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ECOLOGICAL RISK ASSESSMENT WORK PLAN



November 2019

Eversource Energy Services Company

27 Parsons Lane
Durham, Connecticut
Eversource Spill Number CWC-18-00543



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1.0 INTRODUCTION AND BACKGROUND

Weston & Sampson, Inc. (Weston and Sampson) has prepared this Ecological Risk Assessment (ERA) Work Plan (Plan) on behalf of The Connecticut Light and Power Company (CL&P) doing business as (dba) Eversource Energy Services Company (Eversource), as part of an ongoing investigation to obtain additional data to support an ERA and define the nature and extent of polychlorinated biphenyl (PCB) impacts to an unnamed intermittent stream associated with a release of mineral oil dielectric fluid (MODF) at 27 Parsons Lane in Durham, Connecticut (See Figure 1 - Site Locus Map). Results of initial sediment and surface water sampling has identified PCB impacts to stream sediment caused by the release.

The development of this Plan was a collaborative effort between Weston & Sampson and its subcontracted ecological risk expert Anchor QEA (Anchor). The purpose of the Plan is to outline the proposed activities to be conducted to further evaluate sediment and surface water quality along the length of the intermittent stream extending from the spill site (27 Parsons Lane) to the interception with the Coginchaug River. The objectives of the Plan are to: 1) provide additional data to assess risk to the ecological receptors including additional data specifically obtained with lower detection limits for surface water, 2) provide assessment of potential impacts to aquatic resources associated with the Coginchaug River (not previously evaluated), and 3) further define the horizontal and vertical extent of PCBs within sediment. This Plan summarizes proposed sampling locations, sampling methods, and sampling approach. When the Plan is implemented, Weston & Sampson will perform the field sampling and Anchor QEA will provide field oversight and data interpretation. A table summarizing the project team and roles is included in Table 1.

The unnamed, northeast to southwest trending stream extends approximately 2,600 feet from the western property boundary of the spill Site to the Coginchaug River. The unnamed stream traverses through three or four residential properties before discharging to the Coginchaug River. An aerial view of the Site, neighboring parcels, unnamed stream and Coginchaug River is presented in Figure 2.

2.0 SAMPLING METHODS

A summary of proposed sediment and surface water sampling methods to be completed along the unnamed stream and the Coginchaug River is provided below. A summary of sample identifications (IDs), objectives, sample media type and analysis are provided in Table 2. Previous and proposed sediment and surface water sampling locations are presented in Figures 3 through 6.

Surface Water
Weston & Sampson and Anchor propose collecting surface water samples at five locations, designated SW-1 to SW-5. In addition, Quality Assurance/Quality Control (QA/QC) samples will be collected and include a blind field duplicate and matrix spike/matrix spike duplicate sample. The following surface water sampling methods are proposed:

- Use a global positioning system (GPS) to identify and record sampling locations.
- Fasten a new, clean unpreserved laboratory container to an extendable pole. Immerse the container directly into the water column near the center of the water channel, taking care not let the container encounter sediment,
- Record the time of sample collection and physical characteristics of the stream or river at each sample location. Physical characteristics include channel width, approximate water depth, turbulent or laminar flow.
- Label each sample with an adhesive plastic or waterproof label. Record the following information on each label: 1) sample ID, 2) date and time of collection, 3) preservation type if applicable, and 4) analysis to be performed.
- Prepare a chain of custody (COC) to include the sample IDs, date, time, desired analysis and turnaround time.
- Place the sample containers in a cooler with ice prior to transport to the laboratory for analysis.

Sediment
Weston & Sampson and Anchor propose collecting sediment samples from 30 locations. These locations include 11 new single point sediment locations, designated SED-1 to SED-11, one sample location along previous Transect 4, designated Reoccupy T4-E and 18 sample locations along 6 new stream transects, designated Transects 4-1, 4-2, 5-1, 5-2, 6-1 and 7-1. Sediment samples will be collected from each new transect along the west (W), center (C) and east (E) sides. Two sample depths (0.0-0.5' and 0.5-1.0') will be collected from each sediment sampling location except for Reoccupy T4-E. Only the 0.5-1.0' sampling interval will be collected at this location for the purpose of resampling at this location and specific depth. The same QA/QC samples proposed for surface water will be collected for sediment. The following sediment sampling methods are proposed:

