



NOTICE OF INTENT AND WETLAND RESTORATION PLAN

Eastbound on Route 84
Sturbridge, Massachusetts
Release Tracking Number 2-20994

August 24, 2020

Prepared for:
United Parcel Service, Inc.

Prepared by:
Roux Associates, Inc.
12 Gill Street
Woburn, Massachusetts 01801

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1.0 INTRODUCTION

Roux Associates, Inc. (Roux), on behalf of United Parcel Service, Inc. (UPS), has prepared this Notice of Intent (NOI) and Wetland Restoration Work Plan for the Immediate Response Action (IRA) activities to be completed to remediate the release of an estimated 90 to 100 gallons of diesel fuel from a tractor trailer truck traveling Eastbound on Route 84 (I-84) in the vicinity of mile marker 2 (the Site). The release occurred the morning of August 27, 2019, after a UPS tractor trailer truck went off the western side of I-84 Eastbound, down an embankment, and into a wooded wetland area. The diesel fuel released into an area that includes a Bordering Vegetated Wetland (BVW). The release was assigned Release Tracking Number (RTN) 2-20994 by the Massachusetts Department of Environmental Protection (MassDEP). A Site Location Map and a Site Plan are provided as Figures 1 and 2, respectively. This NOI is intended to address a supplemental phase of soil removal and the restoration of the wetland area.

2.0 RELEASE HISTORY AND IRA ACTIVITIES

2.1 Description of Release

On August 27, 2019, an estimated 90 to 100 gallons of diesel fuel were released from a tractor trailer truck traveling Eastbound on Route 84 in the vicinity of mile marker 2 in Sturbridge, Massachusetts (Figure 2). Route 84 Eastbound is a heavily traveled 3-lane highway. A UPS tractor trailer containing diesel fuel went off the western side of Route 84. At the time of the release, this area (which includes a BVW) was heavily vegetated with trees, shrubs, and areas of heavy underbrush.

The MassDEP was notified of the release the morning of August 27, 2019, by the emergency responders. The MassDEP responded to the release on this day along with an on-call emergency response contractor, New England Disposal Technologies Inc. (NEDT), UPS, and Roux. As a result of the release, IRA activities, as required by the Massachusetts Contingency Plan (MCP - 310 CMR 40.0000), were initiated at the Site. The MassDEP verbally approved¹ IRA activities to include deployment of absorbent/containment materials (pads and booms), excavation and removal of up to 75 cubic yards of contaminated soil and recovery of diesel and contaminated surface water via vacuum skimming. MassDEP notified the Town of Sturbridge Conservation Commission (SCC) of the IRA activities, at which time the SCC approved the IRA activities and required that the vegetated wetland area be restored once soil removal activities are completed. The SCC emergency certification form for approval of IRA activities is included as Appendix A.

2.2 IRA Activities to Date

In accordance with the Massachusetts Wetlands Protection Act (WPA) Regulations [310 CMR 10.53(3)(q)], the remedial actions (as defined in 310 CMR 40.0006 and performed as part of the IRA) conducted at the Site constitute a “*Limited Project*” which per 310 CMR 10.53(3)(q)(1) and (2), include those projects that contain or mitigate releases of oil and/or hazardous material in accordance with the provisions of 310 CMR 40.0000 (the MCP) and that meet the following general conditions:

1. “*There are no practicable alternatives to the response action being proposed that are consistent with the provisions of 310 CMR 40.0000 and that would be less damaging to resource areas.*”
2. “*Such projects shall be designed, constructed, implemented, operated, and maintained to avoid, or where avoidance is not practicable, to minimize impacts to resource areas...*” and shall to the extent practicable meet the seven standards specified in the wetland regulations [310 CMR 10.53(3)(q) 2a-g].

The remedial actions conducted at the Site and approved by the MassDEP satisfy these conditions. The IRA activities constituted a localized alteration that will not result in a permanent loss of wetland resource areas. Pursuant to the Massachusetts WPA Regulations and the SCC Bylaws, a NOI form (WPA Form 3) is attached as Appendix B. As part of the public notice aspect of the NOI, abutters within 200 feet of the Site were notified of this NOI. A list of the abutting property owners is provided in Appendix C.

The IRA work performed to date consisted of the following activities:

- Deploy/maintain absorbent boom containment in the wetland;

¹ In October 2019, per request by the Licensed Site Professional (LSP) of record, the MassDEP verbally approved the removal of an additional 75 cubic yards of soil under the IRA, bringing the total approved volume for removal to 150 cubic yards.

- Replacement of absorbent boom containment on an as-needed basis;
- Vacuum recovery of approximately 3,000 gallons of oily water from the wetland;
- Excavation and disposal of approximately 97 tons of soils;
- Installation and maintenance of erosion controls (e.g. hay bales and silt fence);
- Site assessment activities:
 - Periodic Site reconnaissance visits to observe Site conditions;
 - Collection of soil and water samples for laboratory analyses;
- Wetland delineation and land survey; and
- Data review and coordination and planning for supplemental remediation (e.g. soil excavation). (Note: a summary of soil and water sample data was included in the IRA Plan and 120-day IRA Status report).

Additional details regarding these activities are available in previous reports by Roux, on behalf of UPS, and submitted to the MassDEP via eDEP. These salient points of the IRA activities are summarized below.

The objectives of the IRA activities were to abate and address the release of diesel fuel to the environment (i.e. wetland). Cleanup activities were initiated on August 27, 2019 under the direction of the MassDEP, Roux Associates, UPS, NEDT, and Clean Harbors, Inc. (Clean Harbors). Immediate actions consisted of spill containment using absorbents, vacuum recovery of approximately 3,000 gallons of oily liquid and non-aqueous phase liquid (NAPL)² skimmed from surface of the ponded water, excavation of 39 cubic yards of soil and the removal of trees and shrubs in order to access the truck for emergency removal. On August 28, Roux Associates, UPS personnel, and Clean Harbors returned to the Site to replace absorbent booms, install erosion controls, and collect initial soil and surface water samples for analytical testing.

In the months that followed the initial excavation, Roux Associates returned to the Site to periodically monitor Site conditions and perform boom maintenance. Based on the analytical results of the samples collected in August, supplemental excavation activities were conducted on October 23, 2019. Approximately 22 additional cubic yards of soil were removed from the Site and transported off-Site in roll-off containers. Roux Associates conducted another Site visit in November 2019 and noted that there was still some residual free product present at the bottom of the slope that became mobilized upon agitating the soil beneath the surface water. However, the absorbent booms have been effective at containing any sheens on the ponded surface water.

Additional Site inspections were performed in February, March, and July 2020. During the February inspection, Roux and Clean Harbors mobilized to the Site. Clean Harbors performed maintenance on the erosion controls and replaced the absorbent boom containment. There was no observance of sheen at the edge of the excavation or within the absorbent boom containment. During the March and July inspections, Roux observed that the erosion controls and absorbent boom containment were in good conditions. No

² NAPL is defined in the MCP at 310 CMR 40.0006 and means oil and/or hazardous material that is present in the environment as a separate phase liquid and is characterized by its specific gravity, as well as other physical and chemical properties. In this instance NAPL is synonymous to diesel fuel.

sheens were noted, and the Site was stable. Further, Roux made observations at the culvert outfall on the opposite side of the highway and no sheens were noted, consistent with prior observations.

On July 9, 2020, a Roux wetland specialist performed a delineation of the wetlands proximate to the affected release area to determine the boundary between wetlands and uplands at the Site. The wetlands were delineated using the multi-parameter approach outlined in the United States Army Corps of Engineers 1987 Wetland Delineation Manual, which is the method accepted by the MassDEP. Following delineation and flagging of the extents of the wetland, the boundaries were surveyed by a Massachusetts-licensed professional land surveyor. The surveyed extents of the wetland are shown on Figure 2.

As residual soil contamination is still present based on soil testing data, additional excavation is necessary to adequately remediate the Site to meet Permanent Closure requirements with respect to the MCP. Roux plans to perform additional excavation at the Site to remove additional soils containing residual diesel fuel impacts. The anticipated depth of excavation is approximately 1-foot, but the exact depth of excavation will be determined by field screening (e.g., soil headspace reading with a photoionization detector [PID]) and/or soil sampling for laboratory analysis. The overall footprint of the IRA activities, including the additional excavation for vertical delineation, is expected to be approximately 2,650 square feet, discussed in further detail in Section 4.

The approximate extent of soil excavation and the “limits of work,” or limits of disturbance, anticipated during the implementation of the Site IRA activities are shown on Figure 2. A description of the wetland vegetation and the surrounding area follows in Section 3. The proposed wetland restoration plan to mitigate vegetative disturbances is described in further detail in Section 4.

2.3 Wetland Protection and Erosion Control

As noted previously, a portion of the excavation area is located within a designated wetland resource area. In addition to the absorbent booms that were deployed in the wetland area, erosion control measures were implemented during IRA activities, including the following:

- Covering of affected buffer zone with polyethylene sheeting during excavation activities;
- Placement of hay bales at the entrance of affected buffer zone; and
- Installation of silt fence.

2.3.1 Performance Standards

In accordance with 310 CMR 10.24., the performance standards for a limited project should include the following:

1. Hydrological changes to resource areas shall be minimized;
 - Hydrology of the Site will be maintained. Fill, similar to fill present, will be used to establish pre-existing grade.
2. Best management practices shall be used to minimize adverse impacts during construction, including prevention of erosion and siltation of resource areas in accordance with standard USDA Soil Conservation Service methods;

- As detailed above, soil erosion controls were implemented to reduce erosion and siltation of resource areas. The Wetland Restoration Work Plan included in Section 4 describes the implementation of jute mats and native seed mixes to control erosion following final Site restoration.
3. Mitigating measures shall be implemented that contribute to the protection of the interests identified in MGL c 131 40;
 - The Site is being altered to address a diesel fuel release and repair and replace the affected wetland system to its pre-existing condition.
 4. No access road, assessment or monitoring device, or other structure of activity shall restrict flows so as to cause an increase in flood stage or velocity;
 - No structure or activity will be implemented that restricts the flow of water into or out of the Site.
 5. Temporary structures and work areas in resource areas, such as access roads and assessment and monitoring devices, shall be removed within 30 days of completion of the work. Temporary alterations to resource areas shall be substantially restored to preexisting hydrology and topography. At least 75% of the surface of any area of disturbed vegetation shall be reestablished with indigenous wetland plant species within two growing seasons and prior to said vegetative reestablishment any exposed soil in the area of disturbed vegetation shall be temporarily stabilized to prevent erosion in accordance with USDA Soil Conservation Service methods. Temporary structures, work areas, and alterations to resource areas are those that no longer are necessary to fulfill the requirements of 310 CMR 40.0000: Massachusetts Contingency Plan; and
 - As detailed in Section 4, at least 75% of the surface of the Site will be reestablished with indigenous wetland plant species. Until this plan is implemented, current soil erosion controls will continue to stabilize open areas of the Site. These erosion controls will be removed when appropriate.
 6. Work in resource areas shall occur only when the ground is sufficiently frozen, dry, or otherwise stable to support the equipment being used.
 - Future activities will be coordinated and scheduled to be performed during dry conditions to eliminate the hazard of unstable soil. If, at the time of the future work, the conditions are unstable, Roux will evaluate the use of swamp mats or similar. Given the environmental hazard and potential to further impact wetlands, the additional excavation work will be performed as soon as practicable.

