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MANAGEMENT



MEMORANDUM

To: Jeff Kimble

From: Leslie Nelson, GZA GeoEnvironmental, Inc.

Date: May 14, 2020

File No.: 16.0062335.01

Re: Wolverine Worldwide Former Tannery Restoration

The restoration design was prepared by an experienced team lead by the following professionals:

Barry Stuedemann, P.E., PWS, Associate Principal – Barry is a Professional Engineer and Professional Wetland Scientist with over 30 years of experience in the natural resource and civil engineering consulting fields. His technical expertise includes: natural wetland, buffer, and riparian environment restoration design; stream and streambank restoration and relocation design; restoration maintenance and monitoring; civil site development engineering; stormwater management and green infrastructure design; implementation of best management practices (BMPs) in civil engineering design; and interpretation, consultation, and application of local, state, and federal regulations and policies. He has worked closely with agencies and trustees involving: wetland regulation; coastal area management; wetland, buffer, and riparian functional analysis and mitigation; floristic quality assessments; wildlife habitat assessments; sedimentation and erosion control; and detailed stormwater management permitting.

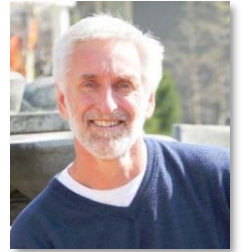


David M. Leone, P.E., Associate Principal – David is the leader of GZA's Dams and Water Resources Technical Practice Group. His flood assessment and risk management expertise spans over 20 years and includes hazard vulnerability assessments focusing on surface water hydrology, open-channel hydraulics, stormwater, and two- and three-dimensional hydrodynamics. Dave has extensive experience with analysis of both riverine and coastal environments, including the combined effects of stormwater, groundwater, and riverine and coastal flood mechanisms. Dave is a hydrologist and hydraulic engineer.





Jay Womack, ASLA, LEED AP, Senior Landscape Architect – Jay is a Senior Landscape Architect / Ecological Designer at GZA and has 30 years of experience in landscape architecture and ecology. Jay’s design philosophy is rooted in a lifelong affinity for the ecosystems of the Midwest and in the belief that people need to be connected to the environment, a philosophy closely aligned with Aldo Leopold’s Land Ethic. Jay has been recognized nationally for his work that uses the lens of ecology to bring awareness to sustainable designs in ways that combine art, science, ecology, and economic benefits where people can interact with nature. By recognizing that the places where we live, work, and play contain a unique and ever-changing part of the global system, Jay continually works toward a balance between the built environment and nature through design strategies that embrace ecology and incorporate ecosystem functions into everyday life.



Restoration Summary

Proposed restoration activities for the designated excavation areas include replacement of vegetation removed as part of the excavation with native plant species in order to replace and enhance the following overarching functions. The proposed restoration was developed based on typical regulatory requirements for shoreline restoration projects.

- Water quality protection for Rogue River
- Replacement of wildlife habitat
- Shoreline erosion protection

In collaboration with the City of Rockford and WWW, modifications were made to the preliminary restoration design to add new design elements which include:

- Inclusion of maple tree species;
- Removal of tall species from the planting plan to provide views of Rogue River from White Pine Trail; and,
- Inclusion of native species plant plugs to be strategically placed along the edges of the restoration areas to provide a slightly more ‘landscaped’ aesthetic.

Additional changes to the original restoration design include:

- Seeding disturbed areas east of White Pine Trail with turf and planting scattered trees to restore these areas.
- Typical ‘park-like’ landscape design elements were added east of the White Pine Trail including additional tree species and vegetated borders (carex species and prairie dropseed).
- The proposed earthen material to be placed beneath topsoil for the restoration seeding and planting was revised based on the limited availability of substantially PFOS free soils. Subsoils will now consist of sand and rocks and the amount of topsoil was increased to provide adequate substrate for the proposed plantings.

Goals of the planned restoration include the following.