- Use a GPS to identify and record sampling locations.
- Push a new, dedicated 3-inch polycarbonate core tube into the sediment. A rubber mallet or small hammer may be used to drive the tube into the sediment. If possible, drive the tube in to the sediment approximately 18 inches to recover a minimum of 12 inches of sediment. If the top of the core tube is damaged during penetration, cut the top of the core tube off with a hacksaw to provide a smooth end, then cap, and pull the tube out of the sediment. Place a cap on the bottom of the tube before the bottom of the tube breaks the water surface. A similar procedure will be followed if another samples device is utilized.
- Decant the water above the sediment in the tube prior to processing. Lay the core down, remove the end caps, and extrude the top 0.5 feet of sediment into a new aluminum pan, photograph

and record the physical characteristics of the samples. Homogenize the sediment with a disposal tool and place in a laboratory container. Repeat the process for the 0.5-1.0' sampling interval. Return any unused sediment at the point of collection. Use a new pan and tool for each core.

- Record the time of sample collection, general penetration resistance (i.e. soft, hard bottom), penetration depth, length of recovered sediment and water depth at each location.
- Label each sample with an adhesive plastic or waterproof label. Record the following information on each label: 1) sample ID, 2) date and time of collection, 3) preservation type if applicable, and 4) analysis to be performed.
- Prepare a COC to include the sample IDs, date, time, and desired analysis and turnaround time.
- Place the sample containers in a cooler with ice prior to transport to the laboratory for analysis.

3.0 SAMPLING APPROACH AND DATA EVALUATION

Weston and Sampson and Anchor propose to collect samples from the downstream to upstream direction (beginning at the northernmost location in the Coginchaug River) to minimize downstream sediment sample fouling prior to collection. Surface water sampling should be conducted prior to sediment sample collection to minimize the potential for introducing PCBs to the water columns as a result of sediment resuspension. The surface water samples will be collected from the surface of the water column, near the center of the channel. As stated in the sampling method, the sample containers will be immersed directly into the water to minimize disturbance of sediment as much as possible. Surface water samples will be submitted for PCB analysis by EPA method 8082 and Total Organic Carbon (TOC) via EPA 9060. Sediment samples will be collected as instructed in Section 2.0 and all of the 0.0-0.5' samples plus the Reoccupy T4-E 0.5-1.0' sample will be submitted for PCB analysis by EPA method 8082 with 3540C Soxhlet extraction. Pending analytical results of the 0.0-0.5' sampling interval the deeper sampling interval 0.5-1.0' for select locations may be activated for analysis.

Upon receipt of the analytical results, Anchor will review and evaluate the data. Anchor will also tabulate and compare the results to ecological risk-based criteria. Results may be area weighted for the purposes of the ERA.

FIGURES



NOTE:

