



## Land Use Control Implementation Plan

Final

June 25, 2014



**Remedial Action | GSA Property D0MA001902 | Watertown, MA**  
**Revision No.: 00 | Contract No.: W912WJ-11-D-0009/0003**

Prepared for:



**US Army Corps of Engineers**  
New England District  
696 Virginia Road  
Concord, Massachusetts 01742



**CHARTER**

Prepared by:

**Charter Environmental, Inc.**  
560 Harrison Avenue  
Boston, Massachusetts 02118  
(857)246-6800

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**FIGURE**

- 1 Site Locus Plan
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**ACRONYMS AND GLOSSARY TERMS**

AMMRC	Army Materials and Mechanics Research Center
ARL	Army Research Laboratory
Army	United States Army
DCR	Department of Conservation and Recreation
DU	Depleted Uranium
EPA	United States Environmental Protection Agency
ERA	Ecological Risk Assessment
GERE	Grant of Environmental Restriction and Easement
GSA	United States General Services Administration
HHRA	Human Health Risk Assessment
HQ	Hazard Quotients
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
MDC	Metropolitan District Commission (currently known as DCR)
MassDEP	Massachusetts Department of Environmental Protection
NCP	National Contingency Plan
PCB	Polychlorinated Biphenyl
Site	670 Arsenal Street, Watertown, Massachusetts
USACE	United States Army Corps of Engineers

## **1.0 INTRODUCTION**

This document constitutes the Land Use Controls (LUCs) Implementation Plan (IP) at the GSA Property Formerly Used Defense Site (FUDS) (D0MA00192), Watertown, Massachusetts. This document was prepared by Charter Environmental, Inc. for the US Army Corps of Engineers, New England District under Contract No. W912WJ-11-0009, Task Order No. 0003. The General Service Administration (GSA) and Department of Conservation and Recreation (DCR) both own portions of the property. After remediation the GSA owned portion of the GSA Property FUDS property will be transferred to the DCR. The LUCIP was developed as part of the remedial action to address land use control implementation actions in accordance with the Decision Document dated June 2012 for the GSA Property FUDS.

Project:	GSA Property Formerly Used Defense Site
Project Location:	670 Arsenal Street Watertown, Massachusetts
Contract No.:	W912WJ-11-D-0009/0003
FUDS No.	D0MA001902

## **2.0 SITE DESCRIPTION**

The Site is located at 670 Arsenal Street, in the eastern portion of the town of Watertown in Middlesex County, Massachusetts. Refer to Figure 1 for a Locus Plan depicting the approximate location and Figure 2 for a Site Plan depicting pertinent Site features. The Site is located on an elongated tract of 13 acres trending north to south and separated from the Charles River to the east by Greenough Boulevard. The Site is surrounded on all four sides by state and federal delineated wetlands, and by a small brook (Sawins Pond Brook) on the west side. The Site is part of the former United States Army's (Army) Watertown Arsenal and located south of the main arsenal complex. The Site contains the 11.91-acre United States General Services Administration (GSA) Property parcel and the 1-acre, Department of Conservation and Recreation (DCR) owned, north-adjointing Property 20 parcel. The Site is bounded on the north by Grove Street, on the south by Arsenal Street, and on the west by privately held properties facing Coolidge Avenue.

The Site was formerly referred to as the "Northeast Area" of the Army Watertown Arsenal and as the Federal Property Resources Center. The parcel was filled to facilitate development during World War II, and was subsequently used by the Army and by the GSA for storing various materials and equipment. A concrete pad on the Site was used for burning and stabilizing depleted uranium (DU) machined chips and turnings prior to offsite disposal at a permitted facility. Prior to demolition, the buildings and grounds of the GSA Property were currently unoccupied, and their condition had deteriorated in recent years.

The area referred to as Property 20 was leased to the Army during the late 1940s. The designation as Property 20 was derived from a figure and table of the "Sequence of Land Purchases Which Formed the Watertown Arsenal" included in the 1980 Army Materials and Mechanics Research Center (AMMRC) Installation Assessment. The nomenclature presented in the 1980 Assessment was derived from a real estate map of the Watertown Arsenal prepared for the Army in March 1945 with revisions through 1960, referring to Property 20 as Tract 8-P (Woods Hole, 2011).

### 3.0 SITE BACKGROUND

The Site is listed in USACE records as Formerly Used Defense Site number D0MA001902. The site is not listed on the National Priorities List. As such, the USACE must comply with, manage, and execute site closure procedures in accordance with the following programs/policies:

- Defense Environmental Restoration Program (DERP) statute (10 USC 2701 et seq.);
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 USC § 9601 et seq.);
- Executive Orders 12580 and 13016;
- National Oil and Hazardous Substances Pollution Contingency Plan (NCP);
- All applicable Department of Defense (DoD) (e.g., DoD Management Guidance for the DERP [9 March 2012]) and Army policies (including FUDS Engineer Regulations (ER) 200-3-1); and
- DERP requires that CERCLA be followed in the cleanup of this site. Under CERCLA, the USACE seeks the oversight and consensus of the Massachusetts Department of Environmental Protection (MassDEP) on this project.

The Watertown Arsenal was founded in 1816 on approximately 45 acres of farmland located near the former location of the Army Research Laboratory (ARL). At its maximum extent, the Arsenal covered approximately 130 acres of land including the Site (i.e., the 11.91-acre parcel referred to as the GSA Property and the 1-acre parcel referred to as Property 20). The Site was acquired by the Army from the Commonwealth of Massachusetts in 1920. The Army used the property for storage of industrial jigs and fixtures during the 1950s and subsequently for vehicle storage, miscellaneous military equipment, and various salvage and scrap property. The Army used the Site to landfill refuse and debris materials. From 1948 to 1951 and under Metropolitan District Commission (MDC, now referred to as DCR) permits, the Army was allowed to extend their landfilling activities and place fill materials to Property 20.

Around 1960, an area in the northern portion of the Site was designated for stabilizing DU turnings and DU waste generated from machining operations at the Arsenal. This area is referred to as the former burn box area. DU chips and turnings were brought to the Site and transferred into a burn box located on a concrete pad surrounded by a chain link fence. This material was then burned to convert the DU metal into a more chemically stable oxide form. When the containers were full, they were welded shut and shipped offsite for appropriate

disposal. Once a box was full and shipped offsite, a new burn box was placed on the concrete pad.

The GSA received the Site from the Army in 1967 and used it for storage and auction of excess property. Other agencies (Federal Bureau of Investigation, Drug Enforcement Agency, and the Internal Revenue Service) and tenants also used the Site or portions thereof for storage and other purposes.

On October 23, 1984, the Commonwealth of Massachusetts (through the MDC) filed a "Notice of Right-of-Entry for Condition Broken or Possibility of Reverter" for the 11.91-acre GSA Property. The Site is currently managed by the GSA's Director of the Facility Support Center at the Thomas P. O'Neill Building, 10 Causeway Street, Boston, Massachusetts (Woods Hole, 2011).

In 2011, a Human Health Risk Assessment (HHRA) characterized potential human health risks associated with future use of the Site as a passive recreational area (managed by DCR). The HHRA concluded the following for passive recreational use:

- The Polychlorinated Biphenyl (PCB) Impacted Area (Figure 2) (referred to herein as "Soil Cover Area") could pose risks to human health that exceed National Contingency Plan (NCP) risk management criteria based on presumed exposure to PCBs, antimony, lead, and nickel.
- Surface soil (0 to 3 feet below ground surface [ft bgs]) outside the PCB Impacted Area would not pose risks to human health in excess of the NCP risk management criteria.
- Subsurface soil throughout the Site at 3 to 15 ft bgs would not pose risks to human health in excess of NCP risk management criteria if the public was fully exposed to these soils (e.g. ground surface).

In addition, an Ecological Risk Assessment (ERA) was completed for the PCB Impacted Area and concluded the following:

- The indicator of hazard quotients (HQs) for individual contaminants was greater than 1 indicating risks at the Site were greater than risks at background areas for robins and shrews.

- Site-related contaminants were identified as PCBs, dioxin, antimony, lead, and nickel based on incremental risk, no-observable-adverse effect levels, and lowest-observable adverse effect levels for HQs greater than 1.
- When the PCB Impacted Area is excluded, the Site poses no significant risk to environment receptors.

In 2012, the Selected Remedy as defined in the Decision Document contains the following components:

- Excavation of and disposal of soil with 50 milligrams/kilogram (mg/kg) PCBs and greater to a permitted landfill.
- Remaining soils containing PCBs less than 50 mg/kg PCB but greater than 1 mg/kg PCBs will be covered with marker geotextile, overlain by 18 inches of clean soil and 6 inches of topsoil.
- Wetlands replication to replace the wetlands changed to uplands by the soil cover.
- Property owner will implement a Grant of Environmental Restriction and Easement (GERE) to restrict the use of the property to passive recreation.

During 2012 through 2014, the following remedial action activities were completed:

- Mobilization;
- Clear, grub, and chip vegetation;
- Cut and cap utilities;
- Abandon monitoring wells;
- Collect and package universal waste;
- Perform asbestos abatement;
- Demolish buildings and mobile water treatment system;
- Demolish building slabs and foundations;
- Perform sampling and analysis/delineation;
- Excavate soil under building slabs;
- Reuse soil from under building slabs on-site;
- Construct a wetlands area on-site;



- Transport and dispose off-site of soil from building area unsuitable for reuse onsite;
- Excavate soil with 50 milligrams/kilogram (mg/kg) PCBs and greater and dispose of off-site;
- Construct soil cover over PCB Impacted Area;
- Perform Site restoration; and
- Demobilization

#### **4.0 DEFINITION OF LAND USE CONTROL**

Land Use Controls (LUC) are used at sites where contaminants are left in place at levels that do not allow for unrestricted use. LUCs ensure remaining contaminants do not pose an unacceptable risk to human health and the environment. Typically, LUCs consist of institutional controls and/or engineering controls. Institutional controls, such as restrictions, notifications, etc., are typically legal documents in the form of deed restrictions and easements. Engineering controls are typically barriers, such as a fence.

The purpose of the LUCs at the Site is to establish covenants and restrictions for the property and to protect human health and the environment by reducing the risk of exposure to the contaminants left in place. LUCs for the Site are further defined in Section 6.0.

#### **5.0 LAND AFFECTED**

Together, the Soil Cover Area and the Non-Cover Area comprise the entire Site. The areas of the Site affected by LUCs include both the PCB Impacted Area (referred to herein as “Soil Cover Area”) and the Non-Cover Area. Included in the Non-Cover Area is a portion of the Site known as Property 20. Property 20 is subject to the same restrictions as the other portions of the Non-Cover Area. A Site plan, showing both the Soil Cover and Non-Cover Areas, is included as Figure 2.

#### **6.0 DESCRIPTION OF THE LAND USE CONTROL FOR THE PROPERTY**

A Grant of Environmental Restriction and Easement (GERE) will be used to implement land use controls at the Site. The covenants and restrictions in the GERE will run with the land and be binding upon future owners of the property in perpetuity until otherwise released by the grantee.

The GERE will be established consistent with the provisions of M.G.L. c. 21E, sec. 6 and the applicable provisions of 310 CMR 40.1071, and otherwise be satisfactory to MassDEP as grantee. The restrictions in the GERE will include a description of prohibited and permitted uses and activities, including restrictions on soil disturbance within both the Soil Cover Area and the Non-Cover Area. The GERE will be recorded immediately prior to the transfer of the GSA parcel from the United States. On Property 20, a Notice of Environmental Restriction and Easement will be recorded, which will be modeled on the GERE.

### **Permitted Uses and Activities**

The property owner has agreed to the following permitted uses and activities at the Site:

- Pedestrian activity and other passive recreational uses, including sitting at and otherwise passively utilizing any meadow areas, viewing nodes, areas for nature study, park benches, shade structures and interpretive kiosks that may be located in the Non-Cover Area, and in each case in a manner that does not disturb the Soil Cover Area or Non-Cover Area, including the soil surface of the Soil Cover Area or Non-Cover Area, in a manner prohibited by the restricted use and activities (as defined below);
- Non-intrusive routine site maintenance, including cleaning drainage structures, mowing the shoulders along any trails and meadows, mowing the Soil Cover Area, leaf raking, and, on the paved or stabilized path or roadways that may be located in the Non-Cover Area, snow removal and ice treatment, provided, however, that such maintenance does not disturb the Soil Cover Area or Non-Cover Area, including the soil surface of such Areas, in a manner prohibited by the restricted use and activities (as defined below); and
- Excavation, drilling or otherwise disturbing soil, loam, peat, gravel, sand, rock or other mineral or natural resource in, below or on the Non-Cover Area in accordance with the Soil Management Plan (Exhibit C of the GERE);

### **Restricted Uses and Activities**

Restricted uses and activities are not permitted at the Site. Restricted uses and activities include the following:

#### Soil Cover Area

- Residential, daycare, school activities, gardening, or active recreational activities;

- Excavating, drilling or otherwise disturbing any soil, loam, peat, gravel, sand, rock or other mineral or natural resource in, below or on the Soil Cover Area, including any disturbance or breaching of the permeable soil cover in the Soil Cover Area in any way, including by digging, drilling, plowing, planting, cultivating, or by constructing buildings or other structures;
- Reduction in the grade below the ground surface grade of the Soil Cover Area;
- Using or otherwise bringing motorized vehicles, including cars, trucks, snowmobiles and all-terrain vehicles on or over the Soil Cover Area, or using bicycles, skis or sleds in, on or over the Soil Cover Area, but excluding motorized vehicles with ground pressure of 15 psi or less; and
- Any other use or activity in the Soil Cover Area which would interfere with, or would be reasonably likely to interfere with, the implementation, effectiveness, integrity, operation, or maintenance of the Selected Remedy, including but not limited to (a) interference with the Benchmarks, or (b) interference with any systems used to monitor groundwater, surface water, soils or sediments.

#### Non-Cover Area

- Residential, daycare, school activities, gardening, or active recreational activities;
- Excavation, drilling or otherwise disturbing any soil, loam, peat, gravel, sand, rock or other mineral or natural resource in, below or on the Non-Cover Area, except in accordance with the Soil Management Plan (Exhibit C of the GERE);
- Using motorized vehicles by the public, including cars, trucks, snowmobiles, dirt bikes and all terrain vehicles on or over the Non-Cover Area except in paved areas designated for parking;
- Using bicycles, skis, snowboards or sleds on or over the Non-Cover Area except on paved ways; and
- Using or otherwise bringing motorized vehicles, including cars, trucks, snowmobiles and all-terrain vehicles on or over the Non-Cover Area, or using bicycles, skis or sleds in, on or over the Non-Cover Area, but excluding (a) any such use of motorized vehicles, bicycles, skis or sleds that is conducted on a paved or stabilized path or roadway in good repair, and (b) motorized vehicles or equipment used by public employees in carrying out their lawful duties, provided, however, that such motorized vehicles and equipment do not disturb the Non-Cover Area;

- Any other use or activity in the Non-Cover Area which would interfere with, or would be reasonably likely to interfere with, the implementation, effectiveness, integrity, operation, or maintenance of the Selected Remedy, including but not limited to (a) interference with the Benchmarks, or (b) interference with any systems used to monitor groundwater, surface water, soils or sediments.

## **7.0 LAND USE CONTROL RESPONSIBILITIES**

The United States is responsible for implementing, monitoring, compliance with, and reporting on the land use controls. The property owner will be obligated to comply with the land use controls.

