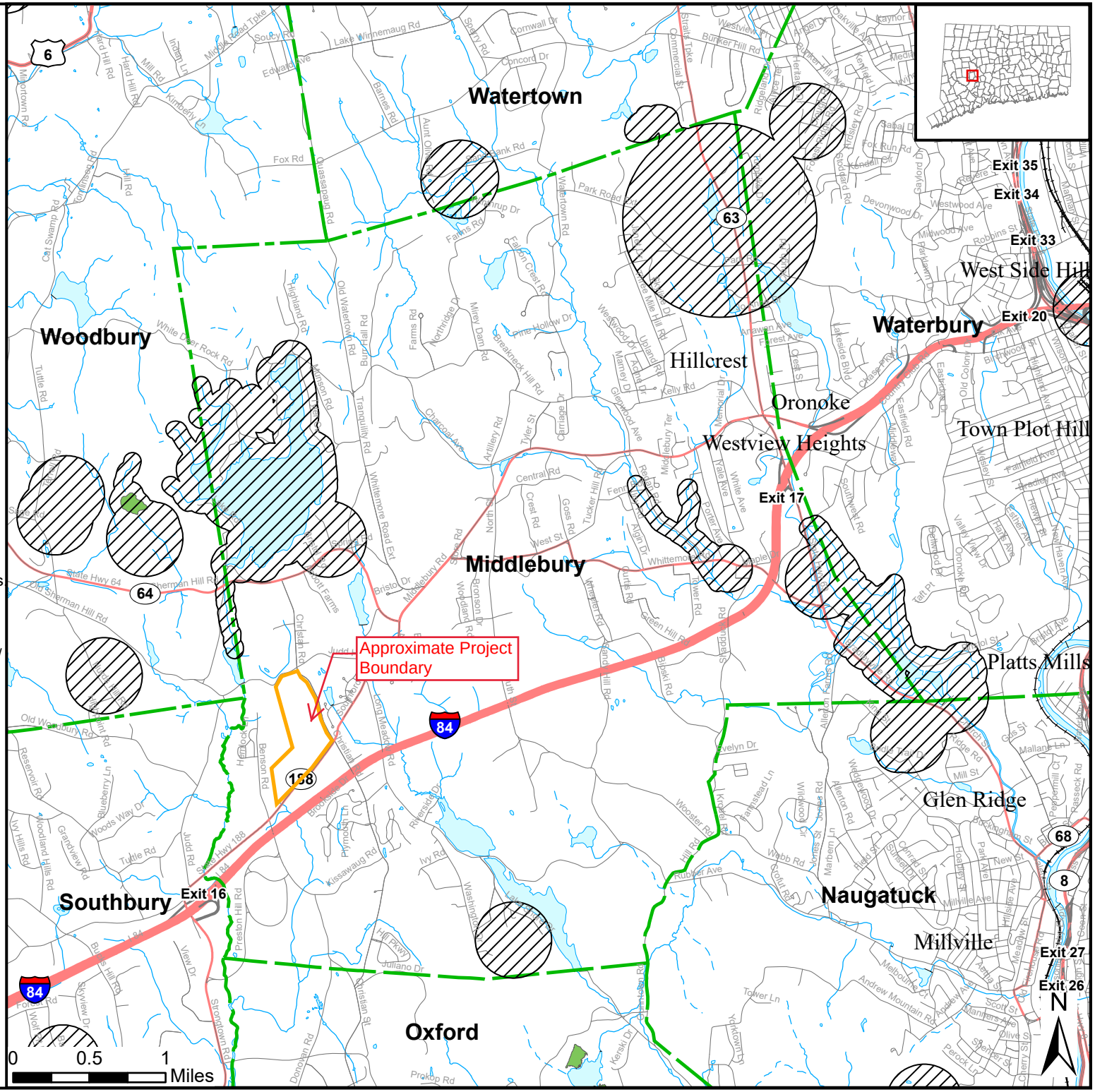
NOTE: This map shows known locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources . Exact locations of species have been buffered to produce the generalized locations.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas If the project is within a hatched area there may be a potential conflict with a listed species. For more information, use DEEP ezFile https://filings.deep.ct.gov/DEEPPortal/ to submit a Request for Natural Diversity Data Base State Listed Species Review or Site Assessment. More detailed instructions are provided along with the request form on our website. https://portal.ct.gov/deep-nddbrequest

Use the CTECO Interactive Map Viewers at http://cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011

Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



UNDERDRAIN TO DISCHARGE
TO SCOUR HOLE
INV.=679.0

OUTLET CONTROL STRUCTURE

BIORETENTION SWALE
BOTTOM ELEV.=682.5

PERFORATED UNDERDRAIN
INV.=680.0

W-B-29
W-B-30
WB-31
WB-32
WB-33
WB-34

680
682
684
686
688
690
700
676
678

683.5
683.0

0' 15' 30'
0 1/2" 1"
SCALE 1" = 30'

SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
SLRCONSULTING.COM

REVISIONS

EXHIBIT A
SOUTHFORD PARK
555 CHRISTIAN ROAD & 764 SOUTHFORD ROAD (ROUTE 188)
MIDDLEBURY, CONNECTICUT

RJM	ACD	RJM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=30'
DATE: FEBRUARY 28, 2023
PROJECT NO.: 20970.00002

EXB. A
SHEET NO.

TW:671.0
BW:664.0

PROPOSED RETAINING WALL

TW:675.0
BW:665.5

PROPOSED STONE INFILTRATION TRENCH
-UNDERDRAIN TO DISCHARGE
UPGRADIENT OF WETLAND

0' 15' 30'
0 1/2" 1"
SCALE 1" = 30'

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REVISIONS

EXHIBIT B

SOUTHFORD PARK

555 CHRISTIAN ROAD & 764 SOUTHFORD ROAD (ROUTE 188)
MIDDLEBURY, CONNECTICUT

RJM	ACD	RJM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=30'

DATE: FEBRUARY 28, 2023

PROJECT NO.: 20970.00002

EXB. B

SHEET NO.

Drawing: \\CT-ALPHA\WFS--JOBS\CAD\ESIGN\20970.00002--DE\CAD\MB -- GRADING.DWG Layout: tabEXB_B
Plotted by: ADOWD On: this date: Tue, 2023 February 28 -- 4:36pm

EXISTING WATERSHED REACHING
EXISTING OFFSITE WETLAND = 22.45 AC.

PROPOSED WATERSHED REACHING
EXISTING OFFSITE WETLAND = 19.45 AC.

APPROXIMATE LOCATION OF EXISTING OFFSITE WETLAND

EXISTING WATERSHED BOUNDARY REACHING OFFSITE WETLAND

PROPOSED WATERSHED BOUNDARY TO BE DIRECTED TO PROPOSED STORMWATER MANAGEMENT SYSTEM

PROPERTY LINE

EXISTING BUILDING

EXISTING TREELINE TYP.

