



STATE OF CONNECTICUT – COUNTY OF TOLLAND
INCORPORATED 1786

TOWN OF ELLINGTON

55 MAIN STREET – PO BOX 187
ELLINGTON, CONNECTICUT 06029-0187
www.ellington-ct.gov

TEL. (860) 870-3120 **TOWN PLANNER'S OFFICE** FAX (860) 870-3122

INLAND WETLANDS AGENCY REGULAR MEETING AGENDA MONDAY, APRIL 11, 2022, 7:00 P.M.

IN-PERSON ATTENDANCE: TOWN HALL ANNEX, 57 MAIN STREET, ELLINGTON, CT
REMOTE ATTENDANCE: VIA ZOOM MEETING, INSTRUCTIONS PROVIDED BELOW

I. CALL TO ORDER

II. PUBLIC COMMENTS (on non-agenda items):

III. PUBLIC HEARING(S): *(Notice requirements met, hearing may commence unless otherwise noted)*

1. IW202203 - Town of Ellington, owner/applicant, request for a permit to conduct regulated activity for the replacement of the Strawberry Road bridge/culvert over Abbey Brook, located 200ft from the intersection of Blueberry Circle.
2. IW202110 - Juliano Family One LLC, owner/Brian Juliano, applicant, request for modification to Wetlands Permit IW202110 to construct a detention basin and outside storage area at 100 Windermere Ave., APN 018-021-0000. *(Opening of hearing to be tabled to May 9, 2022)*

IV. OLD BUSINESS:

V. NEW BUSINESS:

VI. ADMINISTRATIVE BUSINESS:

1. Approval of the March 14, 2022 Regular Meeting Minutes.
2. Election of Officers.
3. Correspondence/Discussion:

VII. ADJOURNMENT:

Next Regular Meeting is scheduled for May 9, 2022

Instructions to attend remotely via Zoom Meeting listed below. The agenda is posted on the Town of Ellington webpage (www.ellington-ct.gov) under Agenda & Minutes, Inland Wetlands Agency.

Join Zoom Meeting via link:
<https://us06web.zoom.us/j/84054763240>
Meeting ID: 840 5476 3240
Passcode: 730156

Join Zoom Meeting by phone:
+1 646 558 8656 US (New York)
Meeting ID: 840 5476 3240
Passcode: 730156

**Town of Ellington
Inland Wetlands and Watercourses Agency
Application**

Application # IW 202203
Date Submitted March 3, 2022

Notices associated with this application will be sent to the applicant unless otherwise requested.

Owner's Information

Name: Town of Ellington - Timothy Webb
Mailing Address: 21 Main Street
Ellington, CT 06029
Email: twebb@ellington-ct.gov / L Spielman@ellington-ct.gov

WHEN NOT REQUIRED BY LAW TO MAIL NOTICE BY USPS, MAY NOTICES BE EMAILED TO YOU? ☒ Yes ☐ No

Primary Contact Phone #: (860) 870-3140 / 860 870 3100

Secondary Contact Phone #: _____

Owner's Signature: [Signature] Date: 3-24-2022

By signing below I certify that all information submitted with this application is true and accurate to the best of my knowledge, that I am aware of and understand the application requirements and regulations, and acknowledge that the application is to be considered complete only when all information and documents required by the Agency have been submitted. Moreover, by signing above I/we expressly provide written consent to the filing of the application and access to the site by the Agency or its staff.

Notices associated with this application will be sent to the applicant unless otherwise requested.

Applicant's Information (if different than owner)

Name: _____
Mailing Address: Same as owner
Email: _____

WHEN NOT REQUIRED BY LAW TO MAIL NOTICE BY USPS, MAY NOTICES BE EMAILED TO YOU? ☒ Yes ☐ No

Primary Contact Phone #: _____

Secondary Contact Phone #: _____

Applicant's Signature: _____ Date: _____

By signing below I certify that all information submitted with this application is true and accurate to the best of my knowledge, that I am aware of and understand the application requirements and regulations, and acknowledge that the application is to be considered complete only when all information and documents required by the Agency have been submitted.

Street Address: Strawberry Rd over Abbey Brook - Bridge No. 06141 (coord: 41.94777, -72.45276)

Assessor's Parcel Number (APN): N/A - 200ft from intersection of Blueberry Circle

Proposed upland review area affected in square feet: 12,261

Proposed wetlands/watercourses affected in square feet and linear feet (as applicable): 2,160 sf / 100 linear ft

Total area of wetlands/watercourses on parcel in square feet or acres: 2,180 sf (within project area)

Public Water: ☒ Yes ☐ No Public Sewer: ☐ Yes ☒ No If not served by public water and sewer, applicant shall make application to North Central District Health Department (Enfield Office) if required.

Is the project in a public water supply watershed area? ☐ Yes ☒ No

If YES, applicant is required to notify the Connecticut Water Company and Commissioner of Public Health by certified mail, return receipt within 7 days of this application (Conn. Gen Stat. Sec 22a-42f). Copy of application, plans, and supporting documents must accompany notice. Applicant can email the Commissioner of Public Health using their approved form. Proof of notice (return receipt and sent email) must be provided to the Planning Department.

Describe the nature of proposed regulated activity, request for acceptance of a permitted use as of right or a nonregulated use, map or regulation amendment, or other activity requiring review by the Agency or its Agent:
See attached Application Checklist and Appendix D for guidance when preparing application

See attached Project Description

Applicant shall provide certification in accordance with Wetlands Regulation, Section 7.4e, Application Requirements:

Whether or not any portion of the property on which the regulated activity is proposed is located within 500 feet of an adjoining town. ☐ Yes ☒ No

Whether or not a significant portion of the traffic to the completed project will use streets within an adjoining town to exit or enter the site. ☐ Yes ☒ No

Whether or not a significant portion of the sewer or water drainage from the project will flow through and significantly impact the sewer or water drainage system of an adjoining town. ☐ Yes ☒ No

Whether water run-off from the improved site will impact streets or other municipal/private property within an adjoining town. ☐ Yes ☒ No

FOR OFFICE USE ONLY

If YES to any of the above, the Agency shall, in accordance with CGS 8-7d(f) notify the clerk of any adjoining municipality of the pendency of any application, petition, appeal, request or plan concerning any project on any site. Notice of the pendency of such application shall be made by certified mail, return receipt requested, and shall be mailed within seven (7) days of the date of receipt of the application, petition, appeal, request or plan. **(See Agency requirements Section 8.4)**

Type of Project: (check one)

☐ Commercial/Industrial ☐ Residential ☐ Mixed Use ☐ Timber ☐ Agricultural
☒ Other, explain: Municipal Bridge Replacement (Federally funded)

Type of Application: (check one)

☐ Notification for Non-Regulated Use (Section 4.2)
☐ Notification of Permitted Use as of Right (Section 4.1)
☐ Administrative Permit (Section 6.4)
☒ Agency Permit (**TWELVE COPIES REQUIRED**)
☐ Permit Modification
☐ Permit Extension
☐ Regulation Amendment
☐ Map Amendment
☐ Appeal of Administrative Permit

Application Submittals:

☒ Completed Application Form (Section 7.4a)
☒ Application Fee (Section 7.4b)
☒ Abutters List (Section 7.4c)
☒ Certification as to Adjacent Towns (See above)
☒ Certification as to Connecticut Water Company & Commissioner of Public Health (See above)
☒ Notification Narrative and Supporting Documentation (If applicable, Appendix D)
☒ Project Narrative and Supporting Documentation (Section 7.4g, 1-11 inclusive, as deemed applicable)
☒ Project Site Plan - circle one: Administrative (Section 7.4h1) / Agency (Section 7.4h2)
☒ Supplemental Information (Section 7.5a-j, inclusive, as deemed applicable)

State Project No. 0047-0120
Replacement of Bridge No. 06141
Strawberry Road over Abbey Brook
Town of Ellington
Permit for Regulated Activities

Project Description

Bridge No. 06141, Strawberry Road over Abbey Brook, is scheduled for replacement as part of the Federal Local Bridge Program. The existing structure is a triple cell corrugated steel arch culvert, each pipe measuring 6 feet wide by 3.75 feet high, with reinforced concrete end walls. The structure has an overall length of 22 feet, measured along the channel. The bridge and approach width are 30 feet, curb-to-curb, providing for two lanes (one in each direction) of vehicular traffic. Strawberry Road is an urban local road supporting an ADT of 103 vehicles per day.

Strawberry Road is located within a residential development with lot sizes averaging approximately 3/4 - acre. The lots in the project area are developed and consist of maintained lawns and woods. Abbey Brook flows north to Somersville Pond, crossing into the town of Somers, approximately 2000 feet downstream of Bridge No. 06141. Existing drainage in the project area consists of two catch basins to the northeast of the bridge, conveying runoff from east of the site through 15-inch reinforced concrete pipes into Abbey Brook.

Based upon field investigation and engineering analysis, the existing structure is found to be in poor condition. Its poor condition is primarily due to the condition of the end treatment, though the barrels show a loss of structural integrity as well. Based on hydraulic modeling, the existing structure is hydraulically inadequate and will overtop the crossing during the 100-year design event. For these reasons, the existing bridge is proposed for replacement.

The proposed project consists of replacing the existing structure with a single span precast concrete three-sided rigid frame with concrete wingwalls and endwalls, founded on steel piles driven to bedrock. The rigid frame will be topped with a shear slab, membrane waterproofing, and bituminous wearing surface. The curb-to-curb bridge and approach width are maintained. Incidental work on the roadway includes pavement reconstruction of the east approach and west of the bridge to the intersection with Blueberry Circle. Existing drainage east of the bridge will be removed and replaced at the roadway low point, outletting into the brook over a riprap apron at the northeast embankment. The proposed construction is expected to begin in the Spring of 2023 and last approximately 6 to 8 months.

The contributing drainage area at Bridge No. 06141 is 1.1 square miles. The regulated resources at the site include State Regulated Wetlands and Watercourses and Federally Regulated Wetlands and Waters of the U.S. The project is located within FEMA mapped flood zone AE. Coordination has taken place with CT DEEP Fisheries, which has observed upstream fish passage through the existing culverts is limited by significant sedimentation. The proposed replacement will provide improved, unrestricted upstream fish passage under the bridge. Coordination with the U.S. Army Corps of Engineers (USACE) has also taken place. USACE Best Management Practices implemented with the project will include spanning 1.2 times the watercourse bank full width and installation of riparian wildlife shelves.

A detour of Strawberry Road is proposed during the removal and replacement of Bridge No. 06141. All in-water work will take place while the detour is in place. To facilitate demolition of the existing structure and construction of the replacement, construction will be performed in two stages of water handling. The

pg 1 of 3

first stage will include directing flows into the eastern pipe by installation of water handling devices to block the two western pipes. During this stage, the western portion of the existing structure will be removed, including the middle and western culvert barrels, and a portion of the headwall. The proposed channel will be prepared and the substructure will be installed on the west side of the brook. Stage two construction will see flow diversion reconfigured to block flows from the eastern culvert barrel and direct it through the newly prepared channel section. The remaining pipe and existing structure will be removed and the eastern portion of the channel will be constructed. The three-sided rigid frame will be erected and wingwalls, endwalls, and riparian wildlife shelves will be installed. Incidental roadway work will be completed after removal of water handling devices. Expected construction machinery for this work will include cranes, excavators, concrete trucks, front loaders, drill rigs, roller/compactors, and paver dump trucks.

Impacts to the stream will be minimized through adherence to CTDOT Form 818, Section 1.10 Best Management Practices and the 2004 Connecticut Stormwater Quality Manual. During construction, proper water handling measures will be implemented to allow work to occur in the areas confined within those water handling devices. Sedimentation and erosion control systems will be installed as necessary to limit disturbances to protect the wetlands and watercourses through adherence to the 2002 Connecticut Erosion and Sediment Guidelines. Additional management practices will include but are not limited to the following: storage of construction materials outside of wetlands and flood-prone areas, vehicle re-fueling and servicing at a location outside of the wetlands and watercourse, proper care and maintenance of vehicles and equipment. Any unconfined instream work within Abbey Brook will be restricted to the period from June 1 to September 30, inclusive.

Total permanent and temporary impacts to regulated areas amount to 2,160 s.f. (0.050 ac). Permanent impacts to state and federal inland wetlands amount to 46 s.f. (0.001 ac). Permanent impacts below the ordinary high water line amount to 1,221 s.f. (0.028 ac). Permanent impacts to inland wetlands and watercourse result from the removal of the existing culvert and placement of natural streambed material. Temporary impacts to state and federal inland wetlands amount to 190 s.f. (0.004 ac). Temporary impacts below the ordinary high water line amount to 703 s.f. (0.016 ac). Temporary impacts to inland wetlands and watercourse are due to temporary construction areas (upstream and downstream) associated with water handling. The replacement of the existing culvert with an open bottom structure restores 0.02 acres of watercourse to natural conditions.

Total impacts to the town of Ellington regulated upland review area amount to 12,261 s.f. (0.281 ac). Upland impacts are due to installation of the new substructure, embankment grading, roadway reconstruction, and installation of drainage structures.

The proposed construction requires a property take on each of the four adjacent properties to install roadway embankment fill and stormwater drainage. A temporary construction easement will be utilized during construction for water handling and temporary utility relocations.

Rehabilitation and replacement alternatives were assessed based on criteria including, but not limited to, construction cost, life cycle cost, constructability, environmental impact, safety design standards, connectivity, economic development, and traffic capacity. A rehabilitation alternative was considered for lining the culvert pipes. This would avoid removal of the existing structure, but would increase permitting requirements. A liner would decrease the hydraulic opening, increasing backwater and roadway flooding. The increased flood elevation would require a FEMA CLOMR and USACE Pre-Construction Notification, significantly increasing the project duration for design. Additional property acquisitions would also be a

concern due to the rise in base flood elevation. A no build alternative would eliminate immediate environmental impacts by maintaining the structure and channel in its current condition. However, the existing structure constricts the channel compared to natural conditions and has shown evidence of sediment aggradation over time. All viable replacement alternatives have similar environmental impacts as the proposed structure. The proposed replacement alternative was selected to minimize environmental impacts, improve stream ecology, and provide hydraulic adequacy.