## **8.0 IMPLEMENTATION ACTION**

Pursuant to the Decision Document, the United States, acting through GSA and USACE is responsible for implementing, inspecting and reporting on the institutional controls in accordance with this LUCIP. For purposes of this LUCIP, the term “implementation actions” means actions to implement, operate and maintain the LUC component of the remedy. Although the United States may delegate or transfer authority in the future to conduct these actions to another entity, the United States shall retain ultimate responsibility for remedy integrity.

As set forth in this LUCIP, the following implementation actions will be performed to ensure that LUC objectives are met in accordance with the Decision Document.

1. Prepare a map indicating the Soil Cover Area and Non-Cover Area. Figure 2 depicts the boundary areas over which the LUCs will apply.
2. Submit a survey plan showing the property boundaries, Soil Cover Area and Non-Cover Area, prepared by a professional land surveyor registered by the Commonwealth of Massachusetts agency (e.g., the Registry of Deeds, Massachusetts Circuit Court) for the limited purpose of providing public notice of the environmental conditions of and limitations on the use of property. Copies will be provided to MassDEP.
3. Prepare a title certification consistent with Massachusetts title certification standards, showing no encumbrances inconsistent with the GERE.
4. Conduct LUC monitoring to verify the LUCs are being properly implemented and that the LUC objectives are being met. The LUC monitoring results will be included in a separate

report and provided to MassDEP. LUC compliance inspections will be conducted by USACE on an annual basis unless the frequency is reduced by agreement with MassDEP. A checklist to be used during LUC inspections is provided in Appendix C.

5. Reporting and notification requirements include the following:
  - a. Notify MassDEP by telephone and by e-mail as soon as practicable, but no longer than ten days after discovery of any activity that is inconsistent with the LUC objectives or use restrictions, or any other action that may interfere with the effectiveness of the LUCs.
  - b. The United States, acting through GSA, shall provide a copy of executed lease of transfer documents to MassDEP.
  - c. USACE shall submit annual LUC monitoring reports to MassDEP no later than 30 days after the inspection. The annual reports will be used in preparation of the Five-Year Review to evaluate the effectiveness of the remedy. The annual report will include an evaluation of the status of the LUCs and how any LUC deficiencies or inconsistent uses have been addressed. If the United States has transferred the land to another entity, the annual evaluation will address whether the LUCs were communicated in the GERE, whether the owners and state and local agencies were notified of the use restrictions and controls affecting the property, and whether use of the property has conformed to such restrictions and controls.
  - d. USACE shall notify MassDEP and MassDCR at least 7 days before any LUC compliance inspection so that either party will have the opportunity to participate in the LUC inspection if it so chooses.
6. Obtain MassDEP concurrence prior to modifying or terminating the LUCs or implementation actions.
7. Evaluate the effectiveness of the LUCs as part of each Five-Year Review. Site remedy reviews are required by CERCLA and the National Contingency Plan for so long as the site contaminants are present at the site at levels inappropriate for unrestricted use and unlimited exposure.

Should the United States fail to complete LUC implementation actions, MassDEP shall notify the USACE Remedial Project Manager (RPM) and seek immediate action.

Should there be a failure, by a subsequent owner or third party at a transferred property, to complete the LUC implementation actions as set forth in contracts, agreements, and/or property transfer documents (i.e., deed), USACE and MassDEP will consult on the appropriate enforcement action. Should there be a failure to complete LUC implementation actions that are the remaining responsibility of the United States at a transferred property MassDEP will notify the USACE RPM. Ultimate responsibility for assuring that all LUC performance objectives are met remains with the United States as the party responsible under CERCLA for the remedy.

## **9.0 ENFORCEMENT**

DCR shall notify MassDEP of any violations of the GERE within 72 hours of discovery. The property owner shall present a plan to MassDEP and USACE for addressing any such violation and shall implement plan immediately after plan is approved by MassDEP, in consultation with USACE.

## **10.0 DURATION OF LAND USE CONTROLS**

The LUCs will be maintained until such time that the risk associated with Site contaminants in soil is at levels to allow for unrestricted use and exposure without the use of LUCs. If LUCs relating to the GERE are no longer needed, MassDEP and property owner may provide releases for recordation with the deed. At that time, LUCs and associated responsibilities contained in the GERE will be discontinued.

## **11.0 APPROVALS**

No changes shall be made to this LUCIP without the approval of MassDEP and the concurrence of USACE. If non-substantive changes are recommended without amendment of this LUCIP, the property owner shall give the appropriate agency notice.

## **12.0 NOTICES**

All notices, responses, requests, approvals, and other forms of communications required under this LUCIP between or among MassDEP, property owner, and/or the USACE shall be in writing

and shall be sent by postage certified or registered mail (return receipt requested) to the following addresses:

**MassDEP:**

Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup  
Federal Facilities Section  
One Winter Street  
Boston, Massachusetts 02108  
Attention: Federal Facilities Coordinator

**DCR:**

Massachusetts Department of Conservation and Recreation  
251 Causeway Street, Suite 900  
Boston, Massachusetts 02114-2104  
Attention: Robert Lowell

**USACE:**

US Army Corps of Engineers  
New England District  
696 Virginia Road  
Concord, MA 01742-2721  
Attention: FUDS Program Manager (978) 318-8220

An agency may change its address for notice by communication to the other parties in accordance with this Section. Notices shall be deemed given upon delivery; or if delivery is refused, when refused.

### **13.0 REFERENCES**

Woods Hole Group (Woods Hole), 2011. Final Remedial Investigation/Feasibility Study Report, Watertown GSA Site, 670 Arsenal Street, Watertown, MA. September 2011.

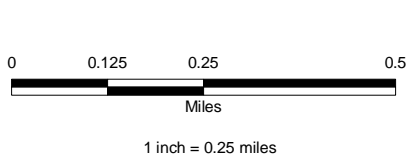
USACE, 2012. Final Decision Document Watertown GSA Site, formerly Used Defense Site #  
D0MA001902, Watertown, MA June 2012



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## FIGURES

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**Nobis**  
Engineering a Sustainable Future  
Nobis Engineering, Inc.  
585 Middlesex Street  
Lowell, MA 01851  
T(978) 683-0891  
www.nobiseng.com  
Client-Focused, Employee-Owned

**FIGURE 1**  
**SITE LOCUS PLAN**  
**WATERTOWN GSA SITE**  
**WATERTOWN, MASSACHUSETTS**

PREPARED BY: JH	CHECKED BY: AR
PROJECT NO. 86300	DATE: AUGUST 2012



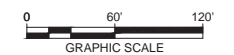
CONSTRUCTION  
PROGRESS  
PRINT

WATERTOWN  
GSA SITE

WATERTOWN,  
MASSACHUSETTS

NO.	DATE	DESCRIPTION
1	03/19/14	UPDATED PER COMMENTS
2	01/16/14	UPDATED FOR CONSTRUCTION STATUS
3	11/12/13	UPDATED FOR CONSTRUCTION STATUS
4	09/03/2013	ADDED EROSION STONE

REVISIONS

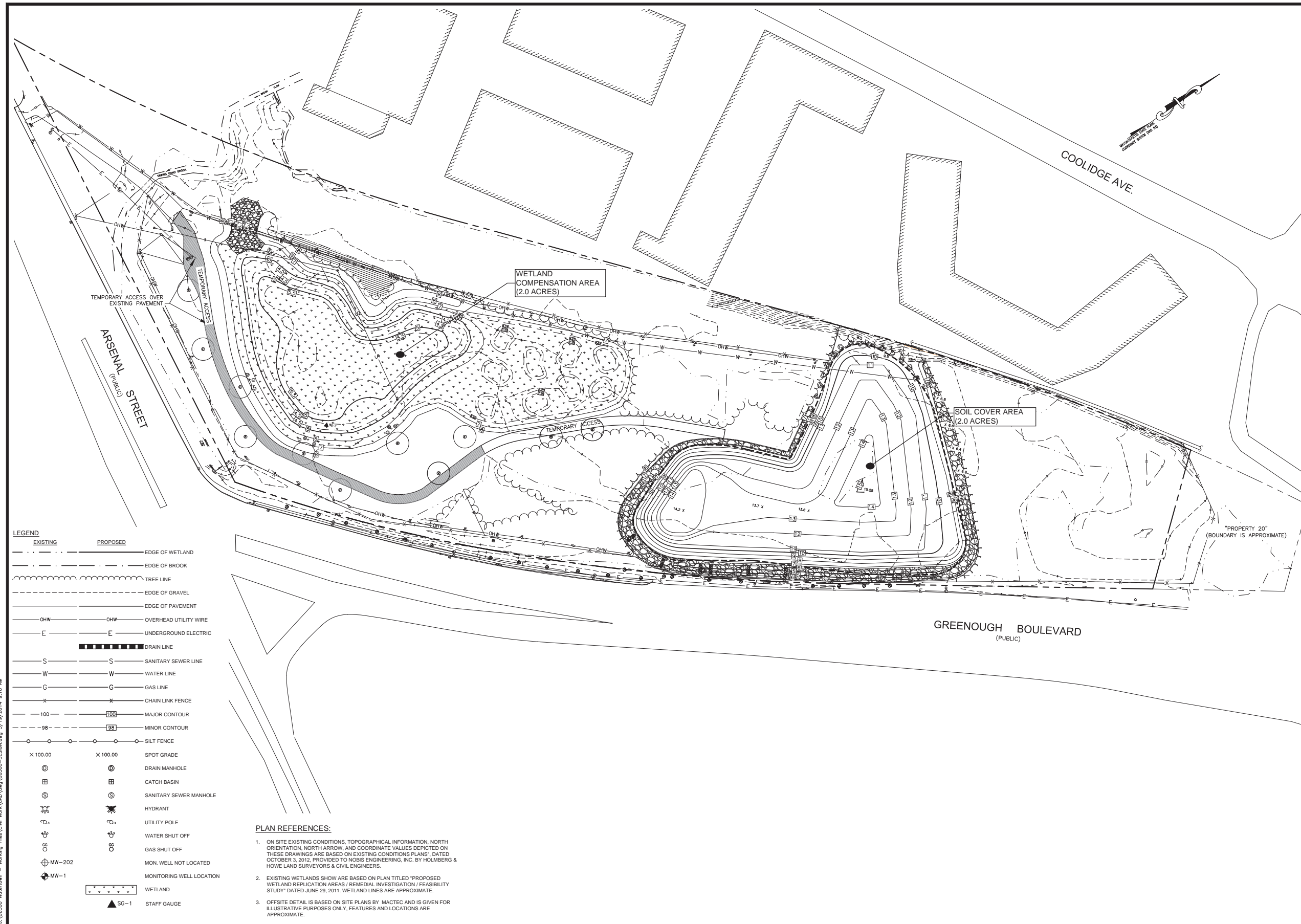


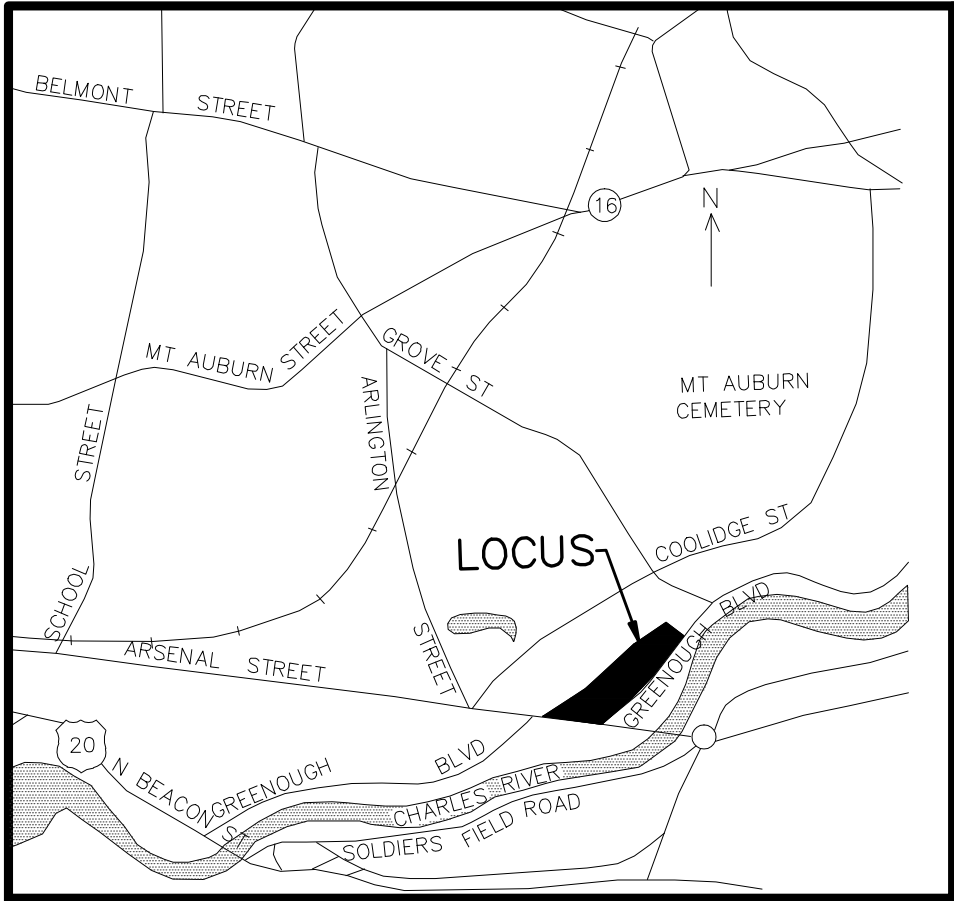
DATE:	MARCH 2013
NOBIS PROJECT NO.	86300.00
DRAWN BY:	ML
CHECKED BY:	BY
CAD DRAWING FILE:	86300-DESIGN.dwg

