GODDARD CONSULTING
Strategic Ecological Consulting

Wetland Replication Planting Plan

for

Blackstone Street Improvements
(Map 62, Parcels 1 & 5; Map 66, Parcel 1)
Bellingham, MA 02019

REVISED DATE:
December 16, 2025

ADDRESSED TO:
Bellingham Conservation Commission
10 Mechanic Street
Bellingham, MA 02019

PREPARED BY:
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PREPARED FOR:
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2 Warthin Circle
Norwood, MA 02062

A. EXISTING CONDITIONS

The Project Site is known as Blackstone Street in Bellingham, MA (Map 62, Parcels 1 & 5; Map 66, Parcel 11). The Project Site consists of approximately 214-acres of mixed forested wetlands and uplands (Reference Figure 1). The site is bisected by two gas easements and an existing gravel road connecting Blackstone Street to Bellingham Road. The existing gravel road crosses a large Bordering Vegetated Wetland (BVW) system with an internal stream channel south of the existing roadway.

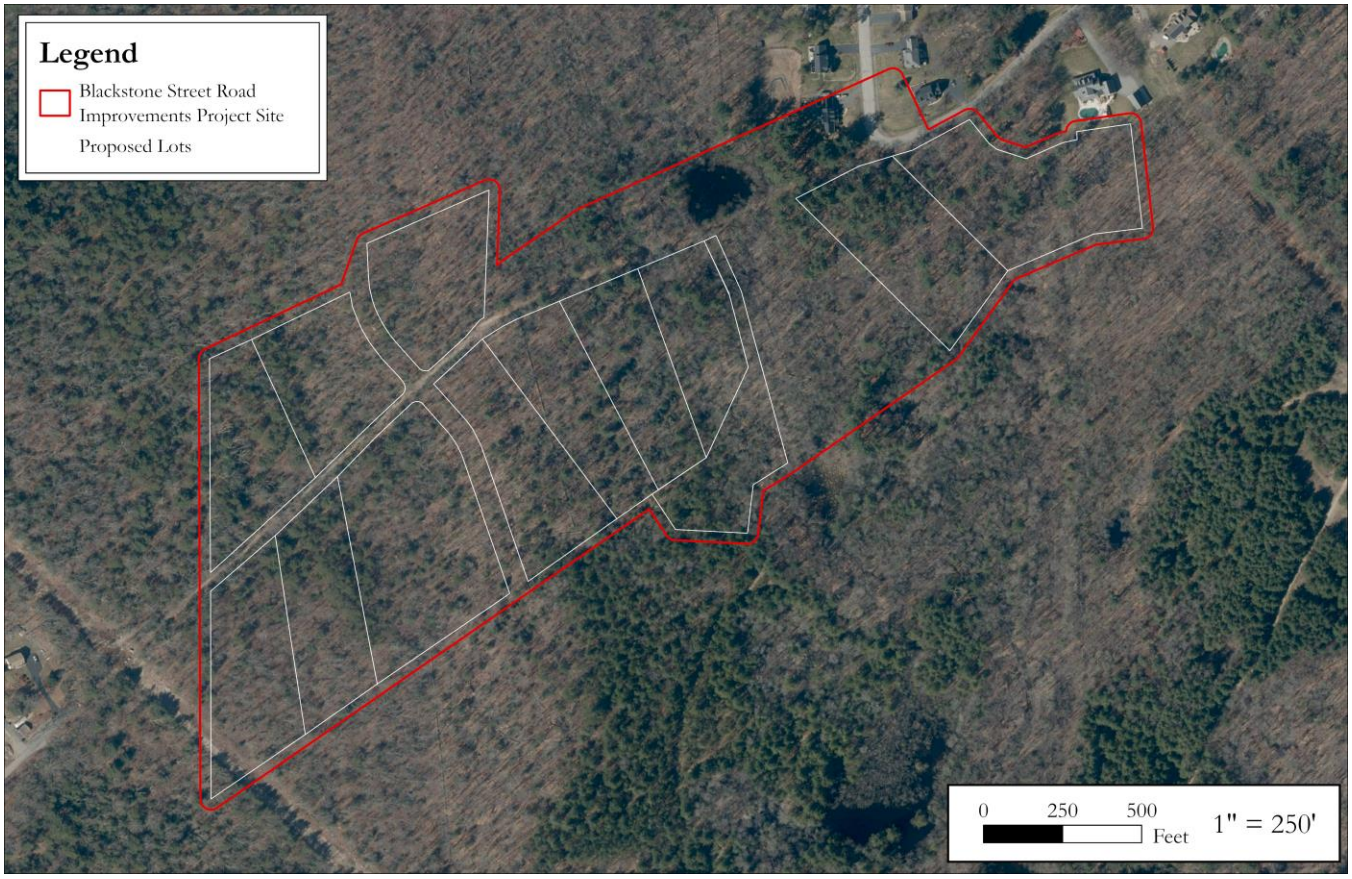


Figure 1. Existing conditions of the Project Site, including the proposed lots adjacent to the gravel roadway.

Multiple wetland resource areas are located within the Project Site. Bordering Vegetated Wetland (BVW) totaling approximately 3.7-acres (±159,688 sf) was flagged with two wetland flag series consisting of series GCA, GCB and GCC (Reference Figure 2). The BVW exists mainly in the eastern portions of the site. A mapped perennial stream, known as Quick Stream, flows south of the existing gravel roadway and discharges into Lake Hiawatha south of the locus site. In January 2025, the Bellingham Conservation Commission issued a negative determination stating the stream does not meet the criteria for perennial status. Therefore, Quick Stream does not have a 200-foot Riverfront Area and only has a jurisdictional bank with an associated 100-foot Buffer Zone. The bank of the intermittent stream was not flagged due to the channel's presence within the flagged BVW. Three town-jurisdictional Isolated Vegetated Wetlands (IVWs) were flagged along the southeastern boundary of the Project Site. The IVWs were flagged with wetland flag series GCF, GCG, and GCI. One potential vernal pool was identified and flagged within the BVW of the easternmost proposed lot (Lot 1). The northern boundary of the potential vernal pool was flagged with flag series GCVP1 – GCVP10. According to the Bellingham Wetlands Bylaw, this potential vernal pool has a town-jurisdictional 50-foot No Disturb Zone.