The proposed clear span of 32 feet provides hydraulic adequacy, allowing the 100-year storm event to flow freely through the bridge section with a dry roadway surface. The proposed structure decreases backwater from existing conditions as much as 1.9 feet. The reduced headwater upstream from the crossing increases flow velocities, matching pre-developed conditions, and is not expected to affect downstream flow rates. For the 1% probability of exceedance event, flow velocities are increased from 3.3 fps to 6.7 fps (existing to proposed conditions), which reflects the natural conditions of the channel. More frequent events are less influenced by the alleviated backwater; for the 2-year storm, flow velocities are increased from 3.06 fps to 3.30 fps.

The proposed project will meet the requirements for U.S. Army Corps of Engineers Self-Verification General Permit 19, specifically by impacting less than 5,000 s.f. of regulated area and providing hydraulic adequacy with at least 1 foot of freeboard to the roadway low point. The project will also meet the requirements of the State Flood Management Certification for Municipal Projects. A CTDEEP Statewide Inland Wetlands & Watercourses Activity Reporting Form is included with the application for municipal use.

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH



Raul Pino, M.D., M.P.H.
Commissioner

Dannel P. Malloy
Governor
Nancy Wyman
Lt. Governor

Drinking Water Section

April 20, 2017

Richard Fontaine P.E.
Close, Jensen and Miller, P.C.
Liaison Service
1137 Silas Deane Highway
Wethersfield, CT 06109

Re: Replacement of Strawberry Road over Abbey Brook
DPH Project #2017-0083

Dear Mr. Fontaine:

The Drinking Water Section (DWS) of the Department of Public Health has reviewed the location of the following bridge replacement project:

Project No.	Bridge No.	Town	Road	Feature Crossed	Scope
47-TBD	06414	Ellington	Strawberry Road	Abbey Brook	Replacement

Based on our review, this bridge project is not located in a public water supply source water area. Therefore, it does not appear that the above bridge project will impact public drinking water supply sources.

If you have any questions regarding this matter, please contact Rich Iozzo of this office at 860-509-7333.

Sincerely,

Patricia Bisacky
Environmental Analyst 3
Drinking Water Section

Cc: Lori Spielman, First Selectman, Town of Ellington



Phone: (860) 509-7333 • Fax: (860) 509-7359 • VP: (860) 899-1611
410 Capitol Avenue, MS#12DWS, P.O. Box 340308
Hartford, Connecticut 06134-0308
www.ct.gov/dph

Affirmative Action/Equal Opportunity Employer



Abutters List

<u>Owner</u>	<u>Address</u>	<u>APN</u>
HERTER, BLAIRE E	23 STRAWBERRY RD, ELLINGTON, CT 06029	182-037-0000
BLACK, SCOTT	29 BLUEBERRY CIR, ELLINGTON, CT 06029	182-009-0000
WAUGH, KATHLEEN T	18 STRAWBERRY RD, ELLINGTON, CT 06029	182-008-0000
KERSWELL, SHAWN	21 STRAWBERRY RD, ELLINGTON, CT 06029	182-038-0000

(SPRINGFIELD
SOUTH)



ELLINGTON QUADRANGLE
CONNECTICUT
TOPOGRAPHIC SERIES

(MONSON)

072° 28' 27.76" W
041° 58' 12.53" N

(HAMPDEN)

072° 25' 48.73" W
041° 58' 12.53" N

(BROAD BROOK)

(STAFFORD
SPRINGS)

041° 55' 24.96" N
072° 28' 27.76" W

Copyright (C) 2009 MyTopo
Printed: Mon Nov 25, 2019
072° 25' 48.73" W
041° 55' 24.96" N

(MANCHESTER)

(ROCKVILLE)
SCALE 1:24000

(COVENTRY)

Produced by MyTopo Terrain Navigator
Topography based on USGS 1:24,000
Maps

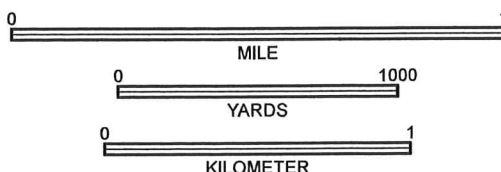
North American 1983 Datum (NAD83)
Polyconic Projection

To place on the predicted North American
1927 move the projection lines 11M N and
39M E

Declination

MN GN

GN 1.70° E
MN 14.12° W



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM 1929

ELLINGTON, CT
1967

NATURAL DRAINAGE BASINS MAJOR, REGIONAL, SUBREGIONAL AND LOCAL ELLINGTON, CONNECTICUT

LEGEND

- Basin Boundary
 - Major Basin
 - Regional Basin
 - Subregional Basin
 - Local Basin
- Local Drainage Basin Direction
 - Outlet Direction
 - Main Stem Direction
 - Coastal Direction
- Elevation
 - High - 2413 FT
 - Low - 1 FT

EXPLANATION

This map shows the natural and modified drainage basins of major, regional, subregional, and local drainage basins in Ellington, Connecticut. The map is based on a digital elevation model (DEM) derived from a 1:25,000 scale topographic map. The map shows the natural drainage basins of the area, as well as the modified drainage basins created by human activities. The map is divided into four levels of drainage basins: major, regional, subregional, and local. The major drainage basins are the largest and most significant, while the local drainage basins are the smallest and least significant. The map also shows the direction of flow for each drainage basin, as well as the elevation of the area. The map is a valuable tool for understanding the natural and modified drainage basins of Ellington, Connecticut.

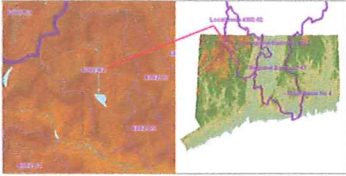


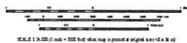
Figure 1. Sample drainage basins. The figure shows a typical local drainage basin and the subregional, regional, and major drainage basins it is a part of.

DATA SOURCES

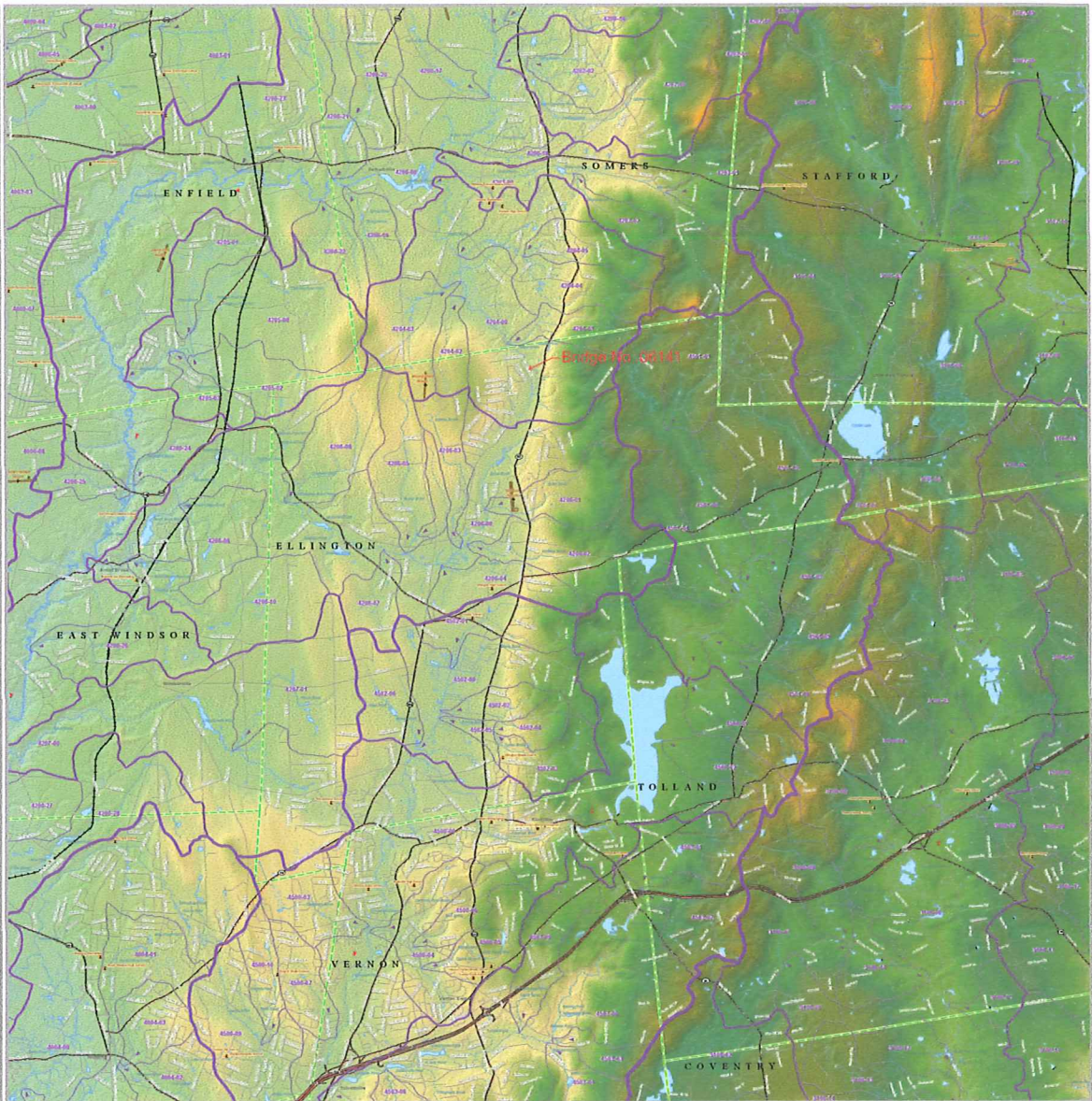
LOCAL DRAINAGE BASIN DATA - The local drainage basin data was derived from a digital elevation model (DEM) derived from a 1:25,000 scale topographic map. The map shows the natural drainage basins of the area, as well as the modified drainage basins created by human activities. The map is divided into four levels of drainage basins: major, regional, subregional, and local. The major drainage basins are the largest and most significant, while the local drainage basins are the smallest and least significant. The map also shows the direction of flow for each drainage basin, as well as the elevation of the area.

REGIONAL DRAINAGE BASIN DATA - The regional drainage basin data was derived from a digital elevation model (DEM) derived from a 1:25,000 scale topographic map. The map shows the natural drainage basins of the area, as well as the modified drainage basins created by human activities. The map is divided into four levels of drainage basins: major, regional, subregional, and local. The major drainage basins are the largest and most significant, while the local drainage basins are the smallest and least significant. The map also shows the direction of flow for each drainage basin, as well as the elevation of the area.

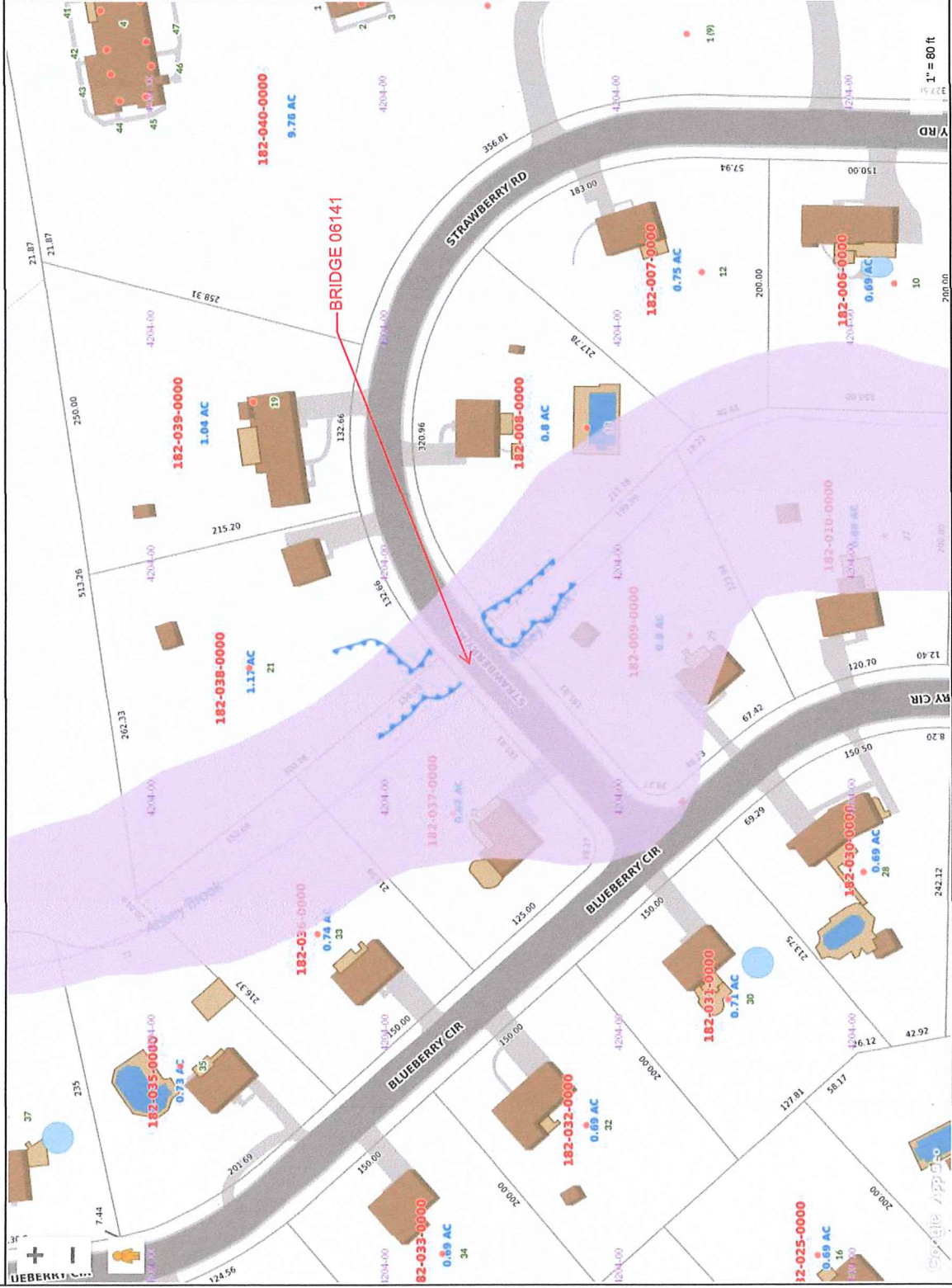
STATE MAP DATA - The state map data was derived from a digital elevation model (DEM) derived from a 1:25,000 scale topographic map. The map shows the natural drainage basins of the area, as well as the modified drainage basins created by human activities. The map is divided into four levels of drainage basins: major, regional, subregional, and local. The major drainage basins are the largest and most significant, while the local drainage basins are the smallest and least significant. The map also shows the direction of flow for each drainage basin, as well as the elevation of the area.