1. Restore excavation areas to have similar vegetation cover as pre-construction conditions. Seed Mixtures and plant plugs to be utilized for the project have been revised slightly since the preliminary design to use pre-designed



mixtures from a local nursery near Grand Rapids. Seed mixtures and additional plant plugs include native emergent and wetland plants as well as native short-statured prairie grasses and forbs (flowers) with a variety of flower colors and bloom timeframes throughout the spring, summer, and fall seasons.

Anticipated schedule for plant installation is as follows:

- Install topsoil and seed along shoreline by May 15, 2020. Install erosion control matting over the newly installed seed.
 - Install plant plugs by June 30, 2020. Install goose protection fencing to prevent predation of newly planted plugs.
 - Conduct onsite irrigation, on an as needed basis, during the 2020 growing season to assist with vegetation establishment.
 - Plant trees between mid-September and mid-October, exact dates weather dependent.
2. Provide long-term stabilization to the shoreline of Rogue River through permanent erosion control measures, which include native plantings and placement of riprap within Rogue River in one location to provide protective armoring at a steeply sloped, and somewhat eroded portion of the shoreline.
- Plant species to be used include native grasses such as little bluestem and native flowering species such as New England aster, black-eyed Susan, and milkweeds. The deep root systems of native plants have the ability to provide protection from erosion and can reduce water run off through providing infiltration. In addition, native plants do not require the use of fertilizers and provide habitat and food for wildlife.
3. Provide water quality protection for Rogue River.
4. Provide aesthetically pleasing landscaping elements to enhance the park-like setting adjacent to White Pine Trail.

ZONE 1: EMERGENT PLANTING ZONE MODIFIED (SEED MIXTURE)

Grasses, Sedges, and Rushes

SCIENTIFIC NAME	COMMON NAME	PLS OZ/ACRE	SEED/SQ. FT.
<i>Carex comosa</i>	Bristly Sedge	5.00	3.44
<i>Carex crinita</i>	Fringed Sedge	1.00	0.53
<i>Carex hystericina</i>	Porcupine Sedge	4.00	2.75
<i>Carex stipata</i>	Awl-fruited Sedge	2.00	1.56
<i>Carex vulpinoidea</i>	Fox Sedge	4.00	9.18
<i>Eleocharis palustris</i>	Great Spike Rush	0.25	0.29
<i>Glyceria canadensis</i>	Canada Manna Grass	2.00	3.40
<i>Glyceria grandis</i>	Reed Manna Grass	4.00	7.35
<i>Juncus effusus</i>	Soft Rush	0.25	5.74
<i>Juncus torreyi</i>	Torrey's Rush	0.25	9.18
<i>Leersia oryzoides</i>	Rice Cut Grass	2.00	1.56
<i>Scirpus acutus</i> (<i>Schoenoplectus a.</i>)	Hard-stem Bulrush	1.00	0.46
<i>Scirpus atrovirens</i>	Dark Green Bulrush	1.00	10.56
<i>Scirpus cyperinus</i>	Wool Grass	0.25	9.76
<i>Scirpus fluviatilis</i> (<i>Bolboschoenus f.</i>)	River Bulrush	7.00	0.69
<i>Scirpus validus</i> (<i>S. tabernaemontanii</i>)	Soft-stem Bulrush	2.00	1.42
SUBTOTAL		34.00	66.45