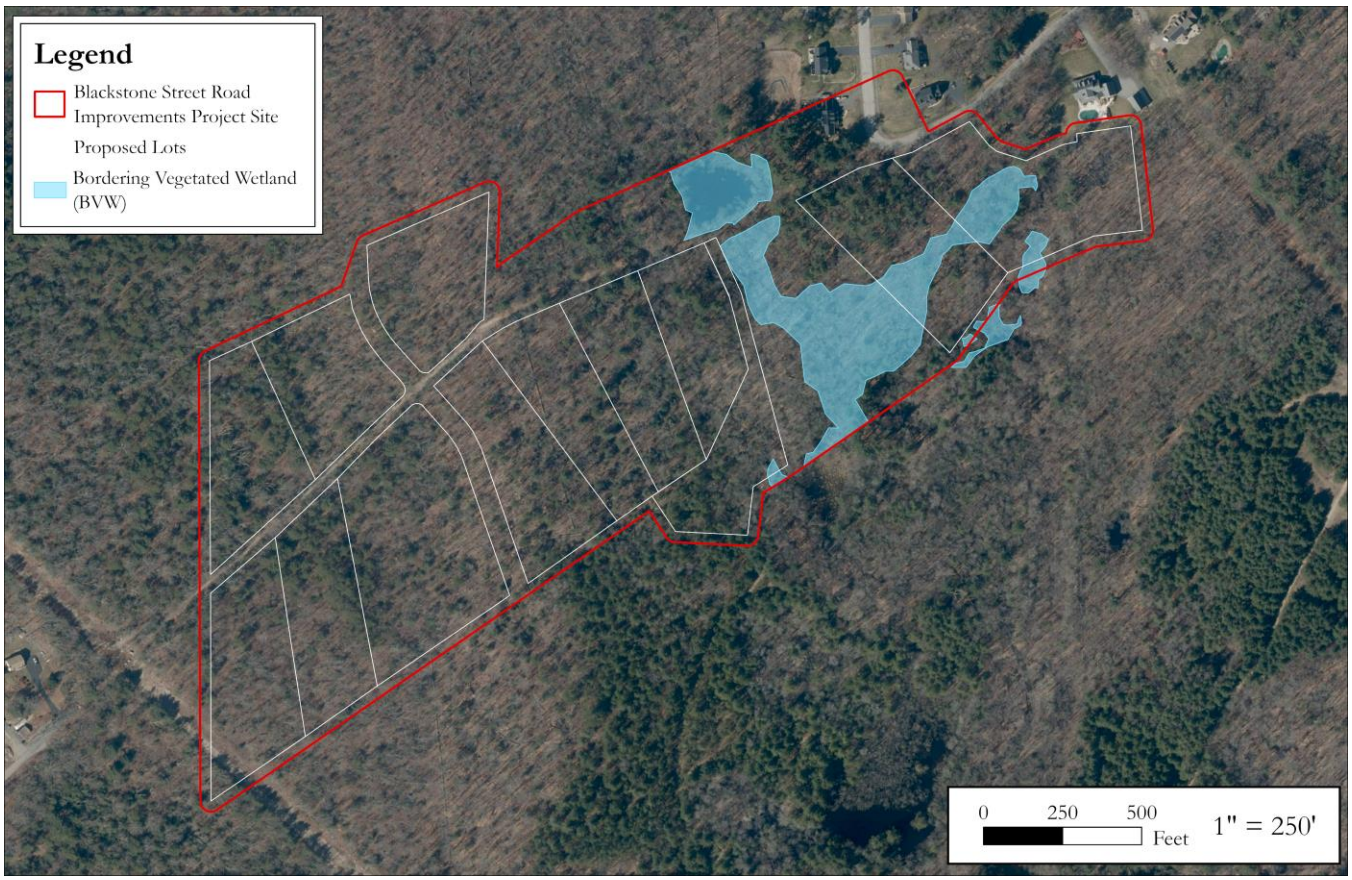


Figure 2. Existing conditions of the Project Site, including the proposed lots adjacent to the gravel roadway and the flagged Bordering Vegetated Wetlands and Isolated Vegetated Wetlands.

The existing gravel road is proposed to be improved for future development. These improvements will result in a small amount of wetland impacts adjacent to the existing gravel roadway. The proposed wetland impact area is dominated by wetland vegetation consisting of Red Maple, Eastern White Pine, Common Winterberry, Sweet Pepperbush, Fox Grape, and Skunk Cabbage (Reference Photos 1 – 4).

Photo 1. A photo (facing south) of the wetland north of existing gravel road.

Photo 2. A photo (facing south) of the wetland south of the existing gravel road.

Photo 3. A photo (facing north) of the wetland north of existing gravel road.

Photo 4. A photo (facing west) of the gravel roadway & the adjacent wetland.

According to the MassGIS data layers for NHESP, the Project Site is located within both Estimated Habitat of Rare Wildlife / Priority Habitat of Rare Species. No potential or certified vernal pools are mapped within the Project Site. No Outstanding Resource Waters (ORW) are mapped within the site. The property does not fall within a jurisdictional FEMA floodplain and the site is not located in an Area of Critical Environmental Concern (ACEC).

B. PROPOSED CONDITIONS

The proposed project will be comprised of the improvement of the existing gravel road, known as Blackstone Street, and the addition of ten lots. The proposed improved roadway will be paved and widened to 22-feet in width. The roadway will be lined with modified Cape Cod berm curbing. The western end of the improved road will conclude with a cul-de-sac within Lot 9. Three infiltration basins are proposed south of the improved stretch of Blackstone Street.

At the proposed wetland crossing, a box culvert with a height of 2 feet, a width of 10 feet, and a length of 34 feet is proposed underneath the improved roadway. The proposed invert elevation of the inlet on the northern side of the roadway is 294, and the proposed invert elevation of the outlet on the southern side of the roadway is 292.50. A riprap apron is proposed at the outlet of the box culvert to slow the flow and prevent erosion at the point of discharge. Additionally, two retaining walls are proposed north and south of the improved roadway. The northern retaining wall will extend approximately 318 linear feet, and the southern retaining wall will extend approximately 215 linear feet. Infiltration basin #3 and associated grading is proposed the southeast of the wetland crossing. A temporary cul-de-sac is proposed west of the wetland crossing for construction.