Map created by USGS
Revised 2013
Printed on 100% recycled paper



Bridge 06141 / Strawberry Road over Abbey Brook



Map Theme Legends

Wetlands

- Site Certified Wetlands/Watercourse
- Swamp Area
- Poorly Drained and Very Poorly Drained Soils
- Alluvial and Floodplain Soils

CT DEEP

Aquifer Protection

- Level A Aquifer Protection Area (Final Adopted)
- Level A Aquifer Protection Area (Final)
- Level B Aquifer Protection Area (Preliminary)

[Aquifer Protection Areas](#)

Water Resource Protection

- Watershed Boundary
- Subregional Basin
- Aquifer Protection Area
- Zone 2 Preliminary Wellhead Protection Area
- Zone 2 Final Wellhead Protection Area

Natural Resource Protection

- ESTUARINE
- Beachshore, B
- Intertidal Marsh, IM
- PALUSTRINE FORESTED
- Adic Atlantic White Cedar Swamp, AAWCS
- Adic RedBlack Spruce Basin Swamp, ABRBS
- Cummedial Northern White Cedar Swamp, CNAWCS
- Floodplain Forest, FF
- PALUSTRINE NON-FORESTED
- Beachshore, B
- Cummedial Spring Fen, CIGF
- Floodplain Forest, FF
- Freshwater Aquatic, FA
- Medium Fen, MF
- Poor Fen, PF
- Rich Fen, RF
- Sea Level Fen, SLF
- TERRESTRIAL FORESTED
- Coastal Woodland/Shrubland, CWS
- Dry Adic Forest, DAF
- Dry Cummedial Forest, DCF
- Dry Subadic Forest, DSF
- Old Growth Forest, OGF
- Subadic Cold Talar Forest/Woodland, SubCTFW
- TERRESTRIAL NON-FORESTED
- Adic Rocky Summit Outcrop, ARSO
- Alluvial Grassland/Outcrop, AIG/O
- Cummedial Rocky Summit Outcrop, CRRSO
- Coastal Bluffs and Headlands, CBH
- Coastal Grassland, CG
- Sand Barren, SB
- Subadic Rocky Summit Outcrop, SubRSO
- Natural Diversity Area
- CT DEEP

Watersheds

- Major Basin
- Regional Basin
- Subregional Basin
- Local Basin
- Shenipsit Watershed

[Local Drainage Basins Line](#)

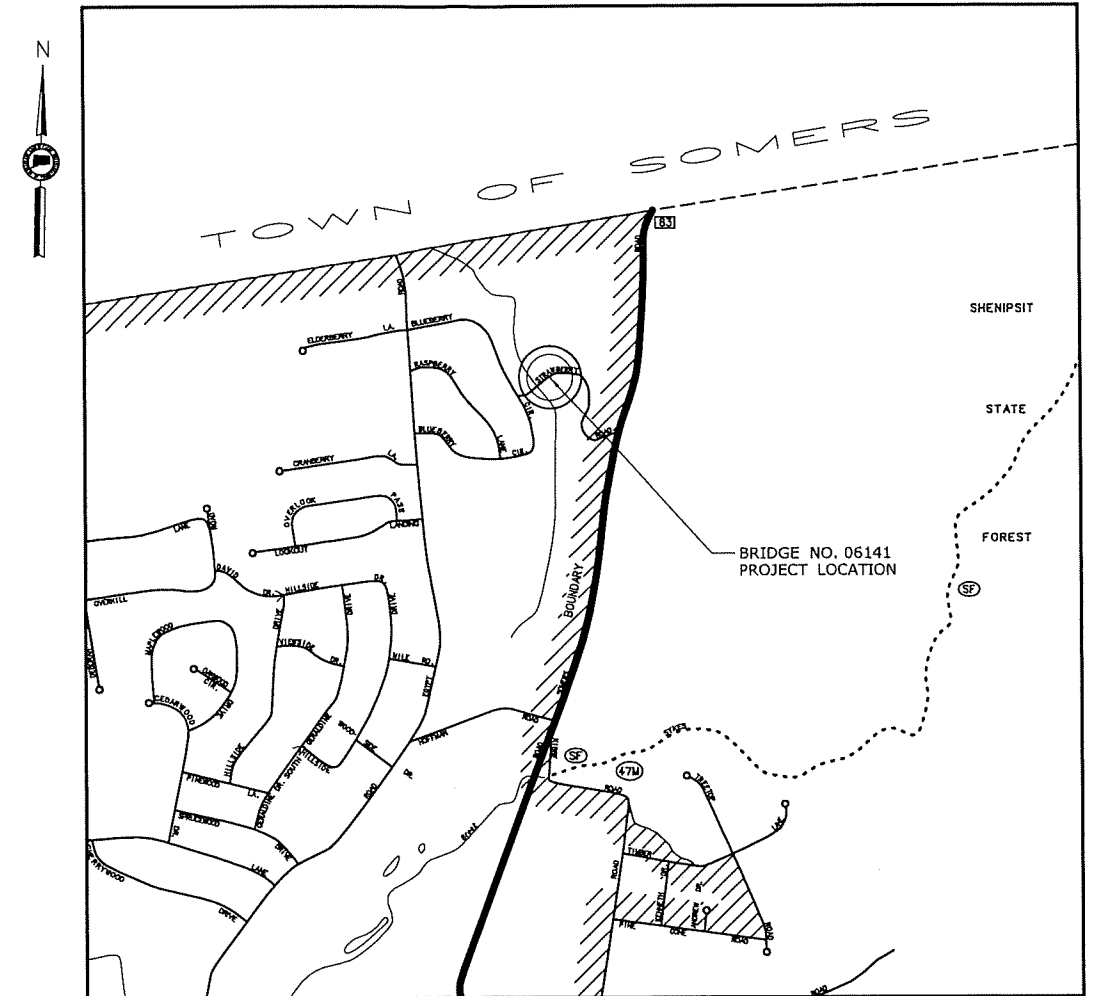
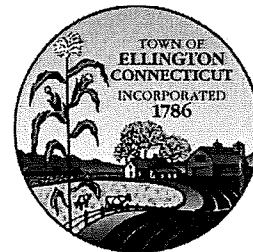
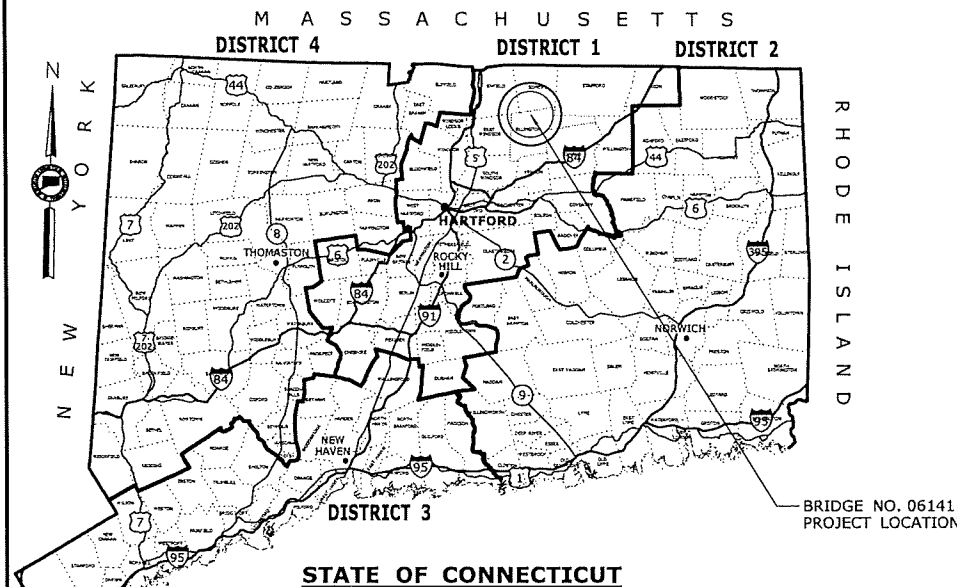
Sewer System

- Sewer Customers
- Connected to Sewer
- Sewer Available
- Sewer Not Available
- Pump Station
- Sewer Manhole
- Force Main
- Gravity Main
- Pressure Main
- Flow Direction
- Sewer Lateral
- Lateral Flow Direction
- Sewer Service Areas
- Crystal Lake
- Hockanum

TOWN OF ELLINGTON

ENVIRONMENTAL PERMIT Plans For

REPLACEMENT OF BRIDGE NO. 06141 STRAWBERRY ROAD OVER ABBEY BROOK



GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS, AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983 VERTICAL DATUM BASED ON NAVD OF 1988.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD SPECIFICATIONS FOR ROADS, BRIDGE, AND INCIDENTAL CONSTRUCTION, FORM 818, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPS) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL

LIST OF DRAWINGS

DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	100-YEAR FLOOD IMPACT PLAN
PMT-05	ELEVATIONS & SECTION PLAN
PMT-06	STAGING AND WATER HANDLING PLAN

DESIGNED BY:



Robert Elliott,
P.E.
2022.02.18
15:48:59-05'00'

LOCATION PLAN

NOT TO SCALE

PLAN DATE: FEBRUARY 18, 2022

PROJECT NUMBER: 0047-0120
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 06141 STRAWBERRY ROAD OVER ABBEY BROOK
TOWN(S): ELLINGTON
DRAWING TITLE: TITLE SHEET

DRAWING NO.
PMT-001
SHEET NO.
01.01

DESIGNER/DRAFTER: F NOORBAKHSH CHECKED BY: J SHOOD

SIGNATURE/
BLOCK:

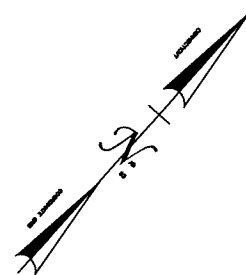
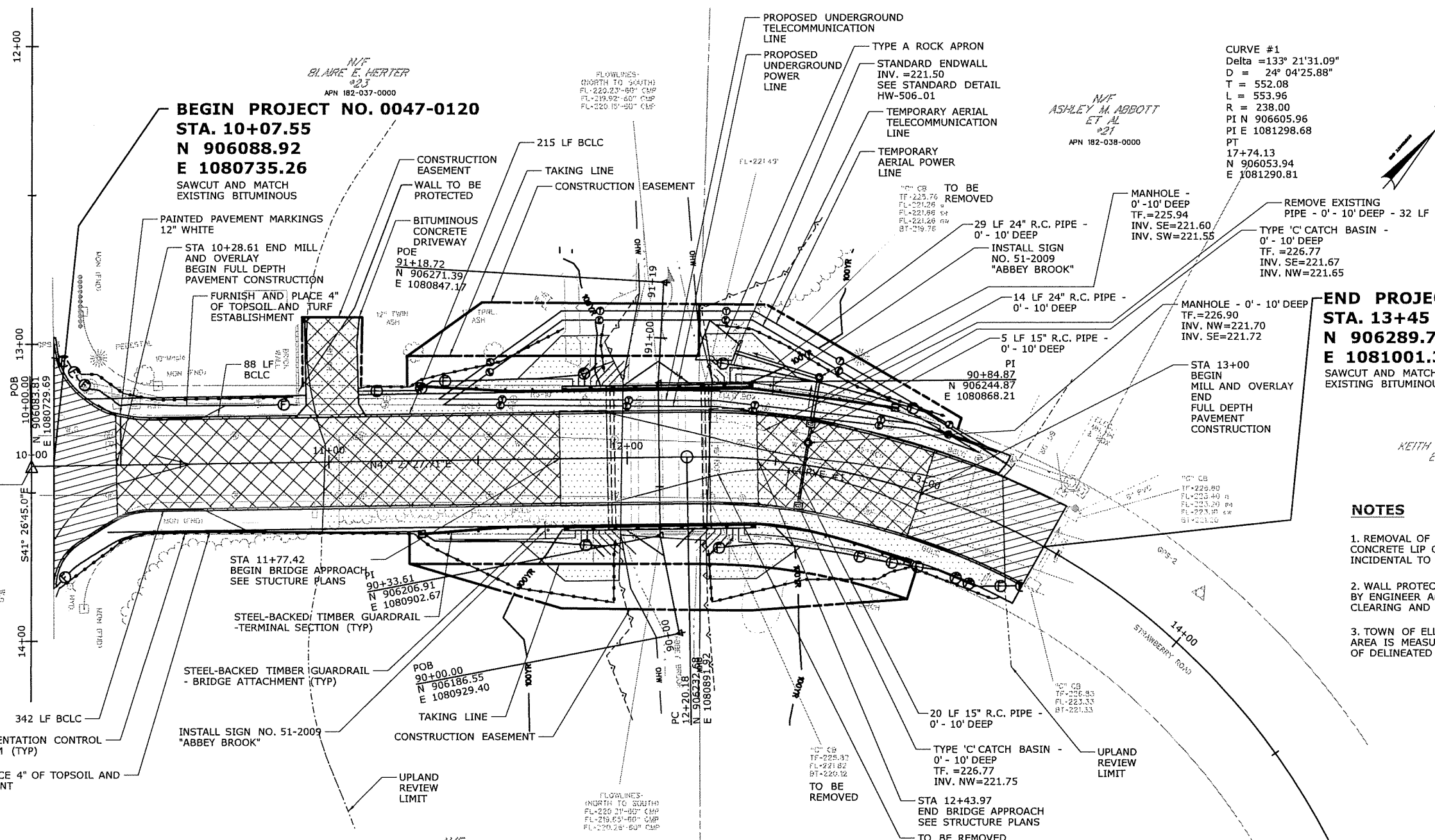


