

**RIVERFRONT AREA ANALYSIS**

- Existing Riverfront Area on the site = approximately 33,003 square feet (sq. ft.)
- Existing Developed/Degraded Riverfront Area consisting of structures, driveway, parking areas, etc. totaling approximately 4,194 sq. ft. or 12.7% of the Riverfront Area.
- Proposed Developed/Degraded Riverfront Area consisting of structures, driveway, parking areas, etc. totaling approximately 9,137 sq. ft. or 27.7% of the Riverfront Area.

Therefore, the net increase in degraded Riverfront Area is 4,943 sq. ft. or an additional 15% of degraded Riverfront Area than currently exists.

In order to comply with the standards for Redevelopment Within Previously Developed Riverfront Area (310 CMR 10.58(5)), Riverfront Area restoration (310 CMR 10.58(5)(f)), and/or mitigation (310 CMR 10.58(5)(g)), is necessary to permit the increase in proposed degraded Riverfront Area at this site. A combination of Riverfront Area Mitigation and slope stabilization is proposed as part of this project to comply with the Riverfront Redevelopment standards. Please note the following proposed activities:

**PROPOSED RIVERFRONT MITIGATION (310 CMR 10.58(5)(g))**

- Upon construction of the stone retaining wall to create a more gentle slope, the planting area should be supplemented with clean sandy loam. After filling and grading to the correct elevation/slope, the surface should be covered with 3 inches of clean high organic loam/compost mix to create an organic layer suitable for planting. Plant native saplings and shrubs throughout the 12,580 sq. ft. mitigation planting area, which is more than the required 2 to 1 ratio of mitigation. The number of plantings is based on DEP's Inland Wetland Replication planting guidelines of saplings spaced 15 feet on center and shrubs spaced 10 feet on center. Using this plant spacing recommendation calculates 65 saplings and 146 shrubs within the proposed mitigation area. Compost and/or organic soil additives may be used during planting activities to supplement the soil. Please see Proposed Plant Tables for specifications regarding plant species, sizes, and numbers.
- Upon planting, the root zones around each sapling and shrub should be mulched with natural wood chips to help retain moisture. Mulch should not be piled against the trunk of the plant.
- All remaining exposed soils within the mitigation area should be hand seeded with a native seed mixture from Ernst Conservation Seeds, Inc. consisting of New England Province Riparian Mix - ERNMX-253. See seed mix profile.
- Watering of the saplings and shrubs would need to be maintained by the contractor during the first growing season.
- Upon completion, the area should be left undisturbed other than typical maintenance activities such as pruning, replacement of dead plant stock, hand pulling of new non-native invasive plants, etc.
- Maintenance and monitoring of the area will follow the conditions from the Conservation Commission. It is recommended that the mitigation area be monitored for the first two full growing seasons following completion of the mitigation project. Monitoring Reports are included as part of this task. It is recommended that two reports per growing season occur. The first should be in late spring (late May/early June) to assess for any winter kill and to allow for spring replanting prior to the on-set of summer heat. The fall report should occur in late fall (Oct. 15 to Nov. 1st) to assess for summer kill, growth of non-native invasive plants, and allow for fall replanting. Monitoring reports will include photographs and recommendations such as remedial actions to maintain plants, additional plantings, etc. In the event that any plantings within the planting area are found to be unviable or dead in the opinion of the overseeing specialist, they will be replaced with like species and sizes. Replacement of plantings will take place when found or as soon as seasonal weather permits. Any such replacement work will be included in the monitoring reports for that period.

**PROPOSED SLOPE STABILIZATION**

- Install an erosion control line along the limit of fill prior to the start of excavation activities.
- Remove fill material from the slope. Fill is to be removed to reveal native soils. Fill removal activities to be overseen by a supervising wetland specialist.
- Areas of wetland impact where fill was removed will be evaluated by the supervising wetland specialist. A revegetation plan to address areas of wetland impact will be prepared and submitted to the Conservation office. Upon approval by the Conservation Commission, the wetland revegetation plan should occur. However, the upgradient slope should be stabilized prior to this task.
- Cover slope with clean loam to support seed mix.
- Cover slope with jute netting or alternative biodegradable erosion control fabric.
- Hydroseed the slope with a mixture of quick erosion control seed mix consisting Ernst Conservation Seeds, Inc.'s Native Steep Slope Mix w/Annual Ryegrass and PA New England Province Riparian Mix. See attached seed mix profiles.
- Irrigate the slope until seed mix germinates and stabilizes the slope. Additional hydroseeding events may be necessary.
- After the slope is fully stabilized, areas of wetland impact should be revegetated per Task 3 above.
- Upon completion, the area should be left undisturbed other than typical maintenance activities such as pruning, replacement of dead plant stock, hand pulling of new non-native invasive plants, etc.
- Maintenance and monitoring of the area will follow the conditions from the Conservation Commission. ECR recommends the mitigation area be monitored for the first two full growing seasons following completion of the stabilization project. Monitoring Reports are included as part of this task. It is recommended that two reports per growing season occur. The first should be in late spring (late May/early June) to assess for any winter kill and to allow for spring replanting prior to the on-set of summer heat. The fall report should occur in late fall (Oct. 15 to Nov. 1st) to assess for summer kill, growth of non-native invasive plants, and allow for fall replanting. Monitoring reports will include photographs and recommendations such as remedial actions to maintain plants, additional plantings, etc. In the event that any plantings within the planting area are found to be unviable or dead in the opinion of the overseeing specialist, they will be replaced with like species and sizes. Replacement of plantings will take place when found or as soon as seasonal weather permits. Any such replacement work will be included in the monitoring reports for that period.