3.0 WETLANDS AND SURROUNDING AREA

In the vicinity of the release, there is a palustrine bog of approximately 0.7 acres. The MassDEP online wetland mapping service (MassDEP Online Map Viewer) identifies this area as shallow marsh meadow or fen. The wetland is hydrologically connected to a larger wetland system (approximately 12 acres) to the east via a culvert under I-84. The MassDEP Online Map Viewer identifies this area as deep marsh and open water. The deployment of absorbent/containment materials (pads and booms) on both the western and eastern sides of the culverted pipe was intended to minimize any impacts of the release on the larger wetland system. During the periodic Site visits, Roux personnel evaluated the eastern side of the I-84 culvert to assess potential evidence of contamination. No evidence of impact from the Site release was observed on this side of I-84. Both wetland areas are identified in Figure 3. The IRA activities completed to date have been successful at removing most impacted soils and containing any potential migration of petroleum residuals from the release area.

3.1 Site Wetland Resources

A wetland resource area was identified at the Site based on field reconnaissance performed during Site work and based on freshwater wetlands identified on the MassDEP Bureau of Waste Site Cleanup Map (Figure 3). The BVW boundary and its associated buffer zone were delineated in the area of the release based on changes in elevation as well as the presence of surface water, hydric soil, and hydrophytic vegetation. The BVW contained a portion of open surface water near the culvert with surrounding wetland vegetation as described in Section 3.1.1 below.

3.1.1 Wetland Vegetation

A Roux wetland specialist conducted a survey of the vegetation at the Site on October 23, 2019 in order to determine the types/quantities of various species of vegetation and evaluate how to best restore the area to pre-remediation conditions once remediation activities are complete. Roux personnel credentials are included in Appendix D. Dominant wetland species identified during the plant inventory at the Site include the following:

Trees and Saplings

- Red Maple (*Acer rubrum*);

Shrubs

- Highbush Blueberry (*Vaccinium corymbosum*);
- American Cranberry (*Vaccinium macrocarpon*);
- Black Huckleberry (*Gaylussacia baccata*);

Herbs

- Sphagnum Moss (*Sphagnum spp.*);
- Broadleaf Arrowhead (*Sagittaria latifolia*);
- American Bur-Reed (*Sparganium americanum*);

- Dark Green Bulrush (*Scirpus atrovirens*);
- Wool Grass (*Scirpus cyperinus*);
- Marsh Fern (*Thelypteris palustris*);
- Royal Fern (*Osmunda regalis*); and
- Broadleaf Cattail (*Typha latifolia*).

3.1.2 Upland Vegetation

The plant inventory also identified the following dominant species in the upland and buffer zone of the Site:

Trees and Saplings

- Northern Red Oak (*Quercus rubra*); and
- Eastern White Pine (*Pinus strobus*).

3.1.3 Description of Soils

Wetland soils examined at the Site consisted of fibric and humic peat material and deep mucky modified fine silts. Generally, the color of the wetland soil ranged from dark black to a light brownish gray. Soil borings collected slightly upgradient on the slope towards I-84 contained a mucky modified silt loam layer above nonnative fill material. Advancement further than 10" depth in the transitional areas was impeded by the presence of fill material, which is mapped as a Hinkley loamy sand through the USDA Soil Survey (Web Soil Survey).

3.1.4 Wetland Disturbance

Approximately 1,300 square feet (0.03 acres) of wetland resource area, as defined by the Massachusetts WPA (MGL c.131 s.40) and Regulations (310 CMR 10.00), as well as approximately 1,350 square feet (0.03 acres) of upland/buffer zone area are anticipated to be disturbed during implementation of the IRA activities at the Site (Figure 4). The actual extents will be verified following IRA activities. Photographs of the Site are provided in Appendix E.

4.0 WETLAND REMEDIATION AND RESTORATION WORK PLAN

Supplemental soil excavation is being proposed as part of this NOI to remove additional soil that contain residual diesel fuel impacts. As presently envisioned, the supplemental excavation will include the removal of up to 35 cubic yards of soil. A vacuum truck will be on standby to skim diesel-impacted water, as necessary. Additionally, absorbent boom will be deployed and replaced on an as-needed basis for containment. A drip apron will be installed during soil removal activities to serve as an intermediary between the excavation area and roll-off containers. During and following soil removal, additional confirmatory soil samples will be collected for laboratory analysis. As described below, following this work, restoration of the area will be completed.

Disturbance to the wetland and buffer zone areas is necessary in order to remediate soil at the Site. Impacts to the Site BVW areas will be mitigated with in-place restoration at a 1:1 ratio following completion of remediation activities. The total BVW area to be restored will be approximately 1,300 square feet (Figure 4). The buffer zone to the BVW located within the excavation area will also be restored following remediation activities. The total buffer zone area to be restored will be approximately 1,350 square feet (Figure 4). The restoration plan is designed to use and promote the growth of native wetland vegetation. The primary goal of the restoration plan is to restore the altered wetlands to the pre-disturbance conditions. Following additional excavation activities that are anticipated to be completed in the second half of 2020 are intended to remove an additional volume of soil containing residual diesel fuel impacts, the disturbed BVW and buffer zone to the BVW areas will be surveyed by a Massachusetts-licensed professional land surveyor to confirm the limits of disturbance. The surveyed extents of the actual disturbed areas, following implementation of IRA activities, will be used in the final restoration.

The following sections provide further detail regarding the wetland and buffer zone restoration plan.

4.1 Backfilling and Regrading

After the upcoming additional excavation of diesel-impacted soils and organic material from the Site, the area will be backfilled with sand and gravel substrate to an elevation just below the anticipated finished grade. This backfill is consistent with the nearby fill of Hinckley loam sand. Once the substrate had been placed, the area will then be covered with 6 to 12 inches of high organic content topsoil. Finished grade in the excavation area will be graded to an overall slope similar to the adjacent land surface and pre-excavation conditions. No loss of flood storage will occur as the pre- and post-disturbance grades and elevations will be maintained. The Site is located outside of the 100-year floodplain.

4.2 Seeding

Following grading, the Site wetland area that is upgradient from the ponded surface water will be seeded with a New England Wetland Seed Mix prepared by New England Wetland Plants of Amherst, Massachusetts. This seed is chosen for the wetland area as it contains a wide variety of plants native to Massachusetts that are all between the wetland indicator status of OBL and FACW+. This seed mix is expected to produce more than 75% ground cover within two growing seasons. As these seeds cannot germinate when inundated, they will not be planted in the standing water at the bottom of the slope. As shown in the embedded table in Figure 4, the seed mix contains:

- Fox sedge (*Carex vulpinoidea*),
- Blunt Broom sedge (*Carex scoparia*),
- Lurid sedge (*Carex lurida*),
- Hop sedge (*Carex lupulina*),
- Fowl Bluegrass (*Poa palustris*),
- Beggar Ticks (*Bidens frondosa*),
- Green Bulrush (*Scirpus atrovirens*),
- Swamp Milkweed (*Asclepias incarnata*),
- Fringed Sedge (*Carex crinite*),
- New York Ironweed (*Vernonia noveboracensis*),
- Soft Rush (*Juncus effuses*),
- Starved/Calico Aster (*Aster lateriflorus*),
- Blue Flag (*Iris versicolor*),
- American Mannagrass (*Glyceria grandis*),
- Square Stemmed Monkey Flow (*Mimulus ringens*), and
- Spotted Joe Pye Weed (*Eupatorium maculatum*).

The wetland seed mix will be hand sown over the wetland restoration area at a rate of 1 pound per 2,500 square feet. A light mulch of clean, weed free straw will be applied with the seed.

The wetland buffer area will also be seeded with a New England Wetland Seed Mix for Roadside Matrix Upland. This seed is chosen for the buffer area as it contains a wide variety of native plants that are between the wetland indicator status of FACW- and UPL. The cold season grasses in this mix can handle consistent mowing and will become dominant near the road while the flowers and shrubs will be dominant in un-mowed areas further down the embankment. The species list for this seed mix is also included in the embedded table in Figure 4.

- Virginia Wild Rye (*Elymus virginicus*)
- Panicleleaf Tick Trefoil (*Desmodium paniculatum*)
- Little Bluestem (*Schizachyrium scoparium*)
- Big Bluestem (*Andropogon gerardii*)
- Red Fescue (*Festuca rubra*)

- Indian Grass (*Sorghastrum nutans*)
- Switch Grass (*Panicum virgatum*)
- Staghorn Sumac (*Rhus typhina*)
- Grey Dogwood (*Cornus racemose*)
- Silky Dogwood (*Cornus amomum*)
- Evening Primrose (*Oenothera biennis*)
- Butterfly Milkweed (*Asclepias tuberosa*)
- Black Eyed Susan (*Rudbeckia hirta*)
- Partridge Pea (*Chamaecrista fasciculata*)
- Hollow-Stem Joe Pye Weed (*Eupatorium fistulosum*)

The Roadside Matrix Upland seed mix will be hand sown over the buffer area at a rate of 1 pound per 1,250 square feet. A light mulch of clean, weed free straw will be applied with the seed.

After seeding, the steep slope adjacent to the roadway and the southwestern portion of the excavation area will be covered with erosion control jute mats to secure soils and allow for seed germination. The jute mats will be secured in place with stakes according to the manufacturers specifications to prevent shifting due to stormwater runoff. The jute mats to be used at the Site will biodegrade over time and will not impede future plant growth.

4.3 Proposed Planting

Following the installation of erosion control blankets, the wetland and buffer zone areas within the limits of the excavation work and upgradient from the ponded surface water will be planted with dormant native saplings, shrubs, and herbs. The species to be planted at the Site have been selected based on the wetland vegetation survey performed at the Site during initial excavation activities and based on other common wetland species found in Massachusetts (Town of Sturbridge Conservation Commission, 2002). As part of the restoration of the BVW and buffer zone at the Site, a total of 22 trees and 12 shrubs will be planted in the area of the excavation in the early spring of 2021, pending approval by the SCC and the MassDEP and verification of the limits of disturbance following final implementation of IRA activities. MassDEP inland replication guidelines require each shrub to be planted 8-10 feet on center and that trees are planted 10-15 feet on center. The planting plan is designed to mimic the structure of the wetlands surrounding the remediation area in which individual species grow in distinctive zones and allow for natural diversity of the native wetland plant community. This vegetation zonation is based upon a species response to environmental conditions such as elevation changes, water inundation and light exposure. The restored wetland areas will gradually blend into the undisturbed wetlands located adjacent to the altered areas, creating a canopy of red maple (*Acer rubrum*) and gray birch (*Betula populifolia*) in the wetland areas and paper birch (*Betula papyrifera*) in the upland areas on the slope. The proposed plantings in the wetland restoration area also include understory woody plants such as male berry (*Lyonia ligustrina*), Buttonbush (*Cephalanthus occidentalis*) and herbaceous plants including Cinnamon Fern (*Osmunda cinnamomea*), Tussock Sedge (*Carex stricta*) and other varieties, depending on available stock from local nurseries. The

planting plan (Figure 4) provides additional details on the vegetative species (common name and scientific name), planting densities and quantities for each of the selected species. A planting schematic is provided as Figure 4.