CDR Group, Inc.
117 Cheshire Street
Suite 013
Pawcatuck, RI 02861



TOWN OF ELLINGTON

LASTED SAVED BY: kurtis.wolfe FILE NAME: P:\PROJECTS\19752-04-Bridge_No_06141-Ellington\0047-0120\Highways\MSA_Contract_Sheet_Files\HWY_MSH_0047-0120_BORDER.dgn
PLOTTED DATE: 2/18/2022



CURVE #1
Delta = 133° 21'31.09"
D = 24° 04'25.88"
T = 552.08
L = 553.96
R = 238.00
PI N 906605.96
PI E 1081298.68
PT
17+74.13
N 906053.94
E 1081290.81

END PROJECT NO. 0047-01
STA. 13+45
N 906289.70
E 1081001.35
SAWCUT AND MATCH
EXISTING BITUMINOUS

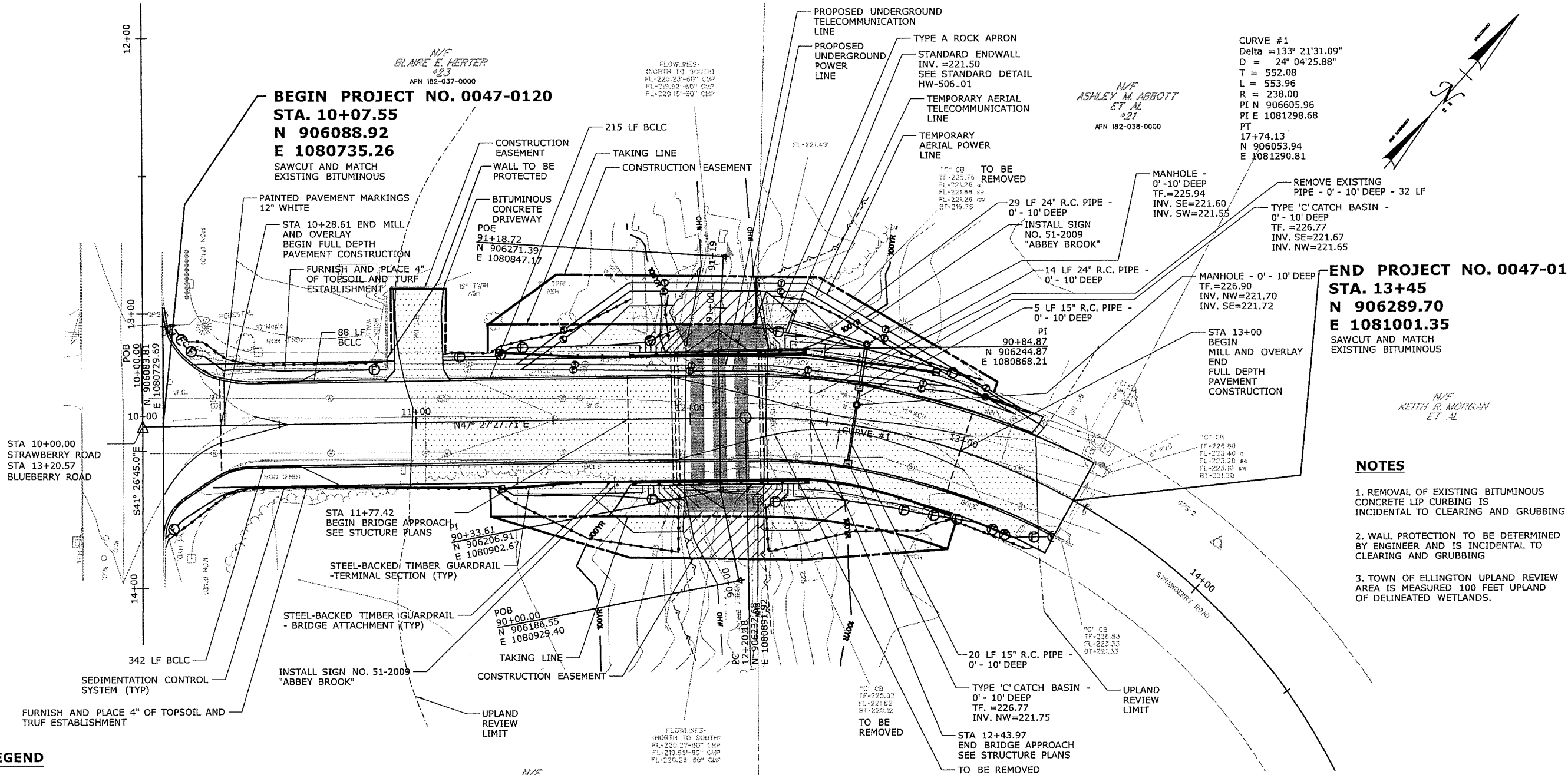
NOTES

1. REMOVAL OF EXISTING BITUMINOUS CONCRETE LIP CURBING IS INCIDENTAL TO CLEARING AND GRUBBING
2. WALL PROTECTION TO BE DETERMINED BY ENGINEER AND IS INCIDENTAL TO CLEARING AND GRUBBING
3. TOWN OF ELLINGTON UPLAND REVIEW AREA IS MEASURED 100 FEET UPLAND OF DELINEATED WETLANDS.

LEGEND

- 100YR EXISTING 100-YEAR FLOOD (CALCULATED)
- OHW ORDINARY HIGH WATER (OHW)
- STREAM
- STATE/ FEDERAL WETLANDS
- SEDIMENTATION CONTROL SYSTEM
- MILL AND OVERLAY
- FULL DEPTH CONSTRUCTION
- CUT LINE
- FILL LINE

REV.	DATE	REVISION DESCRIPTION



- NOTES**
1. REMOVAL OF EXISTING BITUMINOUS CONCRETE LIP CURBING IS INCIDENTAL TO CLEARING AND GRUBBING
 2. WALL PROTECTION TO BE DETERMINED BY ENGINEER AND IS INCIDENTAL TO CLEARING AND GRUBBING
 3. TOWN OF ELLINGTON UPLAND REVIEW AREA IS MEASURED 100 FEET UPLAND OF DELINEATED WETLANDS.

LEGEND

- 100YR EXISTING 100-YEAR FLOOD (CALCULATED)
- OHW ORDINARY HIGH WATER (OHW)
- STREAM
- STATE/ FEDERAL WETLANDS
- SEDIMENTATION CONTROL SYSTEM
- TEMPORARY WETLAND/WATERCOURSE IMPACTS
- PERMANENT WETLAND/WATERCOURSE IMPACTS
- UPLAND REVIEW AREA IMPACTS

WETLAND IMPACT TABLE

	WETLAND SITE NO.	WETLAND IMPACTS	WATERCOURSE IMPACTS	TOTAL
PERMANENT IMPACTS	-	46 S.F. (0.001 AC)	1,221 S.F. (0.028 AC)	1,267 S.F. (0.029 AC)
TEMPORARY IMPACTS	-	190 S.F. (0.004 AC)	703 S.F. (0.016 AC)	893 S.F. (0.020 AC)
TOTAL IMPACTS		236 S.F. (0.005 AC)	1,924 S.F. (0.044 AC)	2,160 S.F. (0.050 AC)

UPLAND REVIEW AREA IMPACTS

12,261 S.F. (0.281 AC)

PLAN DATE: FEBRUARY 18, 2022

REV	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: F NOORBAKHSH CHECKED BY: J SHODI
LASTED SAVED BY: Kurla Wolfe FILE NAME: P:\PROJECTS\19752.04-Bridge_No_06141-Ellington\0047-0120\Highways\MS1a_Contract_Sheet_Files\HWY_MSH_0047-0120_BORDER.dgn
PLOTTED DATE: 2/18/2022

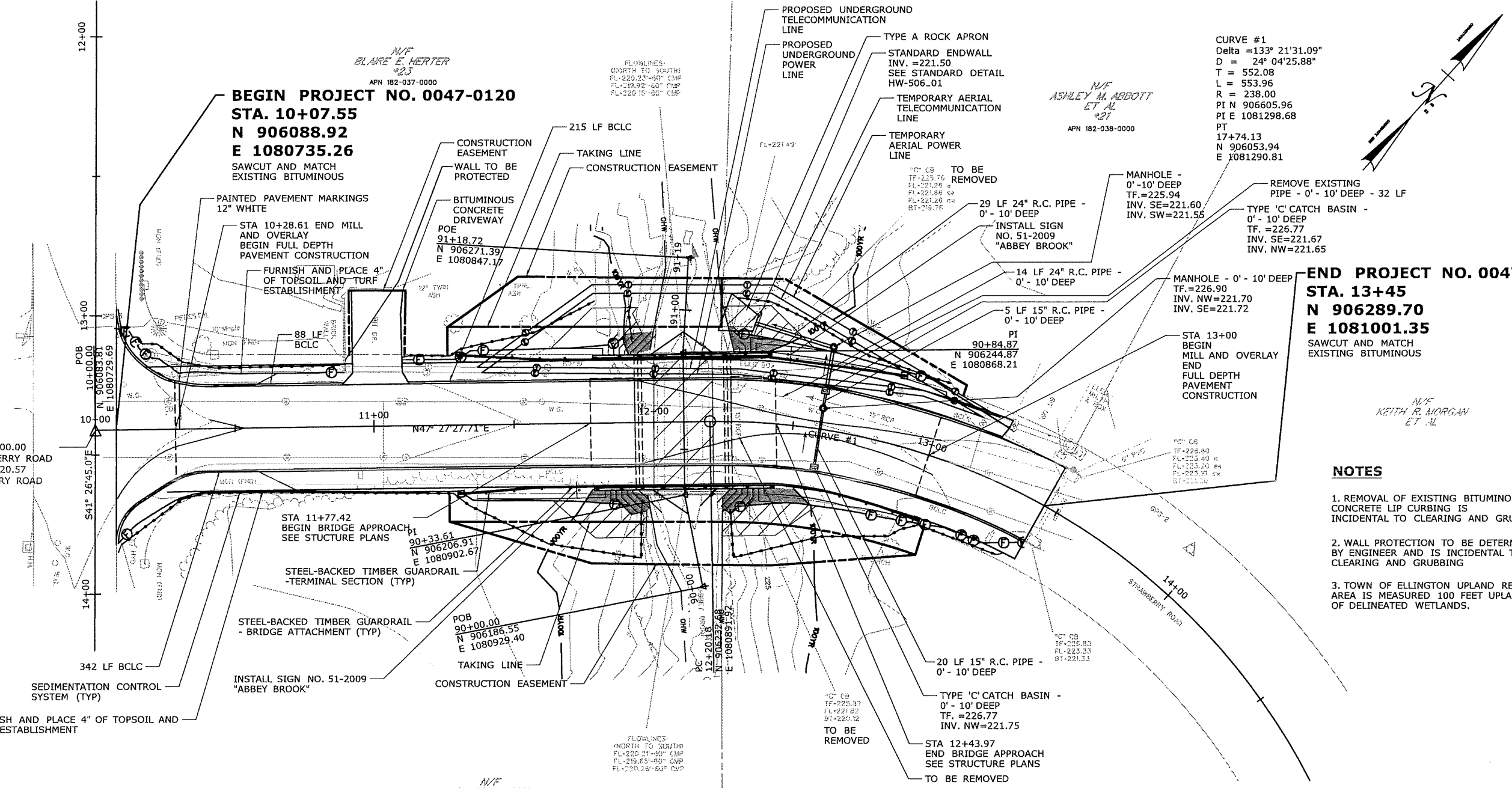
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#29
APN 182-009-0000



TOWN OF ELLINGTON

PROJECT NUMBER: 0047-0120
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 06141 STRAWBERRY ROAD OVER ABBEY BROOK
TOWN(S): ELLINGTON
DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN

DRAWING NO.
PMT-003
SHEET NO.
01.03



LEGEND

- 100YR EXISTING 100-YEAR FLOOD (CALCULATED)
- OHW ORDINARY HIGH WATER (OHW)
- STREAM
- STATE/ FEDERAL WETLANDS
- SEDIMENTATION CONTROL SYSTEM
- TEMPORARY IMPACTS
- PERMANENT IMPACTS