**Ernst Conservation Seeds**  
8884 Mercer Pike  
Meadville, PA 16335  
(800) 873-3321 Fax (814) 336-5191  
www.ernstseed.com

Date: March 15, 2023

**PA New England Province Riparian Mix - ERNMX-253**

Botanical Name	Common Name	Price/Lb
12.10 % <i>Sorghastrum nutans</i> , PA Ecotype	Indiangrass, NY Ecotype	14.15
12.00 % <i>Andropogon gerardii</i> , "Niagara"	Big Bluestem, "Niagara"	12.78
12.00 % <i>Elymus virginicus</i> , PA Ecotype	Virginia Wildrye, PA Ecotype	9.27
12.00 % <i>Schizachyium scoparium</i> , Fort Indiantown Gap-PA Ecotype	Little Bluestem, Fort Indiantown Gap-PA Ecotype	15.01
11.80 % <i>Panicum clandestinum</i> , Tioga	Dewtonong, Tioga	22.52
10.00 % <i>Elymus riparius</i> , PA Ecotype	Riverbank Wildrye, PA Ecotype	8.13
5.00 % <i>Carex vulpinoidea</i> , PA Ecotype	Fox Sedge, PA Ecotype	28.80
5.00 % <i>Panicum rigidulum</i> , PA Ecotype	Rudwig Panicgrass, PA Ecotype	57.60
5.00 % <i>Panicum virgatum</i> , NJ Ecotype	Switchgrass, NJ Ecotype	14.63
3.00 % <i>Chamaecrista fasciculata</i> , PA Ecotype	Partridge Pea, PA Ecotype	7.20
2.00 % <i>Helopsis helianthoides</i> , PA Ecotype	Owens Sunflower, PA Ecotype	33.60
2.00 % <i>Ancora effusa</i>	Soft Rush	48.00
2.00 % <i>Verbena hastata</i> , PA Ecotype	Blue Verbena, PA Ecotype	38.40
1.50 % <i>Asclepias incarnata</i> , PA Ecotype	Swamp Milkweed, PA Ecotype	177.60
1.00 % <i>Senecio hebecarpa</i> , VA & WV Ecotype	Wild Senecio, VA & WV Ecotype	28.80
0.60 % <i>Aster zosterifolius</i> , PA Ecotype	Zigzag Aster, PA Ecotype	432.00
0.50 % <i>Equisetum perfoliatum</i> , PA Ecotype	Bonaset, PA Ecotype	192.00
0.50 % <i>Monarda fistulosa</i> , Fort Indiantown Gap-PA Ecotype	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	96.00
0.50 % <i>Veronica novboracensis</i> , PA Ecotype	New York Ironweed, PA Ecotype	264.00
0.40 % <i>Helianthus autumnalis</i> , PA Ecotype	Common Sneezeweed, PA Ecotype	216.00
0.20 % <i>Equisetum flabellatum</i> , PA Ecotype	Jaw Paw Weed, PA Ecotype	273.60
0.20 % <i>Aster novae-angliae</i> , PA Ecotype	New England Aster, PA Ecotype	336.00
0.20 % <i>Solidago rugosa</i> , PA Ecotype	Wrinkleleaf Goldenrod, PA Ecotype	264.00

100.00 % **Mix Price/Lb Bulk: \$29.20**

**Seeding Rate:** 20 lb/acre with 30 lb/acre of a cover crop. For a cover crop use either grain oats (1 Jan to 31 Jul) or grain rye (1 Aug to 31 Dec).

Grasses & Grass-like Species - Herbaceous Perennial; Herbaceous Flowering Species - Herbaceous Perennial; Riparian Sites

Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.