1. LOCUS MAP DERIVED FROM TOWN OF DURHAM GIS DATABASE.

FIGURE-1
DURHAM, CONNECTICUT
27 PARSONS LANE ER SPILL
SITE LOCUS MAP

0 100 200

N

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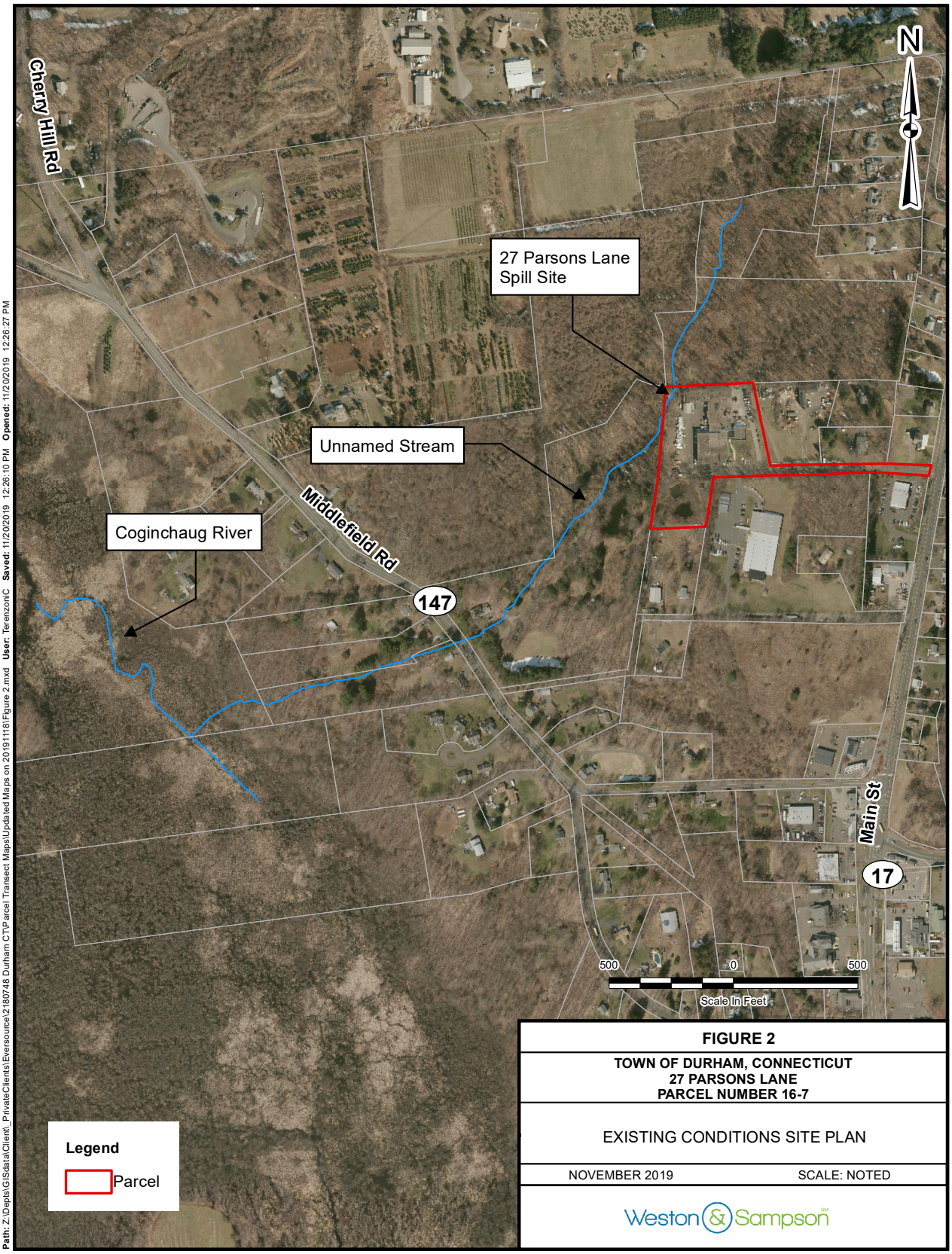