The wetland herbaceous species will be planted as 2-inch potted plugs that are transplanted from nursery beds to the planting site. Saplings and shrubs will be planted as containerized plants (3 or 5-gallon pots). Planting holes will be of sufficient size and depth so that the root systems are neither crowded nor disturbed during planting. Shrubs will be planted 8-10 feet on center and trees will be planted 10-15 feet on center. Just prior to planting, the plant root systems will be inspected. If the root system is observed to be too dense or encircling, small vertical cuts are to be made in the root mass to facilitate root growth when placed in the hole. The plant stock will be free of seed and vegetative propagules of common invasive species such as purple loosestrife (*Lythrum salicaria*), hybrid cattail (*Typhax glauca*), reed canary grass (*Phalaris arundinacea*) and eurasian water milfoil (*Myriophyllum spicatum*).

5.0 STORMWATER MANAGEMENT AND EROSION CONTROL PLAN

Roux reviewed the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the Site and surrounding area and based on this review, the Site is not located within the 100-year flood zone.

Temporary erosion controls will be accomplished through the use of silt fences, covering of stockpiles, and the placement of hay bales and polyethylene sheets. Immediately after backfilling is complete, the altered areas will be seeded with a native grass/herbaceous mixture. Erosion control blankets will be installed over the seeded wetland areas. The blankets are manufactured from agricultural straw and/or jute and will be secured using procedures (wooden stakes) recommended by the manufacturer.

Stormwater runoff in the area of excavation will flow overland (over the graded excavation area) toward existing surface water and the larger wetland system to the east through the culverted pipe under I-84. No other stormwater management is required pursuant to the Massachusetts Stormwater Handbook Volume 1 (2008) because the stormwater management standards do not apply to emergency repairs to roads or their drainage systems. The proposed work is not a development project that will impact the drainage patterns or stormwater flow pathways at the Site.

6.0 WETLAND MONITORING AND MAINTENANCE PLAN

The restored wetland and upland areas will be inspected to monitor the health and establishment of the newly planted vegetation. Monitoring activities will also focus on minimizing the invasion of unwanted or undesirable plant species. Seasonal maintenance of the restored areas will be performed when necessary. Maintenance activities will include erosion repairs, re-planting/supplemental plantings and/or the control of invasive species as needed. Monitoring frequency and duration are discussed in Section 6.2.

6.1 Field Survey

Field surveys will be performed to evaluate and document the survival rate of the newly restored wetland and buffer areas. The objective of the wetland restoration plan is to achieve a minimum of 75% cover of native wetland plants within two growing seasons using planted or volunteered species per MassDEP Inland Wetland Replication guidelines. The newly planted trees and shrubs will be monitored to evaluate their general health and condition. MassDEP Inland Wetland Replication guidelines state that monitoring activities will include the following:

- Determination of percent cover of herbaceous vegetation, shrubs, trees, woody vines, aquatic vegetation, and total non-invasive/invasive vegetation;
- Determination of percent exposed soil and standing water;
- Determination of the presence of hydrology indicators; and
- Determination of hydric soil.

An initial plant inspection will be conducted after the first month of the growing season following completion of planting activities to assess plant growth and viability. Inspections will also evaluate any erosional impacts and invasive species that have occurred since planting.

6.2 Monitoring Frequency

The restored area will be monitored after the first month of the growing season to inspect planting efficacy. Unless more specifically stated in the to be issued Order of Conditions (OOC) for this NOI permit, monitoring will occur in accordance with the MassDEP Monitoring Data Sheet as follows:

- Before excavation work or erosion control installation begins, to inspect site flagging;
- During excavation of the altered area if vegetation is to be translocated;
- Before soil translocation or addition, to inspect excavated elevations;
- After each stage of grading work is completed to inspect finished elevations;
- During planting and seeding and after first month of growing season, to inspect planting efficacy;
- After one growing season to observe vegetation development;
- After two growing seasons to determine regulatory compliance; and

- After subsequent growing seasons, for a total of up to five years.

A wetlands professional will conduct inspections in late spring and at the end of the growing season for the first two growing seasons to observe vegetation development and regulatory compliance. Further monitoring during each growing season will be performed for the first five years in accordance with the SCC Bylaws. Monitoring reports will be submitted to the Commission by June 1 and November 1 of each year of monitoring. Monitoring reports will include an assessment of progress and any appropriate recommendations for enhancement.

6.3 Replacement Planting

A survival rate of 75% for bare root and containerized plants is targeted for the first full growing season. If this survival rate is not achieved, supplemental plantings will be conducted and new plants will be established as necessary. A satisfactory wetland restoration after two full growing seasons will be defined as having 75% or greater of the restored wetland area covered or stabilized with native wetland plants per the MassDEP Wetland Protection Regulations. Plants requiring replacement due to mortality will be planted following the procedures outlined in Section 4.3.

6.4 Invasive Species Control

Invasive species have not been identified in adjacent undisturbed wetland areas; however, monitoring protocols will stress identification and early detection to control invasion by aggressive species. Observed invading species will be controlled mechanically or by hand removal/grubbing if detected early and before the invasive species have a chance to reproduce.

7.0 SCHEDULE

Verbal approval to conduct emergency response actions at the Site in the wetland area was granted to Roux by the MassDEP and the SCC on August 27, 2019. Additional excavation activities and backfilling tasks are planned for the Site in the second half of 2020. Wetland restoration and replanting activities will be conducted at the Site in early fall 2021, pending approval by the MassDEP and the SCC. Prior to completion of the final wetland inspections, Roux will await approval from the necessary regulatory agencies, including the MassDEP and the SCC.

8.0 REFERENCES

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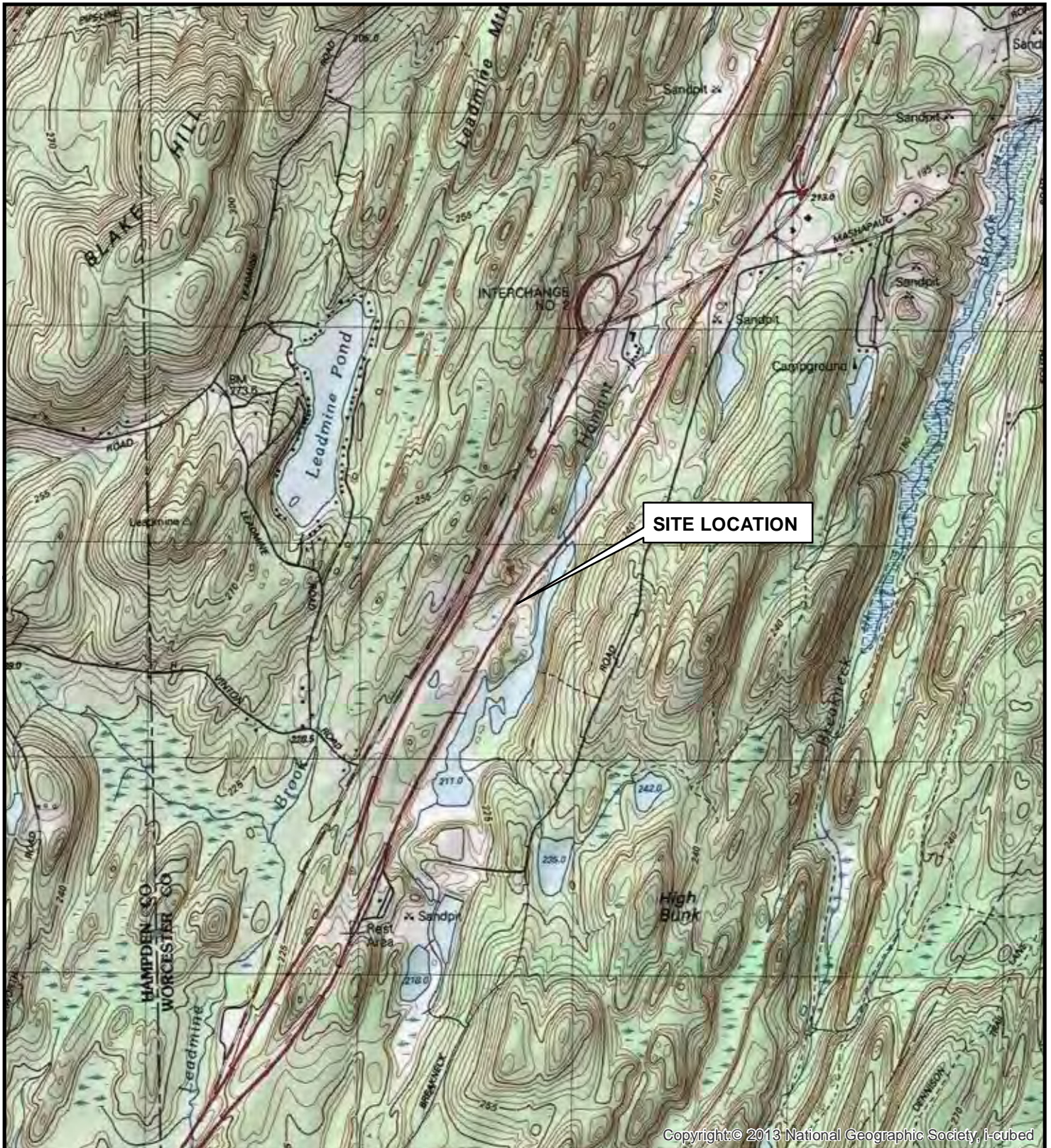
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Roux, June 23, 2019. 6-month IRA Status.

Tiner, R. 1998. Managing Common Reed (*Phragmites australis*) in Massachusetts - an Introduction to the Species and Control Techniques. United States Fish and Wildlife Service. Prepared for Wetland Restoration and Banking Program.

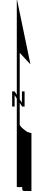
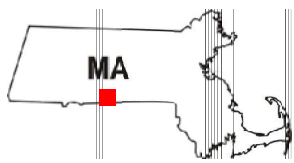
Town of Sturbridge Conservation Commission, 2002. Wetland Indicator Plants Identified in the Massachusetts Wetlands Protection Act (M.G.L.c.131 131, §40). Regulation for Administering the Town of Sturbridge Wetland Bylaw. Revised February 17, 2004.