HEMLOCK LANE

HIDD HILL ROAD

EXISTING BUILDING
JUNE 14, 2001

0' 100' 200'
0 1/2" 1"
SCALE 1" = 200'

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REVISIONS

EXHIBIT C

SOUTHFORD PARK

555 CHRISTIAN ROAD & 764 SOUTHFORD ROAD (ROUTE 188)
MIDDLEBURY, CONNECTICUT

MCB	ACD	RJM
DESIGNED	DRAWN	CHECKED

SCALE 1"=200'

DATE FEBRUARY 28, 2023

PROJECT NO. 20970.00002

SHEET NO. EXB. C

Drawing: \\GTALPHA\WP5--JOBS\CADDESIGN\20970.00002--DEV\CAD\NONPLANSET\2022-11-29 SITE RENDERINGS\EXISTING CONDITIONS RENDERING - OFFSITE WETLAND.DWG Layout: TabEXB C
Plotted by: ADOWD On this date: Tue, 2023 February 28 - 5:02pm

PROPOSED 4'x4' UNDERGROUND LEVEL SPREADER - TOP EXPOSED DISCHARGE - WITH RIPRAP APRON

HYDRODYNAMIC SEPERATOR

LOWER FLOW STORM TO BE DIVERTED TO LEVEL SPREADER

686 684 690 688 696 692 700 704 702 706 714 708 718 710

0' 10' 20'
0 1/2" 1"
SCALE 1" = 20'

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REVISIONS

EXHIBIT C-1

SOUTHFORD PARK

555 CHRISTIAN ROAD & 764 SOUTHFORD ROAD (ROUTE 188)
MIDDLEBURY, CONNECTICUT

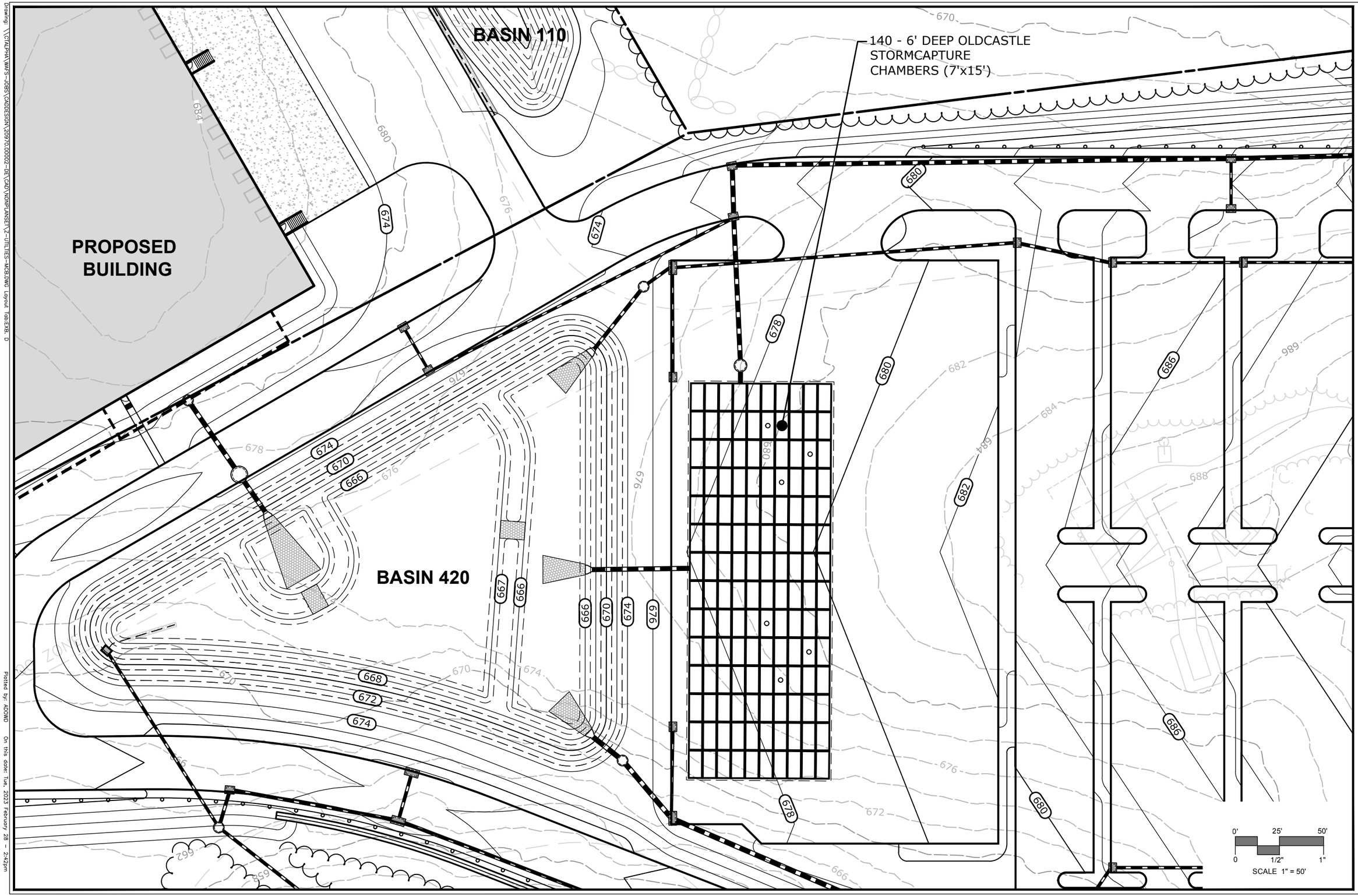
RJM	ACD	RJM
DESIGNED	DRAWN	CHECKED

SCALE 1"=20'

DATE FEBRUARY 28, 2023

PROJECT NO. 20970.00002

SHEET NO. EXB. C-1



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CHESHIRE, CT 06410
203.271.1773
SLRCONSULTING.COM

REVISIONS

EXHIBIT D

SOUTHFORD PARK

555 CHRISTIAN ROAD & 764 SOUTHFORD ROAD (ROUTE 188)
MIDDLEBURY, CONNECTICUT

MCB	MCB	RJM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=50'

DATE: FEBRUARY 28, 2023

PROJECT NO.: 20970.00002

SHEET NO.: EXB. D

Drawing: \\C1ALPHA\WAFS--OBS\CADDESIGN\20970.00002--DE\CAD\MB -- GRADING.DWG Layout: tab:EXB- E

Plotted by: ACDWD On this date: Tue, 2023 February 28 -- 2:35pm

716
710
704
700
694
690
684
680
674
666
688
686
692
696
714
708
670
WM-1
WM-2
WM-3
WM-4
WM-5
WM-6
WF-1
WF-2
WF-3
WF-4
WZZ-6
WZZ-7
W

REVISED WETLAND
BOUNDARY (WM-5 & WM-6)

REVISED WETLAND
BOUNDARY (WF-1 & WF-2)

0' 15' 30'
0 1/2" 1"
SCALE 1" = 30'

SLR

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CHESHIRE, CT 06410
203.271.1773
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REVISIONS