FIGURE 2

TOWN OF DURHAM, CONNECTICUT
27 PARSONS LANE
PARCEL NUMBER 16-7

EXISTING CONDITIONS SITE PLAN

NOVEMBER 2019 SCALE: NOTED

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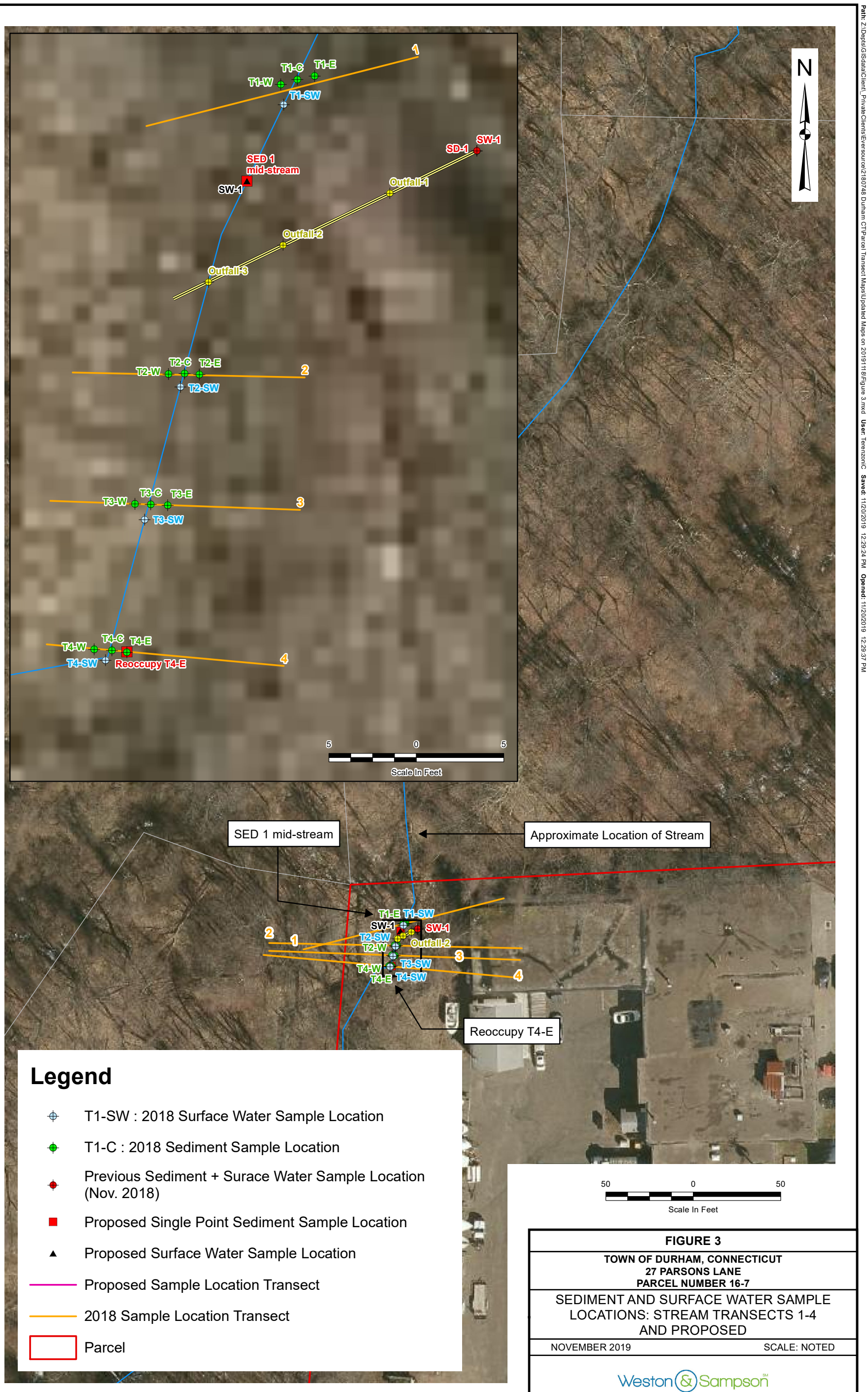

Legend

- T1-SW : 2018 Surface Water Sample Location
- T1-C : 2018 Sediment Sample Location
- Previous Sediment + Surace Water Sample Location (Nov. 2018)
- Proposed Single Point Sediment Sample Location
- Proposed Surface Water Sample Location
- Proposed Sample Location Transect
- 2018 Sample Location Transect
- Parcel