1. Site Location Map
2. Site Plan
3. MassDEP Bureau of Waste Site Cleanup Map
4. Wetland Restoration Work Plan



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■ Site Location



Title:
SITE LOCATION MAP
 I-84
 STURBRIDGE, MA

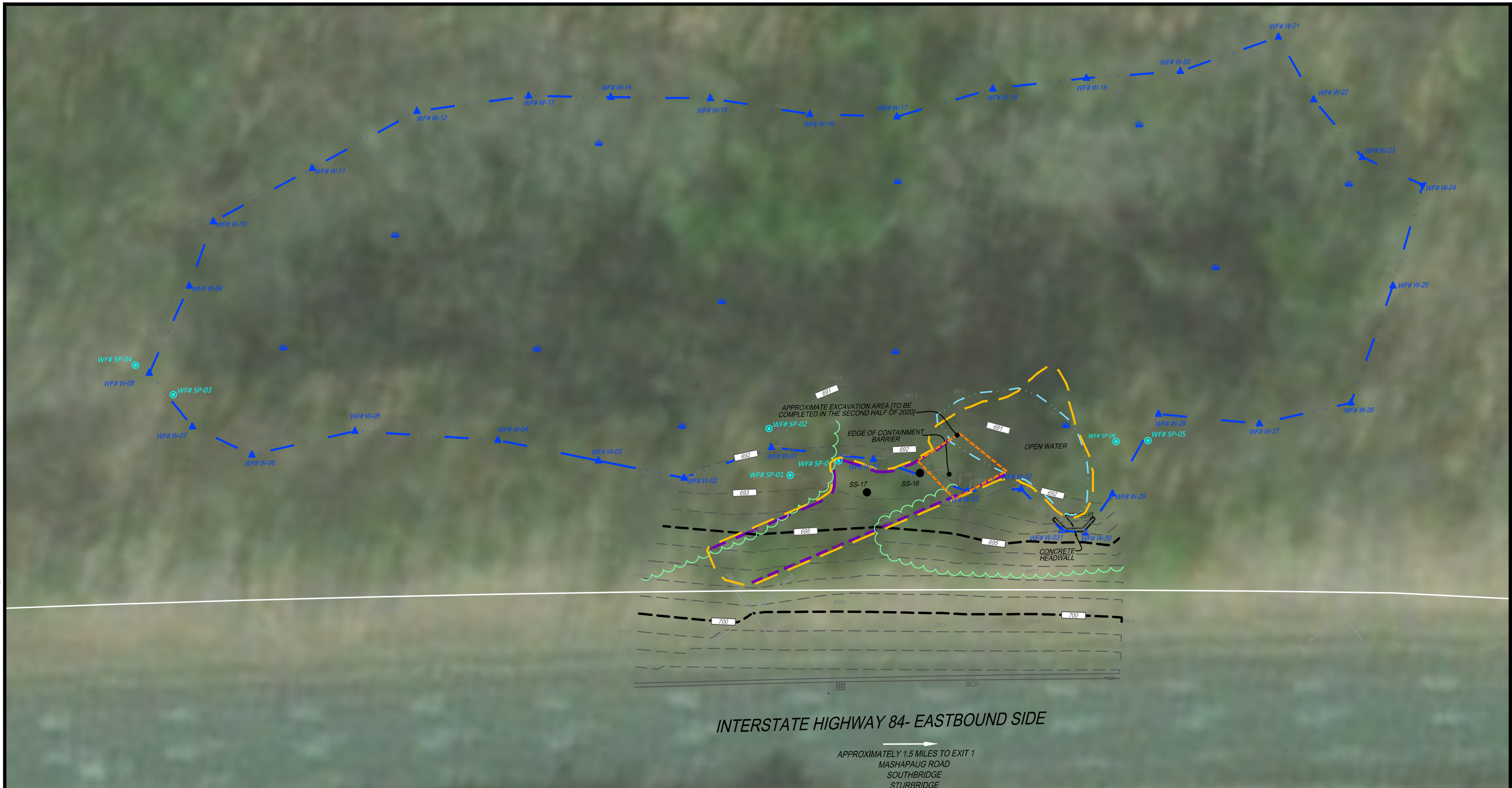
Prepared For:
 UNITED PARCEL SERVICES, INC.

ROUX	Compiled by: CC	Date: 22OCT19	FIGURE 1
	Prepared by: CC	Scale: AS SHOWN	
	Project Mgr: JC	Project: 0762.0443M000	
	File: 0762.0443M000.101.02.mxd		

T:\GIS\UPS\0762.0443M000\101\0762.0443M000.101.02.mxd

SOURCE
 USGS COLOR TOPOGRAPHIC MAP 37
 OF MASSACHUSETTS (7.5 MINUTE),
 WEB MAP SERVICE (WMS)

\\SRV\BMA\FP\1\MASHARED\CLIENTS\I-84 STURBRIDGE\CADD\0762.0443M002.1001.02 - UPS_STURBRIDGE MA SITE PLAN.DWG

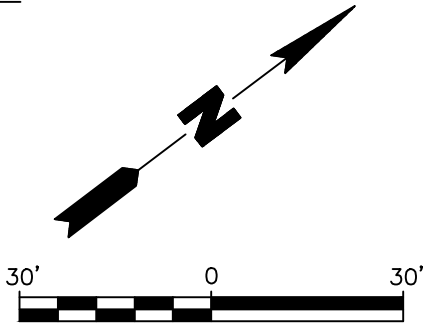


LEGEND

	WETLANDS		OPEN WATER
	WETLAND POINTS		EDGE OF WOODS
	WETLAND DELINEATION SAMPLING POINTS		BORDERING VEGETATIVE WETLANDS
	SOIL SAMPLING POINTS		BIT. CONC. BERM
	WETLAND LINE		BOTTOM OF WALL
	PATH OF TRUCK		TOP OF WALL
	LIMIT OF DISTURBANCE		5 FOOT ELEVATION CONTOUR LINE
	APPROXIMATE EXCAVATION AREA [TO BE COMPLETED IN THE SECOND HALF OF 2020]		1 FOOT ELEVATION CONTOUR LINE
			SPOT ELEVATION

SOURCE

- 1.) AERIAL FROM AUTOCAD CIVIL 3D 2019.
- 2.) WETLAND FLAG DELINEATION, I-84 EAST BOUND MEDIAN, STURBRIDGE, MASSACHUSETTS (WORCESTER COUNTY) BY BRENNAN CONSULTING, DATED JULY 27, 2020.
- 3.) WETLAND DELINEATION CONDUCTED BY ROUX ASSOCIATES ON JULY 9, 2020. WETLAND FLAGS AND ELEVATION CONTOURS SURVEYED BY BRENNAN CONSULTING ON JULY 15, 2020.



Title:			
SITE PLAN			
UNITED PARCEL SERVICE INTERSTATE 84 EAST BOUND MEDIAN STURBRIDGE, WORCESTER COUNTY, MASSACHUSETTS			
Prepared For: United Parcel Service			
	Compiled by: KN	Date: 08/07/2020	FIGURE 2
	Prepared by: JSG	Scale: AS SHOWN	
	Project Mgr: JC	Project: 0762.0443M002	
	File: 0762.0443M002.1001.02 - UPS_STURBRIDGE MA SITE PLAN		

MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:

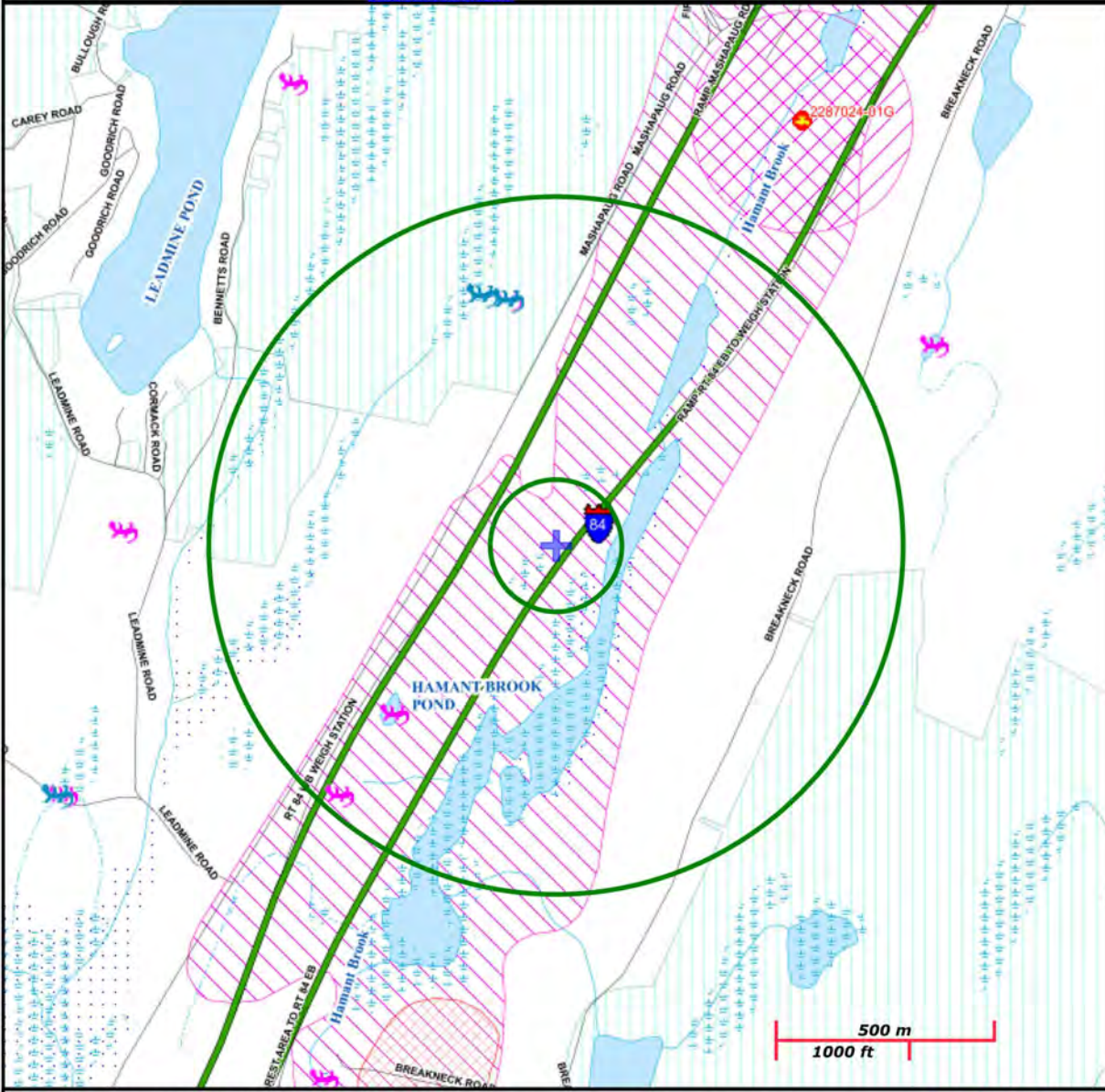
STURBRIDGE, MA
2-000020994
NAD83 UTM Meters:
4659982mN, 738750mE (Zone: 18)
August 29, 2019