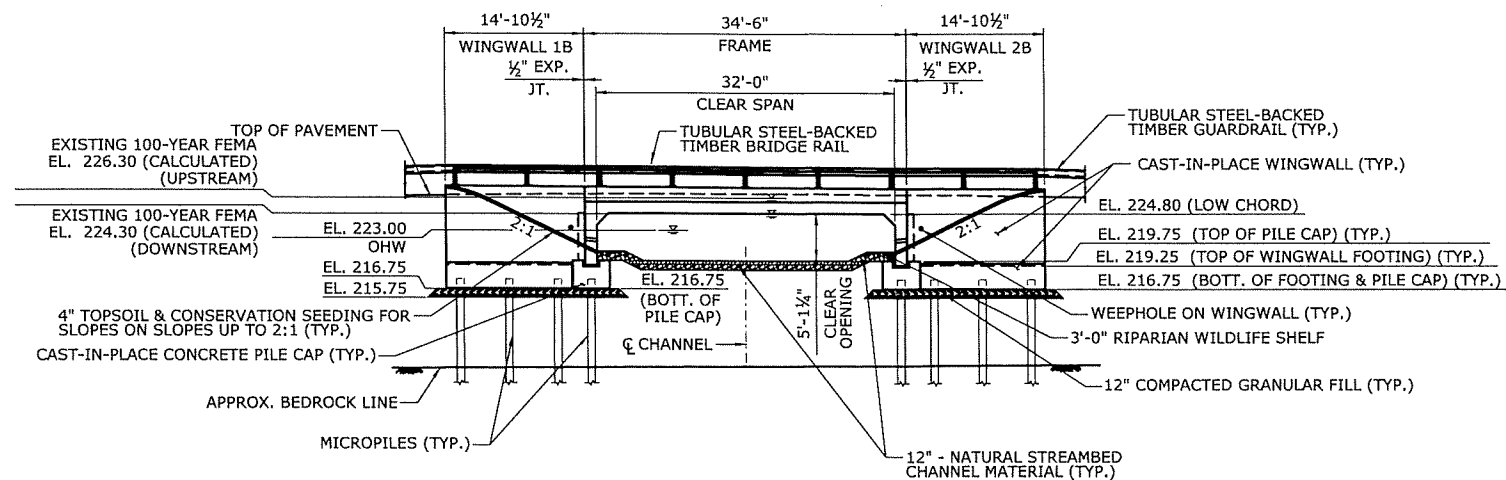
100-YEAR FLOODPLAIN IMPACTS CUT AND FILL	
VOLUME IMPACTS	
EXCAVATION IN FEMA FLOODPLAIN	FILL IN FEMA FLOODPLAIN
670.00 C.Y.	12.10 C.Y.

NOTES

1. REMOVAL OF EXISTING BITUMINOUS CONCRETE LIP CURBING IS INCIDENTAL TO CLEARING AND GRUBBING
2. WALL PROTECTION TO BE DETERMINED BY ENGINEER AND IS INCIDENTAL TO CLEARING AND GRUBBING
3. TOWN OF ELLINGTON UPLAND REVIEW AREA IS MEASURED 100 FEET UPLAND OF DELINEATED WETLANDS.

PLAN DATE: FEBRUARY 18, 2022

REV	DATE	REVISION DESCRIPTION



UPSTREAM ELEVATION (LOOKING DOWNSTREAM)
SCALE: 1" = 10'-0"

OPENNESS RATIO (OR):

OR = OPEN AREA / CULVERT LENGTH
OR = 177.5 s.f / 48 ft. = 3.7 ft.
3.7 ft. > 0.82 ft. (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):

BFW = 26 ft. EXISTING UPSTREAM (OHW)
1.2 * BFW = 31.0 ft.
31 ft. < 32 ft. PROPOSED CULVERT SPAN

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE STRUCTURE INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED WITHIN THE STRUCTURE TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION " EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL."
2. ADDITIONAL STREAMBED MATERIAL, IF REQUESTED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL."
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATIONAL CONTROL SYSTEM.

HYDRAULIC DATA

DRAINAGE AREA	1.1 SQ.MILES
DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	475 C.F.S
AVERAGE DAILY FLOW	2 C.F.S
UPSTREAM DESIGN WATER SURFACE ELEVATION	224.6 FT.
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	224.5 FT.
MAXIMUM SCOUR ELEVATION	213.5 FT.
FREQUENCY	500 YEAR
DISCHARGE	870 C.F.S
WORST CASE SCOUR SUB-STRUCTURE UNIT	ABUTMENT 2

PLAN DATE: FEBRUARY 18, 2022

REV	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: F NOORBAKHSH CHECKED BY: J SHODI

LASTED SAVED BY: Kuris.Wolfe FILE NAME: P:\PROJECTS\19752.04-Bridge_No_06141-Ellington\0047-0120\Highways\MS1a_Contract_Sheet_Files\HWY_MSH_0047-0120_8ORDER.dgn
PLOTTED DATE: 2/18/2022

SIGNATURE/
BLOCK:



CSR Group, Inc.
117 Chapman Street
Suite 210
Providence, RI 02905



TOWN OF ELLINGTON

PROJECT NUMBER: 0047-0120

PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 06141 STRAWBERRY ROAD OVER ABBEY BROOK

TOWNSHIP: ELLINGTON

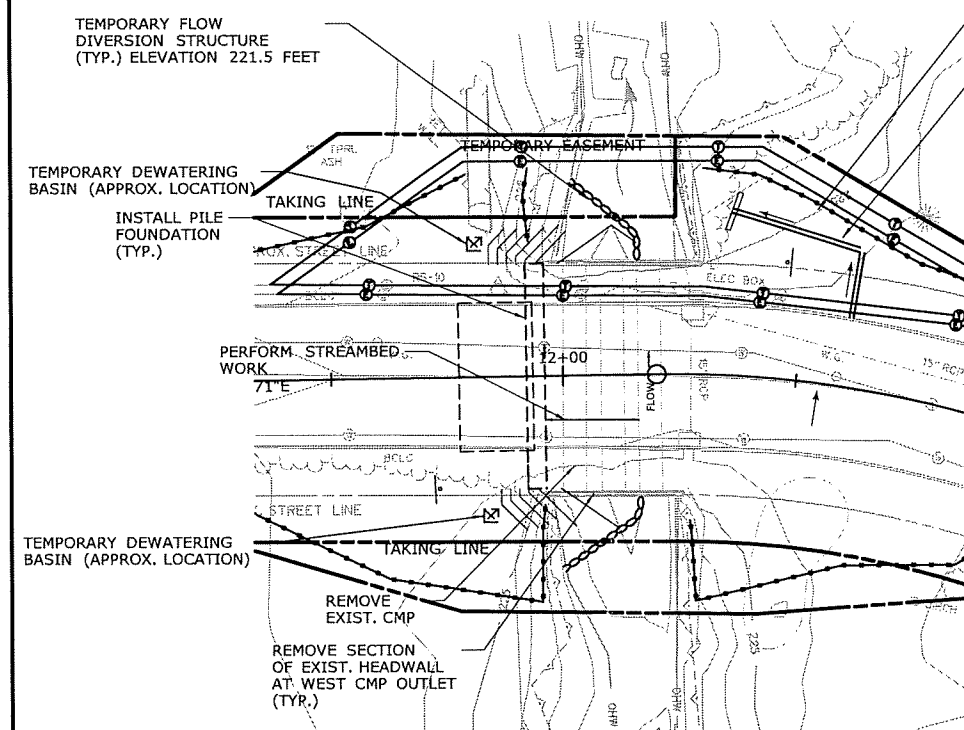
DRAWING TITLE: ELEVATIONS AND SECTION PLANS

DRAWING NO.

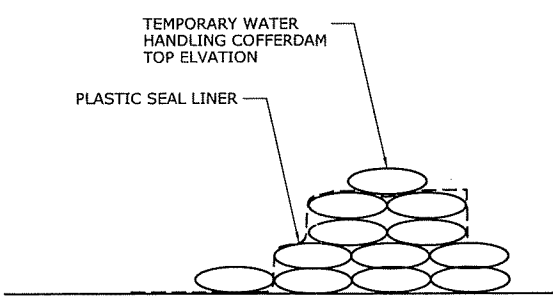
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SHEET NO.

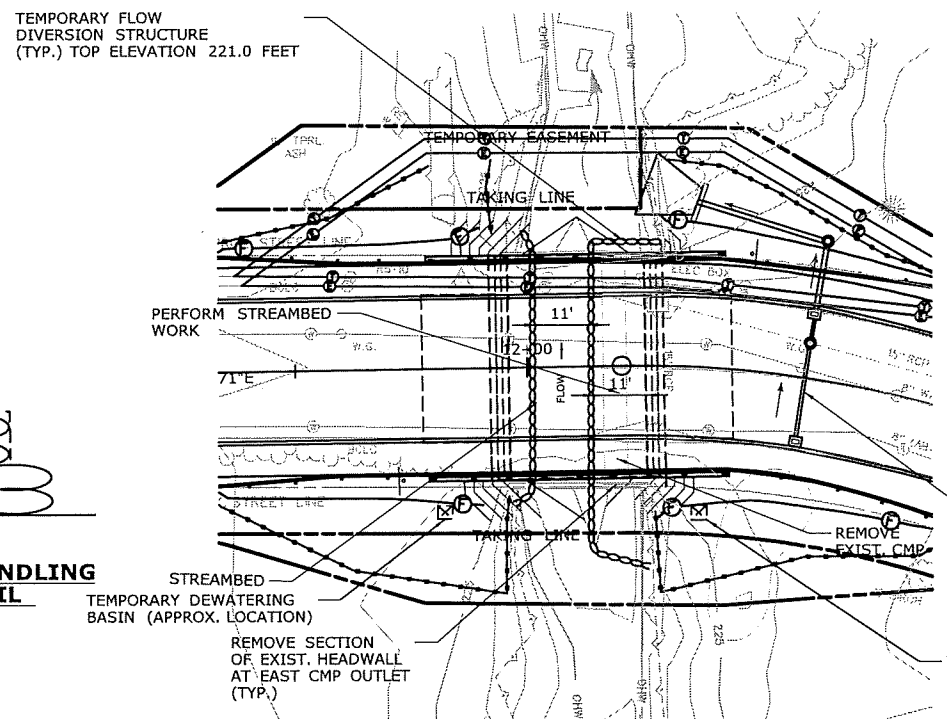
01.05



STAGE 1



TEMPORARY WATER HANDLING COFFERDAM DETAIL
N.T.S



STAGE 2

WATER HANDLING NOTES:

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.
2. EQUIPMENT SHALL NOT BE PERMITTED IN THE STREAM WHEN TEMPORARY WATER HANDLING SYSTEM IS NOT IN PLACE WITHOUT APPROVAL FROM THE ENGINEER.
3. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.
4. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFIRM TO PERMITS.
5. WATER HANDLING MEASURES SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND AND FLOODPLAIN IMPACT SHEETS OF THE PERMIT PLANS.
6. ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING OR PROPOSED STORM DRAINAGE PIPES SHALL BE SIZED BY THE CONTRACTOR TO HANDLE THE EXPECTED FLOWS AND BE DISCHARGED TO A STABLE LOCATION. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING STORM DRAINAGE TO THE ENGINEER FOR APPROVAL AND IS INCLUDED AS PART OF WATER HANDLING.
7. IF A SHORT DURATION PUMP SYSTEM IS PROPOSED DURING LOW FLOW CONDITIONS, THE PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR AND HAVE A MINIMUM CAPACITY AS SHOWN IN THE TEMPORARY HYDRAULIC TABLE. PUMP SYSTEM PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

BASED UPON FIELD CONDITIONS, WORK DURATION, AND EXPECTED WEATHER CONDITIONS, THE ENGINEER MAY APPROVE A CONSTRUCTION WATER HANDLING PLAN WITH LOWER PUMPING FLOWS, PROVIDED THAT THIS INCLUDES A CONTINGENCY PLAN, WHICH MINIMIZES NEGATIVE IMPACTS AND SAFELY CONVEYS LARGER FLOWS THROUGH THE WORK AREA.

TEMPORARY HYDRAULIC DATA		
	STAGE 1	STAGE 2
AVERAGE DAILY FLOW	2-CFS	2-CFS
AVERAGE SPRING FLOW	4-CFS	4-CFS
2-YEAR FREQUENCY DISCHARGE	50-CFS	50-CFS
TEMPORARY DESIGN DISCHARGE	10-CFS	10-CFS
TEMPORARY DESIGN FREQUENCY	1-YEAR	1-YEAR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	221.2-FT	220.9-FT
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	220.8-FT	220.8-FT

SUGGESTED SEQUENCE OF CONSTRUCTION:

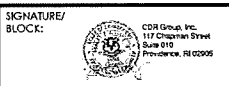
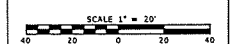
- STAGE 1
1. INITIATE ROAD CLOSURE AND ESTABLISH DETOUR
 2. INSTALL SEDIMENTATION CONTROL SYSTEM. PERFORM CLEARING AND GRUBBING, AS NECESSARY.
 3. INSTALL TEMPORARY DEWATERING BASIN. BASIN TO REMAIN THROUGH ALL STAGES.
 4. ESTABLISH COFFERDAM SYSTEM AS SHOWN IN STAGE 1 TO PROVIDE WORK AREA TO REMOVE THE WESTERN PORTION OF THE EXISTING CULVERT AND CONSTRUCTION OF THE PROPOSED STRUCTURE.
- STAGE 2
1. REMOVE PREVIOUS COFFERDAM SYSTEM.
 2. ESTABLISH SYSTEM OF COFFERDAMS SHOWN IN STAGE 2 TO PROVIDE WORK AREA TO REMOVE THE EASTERN PORTION OF THE EXISTING STRUCTURE AND CONSTRUCT THE EASTERN PORTION OF PROPOSED STRUCTURE.
 3. REMOVE COFFERDAM SYSTEM AFTER COMPLETION OF STRUCTURE CONSTRUCTION.
 4. REMOVE SEDIMENTATION CONTROL SYSTEM.
 5. END ROAD CLOSURE AND DETOUR.