SHEET TITLE

SITE  
PLAN

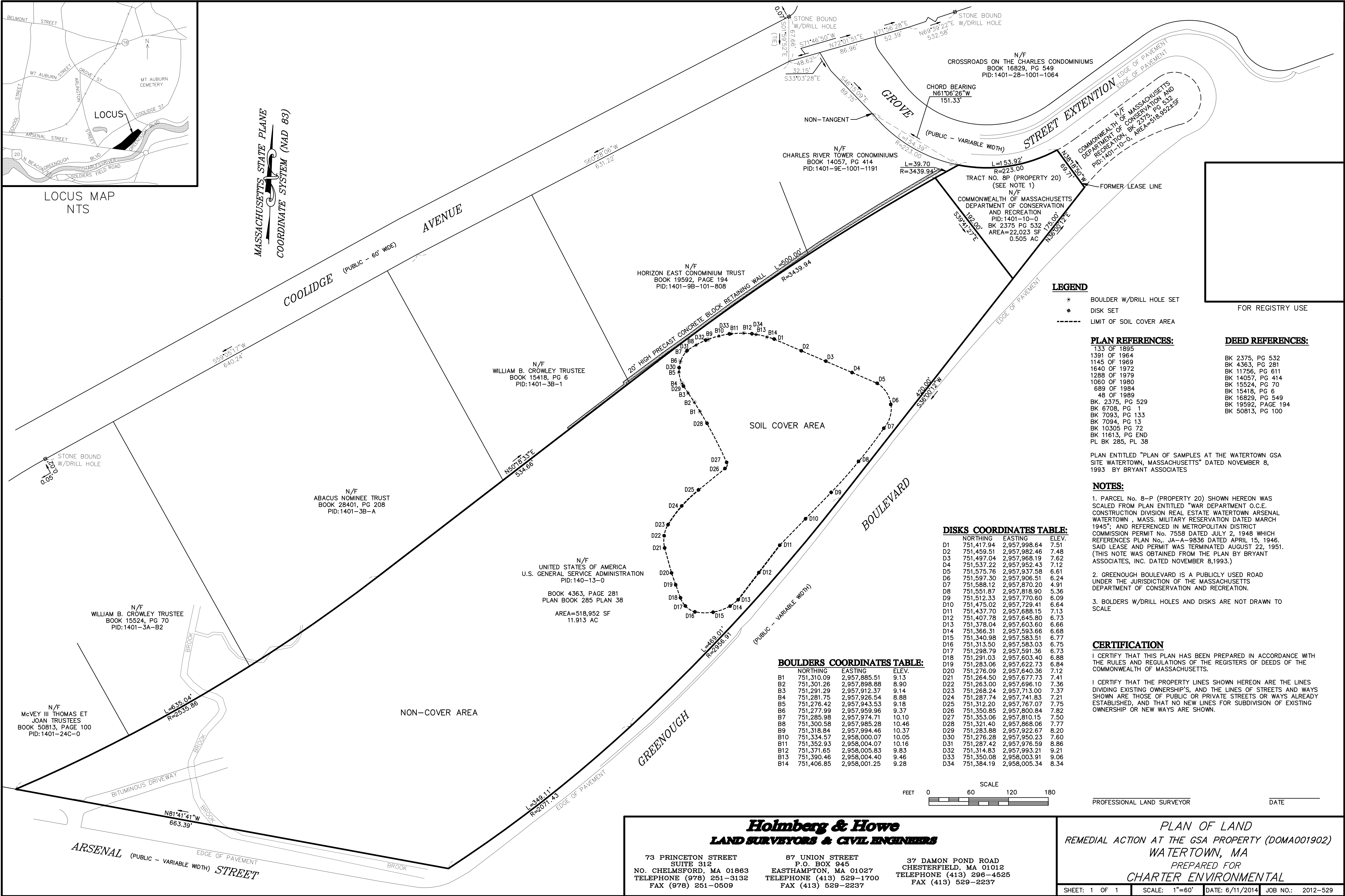
FIGURE  
2





LOCUST NTS

MASSACHUSETTS STATE PLANE  
COORDINATE SYSTEM (NAD 83)



**LEGEND**

- BOULDER W/DRILL HOLE SET
- DISK SET
- LIMIT OF SOIL COVER AREA

FOR REGISTRY USE

**PLAN REFERENCES:**

133 OF 1895  
1391 OF 1964  
1145 OF 1969  
1640 OF 1972  
1288 OF 1979  
1060 OF 1980  
689 OF 1984  
48 OF 1989  
BK. 2375, PG 529  
BK 6708, PG 1  
BK 7093, PG 133  
BK 7094, PG 13  
BK 10305 PG 72  
BK 11613, PG END  
PL BK 285, PL 38

**DEED REFERENCES:**

BK 2375, PG 532  
BK 4363, PG 281  
BK 11756, PG 611  
BK 14057, PG 414  
BK 15524, PG 70  
BK 15418, PG 6  
BK 16829, PG 549  
BK 19592, PAGE 194  
BK 50813, PG 100

**NOTES:**

1. PARCEL No. 8-P (PROPERTY 20) SHOWN HEREON WAS SCALED FROM PLAN ENTITLED "WAR DEPARTMENT O.C.E. CONSTRUCTION DIVISION REAL ESTATE WATERTOWN ARSENAL WATERTOWN, MASS. MILITARY RESERVATION DATED MARCH 1945"; AND REFERENCED IN METROPOLITAN DISTRICT COMMISSION PERMIT No. 7558 DATED JULY 2, 1948 WHICH REFERENCES PLAN No. JA-A-9836 DATED APRIL 15, 1946. SAID LEASE AND PERMIT WAS TERMINATED AUGUST 22, 1951. (THIS NOTE WAS OBTAINED FROM THE PLAN BY BRYANT ASSOCIATES, INC. DATED NOVEMBER 8, 1993.)

2. GREENOUGH BOULEVARD IS A PUBLICLY USED ROAD UNDER THE JURISDICTION OF THE MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION.

3. BOLDERS W/DRILL HOLES AND DISKS ARE NOT DRAWN TO SCALE

**CERTIFICATION**

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

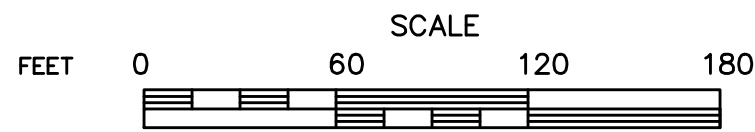
I CERTIFY THAT THE PROPERTY LINES SHOWN HEREON ARE THE LINES DIVIDING EXISTING OWNERSHIP'S, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR SUBDIVISION OF EXISTING OWNERSHIP OR NEW WAYS ARE SHOWN.

**DISKS COORDINATES TABLE:**

	NORTHING	EASTING	ELEV.
D1	751,417.94	2,957,998.64	7.51
D2	751,459.51	2,957,982.46	7.48
D3	751,497.04	2,957,968.19	7.62
D4	751,537.22	2,957,952.43	7.12
D5	751,575.76	2,957,937.58	6.81
D6	751,597.30	2,957,906.51	6.24
D7	751,588.12	2,957,870.20	4.91
D8	751,551.87	2,957,818.90	5.36
D9	751,512.33	2,957,770.60	6.09
D10	751,475.02	2,957,729.41	6.64
D11	751,437.70	2,957,688.15	7.13
D12	751,407.78	2,957,645.80	6.73
D13	751,378.04	2,957,603.60	6.66
D14	751,366.31	2,957,593.66	6.68
D15	751,340.98	2,957,583.51	6.77
D16	751,313.50	2,957,583.03	6.75
D17	751,298.79	2,957,591.36	6.73
D18	751,291.03	2,957,603.40	6.88
D19	751,283.06	2,957,622.73	6.84
D20	751,276.09	2,957,640.36	7.12
D21	751,264.50	2,957,677.73	7.41
D22	751,263.00	2,957,696.10	7.36
D23	751,268.24	2,957,713.00	7.37
D24	751,287.74	2,957,741.83	7.21
D25	751,312.20	2,957,767.07	7.75
D26	751,350.85	2,957,800.84	7.82
D27	751,353.06	2,957,810.15	7.50
D28	751,321.40	2,957,868.06	7.77
D29	751,283.88	2,957,922.67	8.20
D30	751,276.28	2,957,950.23	7.60
D31	751,287.42	2,957,976.59	8.86
D32	751,314.83	2,957,993.21	9.21
D33	751,350.08	2,958,003.91	9.06
D34	751,384.19	2,958,005.34	8.34

**BOULDERS COORDINATES TABLE:**

	NORTHING	EASTING	ELEV.
B1	751,310.09	2,957,885.51	9.13
B2	751,301.26	2,957,898.88	8.90
B3	751,291.29	2,957,912.37	9.14
B4	751,281.75	2,957,926.54	8.68
B5	751,276.42	2,957,943.53	9.18
B6	751,277.99	2,957,959.96	9.37
B7	751,285.98	2,957,974.71	10.10
B8	751,300.58	2,957,985.28	10.46
B9	751,318.84	2,957,994.46	10.37
B10	751,334.57	2,958,000.07	10.05
B11	751,352.93	2,958,004.07	10.16
B12	751,371.65	2,958,005.83	9.83
B13	751,390.46	2,958,004.40	9.46
B14	751,406.85	2,958,001.25	9.28



PROFESSIONAL LAND SURVEYOR

DATE

**Holmberg & Howe**  
**LAND SURVEYORS & CIVIL ENGINEERS**

73 PRINCETON STREET  
SUITE 312  
NO. CHELMSFORD, MA 01863  
TELEPHONE (978) 251-3132  
FAX (978) 251-0509

87 UNION STREET  
P.O. BOX 945  
EASTHAMPTON, MA 01027  
TELEPHONE (413) 529-1700  
FAX (413) 529-2237

37 DAMON POND ROAD  
CHESTERFIELD, MA 01012  
TELEPHONE (413) 296-4525  
FAX (413) 529-2237

PLAN OF LAND  
REMEDIAL ACTION AT THE GSA PROPERTY (DOMA001902)  
WATERTOWN, MA  
PREPARED FOR  
CHARTER ENVIRONMENTAL

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## **APPENDIX A**

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GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT

42 U.S.C. § 9601, *et seq.*; M.G.L. c. 21E, § 6

Massachusetts Department of Environmental Protection  
Release Tracking Number (RTN): 3-0002722

*This instrument is established as an institutional  
control for a Formerly Used Defense Site*

This GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT (“Grant”) is made as of this \_\_\_\_ day of \_\_\_\_\_, 2014, by the UNITED STATES OF AMERICA, acting by and through the General Services Administration .

W I T N E S S E T H :

WHEREAS, the United States acting by and through the General Services Administration is the owner in fee simple of a certain parcel of land located on Arsenal Street in the Town of Watertown, Middlesex County, Massachusetts which is more particularly bounded and described in Exhibit A attached hereto and made a part hereof (the “Property”);

WHEREAS, within the Property there is an area of land referred to herein as the “Soil Cover Area,” which is more particularly bounded and described in Exhibit B attached hereto and made a part hereof;

WHEREAS, those portions of the Property that are not part of the Soil Cover Area are referred to herein as the “Non-Cover Area,” and the Soil Cover Area and the Non-Cover Area together comprise the entirety of the Property;

WHEREAS, the Property, the Soil Cover Area, and the Non-Cover Area, are shown on a plan entitled “Plan of Land Remedial Action at the GSA Property (DOMA001902) Watertown, MA” prepared for Charter Environmental dated November 6, 2013, recorded in Middlesex South Registry of Deeds in Plan Book \_\_\_\_, Plan \_\_\_\_ (the “Plan”);

WHEREAS, within the Property there are survey markers, buried rebar and boulders, (collectively “Benchmarks”) that are intended to show the areal extent of the Soil Cover Area, and the Benchmarks are shown on the Plan;

WHEREAS, the Commonwealth of Massachusetts, by the Metropolitan Park Commission, granted the Property to the United States of America pursuant to a deed dated March 17, 1920, recorded at the Middlesex South Registry of Deeds on March 30, 1920 at Book 4363, Page 281 (the “Commonwealth Deed”), in which the Commonwealth of Massachusetts reserved to itself the right to “re-enter the said premises and repossess itself of its former estate;”

WHEREAS, by letter dated August 26, 1968, custody and accountability of the Property on behalf of the United States was transferred from the United States Department of the Army to the General Services Administration;

WHEREAS, pursuant to the Commonwealth Deed, the Commonwealth of Massachusetts, acting through said Metropolitan Park Commission, recorded a Notice of Right of Entry for Condition Broken or Possibility of Reverter, dated September 6, 1984 with respect to the Property at the Middlesex South Registry of Deeds on October 23, 1984 at Book 15843, Page 213, in which the Commonwealth of Massachusetts gave notice that it intended to exercise its rights to the Property;

WHEREAS, the Property is part of a Former Used Defense Site (FUDS) (the “FUDS Site”) pursuant to the Defense Environmental Restoration Program established under the authority of 10 U.S.C. 2701 *et seq.* (“DERP”), and pursuant to DERP the FUDS Site has been assigned FUDS number D01MA001902;

WHEREAS, the United States, by and through the United States Army Corps of Engineers (“USACE”), identified, pursuant to DERP, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9601 *et seq.*, as amended (“CERCLA”), and the National Contingency Plan at 40 CFR §§ 300.1 *et seq.* (“NCP”), releases of one or more hazardous substances at the Property;

WHEREAS, pursuant to DERP, CERCLA, and the NCP, USACE prepared a “Final Decision Document,” dated June, 2012 (the “Decision Document”), with respect to the FUDS Site, which Decision Document identified appropriate remedial actions to be taken to address hazardous substances released at the FUDS Site (“Selected Remedy”), including the establishment of restrictions and easements affecting the Property consistent with the restrictions and easements established by this Grant;

WHEREAS, pursuant to the Decision Document, USACE prepared an Operation and Maintenance Plan, dated April 16, 2014, with respect to the FUDS Site (“Operation and Maintenance Plan”), requiring certain operation and maintenance activities at the Property to ensure that the Selected Remedy remains intact;

WHEREAS, pursuant to the Decision Document, the USACE prepared a Land Use Control Implementation Plan, dated \_\_\_\_\_, with respect to the FUDS Site (“LUCIP”), requiring certain activities to implement, monitor, and report on enforceable land use controls at the Property to ensure that the Selected Remedy remains intact;

WHEREAS, pursuant to the Decision Document, USACE prepared a Quality Assurance Project Plan/Sampling and Analysis Plan, dated April 26, 2013, with respect to the FUDS Site, establishing protocols with respect to the FUDS Site, including protocols with respect to soil sampling (“Quality Assurance Project Plan”);

WHEREAS, the Massachusetts Department of Environmental Protection, an agency established under the laws of the Commonwealth of Massachusetts, having its principal office at One Winter Street, Boston, Massachusetts 02108 (“MassDEP”), identified one or more releases of oil and hazardous materials at the Property, and assigned Release Tracking Number (RTN) 3-0002722 to the releases pursuant to M.G.L. c. 21E (“Chapter 21E”) and the Massachusetts Contingency Plan at 310 C.M.R. 40.0000 (the “MCP”);

NOW, THEREFORE, in accordance with the provisions of M.G.L. c. 21E, § 6, the United States acting by and through the General Services Administration hereby GRANTS to MassDEP (“Grantee”), as a gift, and in connection with federal regulatory requirements for establishing institutional controls, with QUITCLAIM COVENANTS, a GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT, in, on, through, over and under the Property.

This Grant is subject to the following terms and conditions:

1. Purpose; Provisions to Run with the Land; Applicability.
  - A. Purpose. It is the purpose of this instrument to establish covenants and restrictions and to convey to the Grantee real property rights involving access and enforcement, all of which shall run with the land, to protect human health and the environment by reducing the risk of exposure to contaminants.
  - B. Provisions to Run With the Land. This Grant establishes certain rights, liabilities, agreements and obligations for the Property, which shall run with the Property and all portions thereof, for the term of this Grant. The United States of America, acting by and through the General Services Administration, hereby covenants for itself and its successors and assigns, to stand seized and hold title to the Property and any portion thereof subject to this Grant. The term “Grantor” refers to the United States of America acting by and through the General Services Administration and, after the transfer of the Property by the United States of America acting by and through the General Services Administration, all persons or entities who thereafter hold any right, title or interest in the Property.
  - C. Applicability. The restrictions set forth in Paragraph 2 (“Restricted Uses and Activities”) shall not apply to any response action undertaken by MassDEP, USACE or EPA, or their respective agents, representatives, contractors, subcontractors or employees, pursuant to CERCLA or Chapter 21E, and their respective implementing regulations.
2. Restricted Uses and Activities. Except as provided in Paragraph 3 (“Permitted Uses and Activities”), Paragraph 4 (“Emergency Excavation”), and Subparagraph 1.C (“Applicability”), Grantor shall not perform, suffer, allow or cause any person to perform any of the following



activities in, on, upon, through, over or under the Soil Cover Area or Non-Cover Area portions of the Property, or any of the following uses to be made of any of the Soil Cover Area or Non-Cover Area, as specified below:

A. Soil Cover Area.

- i. residential, daycare, school activities, gardening, or active recreational activities;
- ii. excavating, drilling or otherwise disturbing any soil, loam, peat, gravel, sand, rock or other mineral or natural resource in, below or on the Soil Cover Area, including any disturbance or breaching of the permeable soil cover in the Soil Cover Area in any way, including by digging, drilling, plowing, planting, cultivating, or by constructing buildings or other structures;
- iii. reduction in the grade below the surface grade of the Soil Cover Area as in effect on the date of this Grant;
- iv. using or otherwise bringing motorized vehicles, including cars, trucks, snowmobiles and all terrain vehicles on or over the Soil Cover Area, or using bicycles, skis or sleds in, on or over the Soil Cover Area, but excluding motorized vehicles with ground pressure of 15 psi or less; or
- v. any other use or activity in the Soil Cover Area which would interfere with, or would be reasonably likely to interfere with, the implementation, effectiveness, integrity, operation, or maintenance of the Selected Remedy, including but not limited to (a) interference with the Benchmarks, or (b) interference with any systems used to monitor groundwater, surface water, soils or sediments.