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at:
<https://www.mass.gov/orgs/massgis-bureau-of-geographic-information>



MassDEP

Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail	PWS Protection Areas: Zone II, IWPA, Zone A	
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct	Hydrography: Open Water, PWS Reservoir, Tidal Flat	
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam	Wetlands: Freshwater, Saltwater, Cranberry Bog	
Aquifers: Medium Yield, High Yield, EPA Sole Source	FEMA 100yr Floodplain; Protected Open Space; ACEC	
Non Potential Drinking Water Source Area: Medium, High (Yield)	Est Rare Wetland Wildlife Hab; Vernal Pool: Cert, Potential	
	Solid Waste Landfill; PWS: Com GW, SW, Emerg, Non-Com	

Title:
PHASE I - SITE ASSESSMENT MAP

UNITED PARCEL SERVICE
INTERSTATE 84 EAST BOUND MEDIAN
STURBRIDGE, WORCHESTER COUNTY, MASSACHUSETTS

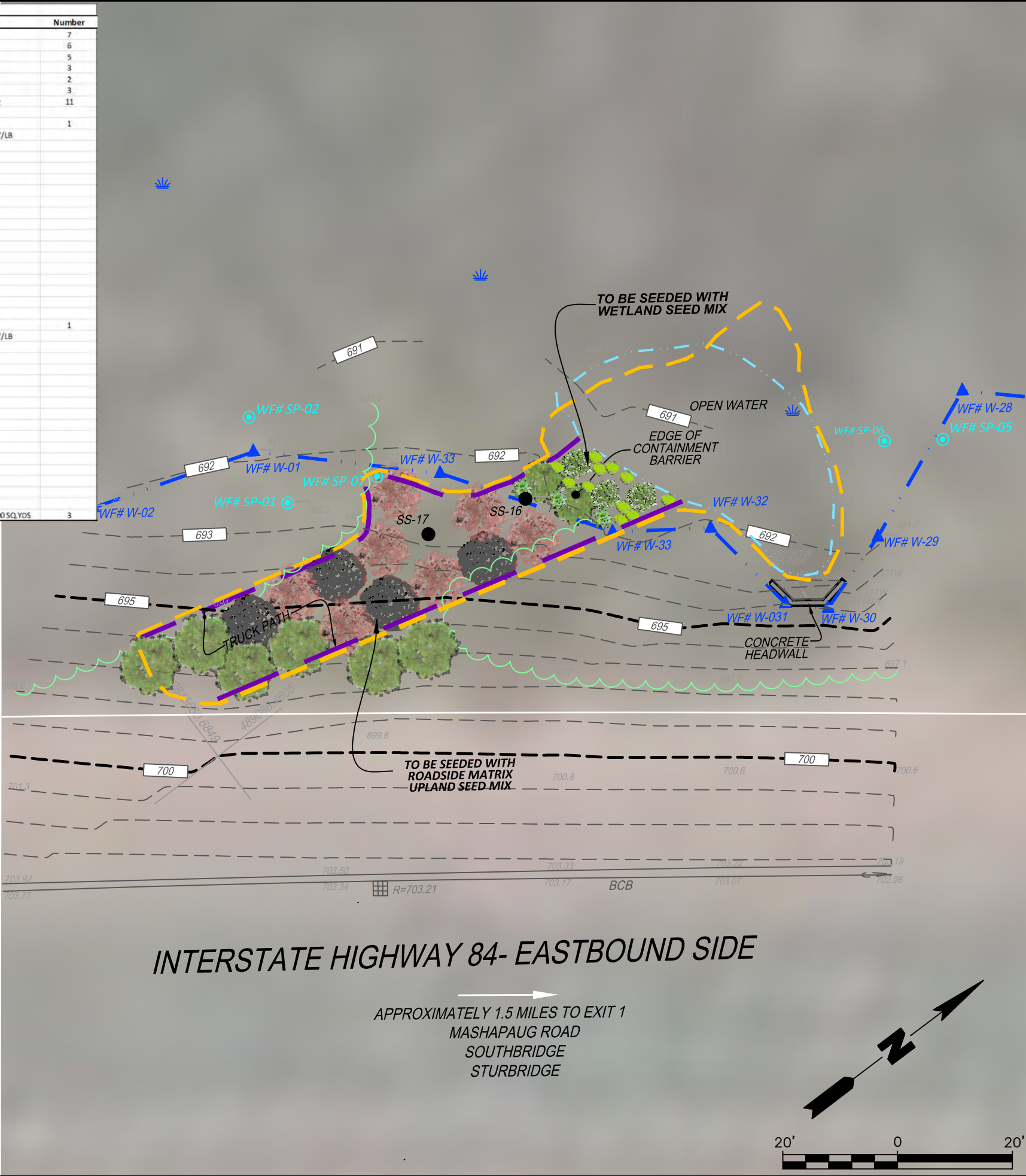
Prepared For: **United Parcel Service**

	Compiled by: KN	Date: 08/03/2020	FIGURE 3
	Prepared by: JSG	Scale: AS SHOWN	
	Project Mgr: JC	Project: 0762.0443M002	
	File: 0762.0443M002.1001.01 - UPS_STURBRIDGE MA PLANTING PLAN		

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PLANTINGS				
Common Name	Latin Name	Indicator	Size	Number
Red Maple	<i>Acer rubrum</i>	FAC	2-3'	7
Paper Birch	<i>Betula papyrifera</i>	FACU	2-3'	6
Gray Birch	<i>Betula populifolia</i>	FAC	2-3'	5
Buttonbush	<i>Cephalanthus occidentalis</i>	OBL	2-3'	3
Maleberry	<i>Lyonia ligustrina</i>	FACW	2-3'	2
Cinnamon Fern	<i>Osmunda cinnamomea</i>	FACW	#1	3
Tussock Sedge	<i>Carex stricta</i>	OBL	2" plug	11
Wetland Seed Mix				
Fox Sedge	<i>Carex vulpinoidea</i>	OBL	2500 SQ.FT./LB	1
Blunt Broom Sedge	<i>Carex scoparia</i>	FACW		
Lurid Sedge	<i>Carex lurida</i>	OBL		
Hop Sedge	<i>Carex lupulina</i>	OBL		
Fowl Bluegrass	<i>Poa palustris</i>	FACW		
Beggar Ticks	<i>Bidens frondosa</i>	FACW		
Green Bulrush	<i>Scirpus atrovirens</i>	OBL		
Swamp Milkweed	<i>Asclepias incarnata</i>	OBL		
Fringed Sedge	<i>Carex crinita</i>	OBL		
New York Ironweed	<i>Vernonia noveboracensis</i>	FACW+		
Soft Rush	<i>Junus effusus</i>	FACW+		
Starved/Calico Aster	<i>Aster lateriflorus</i>	FACW		
Blue Flag	<i>Iris versicolor</i>	OBL		
American Mannagrass	<i>Glyceria grandis</i>	OBL		
Square Stemmed Monkey Flower	<i>Mimulus ringens</i>	OBL		
Spotted Joe Pye Weed	<i>Eupatorium maculatum</i>	OBL		
Roadside Matrix Upland Seed Mix				
Virginia Wild Rye	<i>Elymus virginicus</i>	FACW-	1250 SQ.FT./LB	1
Panicledleaf Tick Trefoil	<i>Desmodium paniculatum</i>	FACU		
Little Bluestem	<i>Schizachyrium scoparium</i>	FACU		
Big Bluestem	<i>Andropogon gerardii</i>	FAC		
Red Fescue	<i>Festuca rubra</i>	FACU		
Indian Grass	<i>Sorghastrum nutans</i>	UPL		
Switch Grass	<i>Panicum virgatum</i>	FAC		
Staghorn Sumac	<i>Rhus typhina</i>			
Grey Dogwood	<i>Cornus racemosa</i>	FAC		
Silky Dogwood	<i>Cornus amomum</i>	FACW		
Evening Primrose	<i>Oenothera biennis</i>	FACU-		
Butterfly Milkweed	<i>Asclepias tuberosa</i>	NI		
Black Eyed Susan	<i>Rudbeckia hirta</i>	FACU-		
Partridge Pea	<i>Chamaecrista fasciculata</i>	FACU		
Hollow-Stem Joe Pye Weed	<i>Eupatorium fistulosum</i>	FACW		
Jute Mesh Blanket			4' x 225' rolls; 100 SQ.YDS	3

- NOTES**
- 1.) ALL PLANTS AND SEED MIX SHALL BE OBTAINED FROM NEW ENGLAND WETLAND PLANTS, INC. (413-548-8000. WWW.NEWP.COM). IF SPECIFIED SPECIES AND/OR CONTAINER SIZES ARE NOT AVAILABLE, CONTRACTOR SHALL CONTACT ROUX ASSOCIATES TO APPROVE SUITABLE SUBSTITUTES.
 - 2.) TREES AND SHRUBS SHALL BE WELL BRANCHED AND WELL FORMED, SOUND, VIGOROUS, HEALTHY AND FREE FROM DISEASE, SUNSCALD, WINDBURN, ABRASION AND HARMFUL INSECTS OR INSECT EGGS AND HAVE HEALTHY, NORMAL UNBROKEN ROOT SYSTEMS.
 - 3.) HOLES WILL BE DUG TO THE PROPER DEPTH AND WIDTH FOR TREES, SHRUBS, AND FERNS BASED ON A RATIO OF TWICE THE DEPTH AND TWICE THE DIAMETER OF THE CONTAINER.
 - 5.) TREES AND SHRUBS WILL BE PLACED IN THE PROPER POSITION IN EACH HOLE AND BACKFILLED. THE BACK FILLED MATERIAL WILL BE CAREFULLY PLACED AND COMPACTED IN A MANNER THAT AVOID BRUISING OR BREAKING THE ROOTS.
 - 6.) PRIOR TO SEEDING, RESTORATION AREA WILL BE ROUGH GRADED (RAKED) TO ESTABLISH RIDGES AND DEPRESSIONS TO CREATE MICROTOPOGRAPHY SUITABLE FOR RETAINING LOCALIZED HYDRAULIC CONDITIONS.
 - 7.) CLEAN WEED-FREE STRAW MULCH WILL BE APPLIED WITH THE SEED AT A RATE CONSISTENT WITH MANUFACTURER INSTRUCTIONS.
 - 8.) AFTER SEEDING, THE STEEP SLOPE ADJACENT TO THE ROADWAY AND THE SOUTHWESTER PORTION OF THE EXCAVATION AREA WILL BE COVERED WITH EROSION CONTROL JUTE MATS TO SECURE SOILS AND ALLOW FOR SEED GERMINATION.
 - 9.) OPEN WATER AREA WILL BE BACKFILLED TO PRE-EXISTING GRADE AND WILL NOT RECEIVE SEEDS OR PLANTINGS.