FIGURE 3

TOWN OF DURHAM, CONNECTICUT
27 PARSONS LANE
PARCEL NUMBER 16-7

SEDIMENT AND SURFACE WATER SAMPLE LOCATIONS: STREAM TRANSECTS 1-4 AND PROPOSED

NOVEMBER 2019 SCALE: NOTED

Weston & Sampson

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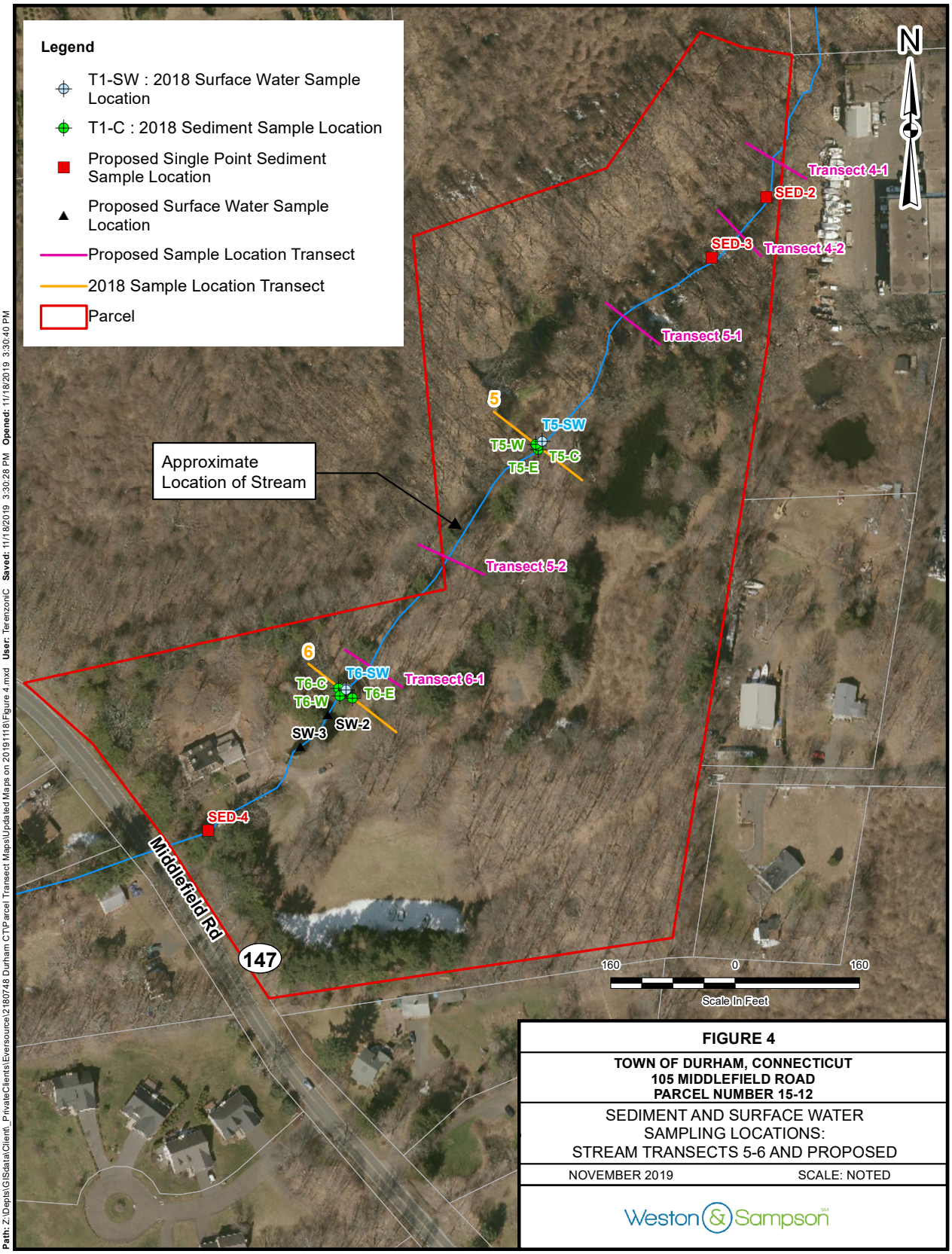
Legend
T1-SW : 2018 Surface Water Sample Location
T1-C : 2018 Sediment Sample Location
Proposed Single Point Sediment Sample Location
Proposed Surface Water Sample Location
Proposed Sample Location Transect
2018 Sample Location Transect
Parcel
N
Transect 4-1
SED-2
SED-3
Transect 4-2
Transect 5-1
5
T5-SW
T5-W
T5-C
T5-E
Approximate Location of Stream
Transect 5-2
6
T6-SW
Transect 6-1
T6-C
T6-W
T6-E
SW-2
SW-3
SED-4
Middlefield Rd
147
160
0
160
Scale In Feet
FIGURE 4
TOWN OF DURHAM, CONNECTICUT
105 MIDDLEFIELD ROAD
PARCEL NUMBER 15-12
SEDIMENT AND SURFACE WATER SAMPLING LOCATIONS:
STREAM TRANSECTS 5-6 AND PROPOSED
NOVEMBER 2019
SCALE: NOTED
Weston & Sampson
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Legend
T1-SW : 2018 Surface Water Sample Location