B. Non-Cover Area.

- i. residential, daycare, school activities, gardening, or active recreational activities;
- ii. excavation, drilling or otherwise disturbing any soil, loam, peat, gravel, sand, rock or other mineral or natural resource in, below or on the Non-Cover Area, except in accordance with the Soil Management Plan, attached hereto as Exhibit C and made a part hereof;
- iii. using or otherwise bringing motorized vehicles, including cars, trucks, snowmobiles and all terrain vehicles on or over the Non-Cover Area, or using bicycles, skis or sleds in, on or over the Non-Cover Area, but

excluding (a) any such use of motorized vehicles, bicycles, skis or sleds that is conducted on a paved or stabilized path or roadway in good repair, and (b) motorized vehicles or equipment used by public employees in carrying out their lawful duties, provided, however, that such motorized vehicles and equipment do not disturb the Non-Cover Area, including the soil surface thereof, in a manner prohibited by Subparagraph 2.B.ii; or

- iv. any other use or activity in the Non-Cover Area which would interfere with, or would be reasonably likely to interfere with, the implementation, effectiveness, integrity, operation, or maintenance of the Selected Remedy, including but not limited to (a) interference with the Benchmarks, or (b) interference with any systems used to monitor groundwater, surface water, soils or sediments.

The Plan provides information about the location and engineering details of certain of the foregoing components of the Selected Remedy.

3. Permitted Uses and Activities. Grantor expressly reserves the right to perform, suffer, allow or cause any person to perform all uses and activities not prohibited in Paragraph 2 of this Grant, including, without limitation, the following:

- A. pedestrian activity and other passive recreational uses, including sitting at and otherwise passively utilizing any meadow areas, viewing nodes, areas for nature study, park benches, shade structures and interpretive kiosks that may be located in the Non-Cover Area, and in each case in a manner that does not disturb the Soil Cover Area or Non-Cover Area, including the soil surface of the Soil Cover Area or Non-Cover Area, in a manner prohibited by Subparagraphs 2.A.ii or 2.B.ii;
- B. non-intrusive routine site maintenance, including cleaning drainage structures, mowing the shoulders along any trails and meadows, mowing the Soil Cover Area, leaf raking, and, on the paved or stabilized path or roadways that may be located in the Non-Cover Area, snow removal and ice treatment, provided, however, that such maintenance does not disturb the Soil Cover Area or Non-Cover Area, including the soil surface of such Areas, in a manner prohibited by Subparagraphs 2.A.ii or 2.B.ii;
- C. excavation, drilling or otherwise disturbing soil, loam, peat, gravel, sand, rock or other mineral or natural resource in, below or on the Non-Cover Area in accordance with the Soil Management Plan, attached hereto as Exhibit C.

4. Emergency Excavation. In the event that it becomes necessary to excavate or otherwise disturb a portion of the Property, as part of a response to emergency repair of utility lines or related structures, or as part of a response to emergencies such as fire or flood or other threat to public safety, those use and activity restriction provisions of Paragraph 2 (“Restricted Uses and Activities”) of this Grant that would otherwise restrict such excavation, shall be suspended with

respect to such excavation or disturbance for the duration of such response, provided that Grantor:

- A. notifies MassDEP by calling MassDEP's Emergency Response Number at 1-888-304-1133 and USACE at 978-318-8433, or such other party as USACE or MassDEP may identify in writing to Grantor, of such emergency as soon as possible but no more than two (2) hours after having learned of such emergency;
- B. limits the actual disturbance involved in such excavation or disturbance to the minimum reasonably necessary to adequately respond to the emergency;
- C. implements all measures necessary to limit actual or potential risk to the public health and environment;
- D. undertakes precautions to minimize exposure of workers and neighbors of the Property to hazardous substances remaining at the Property; and
- E. engages an appropriately trained and licensed professional to prepare and oversee the implementation of a written plan which, in said professional's opinion, will restore the Property to a condition that will not result in a risk to human health or the environment in excess of the EPA risk range set forth in Section 300.430(e)(2)(i) of the NCP, with minimal disturbance of the contaminated soils, a copy of said plan to be submitted to the Grantee within ten (10) days of its performance, with a statement from said professional that the Property has been restored to said condition.

This provision shall not waive liability for releases of hazardous substances, nor shall this provision excuse compliance with CERCLA, Chapter 21E, or any other applicable federal or State laws and regulations.

5. Intentionally Omitted.

6. Obligations and Conditions. Grantor affirmatively agrees to perform the following activities and to maintain the following conditions at the Property in order to maintain a condition of risk to human health or the environment not in excess of the EPA risk range set forth in Section 300.430(e)(2)(i) of the NCP:

- A. Grantor shall notify Grantee and USACE of any violation of this Grant within seventy-two (72) hours of having discovered such violation;
- B. Grantor shall present a plan to Grantee and USACE for addressing any violation of this Grant within ten (10) days of having discovered such violation and shall implement such plan immediately after such plan is approved by Grantee, in consultation with USACE; and

- C. Grantor shall mow and clear vegetation from the permeable soil cover in the Soil Cover Area, in accordance with the LUCIP and the Operation and Maintenance Plan, provided that such obligation shall not in any way diminish the ultimate responsibility of the United States under CERCLA and the NCP, including any obligation for additional remedial action under Section 120(h) of CERCLA.

7. Easements. Grantor hereby grants the following easements for the term of this grant to Grantee, its agents, representatives, contractors, subcontractors and employees:

- A. an easement to pass and repass over the Property for the purpose of inspecting the Property to ensure compliance with and fulfillment of the terms of this Grant; and
- B. an easement in, on, upon, through, over and under the Property to conduct the following activities:
  - i. five-year reviews of the remedial action taken pursuant to the Decision Document, in accordance with Section 121(c) of CERCLA; and
  - ii. verifying any data or information submitted to MassDEP, conducting subsurface investigations, installing groundwater monitoring wells, conducting investigations relating to contamination at or near the Property, surveying, obtaining samples, determining whether additional restrictions are necessary, and/or conducting other investigations and/or remediation activities consistent with CERCLA, the NCP, Chapter 21E, the MCP, or other applicable State or federal environmental statutes and regulations;

8. Construction and Severability.

- A. This Grant shall be liberally construed in favor of the grant to effect the purpose of this instrument and the policies and purposes of CERCLA and Chapter 21E. If any provision of this instrument is found to be ambiguous, an interpretation consistent with the purpose of this instrument that would render the provision valid shall be favored over any interpretation that would render it invalid.
- B. If any court or other tribunal determines that any provision of this instrument is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from this instrument as though it had never been included herein. In either case, the remaining provisions of this instrument shall remain in full force and effect.

9. Enforcement.

- A. Grantor expressly acknowledges that a violation of the terms of this instrument could result in the following:
  - i. the assessment of penalties and other action by MassDEP to enforce the terms of this Grant; and/or
  - ii. upon a determination by a court of competent jurisdiction, the issuance of criminal and civil penalties, and/or equitable remedies which could include the issuance of an order to modify or remove any improvements constructed in violation of the terms of this Grant.

Notwithstanding the foregoing, the United States of America (including, without limitation, the United States Department of the Army) shall not be subject to any such enforcement action under this instrument.

- B. All reasonable costs and expenses of Grantee, including but not limited to, attorney's fees, incurred in any such enforcement action shall be borne by Grantor to the extent not inconsistent with applicable law. Notwithstanding the foregoing, this Grant shall not create any obligations for the United States of America (including, without limitation, the United States Department of the Army) to bear the enforcement costs and expenses of Grantee.
- C. All rights and remedies available hereunder shall be in addition to, but not in lieu of, any and all rights and remedies at law or in equity, including CERCLA or Chapter 21E, which rights and remedies Grantee fully reserves. Enforcement of the terms of this instrument shall be at the discretion of Grantee, and any forbearance, delay or omission to exercise its rights under this instrument shall not be deemed to be a waiver of any of the rights of Grantee under this instrument.

10. Intentionally Omitted.

11. Concurrence Presumed. It is agreed that:

- A. Grantor and all parties claiming by, through or under Grantor shall be deemed to be in accord with the provisions herein set forth; and
- B. Grantor and all parties claiming by, through or under Grantor agree for and among themselves and any party claiming by, through or under them, and their respective agents, contractors, sub-contractors and employees, that the land use restrictions and access rights herein established shall be adhered to and not violated and that their respective interests in the Property shall be subject to the provisions herein set forth.

12. Incorporation into Deeds, Mortgages, Leases and Instruments of Transfer. Grantor hereby agrees to incorporate this instrument, in full or by reference, into all deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Property, or any portion thereof, is conveyed.

13. Amendment and Release.

- A. This instrument may be amended by Grantor only with the prior, written approval of Grantee. All amendments shall include Grantee's signed approval and shall become effective upon recordation with the appropriate Registry of Deeds.
- B. In the event that Grantor requests an amendment of a use or activity restriction set forth in Paragraph 2 ("Restricted Uses and Activities"), Grantor shall provide such information as Grantee may require for review of such request, which review shall include, without limitation, whether the proposed amendment would result in a risk to human health or the environment in excess of the EPA risk range set forth in Section 300.430(e)(2)(i) of the NCP.
- C. This instrument may be released, in whole or in part, by Grantee in Grantee's sole discretion, and in accordance with CERCLA, the NCP, and Chapter 21E, to the extent applicable. This instrument shall not be deemed released unless and until Grantee, its successors and assigns, and/or any other party claiming under Grantee, have released their respective interests. Said release shall become effective upon its recordation with the appropriate Registry of Deeds.
- D. Grantor hereby agrees to record and/or register any amendment to and/or release of this instrument with the appropriate registry of deeds and within thirty (30) days of the date of having received from Grantee any such amendment or release and shall provide Grantee with a certified Registry copy of the amendment and/or release. Grantor shall pay any and all recording fees, land transfer taxes and other such transactional costs associated with any such amendment or release.

14. No Dedication Intended. Nothing herein set forth shall be construed to be a gift or dedication of the Property to Grantee, its successors or assigns, or to the general public, for any purpose whatsoever.

15. Term. This instrument shall run with the land in perpetuity and is intended to conform to the exception for "other restrictions held by any governmental body" set forth in clause (c) of the first paragraph of M.G.L. c. 184, § 26, as amended.

16. Rights Reserved.

- A. It is expressly agreed that acceptance of this instrument by Grantee or its assignment shall not operate to bar, diminish, or in any way affect any legal or

equitable right of Grantee its, successors or assigns to issue any future order or take response action with respect to the Property or in any way affect any other claim, action, suit, cause of action, or demand which Grantee, its successors or assigns may otherwise possess with respect thereto.

- B. Nothing in this document shall limit or otherwise affect the rights of MassDEP to obtain access to, or restrict the use of, the Property pursuant to CERCLA, Chapter 21E, or any other applicable statute or regulation.

17. Assignment.

- A. This instrument, including without limitation all easements, rights, covenants, obligations and restrictions inuring to the benefit of Grantee, herein contained, shall be freely assignable by Grantee, in whole or in part, at any time, and Grantee shall provide the United States of America, acting by and through USACE, with reasonable advance notice of and opportunity to comment on any such assignment.
- B. In the event of any such assignment, Grantee shall notify Grantor.

18. Submissions and Notice; Opportunity for Review and Comment.

- A. Grantor shall submit any submission required pursuant to this instrument to Grantee, with a copy to USACE, by first class mail, postage prepaid, addressed as follows:

i. to Grantee:                   Massachusetts Department of Environmental  
  Protection  
  Bureau of Waste Site Cleanup  
  Federal Facilities Section  
  One Winter Street  
  Boston, MA 02108  
  Attention: Federal Facilities Coordinator

ii. to USACE:                   US Army Corps of Engineers  
  New England District  
  696 Virginia Road  
  Concord, MA 01742-2751  
  Attention: [Ellen Iorio, P.E., P.M., PFUDS](#)  
  [Program Manager](#)  
  [978-318-8220](#)

iii. or as otherwise provided in writing by Grantee or USACE, respectively.

B. In the event of any transfer of title to the Property, in whole or in part, Grantor shall provide written notice to Grantee of the name and mailing address of said transferee.

C. Grantee shall provide USACE with a notice of and a reasonable opportunity to review and comment upon requested approvals or actions under this instrument, including amendments or releases pursuant to Paragraph 13 ("Amendment and Release").

19. CERCLA Section 120(h) Covenants. The United States, acting by and through the General Services Administration, covenants and warrants to Grantee, pursuant to Section 120(h) of CERCLA, as follows:

- A. all remedial action necessary to protect human health and the environment with respect to any hazardous substances remaining on the Property has been taken before the effective date of this instrument; and
- B. any additional remedial action found to be necessary after the effective date of this instrument with regard to such hazardous substances shall be conducted by the United States.

20. Authority. John E. Kelly of the General Services Administration hereby certifies that he has the authority to execute this instrument on behalf of, and that this instrument is binding upon, the United States of America, by and through the General Services Administration.

21. Effective Date. This instrument shall become effective upon its recordation with the appropriate Registry of Deeds. Grantor shall provide Grantee with a certified Registry copy of this instrument.



As this Grant is a gift, no Massachusetts deed excise stamps are affixed hereto, none being required by law.

WITNESS the execution hereof under seal this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

**UNITED STATES OF AMERICA**

Acting by and through the Administrator of General  
Services

By: \_\_\_\_\_

JOHN E. KELLY

Director

General Services Administration, New England  
Region

**COMMONWEALTH OF MASSACHUSETTS**

On this \_\_\_\_\_ day of \_\_\_\_\_, 2014, before me, the undersigned notary public, personally appeared John E. Kelly, proved to me through satisfactory evidence of identification, which were \_\_\_\_\_, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose, as a Director of the United States General Services Administration, New England Region.

\_\_\_\_\_  
Notary Public:

My Commission Expires:

[Seal]

In accordance with M.G.L. Chapter 21E, Section 6, as amended, the Commissioner of the Department of Environmental Protection hereby approves this Environmental Restriction and Easement (as to form only).