LEGEND

- WETLANDS
- WF# W-01 WETLAND POINTS
- WF# SP-01 WETLAND DELINEATION SAMPLING POINTS
- SS-17 SOIL SAMPLING POINTS
- WETLAND LINE
- PATH OF TRUCK
- 5 FOOT ELEVATION CONTOUR LINE
- 1 FOOT ELEVATION CONTOUR LINE
- 699.6 SPOT ELEVATION
- LIMIT OF DISTURBANCE
- SS-16 STAKE FOUND
- EDGE OF WOODS
- OPEN WATER
- BORDERING VEGETATIVE WETLANDS
- BIT. CONC. BERM
- BOTTOM OF WALL
- TOP OF WALL
- Tussock Sedge
- Cinnamon Fern
- Maleberry
- Button Brush
- Red Maple
- Gray Birch
- Paper Birch

- SOURCE**
- 1.) AERIAL FROM AUTOCAD CIVIL 3D 2019.
 - 2.) WETLAND FLAG DELINEATION, I-84 EAST BOUND MEDIAN, STURBRIDGE, MASSACHUSETTS (WORCESTER COUNTY) BY BRENNAN CONSULTING, DATED JULY 27, 2020.
 - 3.) WETLAND DELINEATION CONDUCTED BY ROUX ASSOCIATES ON JULY 9, 2020. WETLAND FLAGS AND ELEVATION CONTOURS SURVEYED BY BRENNAN CONSULTING ON JULY 15, 2020.

Title: **PLANTING PLAN**

UNITED PARCEL SERVICE
INTERSTATE 84 EAST BOUND MEDIAN
STURBRIDGE, WORCESTER COUNTY, MASSACHUSETTS

Prepared For: **United Parcel Service**

Compiled by: KN	Date: 07/31/2020	FIGURE 4
Prepared by: JSG	Scale: AS SHOWN	
Project Mgr: JC	Project: 0762.0443M002	
File: 0762.0443M002.1001.01 - UPS_STURBRIDGE MA PLANTING PLAN		

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- A. SCC Emergency Certification
- B. Notice of Intent (WPA Form 3) and NOI Wetland Transmittal Form
- C. Abutters List
- D. Professional Profile of Wetland Specialist
- E. Site Photographs

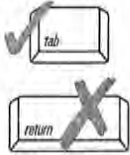
SCC Emergency Certification



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Emergency Certification Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. Emergency Information

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



Issuance From: Sturbridge Conservation Commission
 Issuing Authority

1. Site Location: Mile marker 2 on I 84 (Eastbound), Sturbridge, MA

2. Reason for Emergency:
Diesel Fuel Release

3. Applicant to perform work: New England Disposal Technologies (NEDT)/ Roux /UPS

4. Public agency to perform work or public agency ordering the work to be performed:
Sturbridge Conservation Commission/DEP

5. Date of Site Visit: 8/27/2019 Start Date: 8/27/2019 End Date*: 10/27/2019

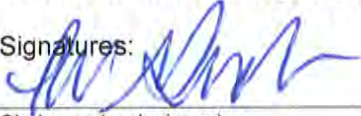
* no later than 30 days from start date or 60 days in the case of an Immediate Response Action approved by DEP to address an oil/hazardous material release.

6. Work to be allowed*:
Deployment of absorbent pads and booms, vacuum skimming of surface water to recover released diesel fuel, the excavation of wetland soils that were impacted by the release of the diesel fuel and soil sampling exploratory activities. Any additional excavation activities, restoration of the wetland resource area or other work will require the submittal of a work scope to the SCC for additional review and potential permitting required pursuant to the MA Wetland Protection act and the Sturbridge Wetland Bylaw.

* May not include work beyond that necessary to abate the emergency.

B. Signatures

Certified to be an Emergency by this Issuing Authority.

Signatures:  9/3/2019
 Chairman (or designee) Date

A copy of this form must be provided to the appropriate DEP Regional Office.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Emergency Certification Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

C. General Conditions

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Emergency Certification or subject to enforcement action.
2. This Emergency Certification does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of property rights.
3. This Emergency Certification does not relieve the applicant or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. Any work conducted beyond that described above, and any work conducted beyond that necessary to abate the emergency, shall require the filing of a Notice of Intent.
5. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Emergency Certification at reasonable hours to evaluate compliance with this Certification, and may require the submittal of any data deemed necessary by the Conservation Commission or the Department for that evaluation.
6. This Emergency Certification shall apply to any contractor or any other person performing work authorized under this Certification.
7. No work may be authorized beyond 30 days from the date of this certification without written approval of the Department.

D. Special Conditions

Work shall be conducted as outlined in Jason Chraznowski's email (dated 8/29/2019) within the estimated area of the release. Additional work shall require the submittal of a revised work scope. Remediation work shall be completed under the direction of a Licensed Site Professional. Sedimentation controls shall be properly installed and shall remain in place until the site is stabilized. A report summarizing the remediation work shall be submitted to the Sturbridge Conservation Commission within one week of completion. The applicant is responsible for the restoration of the wetland resource area and full site stabilization including monitoring and inspections. Applicant must provide the Commission with a file copy of the Response Action Outcome Report.

E. Appeals

The Department may, on its own motion or at the request of any person, review: an emergency certification issued by a conservation commission and any work permitted thereunder; a denial by a conservation commission of a request for emergency certification; or the failure by a conservation commission to act within 24 hours of a request for emergency certification. Such review shall not operate to stay the work permitted by the emergency certification unless the Department specifically so orders. The Department's review shall be conducted within seven days of: issuance by a conservation commission of the emergency certification; denial by a conservation commission of the emergency certification; or failure by a conservation commission to act within 24 hours of a request for emergency certification. If certification was improperly granted, or the work allowed thereunder is excessive or not required to protect the health and safety of citizens of the Commonwealth, the Department may revoke the emergency certification, condition the work permitted thereunder, or take such other action as it deems appropriate.

Notice of Intent (WPA Form 3) and
NOI Wetland Fee Transmittal Form



WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

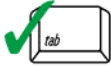
MassDEP File Number

Document Transaction Number

City/Town

Important:

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



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

A. General Information

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

a. Street Address _____ b. City/Town _____ c. Zip Code _____

Latitude and Longitude: _____
d. Latitude _____ e. Longitude _____

f. Assessors Map/Plat Number _____ g. Parcel /Lot Number _____

2. Applicant:

a. First Name _____ b. Last Name _____

c. Organization _____

d. Street Address _____

e. City/Town _____ f. State _____ g. Zip Code _____

h. Phone Number _____ i. Fax Number _____ j. Email Address _____

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

a. First Name _____ b. Last Name _____

c. Organization _____

d. Street Address _____

e. City/Town _____ f. State _____ g. Zip Code _____

h. Phone Number _____ i. Fax Number _____ j. Email address _____

4. Representative (if any):

a. First Name _____ b. Last Name _____

c. Company _____

d. Street Address _____

e. City/Town _____ f. State _____ g. Zip Code _____

h. Phone Number _____ i. Fax Number _____ j. Email address _____

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

a. Total Fee Paid _____ b. State Fee Paid _____ c. City/Town Fee Paid _____



WPA Form 3 – Notice of Intent

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

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
City/Town

A. General Information (continued)

6. General Project Description:

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

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

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

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

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

_____	_____
a. County	b. Certificate # (if registered land)
_____	_____
c. Book	d. Page Number

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

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

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



WPA Form 3 - Notice of Intent

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

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
City/Town

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

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

Table with 3 columns: Resource Area, Size of Proposed Alteration, Proposed Replacement (if any). Rows include Bank, Bordering Vegetated Wetland, and Land Under Waterbodies and Waterways.

Table with 3 columns: Resource Area, Size of Proposed Alteration, Proposed Replacement (if any). Rows include Bordering Land Subject to Flooding and Isolated Land Subject to Flooding.

- f. Riverfront Area
1. Name of Waterway (if available) - specify coastal or inland
2. Width of Riverfront Area (check one):
- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

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

4. Proposed alteration of the Riverfront Area:
a. total square feet b. square feet within 100 ft. c. square feet between 100 ft. and 200 ft.

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

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

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

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



WPA Form 3 - Notice of Intent

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

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
City/Town

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

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

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

Table with columns: Resource Area, Size of Proposed Alteration, Proposed Replacement (if any). Rows include Designated Port Areas, Land Under the Ocean, Barrier Beach, Coastal Beaches, Coastal Dunes, Coastal Banks, Rocky Intertidal Shores, Salt Marshes, Land Under Salt Ponds, Land Containing Shellfish, Fish Runs, Land Subject to Coastal Storm Flowage, Restoration/Enhancement, and Project Involves Stream Crossings.



WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

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

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

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

- b. Date of map _____

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

- c. Submit Supplemental Information for Endangered Species Review*

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

(a) within wetland Resource Area _____ percentage/acreage

(b) outside Resource Area _____ percentage/acreage

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

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

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

(b) Photographs representative of the site

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

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



WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

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

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

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

(d) Vegetation cover type map of site

(e) Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____

3. Separate MESA review completed. Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. Not applicable – project is in inland resource area only b. Yes No

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

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

North Shore - Hull to New Hampshire border:

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

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

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



WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

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

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

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

D. Additional Information

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

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

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

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



WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

D. Additional Information (cont'd)

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

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

a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. Attach NOI Wetland Fee Transmittal Form

9. Attach Stormwater Report, if needed.

E. Fees

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

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

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



WPA Form 3 – Notice of Intent

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

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
City/Town

F. Signatures and Submittal Requirements

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

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

David Nguyen

1. Signature of Applicant

2. Date

James Robida for BOJ

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

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

For MassDEP:

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

Other:

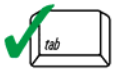
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

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



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

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



A. Applicant Information

1. Location of Project:

a. Street Address	b. City/Town
c. Check number	d. Fee amount

2. Applicant Mailing Address:

a. First Name	b. Last Name	
c. Organization		
d. Mailing Address		
e. City/Town	f. State	g. Zip Code
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

a. First Name	b. Last Name	
c. Organization		
d. Mailing Address		
e. City/Town	f. State	g. Zip Code
h. Phone Number	i. Fax Number	j. Email Address

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

B. Fees

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

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

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

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

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

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

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



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

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee: _____
 a. Total Fee from Step 5

State share of filing Fee: _____
 b. 1/2 Total Fee **less** \$12.50

City/Town share of filing Fee: _____
 c. 1/2 Total Fee **plus** \$12.50

C. Submittal Requirements

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

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

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

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

Abutters List



Town of Sturbridge

Ann P. Murphy, MAA. - Principal Assessor

ABUTTER LIST REQUEST
(Please allow 10 days for final list)