EXHIBIT E

SOUTHFORD PARK

555 CHRISTIAN ROAD & 764 SOUTHFORD ROAD (ROUTE 188)
MIDDLEBURY, CONNECTICUT

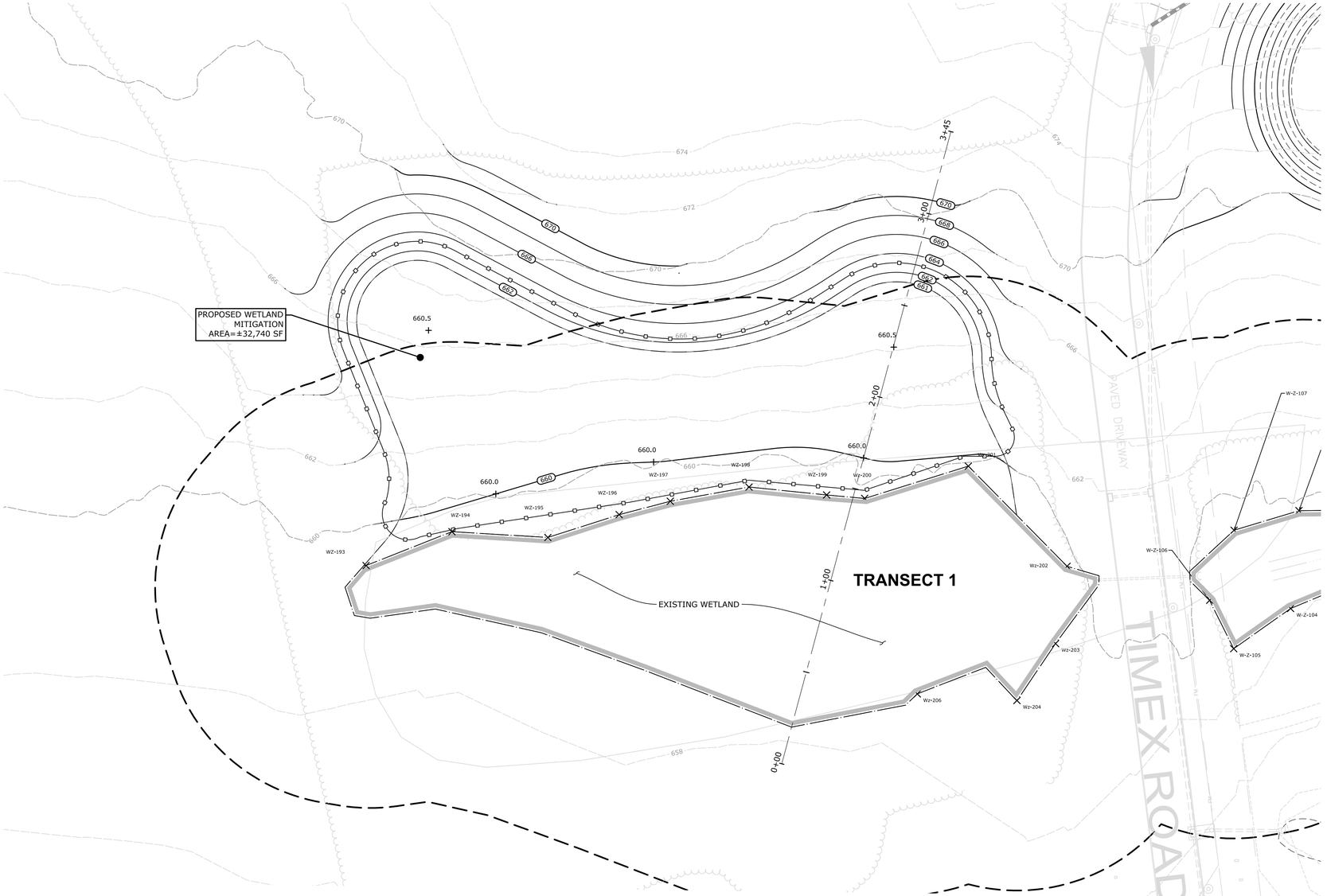
ACD	ACD	RJM
DESIGNED	DRAWN	CHECKED

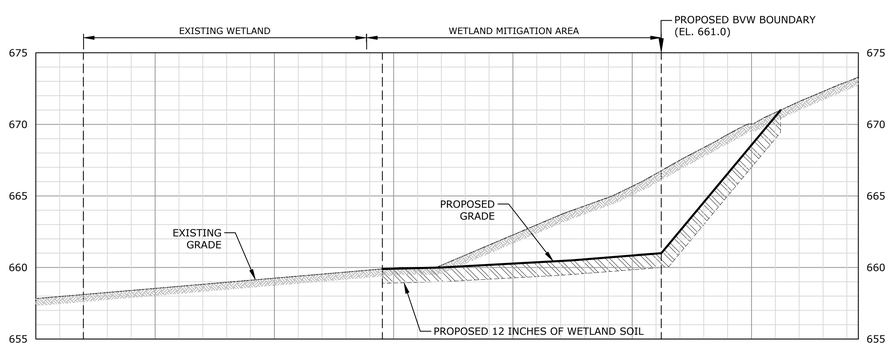
1"=30'
SCALE

FEBRUARY 28, 2023
DATE

20970.00002
PROJECT NO.

EXB. E
SHEET NO.





TRANSECT 1 - SECTION VIEW
SCALE: 1"=30' H; 1'=6'V

DESCRIPTION	DATE	BY
PROPOSED GRADING	2/22/2023	ACD

SLR
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203 271 1773
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SITE PLAN - WETLAND MITIGATION AREA - GRADING

SOUTHFORD PARK

555 CHRISTIAN ROAD & 764 SOUTHFORD ROAD (ROUTE 188)
MIDDLEBURY, CONNECTICUT

RJM	ACD	RJM
DESIGNED	DRAWN	CHECKED

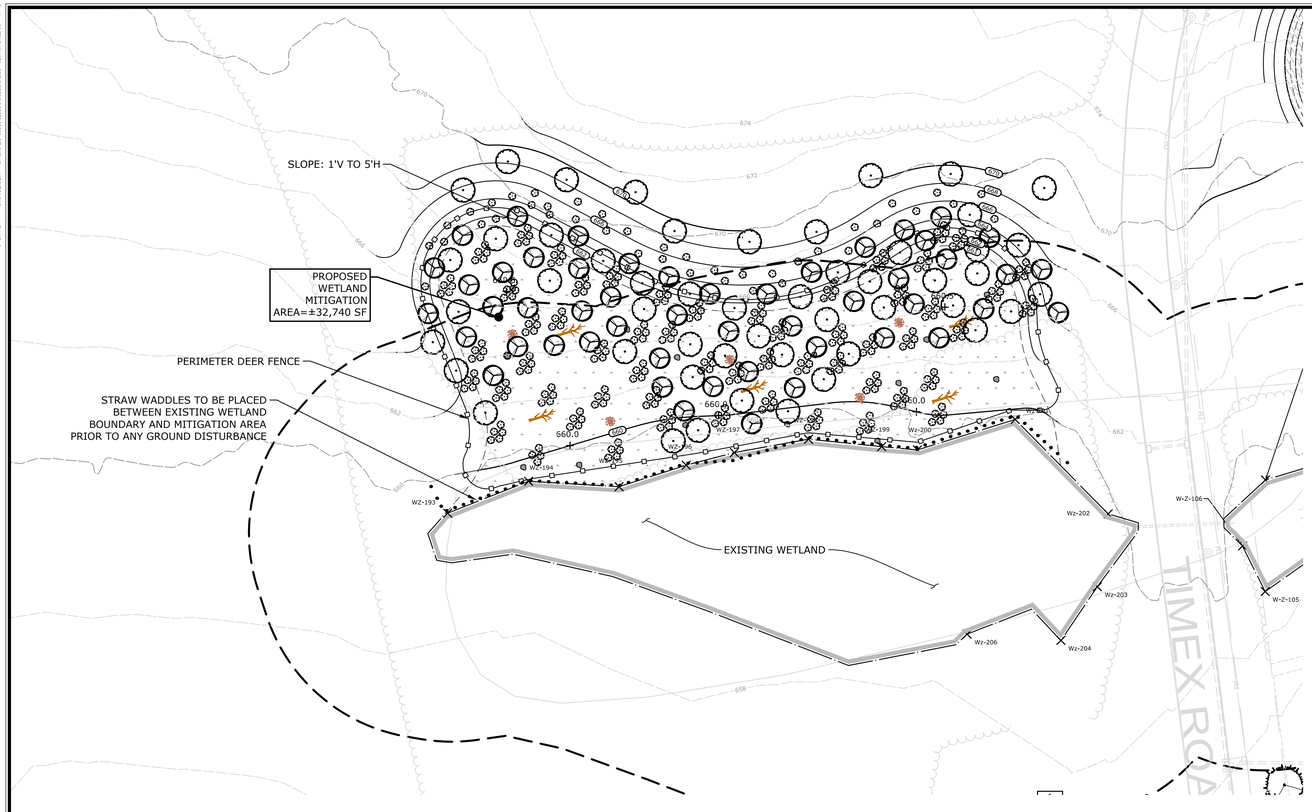
1"=30'
SCALE

NOVEMBER 28, 2022
DATE

20970.00002
PROJECT NO.

11 OF 30
SHEET NO.

WR-1
SHEET NAME



GENERAL NOTES

1. CONTRACTOR SHALL NOTIFY CALL BEFORE YOU DIG (1-800-922-4455) AT LEAST 72 HOURS BEFORE PERFORMING ANY WORK ON SITE.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND STANDARDS SET FORTH BY THE LAND OWNER AND THE TOWN OF MIDDLEBURY.
3. AREAS DISTURBED OUTSIDE OF THE PROPOSED WORK AREA SHALL BE RESTORED TO EXISTING CONDITIONS.
4. WORK WITHIN THE LOCAL RIGHTS-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHTS-OF-WAY SHALL CONFORM TO THE MOST RECENT EDITION OF THE STATE HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES.
5. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE PLANS, ASSOCIATED SPECIFICATIONS AND OTHER DOCUMENTS.
6. CONTRACTOR SHALL PREVENT THE RELEASE OF FUGITIVE DUST, SEDIMENT OR OTHER DEBRIS FROM LEAVING THE SITE AND SHALL BE RESPONSIBLE FOR ANY CLEANUP, REPAIRS AND CORRECTIVE ACTIONS.
7. CONTRACTOR SHALL PERFORM ALL NECESSARY EXCAVATION AND DEWATERING TO MAINTAIN A STABLE SITE.
8. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO ADJACENT AREAS, AND SHALL BE RESPONSIBLE FOR ANY RESULTING DAMAGES AT NO COST TO THE OWNER.