The widening of the gravel roadway will result in 2,525 sf of wetland impact south of the existing gravel roadway. To mitigate for these impacts, wetland replication at a 2:1 ratio will be provided adjacent to flags GCB5 to GCB10. The proposed area of wetland replication will be approximately 5,095 sf in area. Thirty trees and sixty-six shrubs will be planted within the limit of the replication area. Shrub and tree quantities have been selected based on MassDEP spacing guidelines. The selected species include existing wetland vegetation and additional species to diversify and increase the habitat value of the replication area. The proposed trees species include Red Maple/*Acer rubrum* (FAC), Yellow Birch/*Betula alleghaniensis* (FAC), Black Tupelo/*Nyssa sylvatica* (FAC), and Swamp White Oak/*Quercus bicolor* (FACW). The proposed shrub species include Highbush Blueberry/*Vaccinium corymbosum* (FACW), Silky Dogwood/*Cornus amomum* (FACW), Northern Spicebush/*Lindera benzoin* (FACW), Common Winterberry/*Ilex verticillata* (FACW), Sweet Pepperbush/*Clethra alnifolia* (FAC), and Speckled Alder/*Alnus incana* (FACW). Additionally, a wetland seed mix is proposed within the entire limit of the replication area.

Please reference the attached Proposed Wetland Replication Plan, Proposed Wetland Replication Planting Plan, and Proposed Wetland Grading Plan for additional details.

C. GENERAL INSTALLATION PROCEDURES

Supervision: All work within the replication area shall be supervised by a qualified wetland scientist. The supervisor shall submit monitoring reports to the Bellingham Conservation Commission as described below. The reports shall contain details of all work performed and photographs of completed conditions.

Timing: The construction and installation of the replication area should be accomplished during the spring or fall growing seasons (between April 16 and May 31 or between September 16 and October 30). This work shall also be done before any other construction work on-site takes place in accordance with the Bellingham Wetlands Protection Bylaw and Regulations for wetland replication. Work shall take place ideally when the

wetlands are completely dry. If the wetland is not dry and dewatering is necessary, a dewatering plan shall be approved by the Commission prior to implementation.

Step 1. Stake Limits of Work, Confirm Wetland Flags, & Install ECB

Prior to the start of work, a surveyor will stake out the limit of work and a qualified wetland scientist will confirm wetland flags are in place adjacent to the replication area. Erosion control barriers shall then be installed in the form of staked siltation fence and mulch sock (or similar invasive-free barrier) along the limit of work of the replication area. These will remain in place until the replication areas have stabilized, and approval is received from the Bellingham Conservation Commission. The wetland scientist shall have the authority to require additional erosion control measures if deemed necessary.

Step 2a. Identify Shrubs, Woody Debris, and Boulders

The supervising wetland scientist shall identify and flag any native wetland shrubs within the replication area that may be dug up and stockpiled for use as additional plantings in the replication area. Any flagged specimens shall be removed and stockpiled in a designated area outside the replication area. Any large woody debris (rotting logs and tree stumps), and moss-covered boulders/rocks shall also be identified and flagged for stockpiling and subsequent addition to the replication areas. Wetland trees that lie or stand along the edge of the replication area may be preserved at the discretion of the wetland scientist.

Step 2b. Remove Trees and Vegetation

Once flagged trees, shrubs, and woody debris specimens have all been removed and stockpiled, clear and remove all remaining vegetation within the replication areas in preparation for excavation and grading. If possible, large diameter trees should be avoided during excavation.

Step 3. Excavation of Wetland Soils from Impact Areas

A storage area for soil and leaf litter shall be prepared prior to any soil excavation. Topsoil, leaf litter, and subsoil shall be separated in the stockpile. Wetland soils from the impact area will be excavated and transported to the replication area. The soils immediately surrounding the impact area will also be transplanted to the replication area and will be placed along the inner border of the replication areas to create a natural transition from upland to wetland soils. The soils from the impact area can be used as described above if no invasive species are present within the soil and there is no viable seed bank within the soil. This will help to ensure that any invasive species do not spread into the replication area or other areas on the site.

Step 4. Excavation of Replication Area

An excavator or backhoe shall remove existing soils up to the edge of the proposed replication area, to a depth at which redoximorphic features become visible in the C-horizon at the soil surface and at least one foot below proposed final grade, all of which shall be supervised and directed by the wetland scientist. Final grading elevation will be between 289 and 292 feet to match existing wetland elevations. Topsoil and subsoil shall be removed from the area to either be reused or removed from the site. Subsoil of the C-horizon shall be loosened prior to Step 5 to ensure soils aren't compacted prior to topsoil placement.