Forbs

SCIENTIFIC NAME	COMMON NAME	PLS OZ/ACRE	SEED/SQ. FT.
<i>Acorus americanus</i>	Sweet Flag	5.00	0.76
<i>Alisma subcordatum</i>	Common Water Plantain	3.50	4.82
<i>Asclepias incarnata</i>	Swamp Milkweed	2.00	0.22
<i>Aster puniceus</i>	Swamp Aster	0.50	0.92
<i>Bidens cernua</i>	Nodding Bur Marigold	1.00	0.48
<i>Cicuta maculata</i>	Water Hemlock	0.75	0.21
<i>Eupatorium maculatum</i>	Joe Pye Weed	0.25	0.55
<i>Eupatorium perfoliatum</i>	Boneset	0.50	1.84
<i>Iris virginica</i>	Southern Blue Flag Iris	2.00	0.05
<i>Lobelia cardinalis</i>	Cardinal Flower	0.25	2.30
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.25	2.87
<i>Mimulus ringens</i>	Monkey Flower	0.25	13.20
<i>Peltandra virginica</i>	Arrow Arum	8.00	0.01
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50	14.92
<i>Polygonum pensylvanicum</i> (<i>Persicaria p.</i>)	Pennsylvania Smartweed	3.00	0.90
<i>Pontederia cordata</i>	Pickrel Weed	6.00	0.17
<i>Rumex orbiculatus</i>	Great Water Dock	0.25	0.05
<i>Sagittaria latifolia</i>	Common Arrowhead/Duck Potato	0.25	0.35
<i>Sparganium eurycarpum</i>	Common Bur Reed	7.75	0.09
<i>Verbena hastata</i>	Blue Vervain	2.00	4.27
SUBTOTAL		43.75	48.43
TOTAL		77.75	114.88

Remove strikethroughs from Native Connections Emergent Wetland seed mix.

Install a Mycorrhizal Inoculant with the above seed mix at 40 lbs/acre.

Source: <http://nativeconnections.net/>

Costs = \$1,295/acre; \$898 1/2 acre; \$705 1/4 acre.

ZONE 2 - WET-MESIC PLANTING ZONE MODIFIED (SEED MIXTURE)

Grasses, Sedges, and Rushes

SCIENTIFIC NAME	COMMON NAME	PLS OZ/ACRE	SEED/SQ. FT.
<i>Andropogon gerardii</i>	Little Bluestem	20.00	4.59
<i>Carex bebbii</i>	Bebb's oval sedge	0.50	0.39
<i>Carex vulpinoidea</i>	Fox Sedge	0.50	1.15
<i>Elymus virginicus</i>	Virginia Wild Rye	24.00	2.31
<i>Panicum virgatum</i>	Switchgrass	9.90	3.18
<i>Scirpus cyperinus</i>	Wool Grass	0.10	3.90
<i>Schizachyrium scoparium</i> *	Little Bluestem	28.00	9.64
<i>Sorghastrum nutans</i>	Indian Grass	20.00	5.51
<i>Spartina pectinata</i>	Prairie Cordgrass	1.00	0.15
SUBTOTAL		63.00	20.57

Forbs

SCIENTIFIC NAME	COMMON NAME	PLS OZ/ACRE	SEED/SQ. FT.
<i>Actinomeris alternifolia</i> (Verbesina a.)	Wingstem	0.60	0.12
<i>Allium cernuum</i>	Nodding Wild Onion	1.00	0.17
<i>Angelica atropurpurea</i>	Angelica	1.00	0.12
<i>Asclepias incarnata</i>	Swamp Milkweed	0.50	0.06
<i>Aster novae-angliae</i>	New England Aster	0.50	0.76
<i>Cassia hebecarpa</i>	Wild Senna	5.50	0.18
<i>Coreopsis tripteris</i>	Tall Coreopsis	1.00	0.32
<i>Desmodium canadense</i>	Showy Tick Trefoil	0.50	0.06
<i>Eupatorium purpureum</i>	Sweet Joe Pye Weed	0.50	0.48
<i>Helenium autumnale</i>	Sneezeweed	0.50	1.49
<i>Heliopsis helianthoides</i>	False sunflower	8.00	1.16
<i>Heracleum maximum</i> (H. lanatum)	Cow Parsnip	1.20	0.07
<i>Hypericum pyramidatum</i>	Great St John's Wort	1.50	6.54
<i>Liatris spicata</i>	Marsh Blazingstar	0.50	0.13
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.50	5.74
<i>Monarda fistulosa</i>	Wild Bergamot	1.50	2.41
<i>Penstemon digitalis</i>	Foxglove Beardtongue	2.50	7.46
<i>Physostegia virginiana</i>	Obedient Plant	0.50	0.13
<i>Pycnanthemum virginianum</i>	Mountain mint	0.20	1.01
<i>Ratibida pinnata</i>	Yellow Coneflower	1.50	1.03
<i>Rudbeckia hirta</i>	Black-eyed Susan	3.50	7.39
<i>Rudbeckia triloba</i>	Brown-eyed Susan	2.50	1.95
<i>Scrophularia lanceolata</i>	Early Figwort	0.50	2.12
<i>Silphium terebinthinaceum</i>	Prairie Dock	1.50	0.03
<i>Solidago riddellii</i>	Riddell's Goldenrod	0.50	1.07
<i>Verbena hastata</i>	Blue Vervain	1.00	2.13
<i>Zizia aurea</i>	Golden Alexander	1.00	0.25
SUBTOTAL		35.20	43.56
TOTAL		98.20	64.13