\_\_\_\_\_  
David Cash, Commissioner

Date: \_\_\_\_\_

Upon recording, return to:

Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup  
Federal Facilities Section  
One Winter Street  
Boston, MA 02108  
Attention: Federal Facilities Coordinator

**Exhibit A****The Property**

A certain parcel of land situated in Watertown, Middlesex County, Massachusetts, shown on a plan entitled "Plan of Grid Layout at The Watertown GSA Site, Watertown, Massachusetts, prepared for Morrison Knudson, prepared by Bryant Associates, Inc. Engineers – Surveyors, Boston, Massachusetts" dated November 8, 1992, Scale 1" = 80' and recorded with the Middlesex County Registry of Deeds in Plan Book 4363, Page 281, and being more particularly bounded and described as follows:

Beginning:	At a point at the intersection of Arsenal Street and Greenough Boulevard in Watertown, Massachusetts and thence running;
N81°49'37"W	Along the southerly side line of the GSA Property, six hundred sixty three and 34/100 (663.34) feet, thence continuing;
NORTHEASTERLY	by a curve to the right having a radius of two thousand five hundred thirty five and 86/100 (2,535.86) feet, a distance of six hundred thirty five and 04/100 (635.04) feet to a point along the northerly side of the GSA Property, thence continuing;
N50°14'54"E	Along the northerly side line of the GSA Property, five hundred thirty four and 66/100 (534.66) feet to a point along the northerly side of the GSA Property, thence running;
NORTHEASTERLY	by a curve to the right having a radius of three thousand four hundred thirty nine and 94/100 (3,439.94) feet, a distance of five hundred and 0/100 (500.00) feet to the northeasterly corner of the GSA Property and junction with Property 20, thence continuing;
S39°45'06"E	Along the easterly side line of the GSA Property, one hundred ninety one and 97/100 (191.97) feet to the junction with Property 20 and Greenough Boulevard, thence continuing;
S35°56'33"W	Along the southeasterly side line of the GSA Property, four hundred twenty and 0/100 (420.00) feet to a point along the southerly side of the GSA Property, thence continuing;
SOUTHWESTERLY	by a curve to the left having a radius of two thousand nine hundred fifty six and 91/100 (2,956.91) feet, a distance of four hundred sixty nine and 01/100 (469.01) feet to a point along the southeasterly line of the GSA Property, thence continuing;

SOUTHWESTERLY by a curve to the left having a radius of two thousand seventy one and 43/100 (2,071.43) feet, a distance of three hundred forty nine and 17/100 (349.17) feet to the point of beginning, containing 518,637 square feet of land, more or less, according to said plan.

**Exhibit B**

[Legal description of the Soil Cover Area.]

## **Exhibit C**

### **Soil Management Plan**

#### **Grant of Environmental Restriction and Easement FUDS #D01MA001902**

For soils subject to the Soil Management Plan pursuant to the Grant of Environmental Restriction and Easement (“GERE”) to which this Soil Management Plan is attached (“Subject Soils”), the following requirements apply. All capitalized terms used in this Plan not otherwise defined shall have the definitions given to them in the GERE.

- A. **Return Subject Soils to Excavation or Dispose Off-Property.** All Subject Soils shall be either (a) returned to the original excavation for use as backfill, or (b) disposed off-Property in accordance with Paragraph C of this Soil Management Plan. Prior to either returning the Subject Soils to the original excavation or disposing of them off-Property, such Subject Soils may be stored temporarily on the Property in accordance with Paragraph B of this Soil Management Plan.
- B. **Temporary On-Site Storage.** The temporary storage of Subject Soils is permitted on the Property, provided:
1. Such storage is for a period of less than eighteen (18) days;
  2. The stored soils are placed on 6-mil thick polyethylene sheeting, with the perimeter of the soil pile lined with hay bales to capture any runoff;
  3. The stored soils are covered with commercially available cross-woven tarps or 6-mil thick polyethylene and weighted with sandbags to prevent accidental uncovering;
  4. The stored soils are inspected daily and any damages are repaired and any exposed soils are covered immediately; and
  5. Such storage is in the Non-Cover Area, and not in the Soil Cover Area.
- C. **Off-Property Disposal.**
1. All Subject Soils to be disposed of off-Property shall be sampled and analyzed prior to such disposal, and managed and disposed of at an appropriate acceptance facility consistent with the results of such sampling and analysis. All such sampling, analysis, management and disposal shall be accordance with applicable State, local and federal requirements and guidelines.
  2. Grantor shall provide written notice to Grantee of all soil sample results, all locations within the Property from which disposal occurred, and the

identity of the disposal or recycling facility to or at which such soils were transported and/or disposed of. Such notice shall be provided within five (5) business days of the relevant activity.

- D. Soil Sampling. All Subject Soils that must be sampled pursuant to this Soil Management Plan shall be sampled in accordance with the Waste Characterization Sampling provisions of the Quality Assurance Project Plan.

**Exhibit D**

Evidence of Authority



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## **APPENDIX B**

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## Operation & Maintenance Plan

Final

April 16, 2014



**Remedial Action | GSA Property D0MA001902 | Watertown, MA**  
**Revision No.: 01 | Contract No.: W912WJ-11-D-0009/0003**

Prepared for:



**US Army Corps of Engineers**  
New England District  
696 Virginia Road  
Concord, Massachusetts 01742



**CHARTER**

Prepared by:

**Charter Environmental, Inc.**  
560 Harrison Avenue  
Boston, Massachusetts 02118  
(857)246-6800

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**APPENDICES**

- A Soil Cover Inspection Form
- B Wetland Inspection Form

## **ACRONYMS AND GLOSSARY TERMS**

AMMRC	Army Materials and Mechanics Research Center
ARL	Army Research Laboratory
Army	United States Army
MassDCR	Massachusetts Department of Conservation and Recreation
DU	Depleted Uranium
EPA	United States Environmental Protection Agency
ERA	Ecological Risk Assessment
GERE	Grant of Environmental Restriction and Easement
GSA	United States General Services Administration
HHRA	Human Health Risk Assessment
HQ	Hazard Quotients
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
MDC	Metropolitan District Commission (currently known as MassDCR)
MassDEP	Massachusetts Department of Environmental Protection
NCP	National Contingency Plan
PCB	Polychlorinated Biphenyl
Site	670 Arsenal Street, Watertown, Massachusetts
USACE	United States Army Corps of Engineers

## **1.0 INTRODUCTION**

Charter Environmental, Inc. and Nobis Engineering, Inc. (Charter/Nobis) prepared this Operation and Maintenance Plan (O&M Plan) for GSA property D0MA001902 (hereafter referred to as “the Site”) located at 670 Arsenal Street in Watertown, Massachusetts. This O&M Plan was prepared for the U.S. Army Corps of Engineers New England District (USACE) through Contract No. W912WJ-11-D-0009/0003. This O&M Plan has been developed based on the USACE Performance Work Statement (PWS), Revision-02, dated April 16, 2012. This plan is applicable to the final soil cover and wetland compensation area constructed on the Site during remedial activities performed in 2013 and 2014.

### **1.1 Site Description and Background**

The following sections contain a brief description of the GSA Property (hereafter referred to as “the Site”, and a brief summary of the GSA Property’s operational history.

#### **1.1.1 Site Description**

The Site is located at 670 Arsenal Street, in the eastern portion of the town of Watertown in Middlesex County, Massachusetts. The Site is located on an elongated tract of approximately 13 acres trending north to south and separated from the Charles River to the east by Greenough Boulevard. The Site is surrounded on all four sides by state and federal delineated wetlands, and by a small brook (Sawins Pond Brook) on the west side. The Site is part of the former United States Army’s (Army) Watertown Arsenal and located east of the main arsenal complex. The Site contains the 11.91-acre GSA Property parcel and the 1-acre, MassDCR-owned, north-adjoining Property 20 parcel. The Site is bounded on the north by Grove Street, on the south by Arsenal Street, and on the west by privately held properties facing Coolidge Avenue.

The Site was formerly referred to as the "Northeast Area" of the U.S. Army Watertown Arsenal and as the Federal Property Resources Center. The parcel was filled to facilitate development during World War II, and was subsequently used by the Army and by the GSA for storing various materials and equipment. A concrete pad on the Site was used for burning and stabilizing depleted uranium (DU) machined chips and turnings prior to offsite disposal at a

permitted facility. Prior to demolition, the buildings and grounds of the GSA Property were currently unoccupied, and their condition had deteriorated in recent years.

The area referred to as Property 20 was leased to the Army during the late 1940s. The designation as Property 20 was derived from a figure and table of the "Sequence of Land Purchases Which Formed the Watertown Arsenal" which was included as Appendix B to the 1980 Army Materials and Mechanics Research Center (AMMRC) Installation Assessment. The nomenclature presented in the 1980 Assessment apparently was derived from a real estate map of the Watertown Arsenal prepared for the USACE in March 1945 with revisions through 1960, referring to Property 20 as Tract 8-P.

### **1.1.2 Site Operational History and Ownership**

The Watertown Arsenal was founded in 1816 on approximately 45 acres of farmland located near the former location of the Army Research Laboratory (ARL-WT). At its maximum extent, the Arsenal covered approximately 130 acres of land including the Site (i.e., the 11.91-acre parcel referred to as the GSA Property and the 1-acre parcel referred to as Property 20). The Site was acquired by the U.S. Army from the Commonwealth of Massachusetts in 1920. The Army used the property for storage of industrial jigs and fixtures during the 1950s and subsequently for vehicle storage, miscellaneous military equipment, and various salvage and scrap property. The five structures (Buildings 234 through 237, and 653) located on the GSA Property were constructed during and after World War II and have been removed. The Army used the GSA Property to landfill refuse and debris materials. Through MDC (now MassDCR) permits covering the period 1948 to 1951, the Army was allowed to extend their land filling activities and place fill materials to Property 20.

Around 1960, an area in the northern portion of the Site was designated for stabilizing DU turnings and DU waste generated from machining operations at the Arsenal. This area is referred to as the former burn box area. DU chips and turnings were brought to the Site and transferred into a burn box located on a concrete pad surrounded by a chain link fence. This material was then burned to convert the DU metal into a more chemically stable oxide form. When the containers were full, they were welded shut and shipped offsite for appropriate disposal. Once a box was full and shipped offsite, a new burn box was placed on the concrete pad.

The Nuclear Regulatory Commission (NRC) issued the U.S. Army a license in 1961 for processing depleted uranium (DU) at the site. Although radiological constituents were detected during initial investigations, removal actions were conducted and supplemental investigations supported the release of the site for unrestricted use by the NRC in September 2003. This unrestricted use for radiological contamination evaluated the site future use as a skating rink, ball field, and playground and determined that the existing conditions did not pose an adverse risk to the public or environment. MassDEP and the Massachusetts Department of Public Health (MADPH) concurred with this decision in November 2003 (MassDEP, 2003). Future use of the site has since been changed by MassDCR to be passive recreation only (MassDCR, 2009).

The GSA received the Site from the Army in 1967 and used it for storage and auction of excess property. Other agencies (Federal Bureau of Investigation [FBI], Drug Enforcement Agency [DEA], and the Internal Revenue Service) and tenants also used the Site or portions thereof for storage and other purposes.

On October 23, 1984, the Commonwealth of Massachusetts (through the MDC) filed a "Notice of Right-of-Entry for Condition Broken or Possibility of Reverter" for the 11.91-acre GSA Property. The Site is currently managed by the GSA's Director of the Facility Support Center at the Thomas P. O'Neill Building, 10 Causeway Street, Boston, Massachusetts. The USACE is conducting remedial actions at the Site under the Formerly Used Defense Site (FUDS) Program, and is responsible for completing remedial action activities at the Site. The Massachusetts Department of Environmental Protection (MassDEP) is the lead regulatory agency. The Massachusetts Department of Conservation and Recreation (MassDCR) is scheduled to receive the Site from the GSA at the completion of remedial actions. The MassDCR will design and construct site features to support a passive recreational use of the Site.

## **1.2 Selected Remedy**

The Remedial Action Objectives (RAO) for the Site is to reduce human health and ecological risks associated with exposure to polychlorinated biphenyls (PCBs), dioxin and metals in the PCB impacted area. The USACE established this RAO in coordination with MassDEP during the planning phase of the Remedial Investigation and Feasibility Study.



The selected remedial alternative (i.e., the Selected Remedy) included excavation and off-site disposal of PCB contaminated soil with concentrations greater than 50 milligrams per kilogram (mg/kg), capping of PCB impacted soils greater than 1 mg/kg but less than 50 mg/kg, and the construction of a compensatory wetland area at the former building area. PCBs soils greater than 50 mg/kg will be transported off-site to an approved treatment, storage and disposal facility (TSDF).

The purpose of the soil cover is to isolate the remaining PCB contaminated soils with concentrations of PCBs greater than 1 mg/kg but less than 50 mg/kg. The soil cover will be constructed of 18 inches of clean soil cover underlain by a geotextile fabric. A vegetative support layer, consisting of 6 inches of clean topsoil, will be constructed over the 18 inch soil cover. Soil excavated from the proposed wetland area will be used underneath the geotextile fabric for shaping and grading of the soil cover. A 6-ounce, non-woven geotextile fabric was selected to provide a physical barrier. It is a stable product and is expected to have sufficient durability for this application. The construction of the soil cover will be completed in the spring of 2014.

The soil cover was designed to have stable slopes and for ease of maintenance. Maximum slope is 4H to 1V which is considered stable with granular soil materials once vegetation is established. Minimum cover system slope is 5 percent in order to provide for positive drainage with some allowance for future settlement. Drainage was designed to promote sheet flow off the cover system toward the perimeter swales. The perimeter swales are graded to drain to the existing catch basins located on-site, with gentle slopes of less than 1 percent.

The compensatory wetland area replaces the functions and values of the existing wetland area that were impacted in order to excavate and cover the PCB contaminated soils on site, and to mitigate incidental impacts to wetlands during this site remedial work. The proposed wetland compensation area is approximately 2 acres, and the proposed soil cover area is also approximately 2 acres. The construction of the compensatory wetland area is anticipated to be completed in the spring of 2014.

A detailed account of the RA will be included in the Remedial Action Closeout Report (RACR). Pertinent construction drawings are included in the attached Sheets C-1 through C-4.

The operation and maintenance of the soil cover and the compensatory wetland area are the sole focus of this O&M Plan. This O&M Plan has been prepared to outline the specific tasks to be performed during regular site inspections to ensure the integrity of the soil cover and wetland area are maintained and that they function as designed.

Applicable post-closure requirements have been incorporated into Sections 3 and 4 of this O&M Plan. Requirements for the soil cover include:

- Maintaining access to the Site;
- Control access to the soil cover area to prevent damage;
- Monitoring the soil cover system for evidence of burrowing animals, lenses, cracks, channels, root holes, or other structural non-uniformities that may decrease the integrity of the soil cover system;
- Monitor for the presence of woody vegetation;
- Control of woody vegetation;
- Monitoring for improper functioning of the storm water drainage structures;
- Monitoring for excessive settlement;
- Promoting drainage and minimization of erosion or abrasion of the cover;
- Maintaining the integrity and effectiveness of the soil cover, including making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events;
- Preventing runoff from eroding or otherwise damaging the cover; and
- Maintaining documentation as appropriate.

Requirements for the wetland compensation area include the following:

- Qualitative assessment of overall condition;
- Monitoring the new wetland plantings;
- Tracking the new wetland plantings' survivability;
- Monitoring precipitation levels for new wetland plantings;
- Maintaining a list of new plant species present;
- Preventing herbivore/grazing impacts to vegetation during the plant establishment phase;
- Monitoring and treatment or removal of invasive species (plants and insects);

- Maintaining a record of wildlife observations;
- Monitoring surface water elevation;
- Monitoring the site for erosion;
- Performing corrective actions as necessary to ensure that the restored wetland is functioning properly and that wetland plant survival meets design criteria; and
- Maintaining documentation as appropriate.