**PROPOSED PLANT TABLES**

SAPLING SPECIES	SIZE (height)	NUMBER
Red Maple ( <i>Acer rubrum</i> )	5 - 6 ft.	11
Red Oak ( <i>Quercus rubra</i> )	5 - 6 ft.	11
White Pine ( <i>Pinus strobus</i> )	5 - 6 ft.	11
Pignut Hickory ( <i>Carya glabra</i> )	5 - 6 ft.	11
Yellow Birch ( <i>Betula alleghaniensis</i> )	5 - 6 ft.	11
White Oak ( <i>Quercus alba</i> )	5 - 6 ft.	10
<b>Total</b>		<b>65</b>

SHRUB SPECIES	SIZE (height)	NUMBER
Highbush Blueberry ( <i>Vaccinium corymbosum</i> )	1.5 - 2 ft.	19
Sweet Pepperbush ( <i>Clethra alnifolia</i> )	1.5 - 2 ft.	19
Bayberry ( <i>Myrica pennsylvanica</i> )	1.5 - 2 ft.	18
Northern Arrowwood ( <i>Viburnum recognitum</i> )	1.5 - 2 ft.	18
Witch Hazel ( <i>Hamamelis virginiana</i> )	1.5 - 2 ft.	18
Black Huckleberry ( <i>Gaylussacia baccata</i> )	1.5 - 2 ft.	18
Mountain Laurel ( <i>Kalmia latifolia</i> )	1.5 - 2 ft.	18
Shadbush ( <i>Amelanchier canadensis</i> )	1.5 - 2 ft.	18
<b>Total</b>		<b>146</b>



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Date: March 15, 2023

**Native Steep Slope Mix w/Annual Ryegrass - ERNMX-181**

Botanical Name	Common Name	Price/Lb
31.10 % <i>Sorghastrum nutans</i> , NY Ecotype	Indiangrass, NY Ecotype	15.40
20.00 % <i>Lolium multiflorum</i>	Annual Ryegrass	1.20
14.00 % <i>Andropogon gerardii</i> , "Niagara"	Big Bluestem, "Niagara"	12.78
10.00 % <i>Elymus canadensis</i>	Canada Wildrye	7.47
7.00 % <i>Elymus virginicus</i> , Madison-NY Ecotype	Virginia Wildrye, Madison-NY Ecotype	10.36
4.00 % <i>Aporosa pennisylvanica</i> , Albany Pine Bush-NY Ecotype	Albany Pine Bush-NY Ecotype	16.80
4.00 % <i>Panicum virgatum</i> , Shawnee	Switchgrass, Shawnee	13.08
1.20 % <i>Panicum clandestinum</i> , Tioga	Dewtonong, Tioga	22.52
1.50 % <i>Echinacea purpurea</i>	Purple Coneflower	43.20
1.20 % <i>Chamaecrista fasciculata</i> , PA Ecotype	Partridge Pea, PA Ecotype	7.20
1.20 % <i>Helopsis helianthoides</i> , PA Ecotype	Owens Sunflower, PA Ecotype	33.60
1.00 % <i>Coveopsis lanceolata</i>	Lanceleaf Coneopsis	28.80
1.00 % <i>Rudbeckia hirta</i>	Blackweed Susan	31.20
0.30 % <i>Monarda fistulosa</i> , Fort Indiantown Gap-PA Ecotype	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	96.00
0.20 % <i>Asclepias syriaca</i>	Common Milkweed	96.00
0.20 % <i>Solidago rugosa</i> , PA Ecotype	Wrinkleleaf Goldenrod, PA Ecotype	264.00
0.10 % <i>Aster novae-angliae</i> , PA Ecotype	New England Aster, PA Ecotype	336.00
0.10 % <i>Aster pilosus</i> , PA Ecotype	Heath Aster, PA Ecotype	264.00

100.00 % **Mix Price/Lb Bulk: \$13.51**

**Seeding Rate:** 60 lb per acre, or 1.5 lb per 1,000 sq ft  
Erosion Control & Revegetation; Grasses & Grass-like Species - Herbaceous Perennial; Herbaceous Flowering Species - Herbaceous Perennial

The native grass and forb species tolerate poor soils typically found on steep slopes in the eastern United States. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.



**ECR**  
Environmental Consulting & Restoration, LLC

ECR, LLC IN COLLABORATION WITH  
MCKENZIE ENGINEERING GROUP

DESCRIPTION	DATE	REV	BY	APP
TOWN REVIEW	4/20/23	1	ESS	BOC
SITE LAYOUT	5/24/23	2	ESS	BOC



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**RIVERFRONT AREA MITIGATION PLAN**  
550-560 WASHINGTON STREET  
WEYMOUTH, MASSACHUSETTS  
(APN 29-330-3)

PROFESSIONAL ENGINEER:

OWNERS/APPLICANT:  
UNION REALTY TRUST  
560 WASHINGTON STREET  
WEYMOUTH, MASSACHUSETTS 02188

DRAWN BY: ESS  
DESIGNED BY: ESS  
CHECKED BY: BOC  
APPROVED BY: BOC  
DATE: MARCH 24, 2023  
SCALE: 1"=20'  
PROJECT NO.: 222-182  
DWG. TITLE:

**MITIGATION AND RESTORATION PLAN**

DWG. NO.: RES-1

PERMIT PLAN SET