Step 5. Final Grading of Replication Area

Upon removal of existing soils down to the proper depth (as determined by the wetland scientist), the organic soil from the impact area will be placed within the replication area. If the soil from the impact area is not sufficient or contains invasive species, supplemental soil shall be imported, sourced from composted organic materials, and shall consist of a 50:50 mix of loam and organic material with an organic content between 12% and 20%. Soil testing will be required to ensure this organic content meets the above percentages. Topsoil shall be placed within the replication area to create a depth between 6 to 12 inches. The final grade shall be

confirmed by the wetland scientist prior to installation of the plantings. The placement of soil shall be such that no equipment drives over or compacts the placed soil. Final grading will mimic topography with areas of pooling and flooding during heavy rain events, and surface water during wetter seasons.

Step 6. Placement of Woody Debris and Boulders

Woody debris and moss-covered boulders stockpiled from the proposed impact area and replication area shall be randomly placed throughout the replication area to provide cover for wildlife.

Step 7. Installation of Plantings

Plantings will be installed according to the plan. The precise siting of plants may be determined by the wetland scientist or landscaper in the field prior to installation. All plantings (Reference the planting list in Section D) shall be distributed randomly throughout the area with trees spaced at 12-15' on center, shrubs spaced at 8-10' on center, and herbaceous species 3' or less on center. Shrubs shall be placed in clumps of 3-4 of the same species. Same species will be placed in groupings that more closely mimic natural conditions. All plantings will be removed from burlap sacks, wire cages, and plastic containers prior to planting. Trees will be planted on mounds, while shrubs and herbaceous species will be planted in depressions. Each plant will have its roots loosened prior to planting to encourage root growth away from the planting bulb. Plants will be adequately watered immediately following planting. Leaf litter, woody debris, will be spread throughout the area if it is available. Any significant disturbances shall be seeded with a wetland seed mix as specified in the Planting List Table in Section D.

Step 8. Removal of Erosion Controls

Once the replication area is stable, a request shall be submitted to the Conservation Commission to remove the erosion controls around the wetland replication area. Upon approval of stabilization, erosion controls shall be removed promptly, and any significant disturbance shall be seeded with a wetland seed mix as specified in Section D.

Step 9. Replication Monitoring

a. **Seasonal monitoring reports** shall be prepared for the enhancement areas by a qualified wetland scientist for a period of 3 additional years after installation or every year until a COC is issued by the Bellingham Conservation Commission. This monitoring program will consist of early summer and early fall inspections and will include photographs and details about the vitality of the enhancement area. Monitoring reports shall be submitted to the Commission by the end of each year. Monitoring reports shall describe, using narratives, plans, and color photographs, the physical characteristics of the enhancement area with respect to stability, survival of vegetation and plant mortality, aerial extent and distribution, species diversity and vertical stratification (i.e., herb, shrub, and tree layers).

b. **At least 75% of the surface area** of the replication area shall be re-established with indigenous plant species within two growing seasons. If the enhancement area does not meet the 75% re-vegetation requirement by the end of the second growing season after installation, the applicant shall submit a remediation plan to the Commission for approval that will achieve enhancement goals, under the supervision of a Wetland Scientist. This plan must include an analysis of why the areas have not successfully re-vegetated and how the applicant intends to resolve the problem.

D. PLANTING LIST

Wetland Replication Area (±5,095 SF)			
Common Name	**Scientific Name**	**Number**	**Size**
Trees (30)*			
Red Maple (FAC)	*Acer rubrum*	9	4-5’
Yellow Birch (FAC)	*Betula alleghaniensis*	9	4-5’
Black Tupelo (FAC)	*Nyssa sylvatica*	6	4-5’
Swamp White Oak (FACW)	*Quercus bicolor*	6	4-5’

Common Name	**Scientific Name**	**Number**	**Size**
Shrubs (66)*			
Highbush Blueberry (FACW)	*Vaccinium corymbosum*	12	1 or 2 gal. pots
Silky Dogwood (FACW)	*Cornus amomum*	9	1 or 2 gal. pots
Northern Spicebush (FACW)	*Lindera benzoin*	12	1 or 2 gal. pots
Common Winterberry (FACW)	*Ilex verticillata*	12	1 or 2 gal. pots
Sweet Pepperbush (FAC)	*Clethra alnifolia*	12	1 or 2 gal. pots
Speckled Alder (FACW)	*Alnus incana*	9	1 or 2 gal. pots
Seed Mix			
New England Wetland Plants WETMIX or equivalent*			2 lbs.