TIME-OF-YEAR BMP NOTES:

ANY "UNCONFINED" INSTREAM WORK WITHIN ABBEY BROOK SHALL BE RESTRICTED TO THE PERIOD FROM JUNE 1 TO SEPTEMBER 30, INCLUSIVE.

PLAN DATE: FEBRUARY 18, 2022

REV.	DATE	REVISION DESCRIPTION



TOWN OF ELLINGTON

Wetland Delineation Report



Connecticut Bridge Program Replacement of Bridge No. 06141

State Project No. 47-120
Strawberry Road over Abbey Brook

Ellington, Connecticut



February 2020

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2. METHODS	1
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4. DETAILED RESOURCE DESCRIPTIONS	4
5. NRCS MAPPED SOILS	6
6. SUMMARY	6
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APPENDIX B: WETLAND FUNCTION-VALUE FORMS

APPENDIX C: REPRESENTATIVE PHOTOGRAPHS

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Figure 3: NRCS Soils Map	7

1. INTRODUCTION

Fitzgerald & Halliday, Inc. (FHI) was retained by Close, Jensen and Miller, PC (CJM) to identify and delineate wetlands and watercourses within, or adjacent to, Bridge No. 06141, Strawberry Road over Abbey Brook in Ellington, Connecticut (**see Figure 1 – Overview Map**). This work effort is to support State Project No. 47-120. FHI soil scientists conducted the wetland boundary delineation in October 2019. The methods used and results are detailed in this wetland delineation report.

2. METHODS


All wetland resources were delineated in accordance with state and federal definitions and guidelines. The identification of inland wetlands and watercourses, as regulated by the State of Connecticut, was based upon definitions contained in Section 22a-38 of the Connecticut General Statutes (CGS). Connecticut inland wetland boundaries are determined by the limit of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey, as may be amended from time to time, of the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture (§22a-38-15). NRCS soil surveys were consulted to compare field observed soil types to those generally expected in the project area. Hydric soils, which include both poorly and very poorly drained soils, were identified for conformance with the *Field Indicators for Identifying Hydric Soils in New England Version 4 (2019)* and *Field Indicators of Hydric Soils in the United States, Version 8.1 (2018)*.

Federal wetlands were identified per the U.S. Army Corps of Engineers (USACE) 1987 *Wetland Delineation Manual* and the USACE 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region – Version 2.0*. The federal wetland boundary was determined by the limit of wetland vegetation (limit of plant community dominated, 50% or more cover, by species adapted to living in wetland conditions) based on visual inspection, and via the observation of hydric soil indicators and wetland hydrology.

USACE Wetland Determination Forms have been prepared for delineated wetland systems. These forms are provided in Appendix A. FHI conducted wetland function and value assessments for delineated wetlands in accordance with the USACE *Highway Methodology Supplement (1999)* guidelines. A Wetland Function and Value Form for the potentially impacted wetland system is provided in Appendix B. Photographs were taken of each wetland area, and representative images can be found in Appendix C. The delineation sketch graphic is depicted in **Figure 2 – Wetlands Sketch Map**.

**Strawberry Road over
Abbey Brook
Bridge No. 06141
State Project No. 47-120
Ellington, CT
Figure 1
Overview Map**

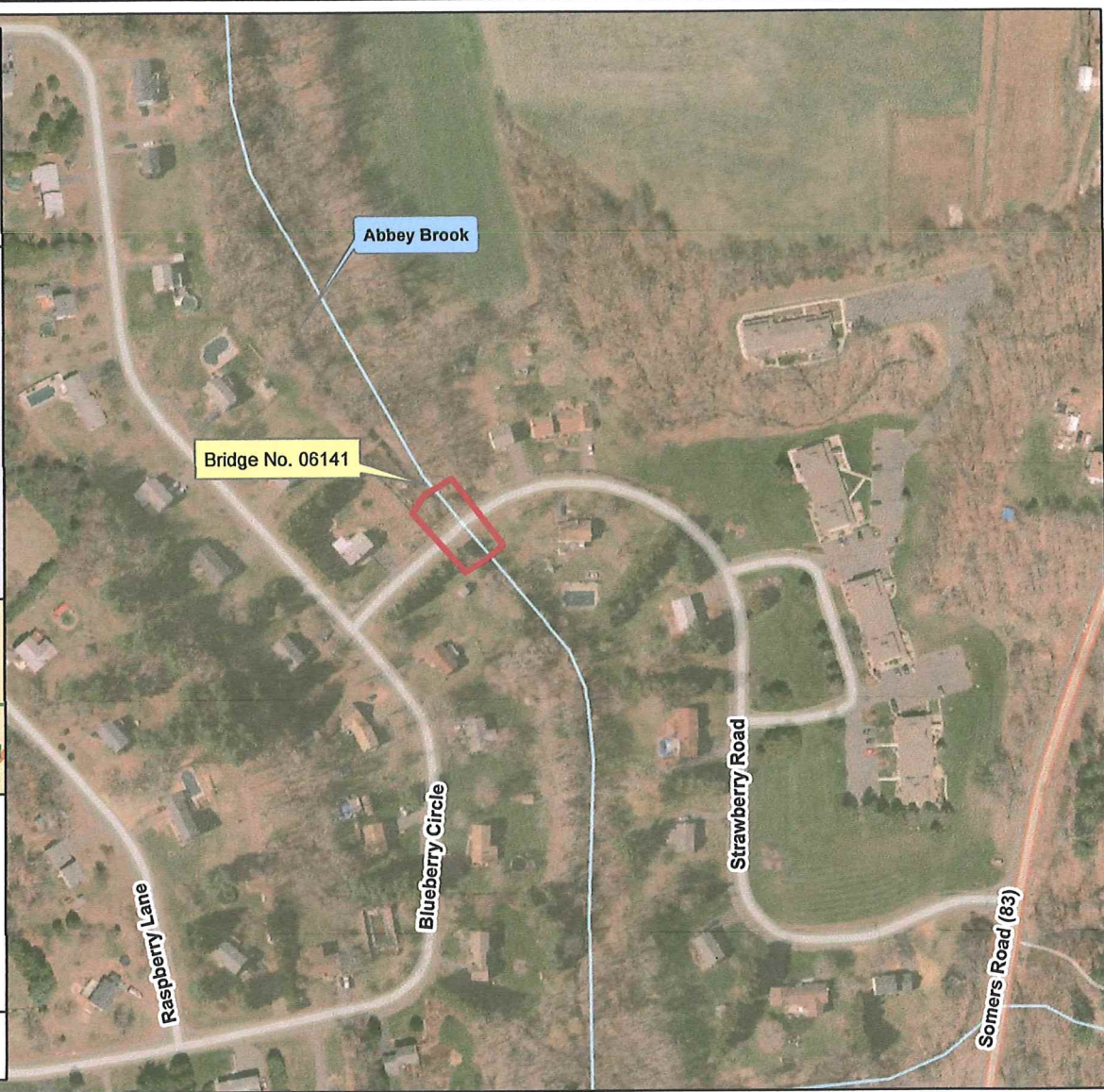
Legend

 Approximate Limits of Investigation






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Feet

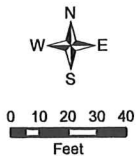
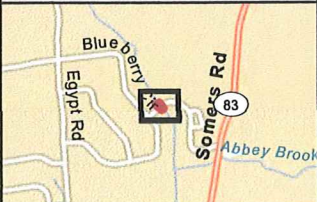
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**Strawberry Road over
Abbey Brook
Bridge No. 06141
State Project No. 47-120
Ellington, CT
Figure 2
Wetland Sketch Map**

Legend

-  Approximate Limits of Investigation
-  Ordinary High Water (OHW)
-  Open Boundary
-  Inland Wetland System 1



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3. RESULTS

The boundaries of one perennial watercourse and four state and federal inland wetland areas, which are all part of the same overall wetland system (Wetland System 1) associated with and hydrologically connected to Abbey Brook, were delineated within the project limits. These wetland areas are directly connected to Abbey Brook and are located in each of the four bridge quadrants. Ordinary High Water (OHW) of Abbey Brook was also demarcated in the field within the project limits. The wetland system and OHW extend beyond the project limits. This is described in detail below.

The fieldwork confirms and supports the presence of NRCS mapped designation Scarboro muck and Sudbury loams in and adjacent to the Bridge 06141 project area. However, small inclusions of unmapped disturbed soils were also observed deviating from the NRCS mapped boundaries. Refer to Section 5.0 of this report for the NRCS maps depicting the location and extent of these soil units and respective soil descriptions.

4. DETAILED RESOURCE DESCRIPTIONS

Abbey Brook

The Abbey Brook, which flows beneath Bridge No. 06141 and through a developed residential neighborhood, is a perennial watercourse which averages approximately 12 feet across. Abbey Brook flows north into Somersville Pond which discharges into the Scantic River, contributing to the Connecticut River, and ultimately discharging into Long Island Sound. The substrate of Abbey Brook is high in organic detritus and fine silts.

The northwest corner of Bridge 06141 is generally steep up to a level terrace between the brook and the slightly more elevated residential structures. A small pocket of wetlands exists immediately to the northwest of the structure before the bank becomes steep. The northeast corner has a low floodplain area with trees and shrubs before the local relief again increases. North of the bridge, Abbey Brook is wider and deeper, still maintaining its silty substrate. The banks are more defined, with no undercutting, and overhanging vegetation provides shade throughout.

The southeast corner of Bridge 06141, Abbey Brook is bordered by maintained lawns creating an abrupt bank along the water's edge. There is no undercutting of the bank nor shade provided by overhanging vegetation. The southwest bank has a bordering vegetated wetland approximately 15 feet wide and is stable.

State and Federal Wetlands

Wetland System 1

Wetland Areas South of Bridge 06141

The wetland area southeast of the bridge is a maintained lawn with a narrow Palustrine Emergent (PEM) vegetated bank along the eastern edge of Abbey Brook. Existing NRCS soils are mapped as

a Sudbury sandy loam. Evidence of a buried O (muck) horizon was observed at approximately 12-inches indicating fill was deposited above the native hydric soil. There is a direct hydrologic connection existing between Abbey Brook and the wetland system at the groundwater level. Dominant vegetation observed includes Silky Dogwood (*Cornus amomum*), Black Elderberry (*Sambucus nigra*), Red Fescue (*Festuca rubra*), American bur-reed (*Sparganium americanum*), and Jewelweed (*Impatiens capensis*). The primary functions and values of this areas include floodflow alteration and sediment/shoreline stabilization.

The wetland area southwest of the bridge is a Palustrine Scrub-Shrub (PSS) wetland which becomes more emergent in character at the bank. There is a greater presence of mucky material above a mineral layer due to organic deposits and low flow throughout the wetland area. There is a small stepped bank, approximately 4-6-inches, in the southern portion and an abrupt bank closer to the bridge. The western edge of the wetland abruptly ends at a steep rise in elevation to the adjacent residential property. Some evidence of historic residential waste (debris) was observed within the wetland. Soils in this wetland are best described as Scarboro Muck. Dominant Vegetation observed includes Red Maple (*Acer rubrum*), Silky Dogwood, Speckled Alder (*Alnus incana*), Jewelweed, and Broad-leaf Cattail (*Typha latifolia*). Principal functions and values of this wetland area are floodflow alteration and sediment/shoreline stabilization.

Wetland Areas North of Bridge 06141

The wetland area northwest of the bridge is a PEM wetland in a small depression adjacent to Abbey Brook on the northwest bank of Bridge 06141. Soils within this wetland are hydrologically connected to the water table and are therefore saturated long enough to exhibit hydric soil indicators. Dominant vegetation observed includes Red Maple, American Elm (*Ulmus americana*), Black Elderberry, Reed-canary Grass (*Phalaris arundinacea*), and Jewelweed. The principal functions and values are floodflow alteration and sediment/shoreline stabilization.

The wetland area northeast of the bridge is a Palustrine Forested wetland (PFO). This flat low-lying wetland functions as a potential flood storage area. Minimal herbaceous vegetation was observed. Mucky soils were encountered down to groundwater confirming NRCS designation of Scarboro Muck soils. The eastern limit of the wetland has an abrupt rise in elevation and a change in soil type to a Sudbury fine sandy loam partially disturbed by adjacent residential development. Additionally, adjacent to the northeast bridge abutment udorthents are present from recent excavation associated with the adjacent residential building. Dominant vegetation observed includes Red Maple, American Elm, Silky Dogwood, Northern Spicebush (*Lindera benzoin*), Multiflora Rose (*Rosa multiflora*), Skunk Cabbage (*Symplocarpus foetidus*), and Jewelweed. Principal functions and values of this area are floodflow alteration and sediment/shoreline stabilization.

Dominant upland vegetation observed in the project area includes Black Walnut (*Juglans nigra*), Black Cherry (*Prunus serotina*), Red Mulberry (*Morus rubra*), Autumn Olive (*Elaeagnus umbellata*), Black Berry (*Rubus allegheniensis*), Winged Euronimus (*Euonymus alatus*), Goldenrod Sp. (*Solidago* sp.), Oriental Bittersweet (*Celastrus orbiculatus*), and Japanese Honeysuckle (*Lonicera japonica*).

5. NRCS MAPPED SOILS

Natural Resources Conservation Service (NRCS) soils classifications on the project site are depicted in **Figure 3 – NRCS Soils**. Only those found on the project site are described below.

Scarboro Muck

The Scarboro series consists of very deep, very poorly drained soils in sandy glaciofluvial deposits on outwash plains, deltas, and terraces. They are nearly level soils in depressions. Slope ranges from 0 through 3 percent. Taxonomic classification is Sandy, mixed, mesic Histic Humaquepts.