Remove strikethroughs from Native Connections Wet-Mesic Prairie seed mix.

* Added species to Native Connections Wet-Mesic Prairie seed mix.

Install a Mycorrhizal Inoculant with the above seed mix at 40 lbs/acre.

Source: <http://nativeconnections.net/>

Costs = \$1,075/acre; \$656 1/2 acre; \$527 1/4 acre.

ZONE 3: DRY-MESIC PLANTING ZONE MODIFIED (SEED MIXTURE)

Grasses, Sedges, and Rushes

SCIENTIFIC NAME	COMMON NAME	PLS OZ/ACRE	SEED/SQ. FT.
<i>Bouteloua curtipendula</i>	Side-oats Grama	8.00	1.10
<i>Carex bicknellii</i>	Bicknell's Sedge	0.25	0.10
<i>Carex molesta</i>	Field Oval Sedge	1.00	0.57
<i>Elymus canadensis</i>	Canada Wild Rye	4.00	0.48
<i>Koeleria cristata</i> (K. <i>macrantha</i> , <i>pyramidata</i>)	June Grass	1.50	6.89
<i>Schizachyrium scoparium</i>	Little Bluestem	16.00	5.51
<i>Sorghastrum nutans</i>	Indian Grass	5.30	1.46
SUBTOTAL		30.75	14.65

Forbs

SCIENTIFIC NAME	COMMON NAME	PLS OZ/ACRE	SEED/SQ. FT.
<i>Agastache scrophulariaefolia</i>	Purple Giant Hyssop	0.25	0.53
<i>Amorpha canescens</i>	Leadplant	1.50	0.59
<i>Asclepias syriaca</i>	Common Milkweed	1.50	0.14
<i>Asclepias tuberosa</i>	Butterfly Milkweed	1.00	0.10
<i>Aster laevis</i>	Smooth Blue Aster	0.50	0.63
<i>Aster novae-angliae</i>	New England Aster	0.25	0.38
<i>Cassia fasciculata</i> (Chamaecrista f.)	Partridge Pea	10.00	0.62
<i>Coreopsis lanceolata</i>	Lance-leaf Coreopsis	8.00	3.67
<i>Echinacea purpurea</i>	Purple Coneflower	8.00	1.21
<i>Eryngium yuccifolium</i>	Rattlesnake Master	1.00	0.17
<i>Liatris aspera</i>	Rough Blazingstar	0.50	0.18
<i>Liatris spicata</i>	Marsh Blazingstar	1.50	0.38
<i>Lupinus perennis</i>	Lupine	1.50	0.04
<i>Monarda fistulosa</i>	Wild Bergamot	2.00	3.21
<i>Penstemon digitalis</i>	Foxglove Beardtongue	1.00	2.98
<i>Petalostemum purpureum</i> (Dalea p.)	Purple Prairie Clover	6.50	2.69
<i>Pycnanthemum tenuifolium</i>	Slender Mountain Mint	0.50	4.34
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00	2.75
<i>Rudbeckia fulgida</i>	Orange Coneflower	1.50	1.07
<i>Rudbeckia hirta</i>	Black-eyed Susan	4.50	9.50
<i>Silphium terebinthinaceum</i>	Prairie Dock	1.00	0.02
<i>Solidago rigida</i>	Stiff Goldenrod	0.50	0.47
<i>Vernonia gigantea</i> (V. <i>altissima</i>)	Tall Ironweed	1.50	0.83
<i>Zizia aurea</i>	Golden Alexander	1.50	0.38
SUBTOTAL		55.75	35.36
TOTAL		86.50	50.01