EXISTING CONDITIONS NOTES

1. SURFACE FEATURES INDICATED ON THIS PLAN ARE BASED ON FIELD SURVEY PERFORMED BY SMITH & COMPANY SURVEYORS AND ENGINEERS. TOPOGRAPHY IS BASED ON TOWN PROVIDED GIS.
2. WETLANDS WERE DELINEATED IN ACCORDANCE WITH THE ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL MANUAL (1987).
3. SYMBOLS AND FEATURES AS DEPICTED ON THE PLANS ARE GRAPHIC REPRESENTATIONS ONLY, AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS. THE CONTRACTOR SHALL REFER TO THE DETAIL DIMENSIONS, MANUFACTURER SPECIFICATIONS, AND FIELD MEASUREMENTS FOR THE LAYOUT OF PROJECT FEATURES.
4. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, AND RELATED DOCUMENTS.
5. FIELD SURVEY SHOTS OF EXISTING WETLAND SHALL BE COMPLETED PRIOR TO ANY MITIGATION AREA CONSTRUCTION. A PROFESSIONAL WETLAND SCIENTIST SHALL CONFIRM SURVEY ELEVATIONS AS THEY RELATE TO PROPOSED GRADING.

PLANTING NOTES

1. EROSION CONTROLS SHALL BE INSTALLED, REPAIRED, AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD OF THE WETLAND MITIGATION AREA, AND UNTIL THE SITE IS FULLY STABILIZED BY VEGETATION. EROSION CONTROLS SHALL THEN BE REMOVED FROM THE SITE.
2. A PROFESSIONAL WETLAND SCIENTIST SHALL BE ON-SITE TO MONITOR PLANTING AND GRADING OF THE WETLAND MITIGATION AREA TO ENSURE COMPLIANCE WITH THE APPROVED PLANS.
3. GRADING LINES DEPICTED ON THE PLAN ARE DRAWN SMOOTHLY, ACTUAL SURFACE GRADES ACROSS THE WETLAND MITIGATION AREA 'FLOOR' SHALL REFLECT HUMMOCK AND HOLLOW TOPOGRAPHY OF NATURAL WETLANDS.
4. TWELVE INCHES OF TOPSOIL (I.E., MUST CONTAIN A MINIMUM OF 6% AND A MAXIMUM OF 20% ORGANIC MATTER CONTENT BY DRY-WEIGHT ANALYSIS) SHALL BE INSTALLED OVER THE ROUGH SUB-GRADE.
5. THE SURFACE AND GROUNDWATER LEVELS SHALL BE MONITORED PRIOR TO PERMANENT PLANTING. AS A RESULT OF ACTUAL WATER LEVELS, THE CORRESPONDING PLANTINGS MAY NEED TO BE ADJUSTED IN THE FIELD.
6. ALL PLANTINGS ARE TO BE INSTALLED ONLY AFTER STABILIZATION OF CONTRIBUTING DRAINAGE AREAS.
7. WETLAND PLANTINGS SHALL BE LIMITED TO THE PERIODS OF APRIL 15TH THROUGH JUNE 30TH, OR SEPTEMBER 1 THROUGH OCTOBER 31. ONLY QUALITY NATIVE PLANT SPECIES FROM A NURSERY SHALL BE UTILIZED.
8. ALL WOODY PLANT MATERIALS SHALL BE PROVIDED IN CONTAINERS THAT ARE APPROPRIATELY SIZED FOR THE SPECIFIED PLANT. HERBACEOUS PLANT MATERIAL SHALL BE PLUGS AND CONTAINERIZED. WETLAND PLANTS SHALL HAVE BEEN GROWN IN A LOCAL/REGIONAL NURSERY.
9. SUPPLEMENTAL HERBACEOUS PLANTINGS SHALL BE CONCENTRATED IN GROUPINGS, TO BE DETERMINED. HERBACEOUS PLUGS SHALL BE PLANTED 2-FOOT ON CENTER. SHRUB PLANTINGS SHALL BE 36-INCHES ON CENTER (DEPENDENT UPON SPECIES), OR AS DIRECTED BY THE SUPERVISING WETLAND SCIENTIST.
10. ALL TUBERS AND ROOT STOCK SHALL BE PUSHED ONE TO TWO INCHES DEEP INTO THE ORGANIC SOIL, AND SPACED AS SPECIFIED. PLANTS WITH GROWING STEMS SHALL BE PLANTED SUCH THAT THE GROWING STEM EXTENDS ABOVE THE SOIL SURFACE. WEIGHTING OF TUBERS AND ROOT STOCK WITH FENCE STAPLES AND/OR EIGHT PENNY NAILS MAY BE REQUIRED IF DISLODGING AND FLOATING IS A PROBLEM.
11. THE SOILS IN THE WETLAND MITIGATION AREA SHALL BE SEEDED WITH THE DESIGNATED WETLAND AND WILDLIFE/CONSERVATION SEED MIXES AS NOTED IN THE PLANTING PLAN. ALL PLUGS AND SEED MIXTURES SPECIFIED BY NEW ENGLAND WETLAND PLANTS INC. 800 MAIN STREET, AMHERST, MASSACHUSETTS 01002 (413) 256-1752, OR APPROVED EQUIVALENT.
12. ALL PLANT MATERIALS SHALL CARRY A FULL GUARANTEE FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY SITE OWNER AND SUPERVISING WETLAND SCIENTIST. ALL REPLACEMENTS SHALL BE OF THE SAME SIZE AND SPECIES OF THE PLANTS SPECIFIED IN THE PLANT LIST.
13. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING AND SHALL CONTINUE UNTIL ACCEPTANCE BY THE WETLAND SCIENTIST. MAINTENANCE SHALL INCLUDE WATERING, TIGHTENING AND REPLACING OF GUYS, REPLACEMENT OF UNHEALTHY A ND/OR DEAD PLANTS, MULCHING (NOT WOOD CHIPS), RESETTING PLANTS TO PROPER GRADE OR UPRIGHT (I.E., PLUMB) POSITION, RESTORATION OF SAUCERS, AND ALL OTHER CARE REQUIRED FOR PROPER GROWTH OF PLANTS.
14. IF SUPPLEMENTAL WATERING IS REQUIRED DURING THE DRY SEASON, WATER SHALL BE SUPPLIED BY WATER TRUCK. WATER WILL NOT BE DIVERTED FROM THE EXISTING REFERENCE WETLAND OR ADJACENT WATERCOURSE.
15. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING DEER FENCING AROUND MITIGATION AREA. FENCING SHALL REMAIN IN PLACE FOR 5 YEARS BEFORE REMOVAL.