Sudbury Sandy Loam

The Sudbury series consists of very deep, moderately well and somewhat poorly drained soils on outwash plains. They are nearly level through strongly sloping soils in slight depressions and on terraces and foot slopes in areas of outwash or glaciofluvial deposits. The soils formed in water sorted sandy and gravelly glaciofluvial materials derived mainly from granite, gneiss, and schist. The potential for surface runoff is low to very high. The internal drainage is restricted by a seasonal highwater table.

Udorthents

Udorthents consist of earthy materials that have been shaped or otherwise disturbed by humans. Slopes range from 0 to 25 percent. Onsite investigations are required for interpretations.



6. SUMMARY

FHI delineated wetland resources within the study area in accordance with both federal and state definitions and guidelines. The major resource in the project area is Abbey Brook and the associated wetland system. Four wetland areas, all part of the same overall wetland system, on either side of Abbey Brook were delineated adjacent to the Bridge No. 06141 upstream and downstream. The lands under and surrounding Bridge No. 06141 have previously been disturbed by human activity; however, the delineated wetlands still provide functions and values.

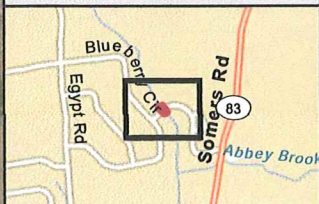
A Wetland Determination (Transect) Form is attached in Appendix A. A Wetland Function and Value Form is attached in Appendix B, and wetland photographs are attached to this report in Appendix C.

**Strawberry Road over
Abbey Brook
Bridge No. 06141
State Project No. 47-120
Ellington, CT
Figure 3
NRCS Soils Map**

Legend

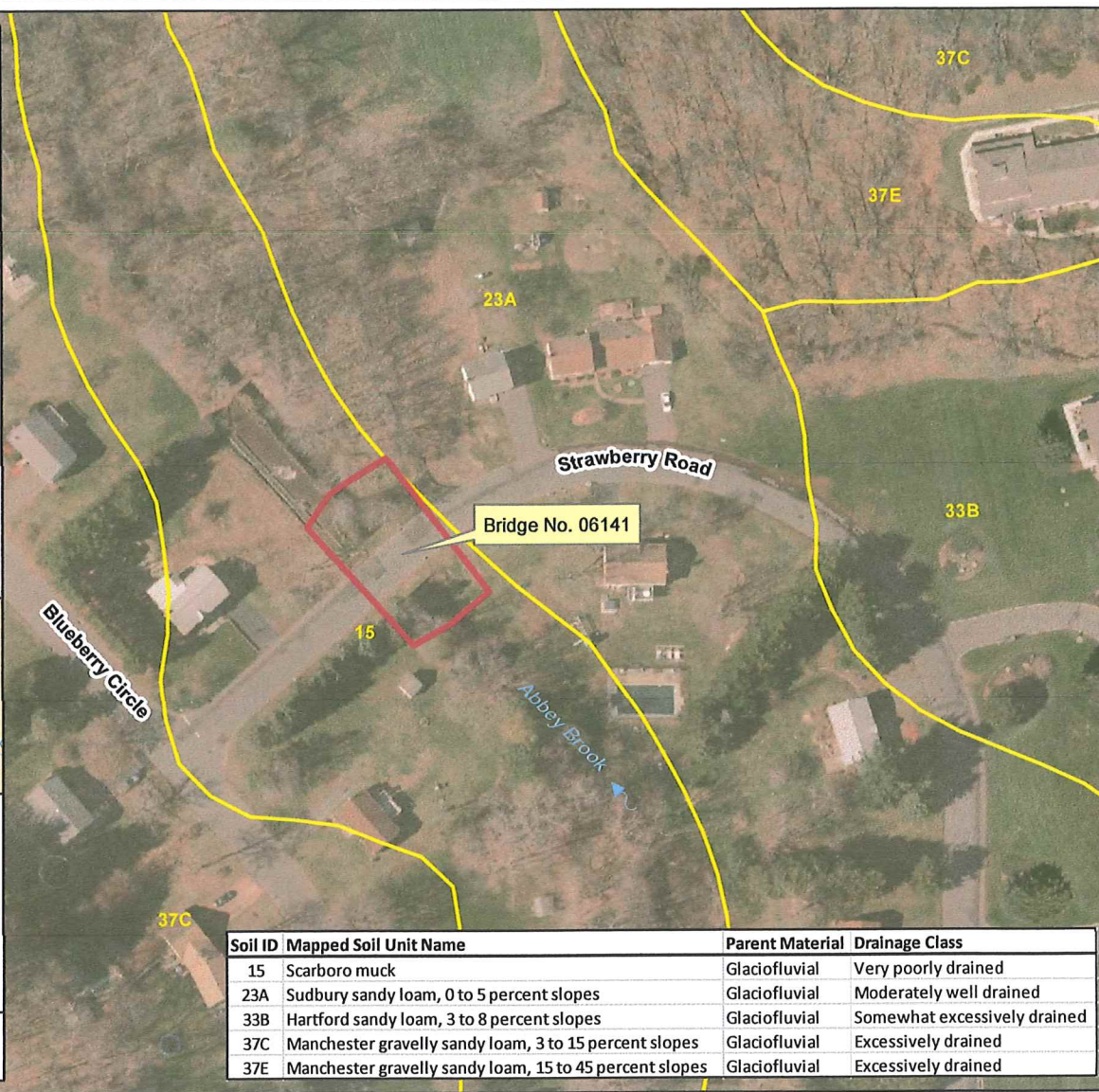
-  Approximate Limits of Investigation
-  NRCS Mapped Soil Unit

NOTE:
Data Source - NRCS Soils 2020



0 25 50 75 100
Feet

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Soil ID	Mapped Soil Unit Name	Parent Material	Drainage Class
15	Scarboro muck	Glaciofluvial	Very poorly drained
23A	Sudbury sandy loam, 0 to 5 percent slopes	Glaciofluvial	Moderately well drained
33B	Hartford sandy loam, 3 to 8 percent slopes	Glaciofluvial	Somewhat excessively drained
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	Glaciofluvial	Excessively drained
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	Glaciofluvial	Excessively drained

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- USDA. NRCS. 2018. *Field Indicators of Hydric Soils in the United States, Version 8.2, 2018*.
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APPENDIX A: USACE WETLAND DETERMINATION FORMS (TRANSECTS)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT Bridge No. 06141 - Ellington City/County: Ellington/Tolland Sampling Date: 10/23/2019
 Applicant/Owner: CTDOT State: CT Sampling Point: D-WET
 Investigator(s): Daniel Hageman, Josh Weiss Section, Township, Range: _____
 Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR or MLRA): LRR R, MLRA 145 Lat: 41°56'52.90" Long: 72°27'09.78" Datum: WGS84
 Soil Map Unit Name: Scarboro Muck NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Wetland D (Northwest Corner)</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) Abbey Brook has been modified by human activity		

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>8"</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0"</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION – Use scientific names of plants.

 Sampling Point: D-WET

Tree Stratum (Plot size: <u>30'x30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	90	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	90	=Total Cover		Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>20</u></td> <td>x 1 = <u>20</u></td> </tr> <tr> <td>FACW species <u>60</u></td> <td>x 2 = <u>120</u></td> </tr> <tr> <td>FAC species <u>90</u></td> <td>x 3 = <u>270</u></td> </tr> <tr> <td>FACU species <u>15</u></td> <td>x 4 = <u>60</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>185</u> (A)</td> <td><u>470</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.54</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>20</u>	x 1 = <u>20</u>	FACW species <u>60</u>	x 2 = <u>120</u>	FAC species <u>90</u>	x 3 = <u>270</u>	FACU species <u>15</u>	x 4 = <u>60</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>185</u> (A)	<u>470</u> (B)	Prevalence Index = B/A = <u>2.54</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>20</u>	x 1 = <u>20</u>																			
FACW species <u>60</u>	x 2 = <u>120</u>																			
FAC species <u>90</u>	x 3 = <u>270</u>																			
FACU species <u>15</u>	x 4 = <u>60</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>185</u> (A)	<u>470</u> (B)																			
Prevalence Index = B/A = <u>2.54</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'x15'</u>)																				
1. <u>Alnus incana</u>	15	Yes	FACW																	
2. <u>Rosa multiflora</u>	15	Yes	FACU																	
3. <u>Sambucus nigra</u>	5	No	FACW																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	35	=Total Cover																		
Herb Stratum (Plot size: <u>5'x5'</u>)																				
1. <u>Impatiens capensis</u>	40	Yes	FACW	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Symplocarpus foetidus</u>	20	Yes	OBL																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	60	=Total Cover																		
Woody Vine Stratum (Plot size: _____)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
		=Total Cover																		

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D-WET

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT Bridge No. 06141- Ellington City/County: Ellington/Tolland Sampling Date: 10/23/2019
 Applicant/Owner: CTDOT State: CT Sampling Point: D-Up
 Investigator(s): Daniel Hageman, Josh Weiss Section, Township, Range: _____
 Landform (hillside, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): _____
 Subregion (LRR or MLRA): LRR R, MLRA 145 Lat: 41°56'52.66" Long: 72°27'09.39" Datum: WGS84
 Soil Map Unit Name: Sudbury Fine Sandy Loam NWI classification: NA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.) Area disturbed by bridge construction and residential development		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION – Use scientific names of plants.

 Sampling Point: D-Up

Tree Stratum (Plot size: <u>30'x30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Morus rubra</u>	15	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	15	=Total Cover		Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>85</u></td> <td>x 4 = <u>340</u></td> </tr> <tr> <td>UPL species <u>25</u></td> <td>x 5 = <u>125</u></td> </tr> <tr> <td>Column Totals: <u>110</u> (A)</td> <td><u>465</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.23</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>85</u>	x 4 = <u>340</u>	UPL species <u>25</u>	x 5 = <u>125</u>	Column Totals: <u>110</u> (A)	<u>465</u> (B)	Prevalence Index = B/A = <u>4.23</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>85</u>	x 4 = <u>340</u>																			
UPL species <u>25</u>	x 5 = <u>125</u>																			
Column Totals: <u>110</u> (A)	<u>465</u> (B)																			
Prevalence Index = B/A = <u>4.23</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'x15'</u>)																				
1. <u>Forsythia ovata</u>	10	Yes	UPL																	
2. <u>Euonymus alatus</u>	15	Yes	UPL																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	25	=Total Cover																		
Herb Stratum (Plot size: <u>5'x5'</u>)																				
1. <u>Festuca rubra</u>	70	Yes	FACU	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	70	=Total Cover																		
Woody Vine Stratum (Plot size: _____)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
		=Total Cover																		

Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point: D-Up

Sampling Point: D-Up

Northcentral and Northeast Region – Version 2.0

APPENDIX B: WETLAND FUNCTION-VALUE FORMS

Wetland Function-Value Evaluation Form

Total area of wetland NA Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Residential and Transportation Distance to nearest roadway or other development ~20'

Dominant wetland systems present PEM/PSS/PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland System 1













Latitude _____ Longitude _____

Prepared by: JW Date 10/23/2019

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y _____ N X

Function/Value	Suitability Y N		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	<input type="radio"/>	<input checked="" type="radio"/>	1, 7, 12		groundwater discharge from adjacent uplands into Abbey Brook
 Floodflow Alteration	<input checked="" type="radio"/>	<input type="radio"/>	2,5,8,10,13,16	X	Abbey Brook likely backs up at bridge into wetland during storms
 Fish and Shellfish Habitat	<input checked="" type="radio"/>	<input type="radio"/>	4,7,10,14,16,17		Fish habitat present, shallow water depth
 Sediment/Toxicant Retention	<input checked="" type="radio"/>	<input type="radio"/>	1,3,4,8,10		organic soils have strong potential for retention
 Nutrient Removal	<input checked="" type="radio"/>	<input type="radio"/>	2,3,5,7,9		organic soils have strong potential for retention
 Production Export	<input type="radio"/>	<input checked="" type="radio"/>			few producing plants observed
 Sediment/Shoreline Stabilization	<input checked="" type="radio"/>	<input type="radio"/>	3,5,9,15	X	banks very diffuse
 Wildlife Habitat	<input checked="" type="radio"/>	<input type="radio"/>	2		limited size of wetland for habitat
 Recreation	<input checked="" type="radio"/>	<input type="radio"/>	6		private property, potential fishing
 Educational/Scientific Value	<input type="radio"/>	<input checked="" type="radio"/>			None
 Uniqueness/Heritage	<input checked="" type="radio"/>	<input type="radio"/>	2		Private Property
 Visual Quality/Aesthetics	<input checked="" type="radio"/>	<input type="radio"/>	9		Private Property
ES Endangered Species Habitat	<input checked="" type="radio"/>	<input type="radio"/>			unknown
Other	<input checked="" type="radio"/>	<input type="radio"/>			

* Refer to backup list of numbered considerations.

Notes:

APPENDIX C: REPRESENTATIVE PHOTOGRAPHS



Photo 1 – Facing north toward Bridge No. 06141



Photo 2 - Facing west from the south side of Bridge No. 06141



Photo 3 - Facing northwest from the north side of Bridge No. 06141



Photo 4 - Facing north from the northeast side of Bridge No. 06141



Photo 5 – Abbey Brook facing northwest from the north side of Bridge No. 06141



Photo 6 – Abbey Brook facing southeast from the south side of Bridge No. 06141

ROADWAY DRAINAGE REPORT

Connecticut Department of Transportation

Bridge No.06141
Strawberry Road over Abbey Brook

Town of Ellington
Tolland County, Connecticut

February 2022

Prepared for:
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131-7546

Prepared by:
CDR Maguire, Inc.
178 Thorn Hill Road, Suite 200
Warrendale, PA, 15086

CDR|MAGUIRE

Table of Contents

<u>SECTION.....</u>	<u>PAGE</u>
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2. Project Description	1
3. Existing Drainage Conditions	1
4. Proposed Drainage Conditions	2
5. Hydrology and Methodology	2
A. Rational Equation.....	2
6. Hydraulic Design.....	2
A. Inlets.....	3
B. Drainage Pipes	3
C. Outlet Protection	3
7. Conclusion	3

Appendices

- A. Project Location Map
- B. Roadway Plan Sheets
- C. Drainage Calculations
- D. Reference

1. INTRODUCTION

This Roadway Drainage Report was developed for the Connecticut Department of Transportation, for the Replacement of Bridge No. 06141 carrying Strawberry Road over Abbey Brook in the Town of Ellington, Tolland County, CT.