T1-C : 2018 Sediment Sample Location
Proposed Single Point Sediment Sample Location
Proposed Surface Water Sample Location
Proposed Sample Location Transect
2018 Sample Location Transect
Parcel
N
147
Middlefield Rd
7
8
Transect 7-1
T7-C
T7-SW
T7-W
T7-E
SED-5
T8-W
T8-C
T8-SW
T8-E
Approximate
Location of Stream
130
0
130
Scale In Feet
FIGURE 5
TOWN OF DURHAM, CONNECTICUT
94 MIDDLEFIELD ROAD
PARCEL NUMBER 15-3
SEDIMENT AND SURFACE WATER
SAMPLE LOCATIONS:
STREAM TRANSECTS 7-8 AND PROPOSED
NOVEMBER 2019
SCALE: NOTED
Weston & Sampson
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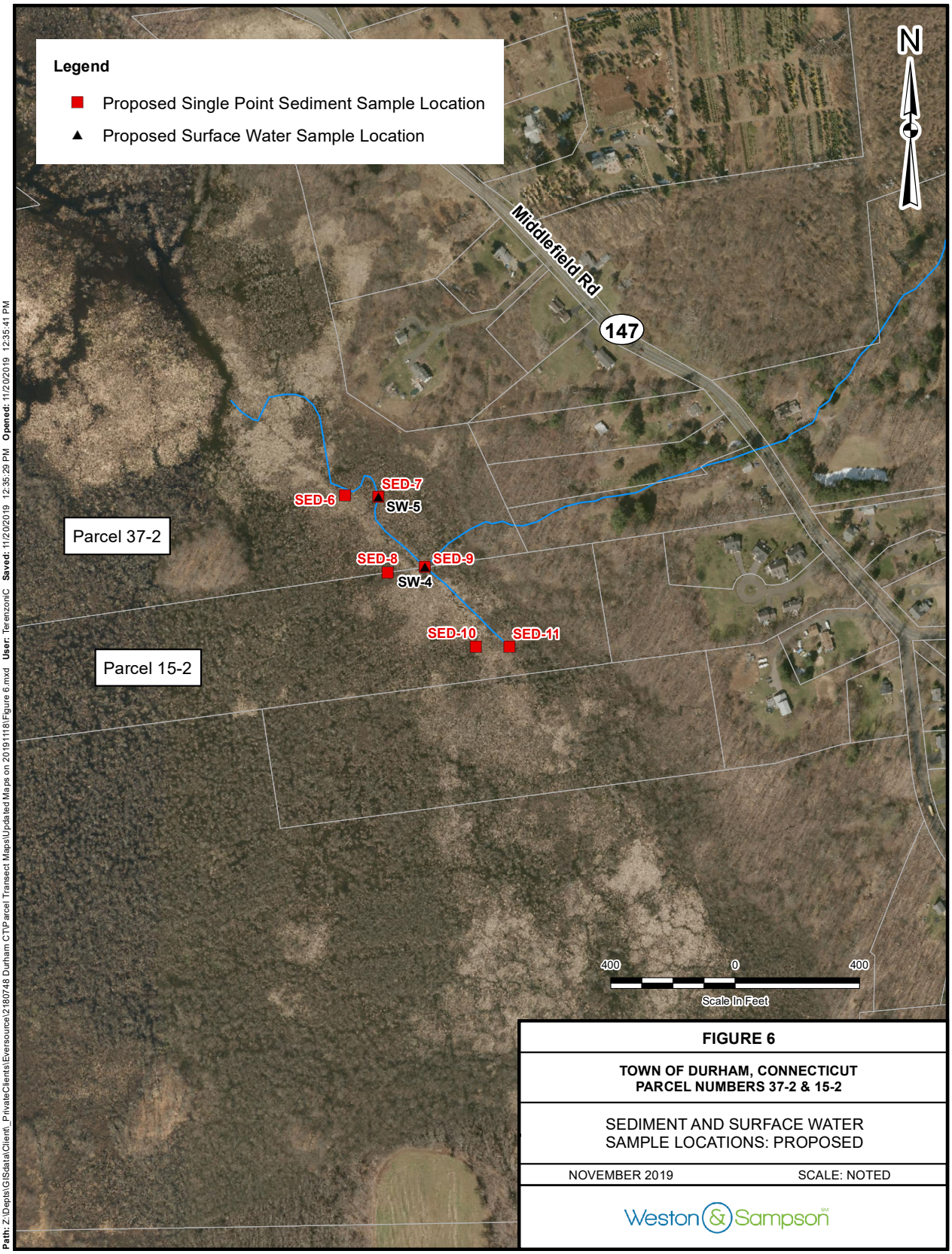
Legend
Proposed Single Point Sediment Sample Location
Proposed Surface Water Sample Location
N
Middlefield Rd
147
SED-6
SED-7
SW-5
SED-8
SED-9
SW-4
SED-10
SED-11
Parcel 37-2
Parcel 15-2
400
0
400
Scale In Feet
FIGURE 6
TOWN OF DURHAM, CONNECTICUT
PARCEL NUMBERS 37-2 & 15-2
SEDIMENT AND SURFACE WATER
SAMPLE LOCATIONS: PROPOSED
NOVEMBER 2019
SCALE: NOTED
Weston & Sampson
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TABLES