In addition to this O&M Plan, USACE has prepared a Land Use Control and Implementation Plan (LUCIP) in accordance with the requirements established with the Grant of Environmental Restriction and Easement (GERE) for the main property owned by GSA and for Property 20 owned by MassDCR. The LUCIP and GERE define the land use controls, responsibilities, implementation action, and enforcement for the Site. This O&M Plan will be used in conjunction with the LUCIP and GERE to ensure that O&M activities are sufficient to maintain the integrity of the soil cover and compensatory wetland area.

### **1.3 Plan Overview**

Section 2 of this O&M Plan provides a general description of how the O&M activities should be performed. Section 3 provides a program of specific tasks for monitoring and maintaining the integrity of the soil cover. Section 4 provides a program of specific tasks for monitoring and maintaining the integrity of the compensatory wetland area. Section 5 outlines the general recordkeeping requirements and the criteria for reporting observations, conclusions, and recommendations associated with the Site.

## **2.0 OPERATIONS AND MAINTENANCE OVERVIEW**

This section presents a general overview of the O&M procedures and aspects associated with the Site, which include:

- Supervision and agency notification;
- An overview of the O&M program;
- Health and safety considerations; and
- Schedule for the identified O&M tasks.

## **2.1 Agency Roles and Responsibilities**

The MassDCR, MassDEP, and USACE each have roles in controlling and supervising the monitoring and maintenance programs for the soil cover and compensatory wetland areas. The sections below outline each agency's roles and responsibilities. However, while USACE has delegated procedural responsibilities to perform certain routine maintenance obligations to MassDCR, including mowing and removing woody vegetation from the soil cover, USACE remains ultimately responsible for remedy integrity, including integrity of the soil cover, in accordance with CERCLA.

### **USACE**

Other than certain routine maintenance activities related to the soil cover (described under "MassDCR" below) and wetlands monitoring and maintenance after the initial five year period following remedy completion, USACE will monitor, maintain, inspect, report on, and repair all aspects of the remedy, including the soil cover. Such activities shall continue in perpetuity, or until the results of the five-year reviews indicate that there is no longer risk associated with contamination remaining at the property at the time of transfer by the United States. USACE will monitor, maintain, inspect report on, and repair the compensatory wetland area for a period of 5 years following remedy completion. After the 5-year period, monitoring and maintenance activities related to the wetlands will be transferred to MassDCR.

Following the completion of the remedy, USACE will conduct Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 5-year reviews for long-term operation and maintenance, including monitoring major maintenance/repairs of the soil cover if needed and compliance with the deed notices. As part of the five-year review process the following activities shall be performed:

- Review Applicable or Relevant and Appropriate Requirements (ARARs)
- Interview personnel associated with the operation and maintenance of the Site
- Summarize activities that have been performed over the 5-year period
- Summarize findings, issues and recommendations for follow up actions
- An evaluation to ensure the remedy is protective to human health and the environment and provide protectiveness statement

### **MassDCR**

USACE has delegated certain routine maintenance activities with respect to the soil cover to MassDCR. Specifically, USACE has delegated to MassDCR the following activities:

- Mowing the soil cover and swales surrounding the soil cover once per year,
- Removing deep-rooted woody vegetation from the soil cover at least once per year, and
- Cleaning out the swales surrounding the soil cover, the check dams, and the catch basin at the southeast corner of the soil cover at least once per year or as needed to ensure adequate drainage.

USACE has delegated to MassDCR the monitoring and maintenance of the compensatory wetland area following the 5-year monitoring and maintenance period performed by USACE.

### **MassDEP**

MassDEP will serve as the lead regulatory agency. MassDEP should be notified in advance of all scheduled site inspections, field work associated with any corrective actions, and receive copies of soil cover inspection reports.

## **2.2 Inspections**

USACE shall coordinate the timing of the inspections with MassDEP and MassDCR to comply with the requirements established in the Land Use Control Implementation Plan (LUCIP) and this O&M Plan. Findings must include any observed problems that could affect the integrity of the soil cover or wetland and shall be reported by USACE to MassDEP and MassDCR. MassDEP, MassDCR, and USACE shall also be informed of the scope and schedule of any proposed intrusive activities or corrective actions by USACE or MassDCR. Proposed intrusive activities or significant corrective actions (utility work or cover repair,) shall be coordinated by the performing Agency through MassDEP, USACE and MassDCR. The Soil Management Plan included in the GERE shall be implemented for all intrusive activities performed on the Site.

## **2.3 Health and Safety Considerations**

It is the responsibility of the contracting agency (USACE or MassDCR) to notify any individuals performing on-site monitoring and maintenance activities of site-specific physical and environmental hazards.

## **2.4 Inspection Schedule**

Soil cover inspections shall be performed quarterly for the first two years following completion of the soil cover. After the initial 2-year period, the soil cover should be inspected twice per year (during the spring and fall) until year 5, and then annually (during the fall) for the lifetime of the Selected Remedy. Soil cover inspections shall also be performed within 48 hours of a 50-year storm event (defined as 5.9 inches of rainfall over a 24-hour period). Rainfall can be monitored through the National Weather Service online at <http://water.weather.gov/precip/>.

Wetland inspections shall be performed every two weeks following construction completion through November 30, 2014. After this initial monitoring period, bi-annual monitoring shall be performed in spring and fall. Frequency of site inspections shall be evaluated to determine if frequency is sufficient based on inspection data. Factors that may contribute to a change in the frequency of inspections could include reoccurring presence of invasive species, signs of stress in new plantings, hydrological conditions or other signs that the wetland is not functioning as designed.

## **3.0 OPERATIONS AND MAINTENANCE TASKS – SOIL COVER**

This section includes specifics for the O&M procedures for the PCB soil cover area. This includes a detailed description of the activities to be conducted during the site inspections, as well as maintenance procedures intended to maintain the integrity of the soil cover. Refer to Sheets C-3 and C-4 for the locations of soil features, and for the depth and thickness of subsurface soil cover layers. Table 1 below outlines the operation and maintenance tasks and the responsible parties.

**Table 1 Operations and Maintenance Tasks**

<b>Activity</b>	<b>Performing Agency</b>	<b>Frequency</b>
Inspect vegetative cover	USACE in coordination with MassDCR and MassDEP	Annually
Mow vegetative cover Mow vegetative cover, including swales; remove deep-rooted vegetation; clean drainage swales, check dam, and catch basin	MassDCR	Once per year for mowing, Once per year or more often as needed for other activities.
Maintenance of remedy, including vegetative cover, not delegated to MassDCR; repair of vegetative cover; and the correction of design flaws in the vegetative cover	USACE	As identified during inspections
Precipitation Monitoring	USACE	Varies
Surface Elevation monitoring	USACE	Varies
Maintenance and inspection of wetlands	USACE	Initial 5 years
Maintenance and inspection of wetlands	MassDCR	After initial 5 years
Reports	USACE	Annual

### **3.1 Site Inspections**

The site inspection shall include observations of all of the soil cover components outlined in Section 3.1.1 through 3.1.5 and shall include recommendations or corrective actions. The Site Inspection Form shall be used as a basis for performing the site inspections. These forms shall be submitted to MassDEP by USACE within 30 days of the completion of the site inspections. Any recommendations for corrective actions will be accompanied by a Corrective Action Workplan which will include a deadline for completion of work that is consistent with the protection of human health and the environment. The USACE shall be responsible for ensuring the inspections occur and any corrective actions are completed.

### **3.1.1 Vegetative Cover**

To preserve the integrity of the soil cover system, the maintenance of the vegetative layer is critical. The inspector shall observe the ground surface for potential issues such as settlement, cracking, and erosion.

Inspections shall be performed to observe the following:

- Approximate grass height;
- Extent of grass cover and any sparse areas;
- Grass health (e.g., stress); and
- Invasive growth of small trees and brush.

Maintenance activities shall include the following:

- Mowing the grass. The grass shall be mowed at a minimum of once yearly, in late fall after October 15<sup>th</sup>. The grass shall be cut to a manageable height, not less than 6 to 8 inches. When controlling competitive weeds by mowing, 6 to 8 inches is the preferred height. Grass at this height limits the amount of sunlight available to invasive/undesirable species taking root on the soil cover. Equipment used for mowing and other maintenance activities should have a maximum ground pressure of 15 psi to prevent damage to the soil cover. This can generally be easily achieved with a skid-steer on tracks with a hydraulic brush hog or a mid-size tractors (45hp or less models) with a 5' or 6' wide brush hog.
- Removal of deep-rooted woody plants, small trees, brush, etc. Removal will normally be accomplished by yearly mowing which should prevent any deep-rooted plants from taking hold. In the event that deep-rooted woody plants do take hold, removal by hand weeding and pruning or spot application via wipe method of appropriate herbicides may be utilized.

Documentation of grass growth, vegetative health, and invasive plants shall be provided on the attached Site Inspection Form, along with any recommendations for corrective actions.



### **3.1.2 Ground Surface**

To preserve the integrity of the soil cover system, the maintenance of the ground surface is critical. This will ensure that the critical soil cover layers are not undermined, and that the soil cover continues to perform as designed.

Inspections shall be performed to check for the following:

- Excessive settlement that is visually causing surface water ponding;
- Surficial holes or signs of burrowing animals;
- Signs of cracking;
- Erosion;
- Wet areas or ponding; and
- Evidence of unauthorized off-road vehicles (e.g., dirt bikes, ATVs).

Ground surface observations shall be reported on the attached Site Inspection Form, along with recommendations for corrective actions. Documentation shall include the areal extent of the problem, relative condition to previous inspections, and any corrective actions that have occurred since the last inspection.

### **3.1.3 Stormwater Management Systems**

To preserve the integrity of the soil cover system, the maintenance of the stormwater management system is critical. This will ensure that stormwater drains properly off the soil cover surface.

Inspections shall be performed specifically to check for the following:

- Excessive settlement in the western, eastern, and southern drainage swales leading to ponding;
- Debris in swales and check dams; and
- Silt or other debris in the catch basin near the southeast corner of the soil cover.

Maintenance activities shall include the following:

- If ponding is observed in the western, eastern, or southern drainage swales, fill in low areas or make other repairs as necessary to ensure proper drainage;
- Clean out swales and check dams;
- Annually cut any vegetative growth in swales; and
- Clean the catch basin near the southeastern corner of the soil cover as necessary to ensure positive drainage.

Stormwater management system observations shall be reported on the attached Site Inspection Form, along with any recommendations for corrective actions.

#### **3.1.4 Access and Site Security**

Currently, a chain link fence surrounding the Site and one vehicle gate controls access to the Site. Access to the Site is located along the southwestern portion of the site along Arsenal Street. Upon completion of remedial activities, control of the site through use of a fence to prevent site exposure to contamination is no longer required. Upon transfer of the property, MassDCR will be responsible for access and site security. Charter and/or the USACE will maintain the fence and gate until the property is transferred to the MassDCR. The ultimate design of the passive recreation features such as walking trails will be implemented by MassDCR. MassDCR's design will include methods to physically restrict vehicle and recreational vehicle access to the soil cover area, consistent with the GERE. Access may be restricted through the use of landscape features such as large stones or a gate.

Access and site security breach observations shall be reported on the attached inspection forms, along with any recommendations for corrective actions.

#### **3.1.5 Slopes**

Side slopes of approximately 9 to 10 feet in length are located on the edges of the soil cover. Inspections shall be performed to observe for excessive settlement or erosion of the side slopes. The condition of the slopes shall be observed and documented on the Soil Cover Inspection Form along with any recommendations for corrective actions.

#### **4.0 OPERATIONS AND MAINTENANCE TASK – COMPENSATORY WETLAND AREA**

The compensatory wetland area replaces the functions and values of the existing wetland area that will be impacted in order to excavate and cover the contaminated soils on site, and to mitigate incidental impacts to wetlands during this site remedial work. The proposed wetland compensation area is approximately 2 acres. The overall design goal was to integrate the proposed features into a functional natural wetland system that contributes to the overall value of the larger wetland complex, and is sustainable with minimal maintenance. To do so, the design addresses five primary parameters:

- Hydrology;
- Soil;
- Vegetation;
- Wildlife habitat features;
- Invasive Species.

The proposed wetland is an expansion of the existing adjacent wetland upslope, and was designed to intercept the groundwater below the proposed wetland in an attempt to maintain a minimum water elevation of 6 inches (depth) throughout the year.

Soil used in the wetland will consist of a hydric soil layer with moderate - high organic content to enhance native vegetation establishment. The compensatory wetland design includes one central hummock, or submerged island, to be planted with emergent plant materials and a shrub (buttonbush).

The design intent is to create a constructed wetland that is resilient to invasive species, especially Phragmites. The central emergent “island” with a minimum (seasonal) water depth of about 6 inches, will be protected from Phragmites by deeper water around the entire edge of the constructed wetland. The upland fringe will be planted with trees and shrubs to provide habitat and to discourage the growth of Phragmites. Additional invasive species are outlined in section 4.1.3.

Wildlife habitat features will be installed to meet the functional requirements of this replacement wetland. The following features are anticipated to be included in the design, as available.

- Snags (standing dead trees), stumps, and habitat logs;
- Coarse woody debris (sticks and branches in varying states of decomposition).

A herbivore exclusion fence will be installed to reduce impacts to newly planted wetland plants and trees from herbivore feeding.

The following sections include specifics for the O&M procedures for the wetland compensation area. This includes a detailed description of the activities to be conducted during the site inspections, as well as maintenance procedures intended to maintain the integrity of wetland. Refer to Sheets C-2 and C-4 for the locations and details of wetland features.

#### **4.1 Wetland Inspections**

The Wetland Inspection Form (Appendix B) shall be used as a basis for performing wetland inspections along with documentation of any recommendations for corrective actions. These forms shall be submitted to MassDEP by USACE (or MassDCR after the initial five-year period) with 30 days of the completion of the site inspections. Any recommendations for corrective actions will be accompanied by a Corrective Action Work plan, which will include a deadline for completion of work that is consistent with the protection of human health and the environment and maintenance of the wetland. The USACE (or MassDCR after the initial five-year period) will ensure these inspections occur and any corrective actions are completed.

Photographs will be taken during each site visit at permanent photo stations at the proposed locations on Sheet C-2. Photographs will be taken from three to five angles from each location depicted on Sheet C-2.

##### **4.1.1 Planted Species**

The table below outlines the type of plant species and the number of plants that will be planted in the compensatory wetland area.