The purpose of the project is the replacing an existing bridge over Abbey Brook with a new single span structure consisting of a precast concrete three-sided rigid frame supported by cast-in-place reinforced concrete pile caps founded on micropiles.

A project location map and Aerial view are in Appendix A.

2. PROJECT DESCRIPTION

The project is the replacement of Bridge No. 06141 and the roadway approaches. Bridge No. 06141 is a single span structure carrying Strawberry Road over Abbey Brook. It is located approximately 0.3 miles West of Route 83 in the town of Ellington. The bridge runs roughly east to west. The existing drainage system and outlet within the project limits will be relocated to accommodate the new low point in the roadway.

3. EXISTING DRAINAGE CONDITIONS

The project area is comprised of woods, brush, grass, roadways, and residential areas. The overall topography consists of rolling and mountainous terrain. There are no sidewalks, pedestrian/bicycle lanes or other unique features within the project area. However, there is BCLC on both sides of the roadway.

The receiving stream for all runoff in the project area is the Abbey Brook.

The existing roadway in general consists of two-15'-0" travel lanes, and the existing structure, which is a triple-cell culvert corrugated steel arch culvert with reinforced concrete end walls.

On the north side of the bridge at about Sta 12+27 LT&RT, there are existing catch basins and 15-inch RCP crossing at the low point of Strawberry Road that collects water and discharges to Abbey Brook. Two additional catch basins located just north of the project limits connect to the catch basin at Sta 12+27 LT.

4. PROPOSED DRAINAGE CONDITIONS

On the north side of the bridge, the existing inlets and 15-inch RCP at the low point at Sta 12+27, and a crossing will be removed and replaced with a system of catch basins, manholes and RCPs at the north side of the bridge that will discharge to the Abbey Brook west of Wingwall 2A.

The drainage system consists of two catch basins and two manholes at approximate Station 12+60. The catch basins and manholes are connected by proposed 15-inch RCP pipes in the east-west direction that wrap around Wingwall 2A to discharge to Abbey Brook at a location west of the wingwall 2A.

The roadway plans showing the existing and proposed drainage can be reviewed in Appendix B.

5. HYDROLOGY AND METHODOLOGY

The project has been designed to meet the requirements of the ConnDOT Drainage Manual

A. Rational Equation.

Peak runoff discharges for the roadway drainage systems were calculated using the Rational Method since all the contributing areas are well under the 200-ac maximum limit allowed for this method. Contributing areas were delineated and measured in CAD utilizing the site survey file and supplemented with LIDAR data and field views.

Runoff Factors for the Rational Equation was chosen from ConnDOT Drainage Manual, Table 6-5 for the areas. Based on field views of the various areas, the following values were used.

Surface		Runoff Coefficient
Street	Asphalt	0.70-0.95
	Concrete	0.80-0.95
Drives and Walks		0.75-0.85
Roofs		0.75-0.95

6. HYDRAULIC DESIGN

Preliminary engineering indicated that the existing system captures and conveys stormwater runoff from the roadway and adjacent residential and wooded properties to Abby Brook. The pipe and inlet system in the project area is replaced to accommodate the new roadway low point and improve existing conditions. The inlet capacities, pipes size, and shoulder drainage spreads were calculated using the Bentley "StormCAD" program.

For inlet design, including spread calculations, refer to Appendix C.

A. INLETS

Inlet spacing was determined by the allowable design spread from the manual based on the details for each section. For checking the spread and doing the gutter flow analysis the excel sheet has been provided based on the calculations on ConnDOT Drainage Manual. Inlet spreads are calculated at each inlet and any flows that bypass each are accounted for at the next downstream structure.

Storm event intensities were taken from NOAA Atlas 14 which is included in the references. Storm intensities are based on the time of concentration and for this project the minimum time of concentration for paved areas is 5 minutes and 10 minutes for grassed areas. The storm frequency and allowable spread were taken from Drainage Manual, table 11-2. For Town Roads design frequency was 10-year for sag condition and the ADT for this project is 103 (2018 estimated ADT). Based on table 11-2, the allowable spread for this project is 9.5.

For inlet design, including spread calculations, refer to Appendix C.

For design references, refer to Appendix D.

B. DRAINAGE PIPES

Replacement of the pipe system in the project area were designed to provide capacity and allow the system to operate properly in the future.

For inlet design, including spread calculations, refer to Appendix C.

C. OUTLET PROTECTION

A Type A Rip Rap Apron was selected for the outlet of the proposed drainage system at the endwall to the stream. This is appropriate design for the velocity from the outlet pipe calculated in previous sections of the report. Utilizing Connecticut DOT design guidance an apron was sized appropriately for the flow conditions.

For full outlet apron design, refer to Appendix C.

7. CONCLUSION

The proposed drainage system in the project site is designed and sized to accommodate stormwater in the future.



STATE OF CONNECTICUT – COUNTY OF TOLLAND
INCORPORATED 1786

TOWN OF ELLINGTON

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TEL. (860) 870-3120

TOWN PLANNER'S OFFICE

FAX (860) 870-3122

INLAND WETLANDS AGENCY REGULAR MEETING MINUTES MONDAY, MARCH 14, 2022, 7:00 P.M.

IN PERSON ATTENDANCE: TOWN HALL ANNEX, 57 MAIN STREET, ELLINGTON, CT
REMOTE ATTENDANCE: ZOOM MEETING
(ATTENDEES BELOW WERE IN PERSON UNLESS OTHERWISE NOTED)

PRESENT: Chairman Ken Braga, Vice Chairman Ron Brown (remote, left 7:25pm), Regular members Art Aube (remote), Jean Burns (remote), Hocine Baouche (arrived 7:03pm), and Steve Hoffman

ABSENT: Regular member Katherine Heminway

STAFF

PRESENT: John Colonese, Assistant Town Planner/Wetland Enforcement Officer and Barbra Galovich, Land Use Assistant/Recording Clerk

I. CALL TO ORDER: Chairman Ken Braga called the Ellington Inland Wetlands Agency meeting to order at 7:00 pm.

II. PUBLIC COMMENTS (on non-agenda items): **None**

III. PUBLIC HEARING(S):

1. IW202201 – Minor LLC, owner/applicant, request for a wetlands map amendment at 50 East Shore Road, APN 169-045-0000.

Time: 7:02 pm

Seated: Braga, Brown, Aube, Burns, Baouche and Hoffman

Chairman Braga noted the notice requirements have been met and the property received acceptance for a Timber Harvest last year on March 8, 2021 from the Wetlands Agency. They are currently proposing to build a single family home and associated site improvements however the existing town wetlands map does not correspond with the onsite delineation by Joseph Theroux, Certified Soil Scientist.

Andrew LaRoche, 80 Chaffee Road, Stafford Springs, CT was present to represent the application.

Mr. LaRoche said he is looking to file the correct wetlands delineation map. He asked how the town got the wetlands limits. Mr. Colonese stated the wetlands limits are from a soil survey created in the 1960's. Commissioner Hoffman asked if the property survey was recent. Mr. LaRoche explained the property survey was taken from a subdivision back in 1985, and the wetlands delineation letter from Joseph Theroux is dated March 23, 2021.

Commissioner Hoffman asked about the soil test pit data and North Central District Health Department approval. Mr. LaRoche stated the health department approved the septic system. Commissioner Hoffman noted the health department would not have approved a system if it was in the wetlands.

Walter Moody, 32 East Shore Road, inquired about a potential intermittent watercourse on the property as noted in Joseph Theroux's report. Mr. Colonese read a portion of Joseph Theroux's report, "It should be noted that a potential intermittent watercourse was investigated adjacent to the northern property line, originating from the trench and storm water drainage system associated with Minor Road, extending down slope. A defined flow channel has formed from this storm water runoff. This is due to the impermeable subsoil horizons and/or compact till layers preventing infiltration of these storm water surface flows. Referencing the definition of "watercourses" in Sec.22a-38 of the Inland Wetlands and Watercourses Act, where the surface flows occur, there is evidence of a defined channel and bank, and evidence of scour/deposits of recent alluvium or detritus. However, there was no standing or flowing water present for a duration longer than a particular storm incident, nor was any evidence of hydrophytic vegetation found in the flow channel."

Ronald Campbell, 26 East Shore Road, asked if there would be any activity in the swale area, he is concerned about runoff from the property. It was noted that Joseph Theroux does not consider the swale an intermittent watercourse. Mr. LaRoche stated there is no proposed activity in that specific area at this time.

MOVED (BURNS) SECONDED (BAOUCHE) AND PASSED UNANIMOUSLY TO CLOSE THE PUBLIC HEARING FOR IW202201.

MOVED (HOFFMAN) SECONDED (BAOUCHE) AND PASSED UNANIMOUSLY TO APPROVE IW202201 – Minor LLC, owner/applicant, a wetlands map amendment at 50 East Shore Road, APN 169-045-0000. Map Amendment Effective: March 16, 2022

Approval based on:

- 1) Improvement Location Survey Land of Minor, LLC Ellington, Connecticut Gardner & Peterson Associates, LLC Date 11-01-2021 Revisions 01/20/2022 Town Wetlands, Map No. 10949-1.**
- 2) Letter from Joseph Theroux, Soil Scientist dated 03/23/2021 RE: Wetlands Delineation, 50 East Shore Road, Ellington, CT.**

IV. OLD BUSINESS: None

V. NEW BUSINESS:

1. IW202202 – Glenn & Erika Bahler, owner/applicant, request to accept notification for construction of a barn and reconstruction of a farm pond dam as of right at 48 Meadow Brook Road, APN 091-002-0000.

Chairman Braga noted the property received a wetlands permit on September 15, 2008 for a 4-lot subdivision at which time a conservation easement was set over the area including the pond and proposed reconstruction of the dam. No lots in the subdivision have been developed.

Rachel Dearborn, Landmark Surveys, 62 Lower Butcher Road, was present to represent the request on behalf of Glenn and Erika Bahler.

Ms. Dearborn confirmed the land is part of a subdivision from years ago and nothing has been constructed. She explained the Bahler's are looking to take down an old barn foundation and construct a new barn, which will be further away from the wetlands. She then pointed out the location of the pond and brook and noted there is a natural spring which feeds them. She also reviewed where the conservation easement area is located. She said they would like to reconstruct the dam within the brook in order to bring up the water level of the farm pond.

Mr. Colonese asked Glenn Bahler if he is planning on doing any tree clearing down the stream. Mr. Bahler stated he does not plan to do so at this time.

MOVED (BURNS) SECONDED (AUBE) AND PASSED UNANIMOUSLY TO ACCEPT IW202202 – Glenn & Erika Bahler, owner/applicant, for construction of a barn and reconstruction of a farm pond dam as of right at 48 Meadow Brook Road, APN 091-002-0000.

2. Strawberry Road Bridge/Culvert Replacement

BY CONSENSUS, THE AGENCY ADDED TO THE AGENDA, RECEIVED, AND SET A PUBLIC HEARING FOR THE APRIL 11, 2022 REGULAR MEETING – Town of Ellington, owner/applicant, request for a permit to conduct regulated activity for the replacement of the Strawberry Road bridge/culvert over Abbey Brook near the intersection with Blueberry Circle.

3. Juliano's Pools – 100 Windermere Avenue

MOVED (BAOUCHE) SECONDED (AUBE) AND PASSED UNANIMOUSLY TO ADD TO THE AGENDA, RECEIVE, AND SET A PUBLIC HEARING FOR THE APRIL 11, 2022 REGULAR MEETING – Juliano Family One LLC, owner/Brian Juliano, applicant, request for modification to Wetlands Permit IW202110 to construct a detention basin and storage area at 100 Windermere Ave., APN 018-021-0000.

VI. ADMINISTRATIVE BUSINESS:

1. Approval of the February 14, 2022 Special Meeting Minutes.

MOVED (BURNS) SECONDED (BAOUCHE) AND PASSED UNANIMOUSLY TO APPROVE THE FEBRUARY 14, 2022 SPECIAL MEETING MINUTES AS WRITTEN.

2. Election of Officers

Chairman Braga asked the agency members to consider tabling the election of officers to next month. He stated he will be stepping down as chairman but will continue to be a regular member.

BY CONSENSUS, THE AGENCY TABLED ELECTION OF OFFICERS TO THE APRIL 11, 2022 REGULAR MEETING.

3. Correspondence/Discussion:

Letter from R. Richard Snarski, Registered Professional Soil Scientist, offering wetland consulting services to the Agency.

Mr. Colonese stated he received a letter from Mr. Snarski, New England Environmental Services, offering his professional services, such as soil scientist, wetland scientist and botanist consulting services, should the agency need additional professional consulting.

VI. ADJOURNMENT:

MOVED (HOFFMAN) SECONDED (BURNS) AND PASSED UNANIMOUSLY TO ADJOURN THE MARCH 14, 2022 REGULAR MEETING OF THE INLAND WETLANDS AGENCY AT 7:32 PM.

Respectfully submitted,

Barbra Galovich, Recording Clerk