PROPOSED MITIGATION PLANTING LIST

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ELEVATION
	15	Acer rubrum	Red Maple	#3 POT	15-20' O.C.	EL. 658 - 664
	15	Acer rubrum	Red Maple	#15 POT	15-20' O.C.	EL. 658 - 664
	10	Carya ovata	Shagbark Hickory	#3 POT	15-20' O.C.	EL. 666 - 670
	20	Quercus palustris	Pin Oak	#3 POT	15-20' O.C.	EL. 658 - 664
	10	Quercus palustris	Pin Oak	#15 POT	15-20' O.C.	EL. 658 - 664
	20	Quercus bicolor	Swamp white oak	#3 POT	15-20' O.C.	EL. 658 - 664
	10	Quercus bicolor	Swamp white oak	#15 POT	15-20' O.C.	EL. 658 - 664
SHURBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ELEVATION
NOTE:TO BE CLUSTERED IN GROUPS OF 5 TO 7 PLANTS.	40	Aronia arbutifolia	Red Chockeberry	#2 POT	5' O.C.	BELOW EL. 662
	40	*Salix discolor*	Pussy willow	#2 POT	5' O.C.	BELOW EL. 662
	40	Swida sericea	Redosier dogwood	#2 POT	8' O.C.	BELOW EL. 662
	40	*Swida amomum*	Silky dogwood	#2 POT	8' O.C.	BELOW EL. 662
	40	*Swida racemosa*	Grey dogwood	#2 POT	8' O.C.	EL. 662 - 666
	40	Vaccinium corymbosum	HB Blueberry	#2 POT	5' O.C.	BELOW EL. 662
	40	Lyonia ligustrina	Maleberry	#2 POT	5' O.C.	BELOW EL. 662
	40	Ilex verticillata	Winterberry	#2 POT	5' O.C.	BELOW EL. 662
HERBACEOUS		BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ELEVATION
NOTE:TO BE PLANTED 2' OR 3' ON CENTER AND IN CLUSTERS.	400	Carex stricta	Tussock sedge	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Scirpus cyperinus	Woolgrass	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Juncus effusus	Soft Rush	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Iris versicolor	Blue Flag Iris	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Acorus americanus	Sweetflag	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Carex lurida	Lurid sedge	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Carex vulpinoidea	Fox sedge	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Asclepias incarnata	Swamp milkweed	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Eutrochium maculatum	Joe pye weed	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Eupatorium perfoliatum	Boneset	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Vernonia noveboracensis	NY Ironweed	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Onoclea sensibilis	Sensitive Fern	1 GAL.	2-3' O.C. CLUSTERS	BELOW EL. 659
	400	Glyceria striata	Fowl Manna Grass	PLUG	2-3' O.C. CLUSTERS	BELOW EL. 659

BELOW ELEVATION 659.0'

NEW ENGLAND WETMIX
SEED MIX Species: Fox Sedge (*Carex vulpinoidea*), Lurid Sedge (*Carex lurida*), Blunt Broom Sedge (*Carex scoparia*), Blue Vervain (*Verbena hastata*), Fowl Bluegrass (*Poa palustris*), Hop Sedge (*Carex lupulina*), Green Bulrush (*Scirpus atrovirens*), Creeping Spike Rush (*Eleocharis palustris*), Fringed Sedge (*Carex crinita*), Soft Rush (*Juncus effusus*), Spotted Joe Pye Weed (*Eupatorium maculatum*), Rattlesnake Grass (*Glyceria canadensis*), Swamp Aster (*Aster puniceus*), Blueflag (*Iris versicolor*), Swamp Milkweed (*Asclepias incarnata*), and Square-Stemmed Monkey Flower (*Mimulus ringens*)

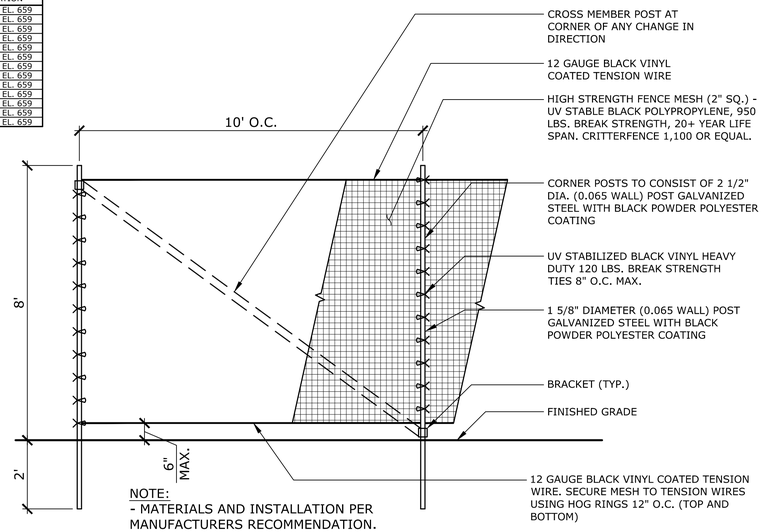
ABOVE ELEVATION 659.0'

NEW ENGLAND CONSERVATION/WILDLIFE MIX
SEED MIX Species: Virginia Wild Rye (*Elymus virginicus*), Little Bluestem (*Schizachyrium scoparium*), Big Bluestem (*Andropogon gerardii*), Red Fescue (*Festuca rubra*), Switch Grass (*Panicum virgatum*), Partridge Pea (*Chamaecrista fasciculata*), Panicledleaf Tick Trefoil (*Desmodium paniculatum*), Indian Grass (*Sorghastrum nutans*), Blue Vervain (*Verbena hastata*), Butterfly Milkweed (*Asclepias tuberosa*), Black Eyed Susan (*Rudbeckia hirta*), Common Sneezeweed (*Helenium autunale*), Heath Aster (*Asterpilosus/Symphyotrichum pilosum*), Early Goldenrod (*Solidago juncea*), and Upland Bentgrass (*Agrostis perennans*)

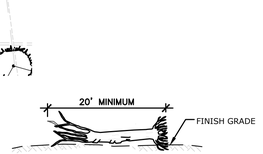
HABITAT STRUCTURES

SYMBOL	DESCRIPTION	QTY	SIZE	COMMENTS
	LARGE WOODY DEBRIS	5	>20' LONG	MULTI-BRANCHED
	SHORT WOODY TRUNKS	5	24"-48" HEIGHT	LEAVE ROOTS INTACT
	RANDOM BOULDER	15	24"-36" DIA.	

NOTES:
1. LARGE WOODY DEBRIS, SHORT WOODY TRUNKS, AND RANDOM BOULDERS SHALL BE IMPORTED TO THE PROJECT SITE.

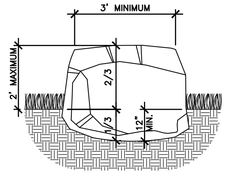


PERIMETER DEER FENCE
NOT TO SCALE



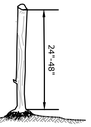
NOTE
LARGE WOODY DEBRIS SHALL BE MINIMUM 20 FEET LONG AND DIAMETER BREAST HEIGHT A MINIMUM 8 INCHES.

LARGE WOODY DEBRIS
NOT TO SCALE



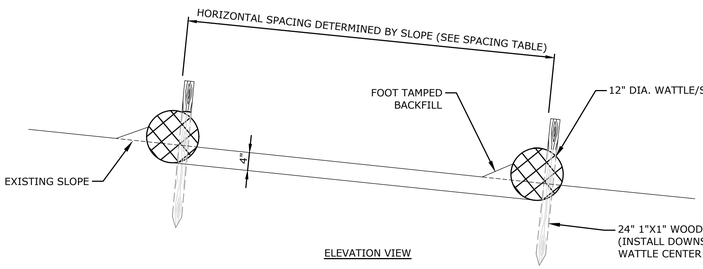
NOTES
1. INSTALL AT LOCATIONS AS SHOWN ON LANDSCAPE PLAN AND/OR PER WETLAND SOIL SCIENTIST.
2. ALL BOULDERS SHALL BE A MINIMUM 3' DIAMETER.