<b>Plant Species (Common Name)</b>	<b>Plant Species (Botanical Name)</b>	<b>Water Tolerance</b>	<b>FORMAT FOR PLANTING (TREE, SEED, BUNCH)</b>	<b>NUMBER/ TOTAL</b>
Red Maple	<i>Acer rubrum</i>	seasonal wet	TREE 4' to 6' TALL	83
Black Oak	<i>Quercus velutina</i>		TREE 2.5" - 3" CALIPER	4
Swamp Oak	<i>Quercus bicolor</i>		TREE 4' to 6' TALL	2
River Birch	<i>Betula nigra</i>		TREE 4' to 6' TALL	6
American Hornbeam	<i>Carpinus caroliniana</i>		TREE 2.5" - 3" CALIPER	5
Balsam Fir	<i>Abies balsamea</i>		TREE 4' to 6' TALL	5
Red Cedar	<i>Juniperus virginiana</i>	seasonal wet	TREE 4' to 6' TALL	0
Speckled Alder	<i>Alnus incana</i>	irregular flooding	SHRUB 3' to 4' TALL	8
Red Osier Dogwood	<i>Cornus sericea</i>	seasonal wet	SHRUB 3' to 4' TALL	8
Winterberry Holly	<i>Ilex verticillata</i>	seasonal wet	SHRUB 3' to 4' TALL	8
Sweet Pepperbush	<i>Clethra alnifolia</i>	seasonal wet	SHRUB 3' to 4' TALL	6
Common Elderberry	<i>Sambucus canadensis</i>	seasonal wet	SHRUB 3' to 4' TALL	26
Black Chokeberry	<i>Aronia melanocarpa</i>	seasonal wet	SHRUB 3' to 4' TALL	6
Buttonbush Shrub	<i>Cephalanthus occidentalis</i>	6" to 12" water	SHRUB 3' TO 4' TALL	50
Cinnamon Fern	<i>Osmundastrum cinnamomeum</i>	seasonal wet	CONTAINER GROWN	22
Pickerelweed	<i>Pontederia cordata</i>	12"-18" water	GROUPS: 5 PLUGS PER	9/45
Great Bur-reed	<i>Sparganium eurycarpum</i>	6" to 12" water	GROUPS: 5 PLUGS PER	12/60
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	6" to 12" water	GROUPS: 10 PLUGS PER	20/200
Yellow Water Lily	<i>Nuphar lutea</i>	18" to 24" water	TUBERS OR CONTAINER GROWN	29
Blue Flag	<i>Iris versicolor</i>	seasonal wet	GROUPS: 5 PLUGS PER	9/45
American Planetree	<i>Platanus occidentalis</i>		TREE 2" – 2.5" CALIPER	1
New England Conservation/Wildlife Mix (for dry sites)			SEED	25 lbs/acre

New England Wetmix (Wetland Seed Mix)	SEED	18 lbs/acre
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During inspections, any dead branches identified in planted trees should be trimmed and guy wires and stakes should be adjusted as necessary.

#### **4.1.2 Wetland Planting Survivability**

The wetland plantings should be inspected during each inspection for the first year following the completion of compensatory wetland area construction. The following one-year survivability criteria have been established:

- Restoration grade woody plants: 75 percent;
- Landscape quality materials: 100 percent survival;
- Herbaceous wetland materials: 50 percent cover in planted areas;
- Container grown fern: 75 percent survival; and
- Seeded upland areas: 75 percent cover.

#### **4.1.3 Invasive Plant Species**

As part of wetland maintenance operations, as outlined in Section 4.2, due to the presence, and in some locations dominance, of upland and wetland invasive plants, it is anticipated that management of invasive species will be necessary to suppress re-colonization of unwanted species and facilitate the establishment of native wetland species. The following are invasive species that should be eliminated immediately if found (Botanical names based on Flora Novae Angliae by Arthur Haines, 2011): Purple Loosestrife (*Lythrum salicaria*), Phragmites (*Phragmites australis*), Glossy False Buckthorn (*Frangula alnus*), Honeysuckles (*Lonicera spp.*), Garlic Mustard (*Alliaria petiolata*), Japanese Knotweed (*Polygonum cuspidatum* or *Fallopia Japonica*), Japanese Stilt Grass (*Microstegium vimineum*), Reed Canary Grass (*Phalaris arundinacea*), Bittersweet Nightshade (*Celastrus Orbiculatus*), Black Swallow-wort (*Cynanchum nigrum*), Pale Swallow-wort (*Cynanchum rossicum*), Black Alder (*Alnus glutinosa*), or Black Locust (*Robinia pseudoacacia*).

As part of wetland maintenance operations, steps should be taken to avoid establishment of invasive wetland species. Any invasive wetland species will be eliminated at the soonest possible time. Hand weeding and pruning is the preferred method for removal of very young

invasive plants. Spot application via wipe method of appropriate herbicides may also be utilized in most cases. Control of invasive species will be limited to the compensatory wetland area and will not extend to the entire site. The table below outlines control measures for common found invasive species.

Species	Control Measure	Recommended Treatment Date
Phragmites; Purple Loosestrife	Herbicide (Glyphosate) applied by wipe method	August 1 – September 15
Black Locust	Cut stump treatment using glyphosate or triclophyr herbicide	Anytime during the growing season.
Multiflora Rose Bush Honeysuckle	Cut stump or treatment using glyphosate or triclophyr herbicide;	Anytime during the growing season.
Oriental Knotweed	Treatment using glyphosate or triclophyr herbicide;	August 1 – September 15

#### **4.1.4 Precipitation Monitoring**

Precipitation levels at the Site should be monitored weekly during the entire first growing season through September 15, 2014. Additional watering may be required to ensure the wetland plantings receive at least 1 inch of rainfall per week or supplemental watering will be required. Rainfall can be monitored through the National Weather Service online at <http://water.weather.gov/precip/>. No additional watering is necessary if the soil is wet at the surface.

#### **4.1.5 Surface Water Elevation Monitoring**

A staff gauge will be installed on the inner side of the surface water surrounding the central emergent island. The staff gauge will be used to monitor surface water elevations around the central emergent island. Adequate surface water elevations are a critical in reducing the spread of invasive species. The location of the staff gauge is depicted on Sheet C-2.

## **4.2 Routine Maintenance**

The following routine site maintenance and replanting activities will occur each year:

- Trimming of dead branches from landscape quality trees (i.e. caliper diameter trees and river birch); (USACE for initial 5 year period, then MassDCR)
- Inspection and adjustments of guy wires and stakes to protect herbaceous wetland plantings (the guys and stakes are expected to be removed after 2-3 growing seasons); (USACE)
- Maintenance of herbivore exclusion fence (the fencing is expected to be removed after 2-3 growing seasons); (USACE)
- Trimming of herbaceous vegetation growing around shrub plantings (only as needed to prevent tree/shrub mortality); (USACE for initial 5 year period, then MassDCR)
- Replanting any dead landscape quality trees during the initial monitoring period; (Charter Environmental)
- Replanting any herbaceous wetland materials if mortality exceeds 50 percent during the initial monitoring period; (Charter Environmental)
- Replanting any container grown ferns if mortality exceeds 75 percent at any time during the initial monitoring period; and (Charter Environmental)
- Replanting other trees and shrubs if mortality exceeds 25 percent at any time during the initial monitoring period. Any required replanting will occur in the spring or fall depending on the time of the inspection that deems replanting necessary. (Charter Environmental)

## **5.0 RECORDKEEPING AND REPORTING REQUIREMENTS**

The following is a summary of the suggested recordkeeping and reporting protocol during inspections.

### **5.1 Document Control**

During all fieldwork performed in connection with this O&M Plan, inspection sheets and notes shall detail observations of site conditions, climate, and other relevant information pertaining to the site inspection. The inspection forms (Appendix A and B) (or site owner equivalent) shall also be used to document observations and other activities performed during the site investigations. Information shall be maintained for the use of the site owner or other contractors designated by the site owner.



## **5.2 Reporting Requirements**

For soil cover inspections, concise yearly reports documenting monitoring and maintenance activities shall be prepared by USACE. USACE may delegate the responsibility to a contractor or other agency, but USACE is ultimately responsible for generating and submitting the reports. The reports shall be prepared following the fall inspection. The reports should, at a minimum, include:

- Date of the inspections and name of personnel conducting the inspections;
- A brief summary of observations;
- Summary of maintenance activities;
- Representative photographs of the soil cover area and any deficiencies (with recommendations to correct any deficiencies);
- A determination as to whether or not the land use controls are still being fully implemented;

The reports shall be submitted by USACE to MassDEP and MassDCR within 30 days after the completion of the site inspection. A Five Year Review Report will be prepared at the end of each 5-year monitoring period and submitted to MassDEP and MassDCR. The report will include long-term monitoring and maintenance recommendations and any LUC compromises.

For wetland inspections, concise yearly reports documenting monitoring and maintenance activities shall be prepared by USACE for the five years after the conclusion of construction activities. The reports shall be prepared following the fall inspection. The reports should, at a minimum, include:

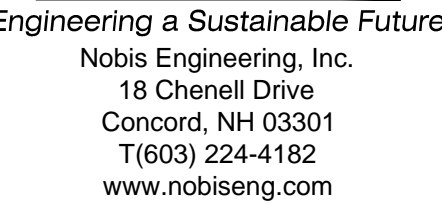
- Date of the inspections and name of personnel conducting the inspections;
- A brief summary of observations, including a description of any deficiencies, a qualitative assessment of condition of the plant community, an estimate of tree and shrub survivorship, percent cover of herbaceous wetland vegetation, occurrence of invasive species, water surface elevation, any erosion problems, and wildlife observations;
- By species planted, a description of the general health and vigor of the surviving plants, the prognosis for their future survival, and a diagnosis of the cause(s) of any morbidity or mortality;
- Summary of maintenance activities including invasive species control;
- List of plant and wildlife species observed on the Site;

- Representative photographs of the compensatory wetland area and any deficiencies, including a figure showing the location of photo points and the direction of photographs;
- Summary of invasive species control efforts including: treatment method, list of species treated, and the name of the licensed pesticide applicator; and
- Recommendations to correct any deficiencies.

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## **SHEETS**

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WATERTOWN,  
MASSACHUSETTS

## REVISIONS



NOBIS PROJECT NO. 86300.00

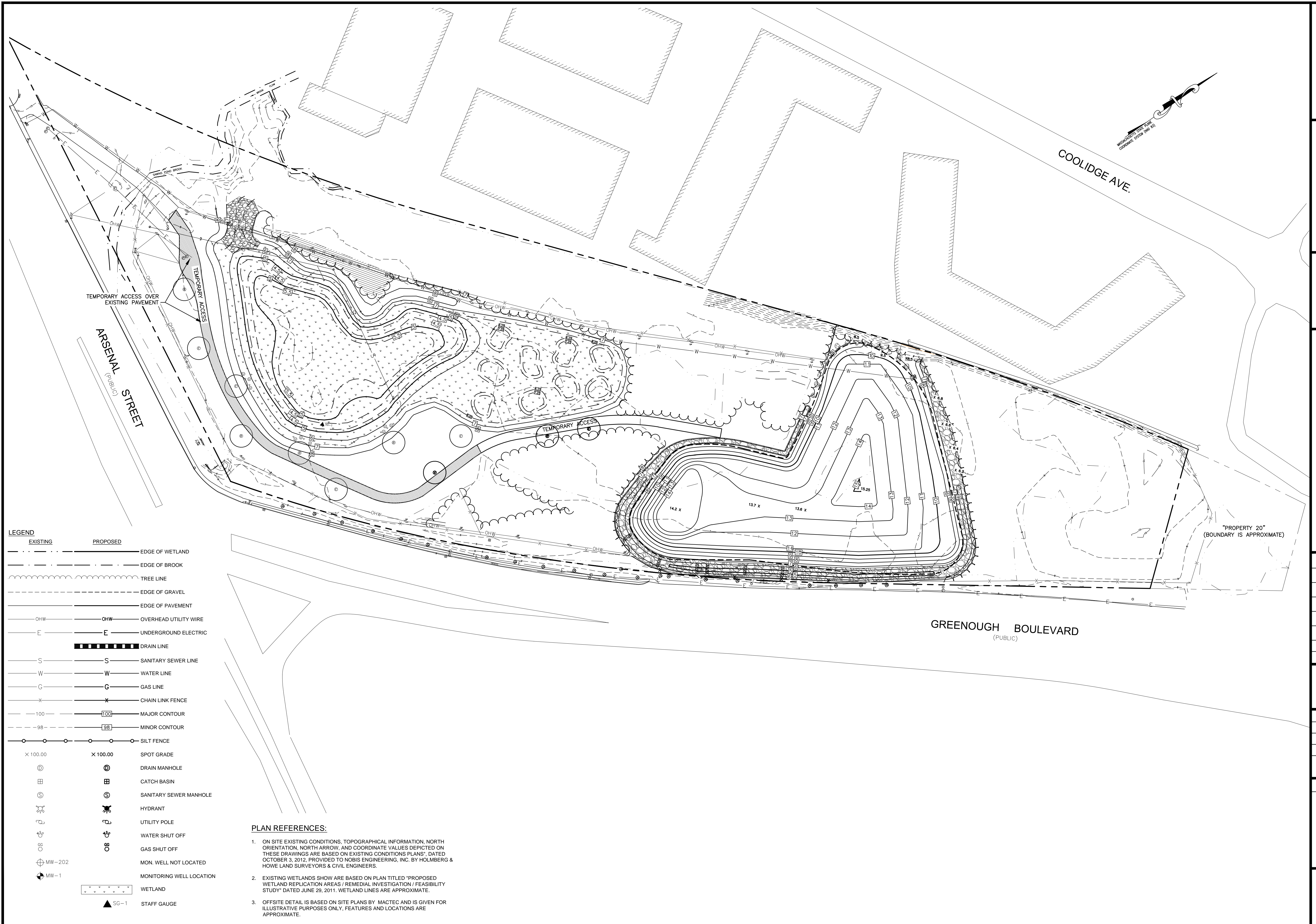
DRAWN BY: ML

CHECKED BY: BV

CAD DRAWING FILE:

86300-DESIGN.dwg

SHEET  
C-1





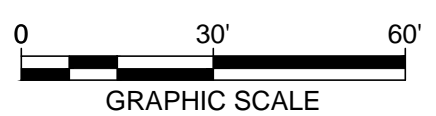
CONSTRUCTION  
PROGRESS  
PRINT

WATERTOWN  
GSA SITE

WATERTOWN,  
MASSACHUSETTS

4	03/19/14	UPDATED PER COMMENTS
3	01/16/14	UPDATED FOR CONSTRUCTION STATUS
2	11/12/13	UPDATED FOR CONSTRUCTION STATUS
NO.	DATE	DESCRIPTION