*Species selection dependent on nursery availability.

E. CONCLUSION

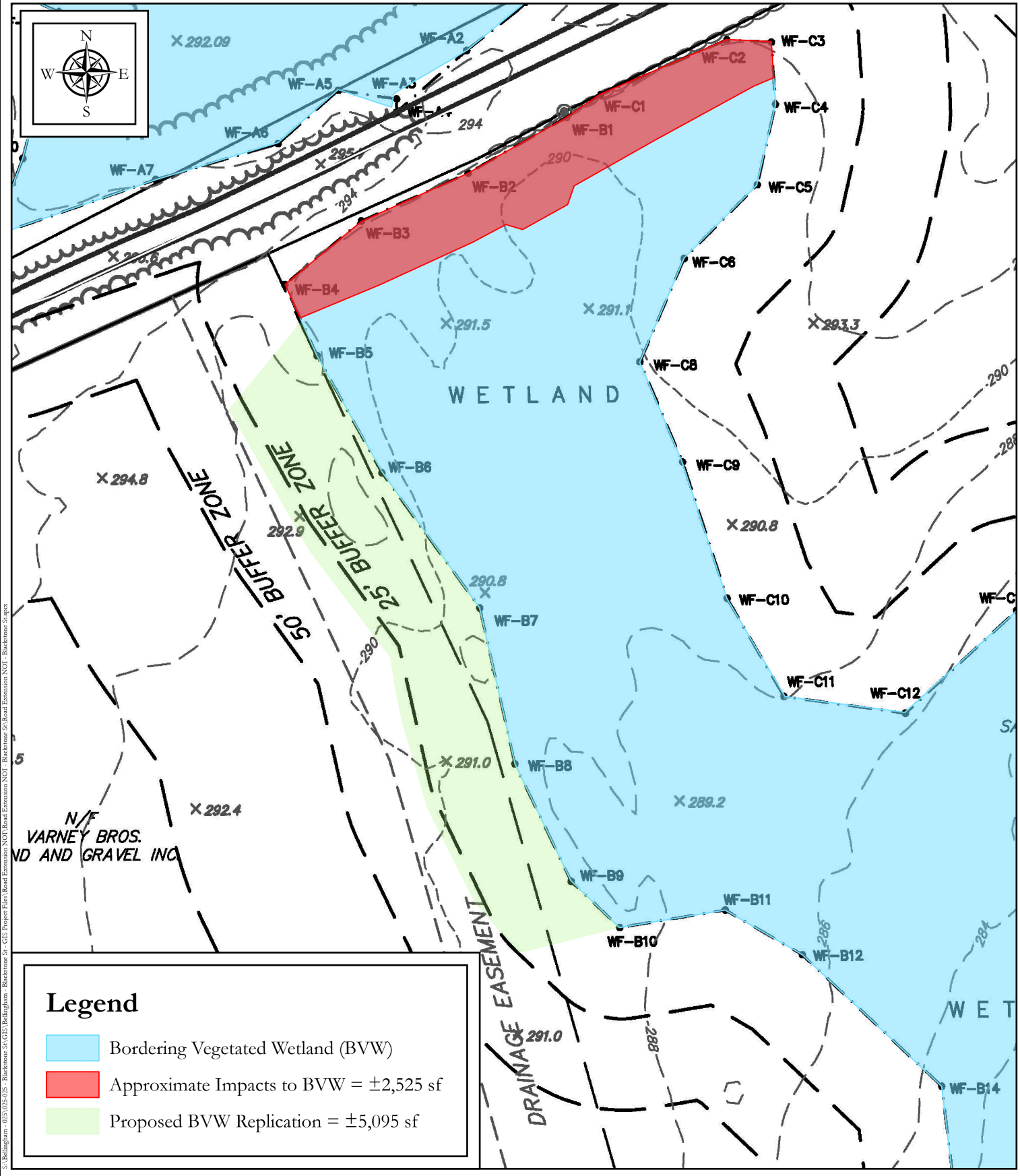
This mitigation will enhance the Bordering Vegetated Wetlands over current conditions and will improve the functions and values of the BVW. All local, state, and federal statutory interests and performance standards have been protected and will be met by the project, as described above.