RANDOM BOULDERS
NOT TO SCALE

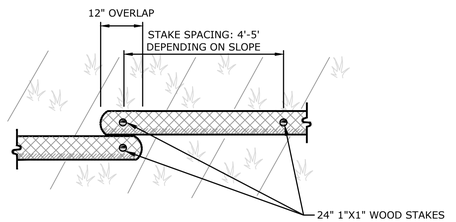


NOTES
1. FRESHLY CUT BUTT END OF TRUNK SHALL BE CRUSHED WITH AN ARTICULATING THUMB ON EXCAVATOR TO PROVIDE A NATURAL LOOKING WOODY TRUNK.
2. THE TRUNKS SHALL NOT BE EMBEDDED, BUT PLACED IN LOCATIONS AS DIRECTED BY A PROFESSIONAL WETLAND SCIENTIST TO PROVIDE HABITAT.

SHORT WOODY TRUNKS
NOT TO SCALE



ELEVATION VIEW



PLAN VIEW

WATTLE SPACING INTERVALS

SLOPE RATIO (H:V)	MAXIMUM SPACING INTERVAL	MAX STAKE SPACING INTERVAL
2:1	10'	4'
3:1	20'	4'
4:1	30'	5'
5:1	40'	5'
6:1	40'	5'

NOTES:

AREAS WITH EXPOSED BEDROCK REQUIRE DOUBLE ROW OF WATTLE/SOCK SPACED AT 5' APART.

NOTES:

1. IN AREAS WHERE WOODEN STAKES CANNOT BE INSTALLED DUE TO ROCK, BITUMINOUS CONCRETE, AND/OR CONCRETE CONTRACTOR IS RESPONSIBLE FOR WEIGHING DOWN WATTLE TO PREVENT DISLODGEMENT.

STRAW WATTLE (12" DIA.) INSTALLATION
NOT TO SCALE

DESCRIPTION	DATE	BY
PLANTING SCHEDULE	12/22/2022	MF
WETLAND BOUNDARY	2/22/2023	ACD

SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203 271 1773
SLRCONSULTING.COM

SITE PLAN - WETLAND MITIGATION AREA - PLANTING

SOUTHFORD PARK

555 CHRISTIAN ROAD & 764 SOUTHFORD ROAD (ROUTE 188)
MIDDLEBURY, CONNECTICUT

DESIGNED	DRAWN	CHECKED
RJM	ACD	RJM

SCALE: 1"=40'
DATE: NOVEMBER 28, 2022
PROJECT NO.: 20970.00002
SHEET NO.: 12 OF 30
SHEET NAME: WR-2

Ainsworth

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Mr. Paul Bowler, Chairman
Middlebury Conservation Commission
1212 Whittemore Road
Middlebury, Connecticut 06762

February 27, 2023

RE: Planned Distribution Center, Southford Park
555 Christian Road 764 Southford Road Middlebury, CT

Chairman Bowler and Commissioners,

I am legal counsel to the Middlebury Small Town Alliance, LLC, a growing group of Middlebury residents and taxpayers who are concerned about the environmental, social and financial impacts of the above project.

I want to supplement the comments this office made at the previous hearing in January. Many of the concerns raised which were dismissed by the applicant's soil scientist, have proven to be

Preliminarily, I want to express my deep concern that the Commission decided to deprive the intervenor of an opportunity to walk the site by conducting its site inspection in groups smaller than a quorum and by not holding a formal site walk. This tactic deprives a party, my client, of equal access to information and does not provide a fundamentally fair hearing.

My clients submit the attached reports by Steven Trinkaus, P.E. a civil engineer experienced with low-impact development techniques and Dr. Steven Danzer, a Soil Scientist, Senior Professional Wetland Scientist, Arborist and a PhD in Natural Resources who have analyzed the application and the likely impacts to wetlands resources. Their reports accompany this letter.

Mr. Trinkaus has supplemented his earlier comments with an analysis of the applicant's submission of additional wetlands sampling that was not, but should have been, done in connection with the application. Mr. Trinkaus concurs with the independent wetlands review by REMA Ecological Services that the storm water plan is inadequate to meet standards published by the CT DEEP. Significantly, Mr. Trinkaus concludes that:

> "increased loads of phosphorous, nitrogen, metal and hydrocarbons will discharge to downgradient wetlands and/or watercourses on this site or downstream properties.
> As this amount of discharge is avoidable by **scaling back the proposed project**, these direct impacts to wetlands quality pose the likelihood of **unreasonable harm to wetlands**

resources."

In conjunction with Mr. Trinkaus, Dr. Danzer completed a comprehensive review of the likely environmental impacts from the proposed project concluding, among other things:

> "The 2/24/23 letter from Trinkaus Engineering concludes that the amount of pollutant discharge generated by the proposed activities is avoidable by scaling back the proposed project, and that the direct impacts to wetlands quality pose the likelihood of unreasonable harm to wetlands resources. Based upon my assessment of the offsite wetland and waterbody resources, I agree with Trinkaus' conclusion....
>
> The site is roughly 112 acres and **it is simply not credible for the Applicant to state that there is no alternative to redevelopment of the site without adversely impacting the wetland resources as proposed**....
>
> **There will be significant impacts to the wetlands onsite and offsite**. Impacts include wetland elimination, changes in wetland hydrology, and water quality and water quantity impacts. **All of these impacts are unreasonable as they are avoidable with a better site plan design**."

Three expert reviewers of this application agree that there are significant deficiencies in the design of the proposed project relating to the dewatering of existing wetlands, the discharge of nutrients and other pollutants to on and off-site wetlands and the lack of alternatives considered by the applicant to avoid the significant wetlands impacts – 15,000 sq ft of complete wetlands destruction and 7 acres of upland review area impact.

The supplemental report by SLR, applicant's consultants, does nothing to address the significant impacts identified by arms' length reviewers.

The Commission should deny the application as incomplete because it lacks data and a feasible and prudent alternatives analysis or, more to the point, it should be denied as the project poses an unreasonable impact to wetlands resources.

Very truly yours,

Keith R. Ainsworth

Keith R. Ainsworth

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February 24, 2023

Mr. Paul Bowler, Chairman
Middlebury Conservation Commission
1212 Whittemore Road
Middlebury, Connecticut 06762

Re: Warehouse Proposal
"Southford Park"
555 Christian Road & 764 Southford Road
Middlebury, Connecticut

Dear Chairman Bowler and Members of the Conservation Commission,

I have reviewed Applicant's stormwater treatment systems for the likely impacts to downstream wetlands and watercourses. Because the detention basins will accumulate the nutrients (nitrogen and phosphorus) and contaminants (metals and hydrocarbons toxic to aquatic life) and discharge them directly to regulated wetlands and watercourses (including off-site wetlands), it is important that the pre-construction levels of pollutants not be increased, especially in light of the significant scale of the impervious surfaces and removal of vegetation that currently serves to filter the much smaller existing loads.

Pollutant loading calculations using the Schueler Equation provide the expected volumes of pollutants that may be expected to be discharged which in turn give the commission information on the impacts the proposed activity present. Under the CT DEEP Stormwater Quality Manual, an applicant is advised to meet a goal of 80% Total Suspended Solids (TSS) removal. Suspended solids impact water quality as sediment which smother downstream wetlands habitats and nutrients are carried attached to suspended solids which result in accelerated eutrophication or 'premature aging' of wetlands.

Schueler's Equation is stated as: $L = 0.226*(P)*(Pj)*(Rv)*(C)*(A)$ where:

L = Pollutant load in pounds
P = Rainfall depth over desired time (inches)
Pj = Factor that corrects P for storms that produce no runoff, use Pj = 0.9
Rv = Runoff coefficient, fraction of rainfall that turns to runoff,
$Rv = 0.05 + 0.009(I)$
I = Site Impervious coverage (percent)
C = Flow weighted mean concentration of pollutant (mg/l)
A = Area of site (acres)
0.226 = Unit Conversion Factor

In addition to TSS, other non-point source pollutants must be considered including Nitrogen, Phosphorous, Zinc (indicator for other metals), and Total Petroleum Hydrocarbons.