PARCEL ADDRESS REQUESTED near Mile marker 2 on I-84E

OWNER OF RECORD Barry Lorion, MassDOT - District 3. 403 Belmont Street, Worcester, MA 01604

CONTACT PERSON Kristy Northrup, knorthrup@rouxinc.com

SIGNATURE *Kristy Northrup*

DATE February 24, 2020 TELEPHONE # 856-832-3756

COST: \$5.00 FOR EACH PARCEL REQUESTED
\$3.00 PER SHEET OF MAILING LABELS

Direct Abutter

Conservation (200')

Planning / Zoning Board of Appeals (300')

Board of Selectmen Forest Cutting (200')

Liquor License (Contact assessors office for requirements)

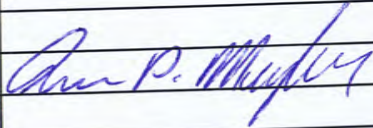
Miscellaneous (Contact assessors office for instructions)

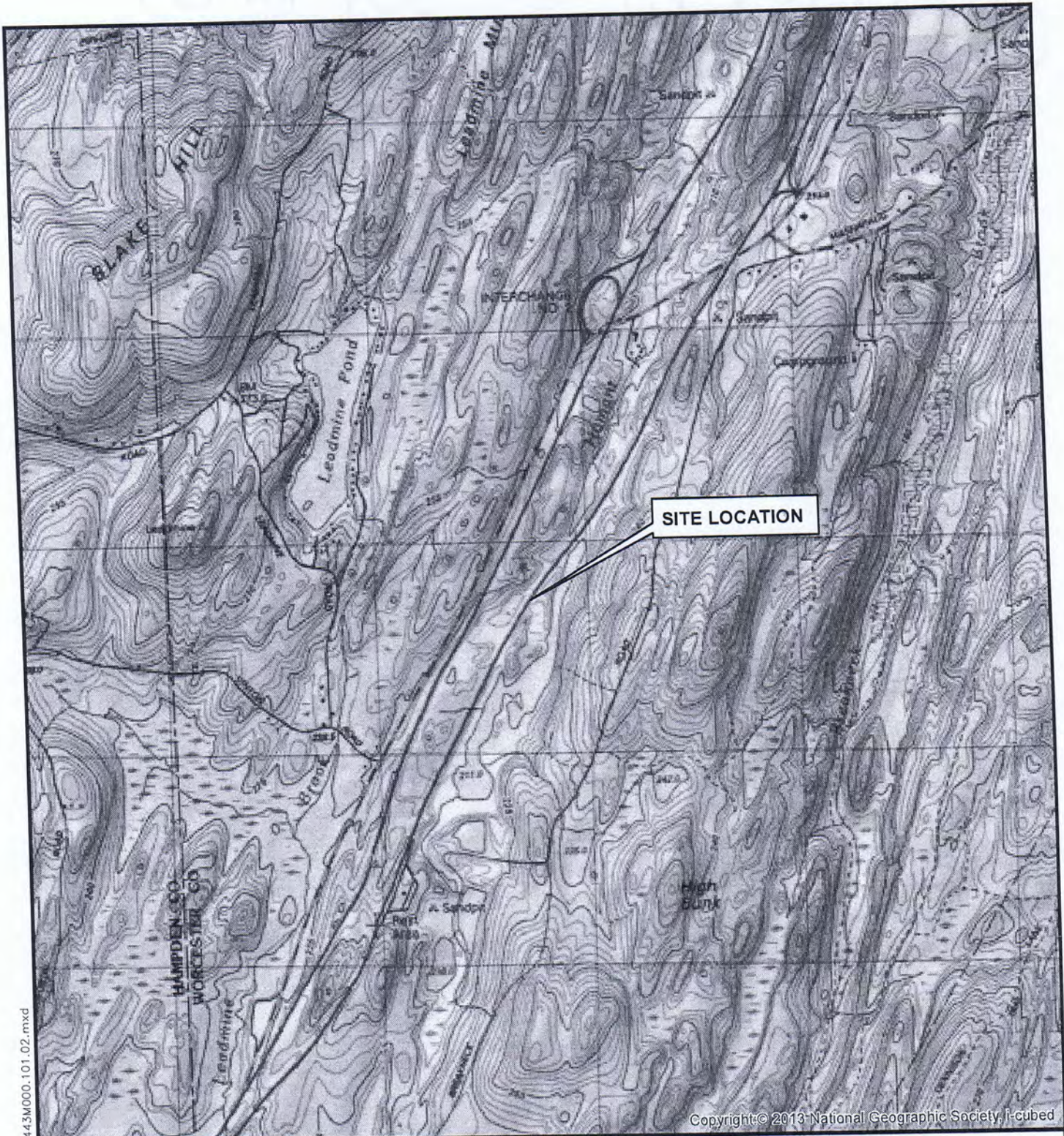
*Town Hall, 308 Main Street
Sturbridge, MA 01566*

*Telephone (508) 347-2503
Fax (508) 347-2521
Email: amurphy@town.sturbridge.ma.us*

*Town Hall, 308 Main Street
Sturbridge, MA 01566*

*Telephone (508) 347-2503
Fax (508) 347-2521
Email: amurphy@town.sturbridge.ma.us*

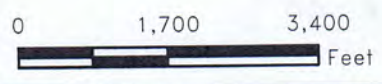
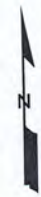
Parcel ID	Owner	Owner Address	Owner City	State	Zip	Property Address
					01566	102 BREAKNECK ROAD
170-04831-102	CHECHILE PETER T	98 BREAKNECK ROAD	STURBRIDGE	MA	01566	98 BREAKNECK ROAD
170-04822-098	CHECHILE PETER T	98 BREAKNECK ROAD	STURBRIDGE	MA	01566	80 BREAKNECK ROAD
170-04541-080	CONSTENTINOU ALEXANDER	80 BREAKNECK ROAD	STURBRIDGE	MA	01566	72 BREAKNECK ROAD
170-04542-072	ERSKINE REGINALD	72 BREAKNECK ROAD	STURBRIDGE	MA	01566	76 BREAKNECK ROAD
170-04542-076	LENNON GREGORY	76 BREAKNECK ROAD	STURBRIDGE	MA	01566	88 BREAKNECK ROAD
170-04551-088	LOVE ROBERT	88 BREAKNECK ROAD	STURBRIDGE	MA	01566	90 BREAKNECK ROAD
170-04811-090	MORIARTY THOMAS J	90 BREAKNECK ROAD	STURBRIDGE	MA	01566	82 BREAKNECK ROAD
170-04541-082	NOLIN RICHARD	82 BREAKNECK ROAD	STURBRIDGE	MA	01566	74 BREAKNECK ROAD
170-04542-074	NOLIN STEVEN	74 BREAKNECK ROAD	STURBRIDGE	MA	01057	100 BREAKNECK ROAD
170-04831-100	OLD GREEN ACRES LLC	113 BETHANY ROAD	MONSON	MA	01057	104 BREAKNECK ROAD
170-04831-104	OLD GREEN ACRES LLC	113 BETHANY ROAD	MONSON	MA	01057	106 BREAKNECK ROAD
170-04831-106	OLD GREEN ACRES LLC	113 BETHANY ROAD	MONSON	MA	01566	96 BREAKNECK ROAD
170-04822-096	PESATURO ADAM B	96 BREAKNECK ROAD	STURBRIDGE	MA	01566	86 BREAKNECK ROAD
170-04551-086	RYNEARSON DAVID	86 BREAKNECK ROAD	STURBRIDGE	MA	01566	13 CROSS STREET
237-04737-013	TOWN OF STURBRIDGE	308 MAIN STREET	STURBRIDGE	MA	01566	84 BREAKNECK ROAD
170-04542-084	WILLIAMS JOSHUA L	84 BREAKNECK ROAD	STURBRIDGE	MA	01566	78 BREAKNECK ROAD
170-04542-078	YOUNG MICHAEL J	78 BREAKNECK ROAD	STURBRIDGE	MA		
	BOARD OF ASSESSORS					
Above persons listed are record owners as they appear on the most recent applicable tax list.						
Assessors are not responsible for errors or omissions. RE: M.G.L. - Chapter 40A, Section 11						
Abutters List -	Conservation - Wetland Notice of Intent- 200'					
RE: Site location indicated on attached map						
Certified Copy						
Assessor:						
Date:	3-4-2020					



Copyright © 2013 National Geographic Society, I-cubed

T:\GIS\UPS\0762.0443M000\101\0762.0443M000.101.02.mxd

■ Site Location



SOURCE
 USGS COLOR TOPOGRAPHIC MAP 37
 OF MASSACHUSETTS (7.5 MINUTE),
 WEB MAP SERVICE (WMS)

Title:		SITE LOCATION MAP	
		I-84 STURBRIDGE, MA	
Prepared For:		UNITED PARCEL SERVICES, INC.	
ROUX	Compiled by: CC	Date: 22OCT19	FIGURE 1
	Prepared by: CC	Scale: AS SHOWN	
	Project Mgr: JC	Project: 0762.0443M000	
	File: 0762.0443M000.101.02.mxd		

Professional Profile of Wetland Specialist

TECHNICAL SPECIALTIES

- Ecological investigations including wetland delineations, land use permitting, restoration, and risk assessments.
- Map making using Geographic Information System (GIS) ArcMap
- Data quality assurance and quality control
- Statistical analysis using ProUCL

EXPERIENCE SUMMARY

Staff Scientist, Roux Associates, Inc.

CREDENTIALS

B.S. Environmental Science, State University of New York College of Environmental Science and Forestry, 2015

B.S. Chemistry, State University of New York College of Environmental Science and Forestry, 2015

M.S. Plant and Soil Science, University of Delaware, 2017

PUBLICATIONS:

Effects of Extreme Events on Arsenic Cycling in Salt Marshes, Journal of Geophysical Research Biogeosciences
<https://doi.org/10.1002/2017JG004259>

UNDERGRADUATE RESEARCH EXPERIENCE:

- Conducted subaqueous soil survey in Barnegat Bay, NJ. Collected sediment cores using the vibracore method. Described cores for soil horizonation (i.e. horizon depths, texture, colors, odor).
- Analyzed samples from each horizon for total carbon, nitrogen, and phosphorous. Compared subsections of the bay for nutrient loads, using ANOVA statistical analyses.
- Disseminated data analysis and conclusions into a poster format. Presented research findings at the 2015 Annual Meeting of the Soil Science Society of America.

GRADUATE RESEARCH EXPERIENCE:

- Conducted quarterly soil sampling, monthly plant tissue sampling, and biweekly pore water sampling in a tidal salt marsh in Dover, DE.
- Performed wet chemistry for the analysis of arsenic, chromium, copper, iron, and manganese in each class of media. Used various methodology, including Inductively Coupled Plasma Mass Spectroscopy, UV Vis Spectroscopy, and Ion Chromatography for analyses.
- Performed sequential extractions on soil samples for the analysis of arsenic fractionation and availability.
- Designed and implemented incubation experiments for the desorption/dissolution of arsenic in low and high oxygen environments.
- Disseminated data analysis and conclusions into a poster format. Presented research findings at regional and national meetings.