Sincerely,

Goddard Consulting, LLC

Tom Schutz, WPIT
Lead Wetland Scientist

Kristina McEvoy
Wetland Scientist



GODDARD CONSULTING
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Proposed Wetland Replication Plan

0 25 50 Feet

1" = 50'

71.4936241°W, 42.0656838°N

Date: 12/16/2025

Blackstone Street
Bellingham, MA 02019

Parcel ID: 62-01

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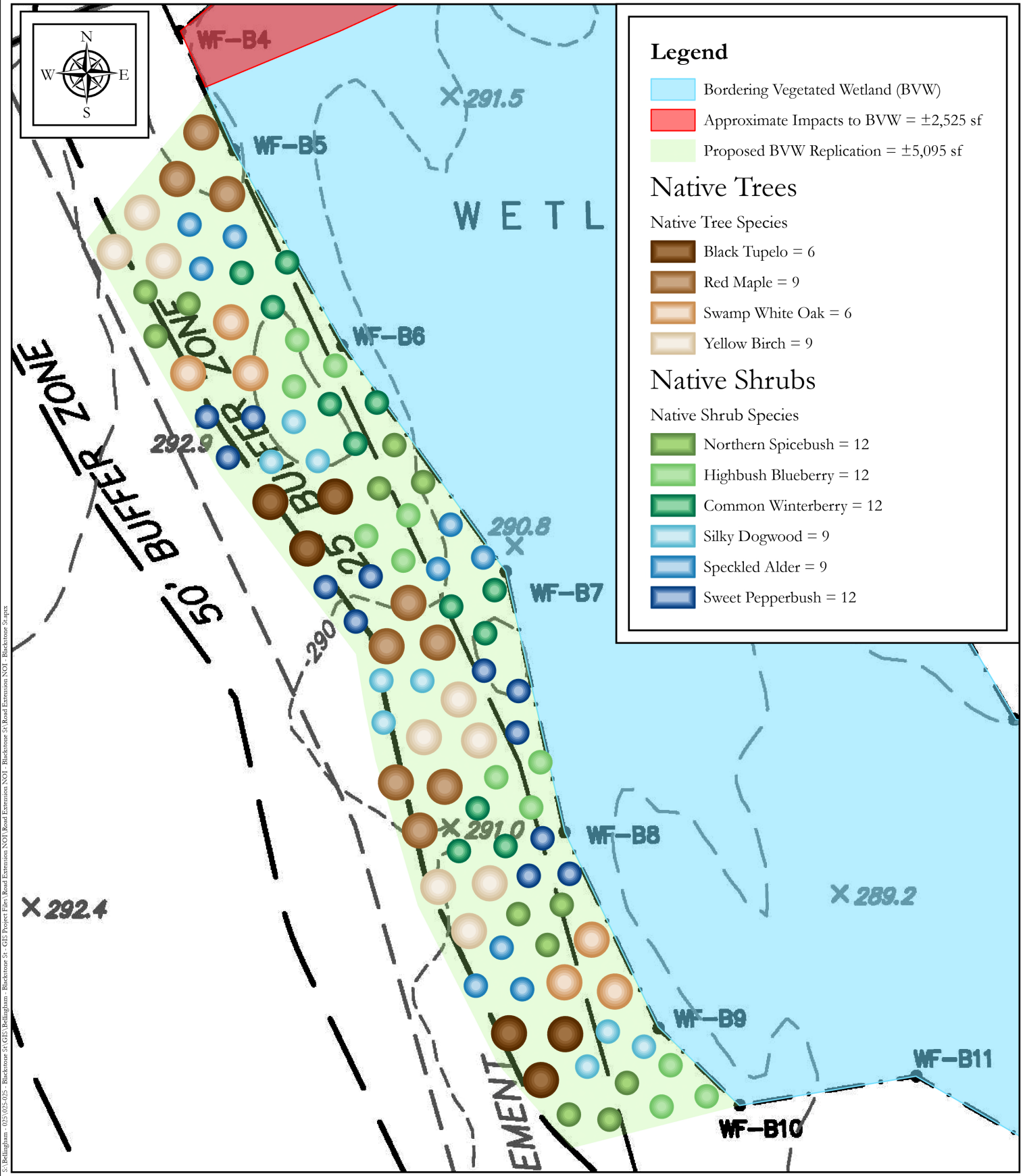

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Proposed Wetland Replication Planting Plan