WAREHOUSE PROPOSAL - MIDDLEBURY, CT - POST-DEVELOPMENT WATERSHED WS-51								
BASIN #	TOTAL AREA		IMPERVIOUS AREA		RUNOFF COEFFICIENT			
DET 510	A =	4.1	I =	47.3	Rv =	0.4757		
POLLUANT LOADS DETERMINED BY SCHUELER EQUATION: L = (0.226)*(P)*(Pj)*(Rv)*(C)*(A)								
INDUSTRIAL POLLUTANT LOADS								
TSS =	80							
TP =	0.23							
TN =	2.1							
ZN =	0.671							
TPH =	3							
CALCULATED POLLUTANT LOADS - WATER QUALITY STORM (1"/24 HOURS)								
TSS	33.49956	lbs						
TP	0.096311	lbs						
TN	0.879363	lbs						
ZN	0.280978	lbs						
TPH	1.256233	lbs						

The stormwater treatment train for most if not all post-development watershed areas proposed by the applicant consist of catch basins with standard 24" deep sumps, online Hydrodynamic Separator, followed by a Dry Detention Pond with very shallow forebays.

There are specific pollutant removal rates all types of stormwater practices which are based upon monitoring in the real world. This data is available from the University of New Hampshire Stormwater Center as well as the ASCE BMP Database. Published removal rates for stormwater practices are for standalone systems only.

When stormwater practices are in series, the published removal rates for the second, third or fourth system in series must be reduced. The justification for the reduction of the pollutant removal percentages for a treatment train approach to reducing the pollutant loads found in non-point source runoff is very simple. As a particular pollutant load is removed from the runoff in the first treatment system, the runoff entering the second and subsequent treatment systems contains a lower load of that pollutant which is more difficult to remove by the subsequent treatment system, so the efficiency of the second, third or fourth treatment system is not as high as the values stated in the published data.

STORMWATER PRACTICE - REMOVAL RATES												
CATCH BASIN WITH 24" SUMP												
TSS =	0.05	TP =	0	TN =	0	ZN =	0	TPH =	0.07			
HYDRODYNAMIC SEPARATOR (ONLINE)												
TSS =	0.29	TP =	0.23	TN =	0.018	ZN =	0.26	TPH =	0.42	Use 75% of stated value		
DRY DETENTION POND												
TSS =	0.8	TP =	0.1	TN =	0.4	ZN =	0.5	TPH =	0.74	Use 35% of stated value		

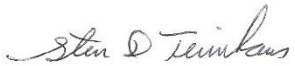
The following analyses show the results for post-development watershed area (WS-51) for the water quality storm (1"/24 hours). You can see that the CT DEP goal of 80% reduction for TSS will not be met. Additionally, increased loads of phosphorous, nitrogen, metal and hydrocarbons will discharge to downgradient wetlands and/or watercourses on this site or downstream properties.

As this amount of discharge is avoidable by scaling back the proposed project, these direct impacts to wetlands quality pose the likelihood of unreasonable harm to wetlands resources."

POLLUTANT REMOVAL - WATERSHED WS-51 PER APPLICANT' S PLAN	
TSS REMOVAL	
CATCH BASIN =	1.674978
HYD, SEP =	6.921846
INF. =	6.972765
TOTAL =	15.56959
% REMOVAL =	**46.477**
TP REMOVAL	
CATCH BASIN =	0
HYD, SEP =	0.016614
INF. =	0.002789
TOTAL =	0.019403
% REMOVAL =	**20.14625**
TN REMOVAL =	
CATCH BASIN =	0
HYD, SEP =	0.011871
INF. =	0.121449
TOTAL =	0.13332
% REMOVAL =	**15.161**
ZN REMOVAL	
CATCH BASIN =	0
HYD, SEP =	0.054791
INF. =	0.039583
TOTAL =	0.094373
% REMOVAL =	**33.5875**
TPH REMOVAL	
CATCH BASIN =	0.087936
HYD, SEP =	0.368014
INF. =	0.207273
TOTAL =	0.663223
% REMOVAL =	**52.7946**

Please contact my office if you have any questions concerning this information.

Respectfully Submitted,
Trinkaus Engineering, LLC



Steven D. Trinkaus, PE

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WETLAND BOUNDARIES • POND & LAKE MANAGEMENT • CONSTRUCTION FEASIBILITY CONSULTATIONS • ENVIRONMENTAL STUDIES

Environmental Comments

Southford Park – Timex Site, Middlebury, CT

Date: February 25, 2023

By: Steven Danzer Ph.D.

- Soil Scientist, Senior Professional Wetland Scientist, Arborist
  - Nationally certified by the Soil Science Society of America (#353463).
  - Registered with the Society of Soil Scientists of Southern New England.
  - Certified PWS #1321 by the Society of Wetland Scientists
  - Certified Arborist by the International Society of Arboriculture (ISA) NE-7409A
  - CT Licensed Arborist DEEP S-5639
- Ph.D. in Renewable Natural Resource Studies.

SUMMARY OF APPLICATION DEFCIENCIES AND RECOMMENDATIONS

A. The proposed filling of wetland resources is a significant impact activity as per the definition within the Middlebury Inland Wetlands regulations.

B. The application materials lack discussion of feasible and prudent alternatives.

C. The application materials are unclear regarding what methods were used to delineate the wetland boundaries, with confusing labels.

D. The application materials do not fully evaluate impacts to offsite wetlands/waterbodies, which are expected to be substantial and adverse.

E. The application materials lacked discussion and data regarding impacts to the forested wetlands located west of the site.

F. The wetland creation plan lacks quantitative calculations to demonstrate that a created wetland will not result in the dewatering of downstream wetlands or that existing hydrology will support such a created wetland.

G. It is recommended that less risky mitigation strategies or development configurations be explored and employed before resorting to wetland creation.

SCOPE OF REVIEW

At the request of Middlebury Small Town Alliance, an independent environmental review was conducted of the application materials submitted to date of this report to the Town of Middlebury Conservation Commission, for activities proposed at the 555 Christian Road & 764 Southford Road, Middlebury, Connecticut ("the site").

Application Materials reviewed included (but were not limited to) plans prepared by SLR containing 29 sheets, dated 11/28/22, Drainage Report dated 12/22/22; Soil Scientist report dated 11/22; SLR letter Re: Additional Wetland Boundary Verification/Delineation dated 2/16/23. The site was viewed from the public roadway and/or from adjacent properties during the week of 2/23. Aerial photographs of the site were reviewed via Google maps, the CT ECO website, and from within the application materials. Also reviewed were two reports from Trinkaus Engineering, LLC dated 1/27/23 and 1/30/23 respectively, the letter from Trinkaus Engineering, LLC dated 2/24/23 and the report from REMA dated 2/22/23.

The following comments are offered for the consideration of the Conservation Commission.

DISCUSSION

1. **The proposed filling of wetland resources is a significant impact activity as per the definition within the Middlebury Inland Wetlands regulations.**

Six wetland areas are proposed to be filled and therefore eliminated. They include areas depicted on the site plan as CT-1, CT-2, CT-3, CT-4, CT-C, and the area more recently delineated by SLR described in the 2/16/23 SLR report contained within wetland flags WM-1 through wetland flags WM-4.

Section 2.1(1) of the Town of Middlebury Inland Wetlands & Watercourses Regulations defines "Significant impact activity" as "Any activity involving deposition or removal of material which will or may have a major effect or significant impact on the regulated area or another part of the inland wetland or watercourse system".

The deposition of material in a wetland (i.e. filling) is a significant activity. Filling a wetland in its entirety is logically an adverse impact because it eliminates the wetland from the landscape. This is regardless of the quality of the wetland, whether the wetland is isolated or connected to a larger system, whether the wetland is naturally vegetated or by covered by lawn, or whether the wetland may have been the result of previous landscape modifications. None of these factors matter to the definition of significant impact activity. Elimination is an adverse impact, and the elimination of a wetland is a significant activity.