Table 1
Project Team
Ecological Risk Assessment Work Plan
27 Parsons Lane, Durham, CT

Project Team	Role	Contact Information
Weston & Sampson Engineers, Inc.	Sample Collection	Jeff Willson Team Leader direct: 860-616-6618 cell: 860-729-5492
Anchor QEA	Field Oversight, ERA Data Intepretation	Amy Nelson Project Manager direct: 978-378-6215

Table 2
Sampling Locations and Analyses
Ecological Risk Assessment Work Plan
27 Parsons Lane, Durham, CT

Sample ID	Objective	Sample Type	Analysis
Surface Water			
SW-1	Provide data to compare to CT aquatic life water quality guidelines	Water	PCBs by EPA Method 8082A (target RL = 0.014 µg/L); and TSS
SW-2			
SW-3			
SW-4			
SW-5			
Field Duplicate	QA/QC		
MS/MSD			PCBs by EPA Method 8082A
Rinse Blank		DI water	
Sediment			
Sediment Samples - Overall	0.0 to 0.05-ft. depth interval for all locations: Provide data to compare to risk-based screening values. 0.5 to 1.0-foot Depth Intervals at select locations as noted below: Provide data to refine nature and extent of contamination.		
SED-1	US of previous Transect T2	Single Point Sediment Sample	PCBs by EPA Method 8082A with Soxhlet Extraction by EPA Method 3540C (target RL = 0.0041 – 0.06 mg/kg); Total Organic Carbon (TOC) by EPA Method 9060
REOCCUPY T4-E	Re-sample Previous Transect T4-E; 0.5-1.0 ft.		
SED-2	Delineation of mid-stream DS of release; DS of proposed Transect 4-1 and US of proposed Transect 4-2		
SED-3	Delineation of mid-stream DS of release; DS of proposed Transect 4-2 and US of proposed Transect 5-1		
Transect 4-1	DS of previous Transect 4; at the bend of the stream	3 Point Sediment Samples at Transect (East-Center-West)	
Transect 4-2	DS of proposed Transect 4-1		
Transect 5-1	US of previous Transect 5		
Transect 5-2	DS of previous Transect 5		
Transect 6-1	US of previous Transect 6		
SED-4	US of Proposed Transect 7-1; East of Middlefield Road	Single Point Sediment Sample	
Transect 7-1	US of previous Transect 7	3 Point Sediment Samples at Transect (East-Center-West)	
SED-5	DS of previous Transect 7	Single Point Sediment Sample	
SED-6	DS of previous Transect 8 in the Coginchaug River (Characterize potential risk to ecological receptors)		
SED-7			
SED-8			
SED-9			
SED-10			
SED-11			
Field Duplicate	QA/QC	Sediment Sample	
MS/MSD			
Rinse Blank		DI water	PCBs by EPA Method 8082A

Notes:
1. Coordinate system: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001 (US Feet)
2. Quality Assurance/Quality Control Samples: A field duplicate and MS/MSD will be collected at a frequency of 1 per 20 samples for each media.

Abbreviations:
SW-1: Surface water sample ID
SED-1: Sediment sample ID
RL: Reporting Limit
ft: feet
mg/kg: milligrams per kilogram
µg/L: micro grams per liter
MS/MDS: matrix spike/matrix spike duplicate
DI: deionized water
DS: Down stream
US: Up stream
TOC: total organic carbon
TSS: total solids