Blackstone Street
Bellingham, MA 02019

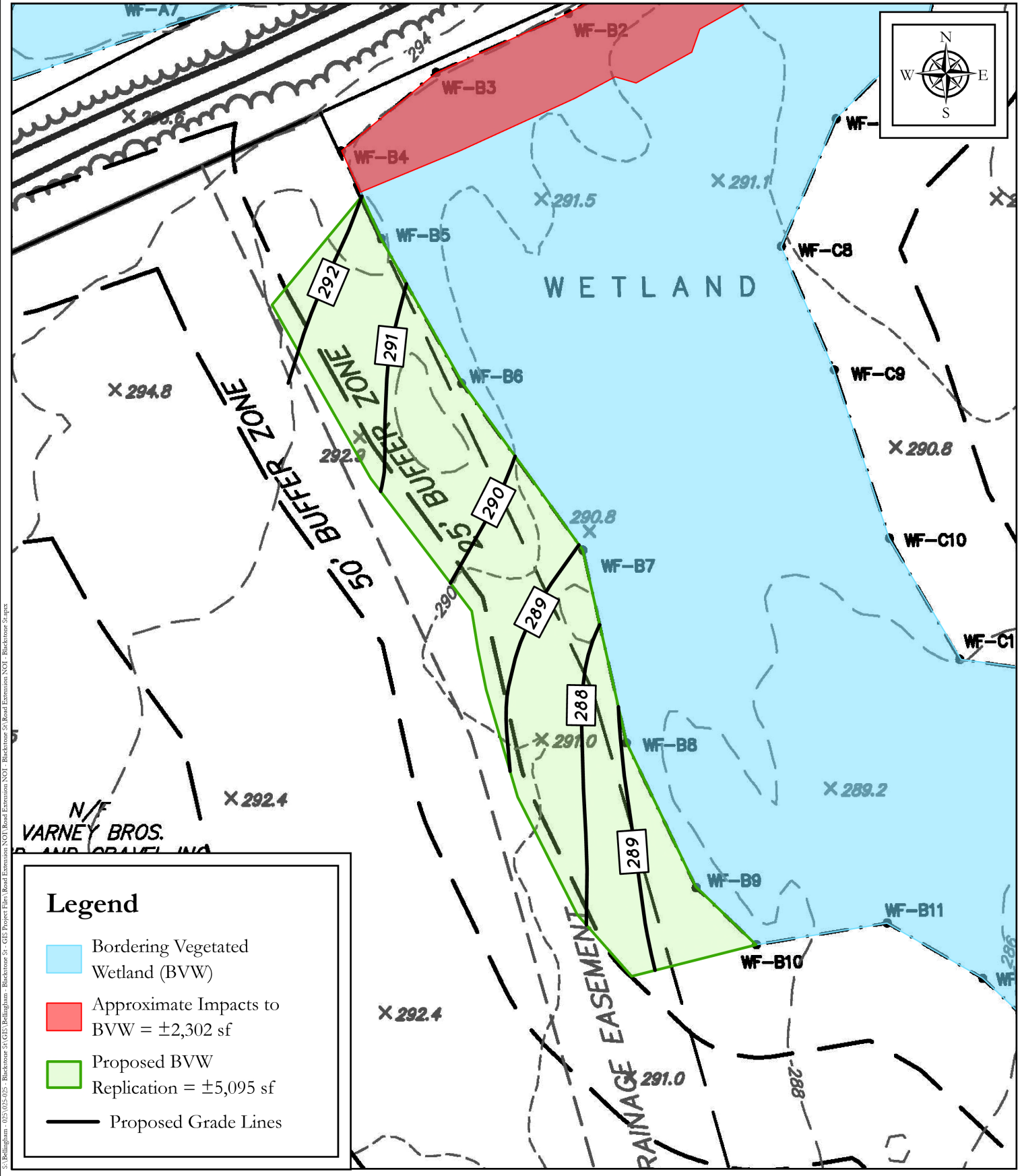
0 15 30 Feet

1" = 30'

71.4936543°W, 42.0656589°N

Date: 12/16/2025

Parcel ID: 62-01



GODDARD CONSULTING
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Proposed Wetland Grading Plan

Blackstone Street
Bellingham, MA 02019

0 15 30 Feet

1" = 30'

71.4937186°W, 42.0656352°N

Date: 12/16/2025

Parcel ID: 62-01

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