HEALTH & SAFETY

OSHA 40-Hour HAZWOPER Training, 2018
Loss Prevention System Training, 2018 and 2019
Smith System Driver Training, 2018
New Jersey Transit Rail Training

PROFESSIONAL AFFILIATIONS:

Soil Science Society of America (2015 – present)
Society of Wetland Scientists (2018 – present)

KEY PROJECTS:

- Completed wetland delineation for petroleum facility. Oversaw surveying activities for a line verification. Prepared NJDEP General Freshwater Wetlands Permit for the installation of monitoring wells in the wetland and transition area.
- Completed wetland delineation and tree inventory for personal care products facility. Prepared NJDEP Freshwater Wetlands General Permit and Flood Hazard Area Individual Permit for the dredging of a settling basin.
- Completed wetland delineation and a USACE Jurisdictional Determination for a former bank site in the NJ Meadowlands.
- Completed wetland delineation and a NJDEP eLOI Application for prospective development projects in Bergen, Gloucester, Middlesex, and Somerset Counties.
- Completed wetland delineation and a NJDEP eLOI Application for a prospective residential development project.
- Completed wetland delineation and a NJDEP Presence/Absence Determination Application for a prospective self-storage development project.
- Conducted wetland evaluation and habitat assessment of an active train depot.
- Conducted wetland delineation and habitat assessment for an industrial complex.
- Conducted wetland delineation for a site along the Delaware River in Warren County, NJ.
- Completed wetland delineation, habitat assessment, tree inventory, and NJDEP Freshwater Wetland General Permit #16 application for wetland enhancement for a former pottery manufacturer.
- Completed tree inventory and habitat assessment for a former roofing manufacturer. Assessed potential migration of contaminants to environmentally sensitive natural resources. Prepared NJDEP combined Freshwater Wetlands Permit and Flood Hazard Area Individual Permit for bank stabilization remediation activities. Prepared US Army Corp of Engineers General Nationwide wetland permit for bank stabilization in-water activities. Created ecological figures for the tree inventory and land use surrounding the property in ArcMap. Computed statistical analyses of sediment data in the USEPA

program ProUCL. Prepared a food chain model to assess potential risk to mammalian and avian receptors.

- Completed habitat assessment for former metals manufacturer with both terrestrial and aquatic habitat on site. Assessed potential migration of contaminants to environmentally sensitive natural resources. Prepared report for the ecological evaluation.
- Completed Ecological Risk Assessment for former battery manufacturer with both terrestrial and aquatic habitat on site. Collected sediment and surface water samples in creek adjacent to site. Assessed potential migration of contaminants to environmentally sensitive natural resources. Computed statistical analyses of soil, sediment, and surface water data in the USEPA program ProUCL. Prepared a food chain model to assess potential risk to mammalian and avian receptors. Prepared report for the ecological risk assessment.
- Completed Ecological Risk Assessment for former cleaning products manufacturer with terrestrial habitat on site. Assessed potential migration of contaminants to environmentally sensitive natural resources. Computed statistical analyses of soil data in the USEPA program ProUCL. Prepared a food chain model to assess potential risk to mammalian and avian receptors. Prepared report for the ecological risk assessment.
- Completed Ecological Risk Assessment for former automotive battery supplier with aquatic habitat adjacent to the site. Assessed potential migration of contaminants to environmentally sensitive natural resources. Computed statistical analyses of surface water and sediment data in the USEPA program ProUCL. Prepared a food chain model to assess potential risk to mammalian and avian receptors. Prepared report for the ecological risk assessment.
- Completed Ecological Risk Assessment for former tubing manufacturer with aquatic habitat onsite. Assessed potential migration of contaminants to environmentally sensitive natural resources. Computed statistical analyses of surface water and sediment data in the USEPA program ProUCL. Prepared a food chain model to assess potential risk to mammalian and avian receptors. Prepared report for the ecological risk assessment.
- Completed Ecological Risk Assessment for oil distributor with aquatic habitat adjacent to the site. Assessed potential migration of contaminants to environmentally sensitive natural resources. Conducted sediment and surface water sampling in river and computed statistical analyses of analytical data in the USEPA program ProUCL. Prepared a food chain model to assess potential risk to mammalian and avian receptors. Prepared report for the ecological risk assessment.
- Completed Ecological Risk Assessment for former residential site with aquatic habitat on the site.

Assessed potential migration of contaminants to environmentally sensitive natural resources. Conducted sediment samples in stream onsite and computed statistical analyses of analytical data in the USEPA program ProUCL. Prepared a food chain model to assess potential risk to mammalian and avian receptors. Prepared report for the ecological evaluation.

- Completed ecological investigation for pond on a commercial property. Assessed water quality of pond, collected surface water samples, and recommended remedial system for preventing fish kills.
- Conducted ecological sampling of sediment and surface water in a tidal salt marsh adjacent to a former industrial yard.
- Conducted ecological sampling for former dry-cleaning site. Collected sediment and surface water samples in creek adjacent to site and evaluated data. Conducted ecological screening criteria.
- Conducted ecological sampling for oil distributor. Collected sediment and surface water samples in river adjacent to site and evaluated data against ecological screening criteria. Prepared report for the ecological evaluation.
- Conducted ecological sampling for gasoline station. Collected sediment samples in brook adjacent to site and evaluated data against ecological screening criteria.
- Completed an Environmental Impact Statement for a development project in Passaic County, NJ.
- Conducted a habitat inspection for wood turtles in Morris County, NJ.
- Created figures depicting sampling locations and data results for various remedial investigation sites using ArcMap.
- Created figures depicting Thiessen polygons for compliance attainment using ArcMap.
- Field manager for wetland restoration of an encroached freshwater wetland. Responsibilities included oversight of soil excavation, tree and herbaceous vegetation planting, establishment of erosion controls, and reporting.
- Field manager for tidal mud flat restoration pilot study. Responsibilities included randomizing the planting design for each grid, coordinating with nursery for plant stock, delivering marsh grasses to the project site, overseeing planting, and routine O&M of vegetation throughout the growing season.
- Field manager for ecological sampling of stream, including base flow and storm flow sample collection. Responsibilities included ordering and organizing bottleware and equipment, training colleagues for proper ecological sampling techniques, and collecting sediment and surface water samples for two events.

- Field manager for quarterly groundwater monitoring rounds at a former button factory. Activities included gauging of water levels and the collection of groundwater samples from on-site monitoring wells.
- Field manager for bedrock monitoring well installation. Coordinated with drilling subcontractor as well as screened and sampled soil during advancement of well.
- Field manager for surface water sampling events in the Delaware River for dredging project.
- Completed Soil and Groundwater Biennial Certifications and associated field sampling for various ongoing MNA projects.
- Completed Phase I ESA/Preliminary Assessment reporting for previously undeveloped sites in Camden and Sussex County, NJ.
- Manager for office GPS unit. Responsibilities include schedule coordination, technical training with colleagues, transferring coordinates to the GPS for field navigation, processing data files from field sites for use with ArcGIS and AutoCAD.
- Site Safety Officer for various remedial investigation sites. Responsibilities include preparation of health and safety plans (HASPs), job safety analysis (JSA) documents development and review, onsite safety meeting management, safety document preparation (Lessons Learned, Near Loss, Field Audits, etc.), and planning/execution of corrective actions.

Site Photographs



Photograph 1: View of I-84 Eastbound, looking southwest. (10/23/2019)



Photograph 2: View of I-84 Eastbound, looking northeast. (10/23/2019)



Photograph 3: View of open water from top of slope, looking west. (10/23/2019)



Photograph 4: View of truck accident footprint and plastic erosion mat from top of slope, looking west. (10/23/2019)



Photograph 5: View of general wetland area from top of slope, looking west. (10/23/2019)



Photograph 6: View of open water and booms, looking southwest from culvert. (10/23/2019)



Photograph 7: Close up view of microtopography (hummocks), looking southwest from culvert. (10/23/2019)



Photograph 8: View of open water and booms, looking west from culvert. (10/23/2019)



Photograph 9: View of open water and booms, looking northwest from culvert. (10/23/2019)



Photograph 10: Close up view of microtopography (hummocks), looking northwest from culvert. (10/23/2019)



Photograph 11: View of soil boring collected from northeast of culvert. (10/23/2019)



Photograph 12: Close up view of open water and booms, looking southwest from culvert. (10/23/2019)



Photograph 13: View of soil boring collected from below open water. (10/23/2019)



Photograph 14: View of open water and bog in distance, looking west/southwest. (10/23/2019)



Photograph 15: View of soil boring collected from area north of open water. (10/23/2019)



Photograph 16: Close up view of historic fill in soil boring collected from area north of open water. (10/23/2019)



Photograph 17: View of wooded wetlands located north of open water, looking north. (10/23/2019)



Photograph 18: View of top of soil boring collected from area further north of open water. (10/23/2019)



Photograph 19: View of middle of soil boring collected from area further north of open water. (10/23/2019)



Photograph 20: View of bottom of soil boring collected from area further north of open water. (10/23/2019)



Photograph 21: View of northwestern portion of bog, looking west. (10/23/2019)



Photograph 22: View of eastern portion of bog, looking north. (10/23/2019)



Photograph 23: View of open water east of bog, looking northeast. (10/23/2019)



Photograph 24: View of little canopy over bog, looking north/northwest. (10/23/2019)



Photograph 25: View of bog in distance, looking west/northwest. (10/23/2019)



Photograph 26: View of wooded wetland south of bog, looking southwest. (10/23/2019)



Photograph 27: View of slope down from I-84 Eastbound, looking northeast. (10/23/2019)



Photograph 28: View of down trees south of bog, looking north/northeast. (10/23/2019)



Photograph 29: Close up view of truck accident footprint, looking northeast. (10/23/2019)



Photograph 30: Close up view of truck accident footprint, looking west from top of slope. (10/23/2019)



Photograph 31: Close up view of truck accident footprint, looking south. (10/23/2019)



Photograph 32: Close up view of excavation area with color gradation from reddish to grayish brown. (10/23/2019)



Photograph 33: Impacted soil removal activities, looking southeast. (10/23/2019)



Photograph 34: Impacted soil removal activities, looking southwest. (10/23/2019)



Photograph 38: View of excavation sidewall, looking west. Note coarse fill material present below surface. (10/23/2019)



Photograph 39: View of temporary erosion controls, looking west. (10/23/2019)



Photograph 40: View of erosion controls installed along areas of disturbance, looking west. (02/12/2020)



Photograph 41: View of erosion controls installed along areas of disturbance, looking east. (07/09/2020)