## REVISIONS



DATE: MARCH 2013

NOBIS PROJECT NO. 86300.00

DRAWN BY: ML

CHECKED BY: BV

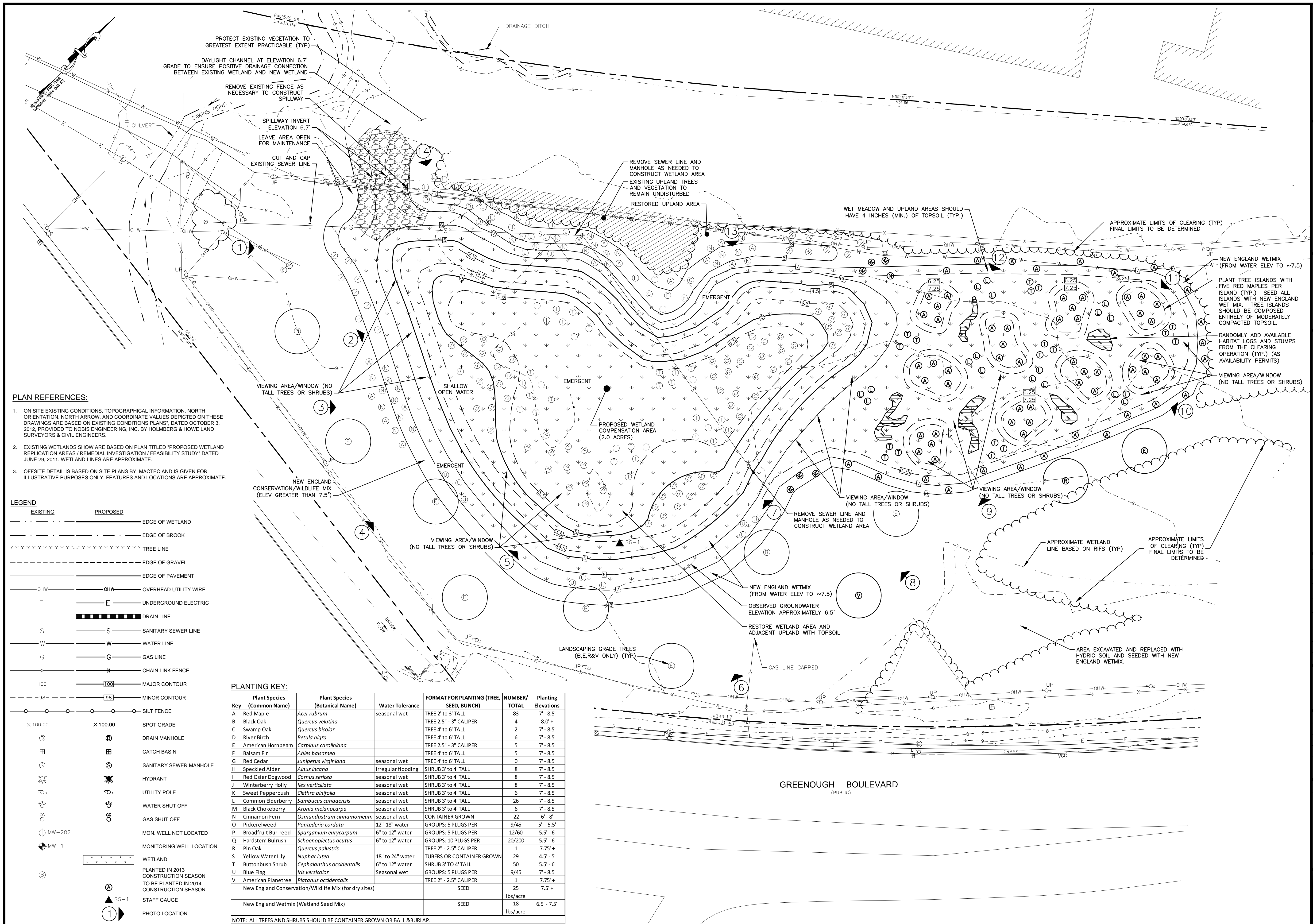
CAD DRAWING FILE:

86300-DESIGN.dwg

# PROPOSED WETLAND COMPENSATION AREA O&M PLAN

## SHEET

C-2





WATERTOWN,  
MASSACHUSETTS

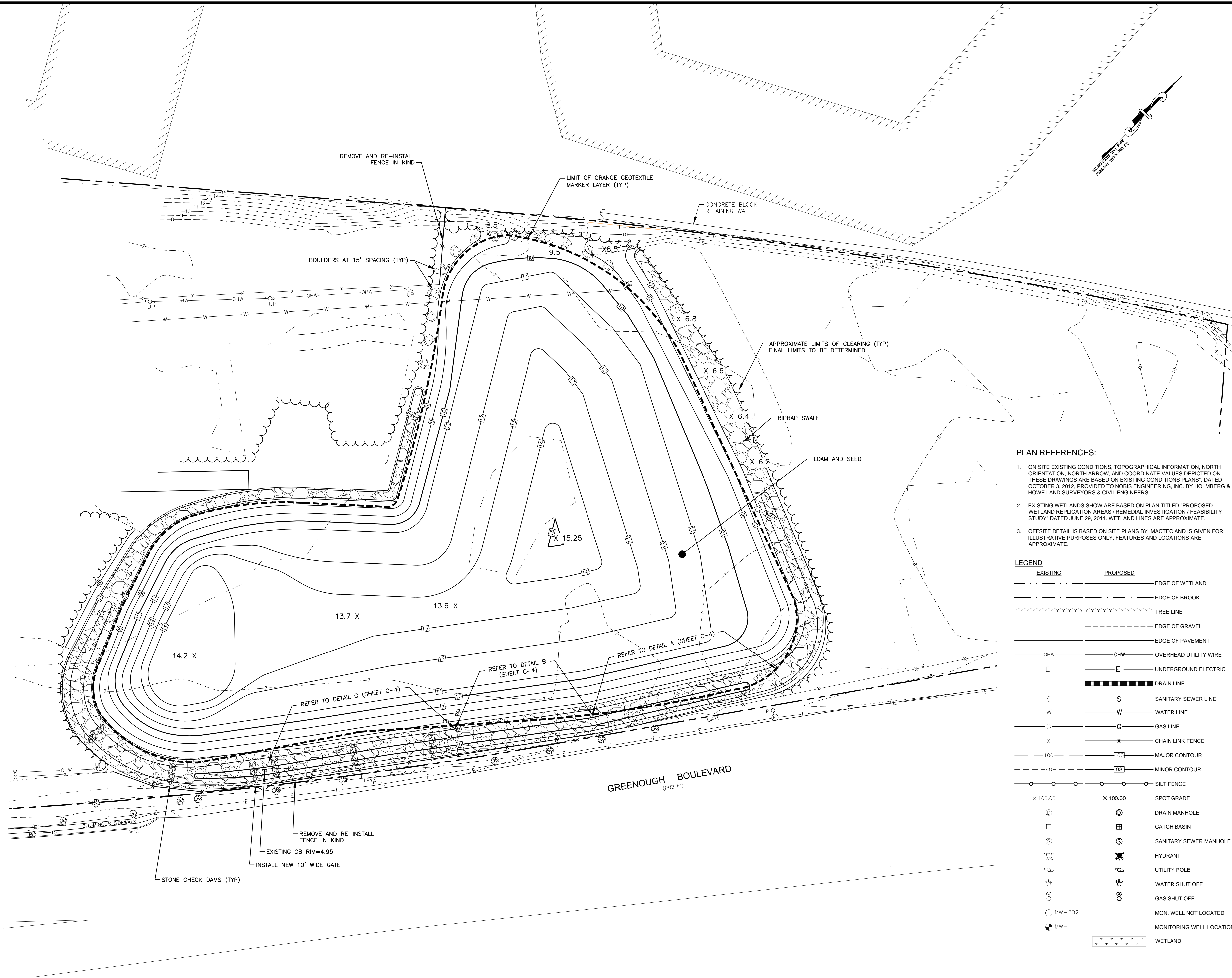
③	01/16/14	UPDATED FOR CONSTRUCTION STATUS
②	11/12/13	UPDATED FOR CONSTRUCTION STATUS
①	09/03/2013	ADDED EROSION STONE
NO.	DATE	DESCRIPTION

0 30' 60'

GRAPHIC SCALE

DATE:	MARCH 2013
NOBIS PROJECT NO.	86300.00
DRAWN BY:	ML
CHECKED BY:	BV
CAD DRAWING FILE:	
86300-DESIGN.dwg	

**C-3**





REVISIONS	
SCALE: AS NOTED	
DATE:	MARCH 2013
MOBIS PROJECT NO.	86300.00
DRAWN BY:	RS
CHECKED BY:	BV
CAD DRAWING FILE: 86300-DETAIL.dwg	
SHEET TITLE	

DATE:	MARCH 2013
NOBIS PROJECT NO.	86300.00
DRAWN BY:	RS
CHECKED BY:	BV
CAD DRAWING FILE:	
86300-DETAIL.dwg	

4 OF 5

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## **APPENDIX A**

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## SOIL COVER INSPECTION CHECKLIST

<b>Task Order/Job Code:</b> _____ <b>Site Name:</b> <u>GSA Property</u> <b>City:</b> <u>Watertown</u> <b>State:</b> <u>Massachusetts</u> <b>Inspection Team:</b> _____	<b>Weather:</b> _____ <b>Temperature:</b> _____ <b>Site Map:</b> <u>Attach Map</u> <b>Inspection Date:</b> _____
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ITEM	REMARKS
<b>VEGETATIVE COVER</b>	
1. AVERAGE GRASS HEIGHT  Estimated Height (inches): _____	
2. SPARSE COVER AREAS?      Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): _____ Length:                      Width: _____	
3. GRASS CONDITION  Healthy <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/>	
4. INVASIVE TREES/SHRUBS?      Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): _____ Areal Extent:                      Height: _____	
<b>GROUND SURFACE</b>	
1. SETTLEMENT (LOW SPOTS)      Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): _____ Areal Extent:                      Depth: _____	
2. CRACKS                              Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): _____ Length:                      Width:                      Depth: _____	
3. EROSION                              Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): _____ Areal Extent:                      Depth: _____	
4. HOLES                                  Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): _____ Areal Extent:                      Depth: _____ Suspected Cause (e.g. rodent, other): _____	

ITEM	REMARKS
5. WET AREAS Yes <input type="checkbox"/> No <input type="checkbox"/> Ponding: Location (also indicate on map): Areal Extent:  Seeps: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): Areal Extent: Estimated Flow Rate:  Soft Subgrade: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): Areal Extent:	
6. EVIDENCE OF UNAUTHORIZED OFF ROAD VEHICLES Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): Areal Extent: Depth:	
<b>STORM WATER MANAGEMENT SYSTEMS</b>	
1. EASTERN SWALE Settlement: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): Ponding: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):	
2. SOUTHERN SWALE Settlement: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): Ponding: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):	
3. WESTERN SWALE Settlement: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): Ponding: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):	
4. CATCH BASIN Debris: Yes <input type="checkbox"/> No <input type="checkbox"/> Appears to be Functioning: Yes <input type="checkbox"/> No <input type="checkbox"/> Condition: Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/>	

ITEM	REMARKS
<b>5. STONE CHECK DAMS</b> Excess Sediment: Yes <input type="checkbox"/> No <input type="checkbox"/> (greater than 12")  Location (also indicate on map):  Erosion: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):	
<b>ACCESS ROADS</b>	
<b>1. Damage:</b> Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):  Erosion: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):  Vegetation: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):	
<b>WALLS AND SLOPES</b>	
<b>1. NORTHERN SLOPE</b> Erosion: Yes <input type="checkbox"/> No <input type="checkbox"/> Settlement: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):	
<b>2. EASTERN SLOPE</b> Erosion: Yes <input type="checkbox"/> No <input type="checkbox"/> Settlement: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):	
<b>3. SOUTHERN SLOPE</b> Erosion: Yes <input type="checkbox"/> No <input type="checkbox"/> Settlement: Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map):	
<b>GENERAL</b>	
<b>1. VANDALISM</b> Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): Description of Damage:	
<b>2. CHANGED SITE CONDITION</b> Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>3. LAND USE CONTROLS STILL FULLY IMPLEMENTED</b> Yes <input type="checkbox"/> No <input type="checkbox"/>	

**INTERVIEWS** (conduct interviews only if any of the following are present during inspection)

1. INTERVIEW WORKERS ON SITE

Problems:

Suggestions:

*Attach Report*

2. INTERVIEW SITE NEIGHBORS

Problems:

Suggestions:

*Attach Report*

3. INTERVIEW LOCAL OFFICIALS

Problems:

Suggestions:

*Attach Report*

**REVIEW DOCUMENTS**

1. OPERATION AND MAINTENANCE PLAN

Is there a plan in place? Yes ☐ No ☐

Is it being followed? Yes ☐ No ☐

Is it adequate? Yes ☐ No ☐

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## **APPENDIX B**

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## WETLAND INSPECTION CHECKLIST

<b>Task Order/Job Code:</b> _____ <b>Site Name:</b> <u>GSA Property</u> <b>City:</b> <u>Watertown</u> <b>State:</b> <u>Massachusetts</u> <b>Inspection Team:</b> _____	<b>Weather:</b> _____ <b>Temperature:</b> _____ <b>Site Map:</b> <u>Attach Map</u> <b>Inspection Date:</b> _____
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ITEM	REMARKS
<b>PLANTED SPECIES (See Table 1)</b>	
1. WOODY PLANTS Overall Condition: Healthy <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Dead Plants? Yes <input type="checkbox"/> No <input type="checkbox"/> Number of Dead Plants _____	
2. LANDSCAPE QUALITY MATERIAL Overall Condition: Healthy <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Dead Material? Yes <input type="checkbox"/> No <input type="checkbox"/> Estimated Percentage of Dead Material _____	
3. HERBACIOUS WETLAND MATERIAL Overall Condition: Healthy <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Dead Material? Yes <input type="checkbox"/> No <input type="checkbox"/> Estimated Percentage of Dead Material _____	
4. CONTAINER GROWTH FERN Overall Condition: Healthy <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Dead Ferns? Yes <input type="checkbox"/> No <input type="checkbox"/> Estimated Percentage of Dead Ferns _____	
5. SEEDED UPLAND AREAS Overall Condition: Healthy <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Dead Material? Yes <input type="checkbox"/> No <input type="checkbox"/> Estimated Percentage of Dead Material _____	
<b>INVASIVE SPECIES</b>	
1. INVASIVES IDENTIFIED? Yes <input type="checkbox"/> No <input type="checkbox"/> Location (also indicate on map): Approximate Extent (ft <sup>2</sup> ):	
2. ACTIONS TAKEN? Yes <input type="checkbox"/> No <input type="checkbox"/> Describe specific actions at right.	
3. ADDITIONAL ACTIONS REQUIRED? <div style="text-align: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></div>	
<b>PRECIPITATION MONITORING</b>	

ITEM	REMARKS
<p>1. PRECIPITATION EVENTS:</p> <p>Date:_____ Amount (in) _____</p> <p>Date:_____ Amount (in) _____</p> <p>Date:_____ Amount (in) _____</p> <p>Date:_____ Amount (in) _____</p> <p>Date:_____ Amount (in) _____</p> <p>Supplemental Watering Required? Yes <input type="checkbox"/> No <input type="checkbox"/></p>	
<p>2. SOIL MOISTURE CONTENT:</p> <p>Dry <input type="checkbox"/> Moist <input type="checkbox"/> Wet <input type="checkbox"/></p>	
<p>3. SUPPLEMENTAL WATERING</p> <p>Supplemental Watering Required? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Watering Performed? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Location (also indicate on map if applicable):</p>	

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## **APPENDIX C**

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**ANNUAL REVIEW OF LAND USE CONTROLS**  
**670 Arsenal Street - GSA Property**  
**Watertown, Massachusetts**

**DOCUMENTATION**

Item	Circle One	Comments
Is the complete updated LUCIP available onsite?	Yes No N/A	
Are there certified annual inspection logs for the permeable soil cover and wetland restoration area?	Yes No N/A	
Are there correspondence records on file documenting MassDEP notifications regarding:		
a. Activities inconsistent with LUCs;	Yes No N/A	
b. Corrective actions regarding activities inconsistent with LUCs;	Yes No N/A	
c. Changes in procedures affecting LUCs;	Yes No N/A	
d. Proposed land use changes; and	Yes No N/A	
e. Proposed transfer or sale of the Site?	Yes No N/A	

**INSPECTION**

Item	Circle One	Comments
Is there evidence of earthwork at the Site (i.e. changes in grade, soil piles, etc.)?	Yes No N/A	
Is there evidence of vandalism?	Yes No N/A	
Are there evidence of disturbed areas within the permeable soil cover?	Yes No N/A	
Is there evidence that the vegetation has been mowed and cleared in accordance with the O&M Plan?	Yes No N/A	
Do Site conditions indicate the LUCs are not being properly implemented?	Yes No N/A	
<b>Additional Comments:</b>		