2. The application materials lack discussion of feasible and prudent alternatives.

An analysis of feasible and prudent alternatives is required to be considered whenever a significant impact activity occurs, as per section 10.3 of the Middlebury Regulations. No such alternatives were discussed in the application materials. Under the existing developed conditions there is no elimination of wetland resources, and that redevelopment of the site could similarly be designed in a way to continue to make the site commercially viable and still avoid wetland impact. One of those options would be a reduction of the square footage of the proposed warehouses and moving them in a more northerly direction.

3. The application materials are unclear regarding what methods were used to delineate the wetland boundaries.

a. Confusing Methodology

The Environmental Report prepared by SLR is unclear regarding how they delineated the wetland boundaries. The wetlands are labeled as either "Federal" or as "Connecticut" but the methodology on SLR report page 4 do not explain which methods were used for which wetlands.

Federal methodology for delineating wetlands is different from the state methodology that is cited in the Middlebury Regulations. Wetlands defined using federal methodology can have boundaries different than wetlands defined in the Middlebury Regulations. Consequently, federal methods (and federal labels) are irrelevant for this application, as they are not cited in the Middlebury Regulations.

Have the wetland boundaries depicted on the site plan in the areas labeled "Federal" been delineated using the required "state" definition provided in the Middlebury Regulations? If not,

the application is incomplete. If the wetlands have been defined with local methodology, why they are labeled "Federal"?

Without a true and substantiated identification of wetland boundaries on the site, the Commission will not be able to fully evaluate the geographic breadth of the wetlands or the scope of potential impacts to the wetlands.

b. Jurisdictional Confusion

Similarly, the language in the application materials is confusing regarding regulatory jurisdictions. The town of Middlebury has jurisdiction over ***all*** wetlands defined by their regulations. These include those wetland areas depicted on the site plan as "Federal" if those areas meet the Middlebury definition of wetlands. Labeling the wetlands as "Federal" falsely implies the Town may not have jurisdiction, when in fact the Town does have jurisdiction if the wetlands meet their definition.

c. Descriptive Confusion

Lastly, it is noted that the SLR continually uses the terminology "isolated" to label several of the wetlands. The term "isolated" is meaningless with regard to the wetland definition that is cited in the Middlebury Regulations. Use of that term as so within an expert report seems to imply that the wetlands are worthy of elimination, an opinion better stated within the more subjective discussion section of the SLR report, and not within the objective descriptive section of the report.

4. The application materials do not fully evaluate impacts to offsite wetlands/waterbodies, which are expected to be substantial and adverse.

Two large wetland/waterbody systems are located offsite, to the east (Avalon Farm Pond) and to the south (wetlands south of Southford Road). Both offsite wetland systems are hydrologically connected to the wetland systems on the site.

The long wetland corridor on site that parallels Christian Road drains northerly and then easterly under Christian Road. East of the road, the system drains through approximately 300 feet of moderately steep watercourse and then directly into Avalon Farm Pond, a 3 acre waterbody.

The wetland system on site located to the north of Southford Road drains southerly under the road (and over the road during flooding events) to the large 20+ acre wetland located between Southford Road and I84.

Both of these systems (Avalon Farm Pond and the 20+ acre Southford Road wetland) will be recipient of pollutants and excess stormwater volume generated by the site.

a. Water Quantity Impacts

The 1/27/23 report from Trinkaus Engineering, LLC notes that there is no reduction in post-development runoff volumes, resulting in significant increases in runoff volume. The watercourse that connects the onsite wetlands to Avalon Farm Pond has a moderately steep gradient, susceptible to scour when flow is increased. Increases in stream volume changes the morphology of the stream bed, and leads to the deposition of scoured sediments into the pond, increasing turbidity, degrading water quality, and creating harmful conditions for aquatic life.

b. Water Quality Impacts

The independent expert report dated 1/27/30 and letter dated 2/24/23 from Trinkaus Engineering, LLC as well as the independent expert report from REMA notes that there will be increased non-point source pollutant loads discharged from the site since the proposed stormwater management system provides inadequate treatment of the runoff. ***Both independent reviewers also state that increased pollutant loads will adversely affect the water quality in the receiving inland wetlands and watercourses.***

Of special note is the letter from Trinkaus Engineering LLC dated 2/24/23 where it is stated that detention basins will accumulate nutrients (nitrogen and phosphorus) and contaminants (metals and hydrocarbons toxic to aquatic life) and discharge them directly to regulated wetlands and watercourses (including off-site wetlands). According to the quantitative analyses in that letter, the CT DEP goal of 80% reduction for TSS will not be met. Increased loads of phosphorous, nitrogen, metal and hydrocarbons will discharge to downgradient wetlands and/or watercourses on this site or downstream properties.

The independent expert REMA report notes that the downstream wetland resources are ecologically sensitive to pollutant loading. I concur with his conclusion and also note that increases in pollutant loads are toxic to aquatic and often to plant life, and that increases in nutrient pollution will exacerbate eutrophication of open water areas, leading to diminishment of oxygen levels. These are all adverse impacts by definition.

The 2/24/23 letter from Trinkaus Engineering concludes that the amount of pollutant discharge generated by the proposed activities is avoidable by scaling back the proposed project, and that the direct impacts to wetlands quality pose the likelihood of unreasonable harm to wetlands resources. Based upon my assessment of the offsite wetland and waterbody resources, I agree with Trinkaus's conclusion.

5. **The application materials lacked discussion and data regarding impacts to the forested wetlands located west of the site.**

Forested wetlands are located west of the site, in the wooded corridor west of the existing developed hill site and east of North Benson Road. This land is owned/managed by the neighborhood association across the street (Hemlock Lane/Periwinkle Drive).

At least one potential vernal pool was observed in this area during my visit to the neighborhood bordering the Timex site. A second potential vernal pool was identified in the REMA report (figure 6 REMA report). A third additional wetland area of concern (figure 5 REMA report) was also identified by REMA in this area as well.

I fully concur with REMAs independent expert opinion that an understanding of the pre- and post-watersheds is needed in order to ensure existing water quality is conserved and equally important, that hydrology is maintained at current levels of volume and duration. Lacking in the application materials is any discussion of the sustenance of these sensitive wetland resources, or any type of hydrologic or watershed level data that pertains to their preservation. Without this data it is not possible to credibly assert that there will be no adverse hydrological impacts to these wetlands.

6. **The wetland creation plan lacks quantitative calculations to demonstrate that a created wetland will not result in the dewatering of downstream wetlands or that existing hydrology will support such a created wetland.**

There was no water budget submitted in the application materials. A water budget is useful as it accounts for all inflows and outflows of the wetland system being examined or created. Without one, there is no assurance that created hydrology will be adequate to sustain the wetland.

Furthermore, there is a substantial risk that by diverting groundwater to this created wetland, the downstream wetlands may be adversely impacted by dewatering, through evapotranspiration losses from the newly planted vegetation or by other evaporative losses due to the collection of water.

7. **It is recommended that less risky mitigation strategies or development configurations be explored and employed before resorting to wetland creation.**

Section 10.2(d) of the Middlebury Wetland Regulations states as a criteria for decision the Agency considers "…measures to (1) prevent or minimize pollution or other environmental damage, (2) maintain or enhance existing environmental quality, or (3) in the following order of priority: restore, enhance and create productive wetland or watercourse resources;…"

Rather than creating the need to propose compensatory wetland creation, it would seem logical to avoid the need entirely by scaling back or reconfiguring the proposal to avoid and/or minimize wetland impacts in the first place. The site is roughly 112 acres ***and it is simply not credible for the Applicant to state that there is no alternative to redevelopment of the site without adversely impacting the wetland resources as proposed.***

As stated in the Middlebury Regulations, wetland creation should be employed as a last resort, after all other alternative development configurations and mitigation strategies are carefully considered and then logically ruled out.

CONCLUSIONS

There will be significant impacts to the wetlands onsite and offsite. Impacts include wetland elimination, changes in wetland hydrology, and water quality and water quantity impacts. All of these impacts are unreasonable as they are avoidable with a better site plan design.

Respectfully submitted,

Signed,

Steven Danzer Ph.D.

CPSS

Certified Professional
Soil Scientist