Remove strikethroughs from Native Connections Dry-Mesic Pollinator seed mix.

Install a Mycorrhizal Inoculant with the above seed mix at 40 lbs/acre.

Source: <http://nativeconnections.net/>

Costs = \$1,065/acre; \$639 1/2 acre; \$447 1/4 acre.

ZONE 4: TURF PLANTING ZONE MODIFIED (SEED MIXTURE)

Species	Common Name	Lbs./Acre	% by Weight
<i>Festuca brevipila</i>	Hard Fescue (Nanook or equal)	40.00	20%
<i>Festuca ovina</i>	Sheep Fescue	30.00	15%
<i>Festuca rubra commutata</i>	Chewings Fescue (LS3000 or equal)	60.00	25%
<i>Festuca rubra arenaria</i>	Creeping Red Fescue	40.00	20%
<i>Poa pratensis</i> *	Kentucky Bluegrass	30.00	20%
TOTAL Lbs/Acre		200.00	100

Mix includes four varieties of non-native tall fescues that are deeper rooted, more drought tolerant and slower growing than traditional lawn species. It will tolerate full sun and part shade and a range of soil types. Depending on the desired look, mow 0 to 4 times per season. Once established watering should not be necessary.

*** Added species to Native Connections Fescue Lawn Low Maintenance Mix**

Source: <http://nativeconnections.net/>

Costs = >25 Lbs. = \$5/Lb.; 25-100 Lbs. = \$4.25/Lb.; 100+ Lbs. = \$3.50/Lb.

COVER CROP - FOR SPRING AND FALL PLANTING

SPRING PLANTING ONLY

SEED MIXTURE

<u>Species</u>	<u>Common Name</u>	<u>Oz/Acre</u>
<i>Forbs</i>		
<i>Avena sativa</i>	Oats	40.00

FALL PLANTING ONLY

SEED MIXTURE

<u>Species</u>	<u>Oz/Acre</u>
<i>Regreen™</i>	50.00

EMERGENT AND WET-MESIC SUPPLEMENTAL PLUG SPECIES

SCIENTIFIC NAME	COMMON NAME	PLUGS/ACRE	PLUGS PER SQ FT	NUMBER OF PLUGS
<i>Asclepias purpurascens</i>	PURPLE MILKWEED	570.00	0.01	314
<i>Carex grayii</i>	COMMON BUR SEDGE	570.00	0.01	25
<i>Carex comosa</i>	BRISTLY SEDGE	570.00	0.01	50
<i>Carex hystericina</i>	PORCUPINE SEGDE	570.00	0.01	25
<i>Carex lupulina</i>	COMMON HOPS SEDGE	570.00	0.01	298
<i>Filipendula rubra</i>	QUEEN OF THE PRAIRIE	570.00	0.01	276
<i>Gentiana andrewsii</i>	BOTTLE GENTIAN	570.00	0.01	276
<i>Juncus torreyi</i>	TORREY'S RUSH	570.00	0.01	316
<i>Liatris pycnostachya</i>	PRAIRIE BLAZING STAR	570.00	0.01	276
<i>Liatris spicata</i>	MARSH BLAZING STAR	570.00	0.01	286
<i>Lobelia cardinalis</i>	CARDINAL FLOWER	570.00	0.01	10
<i>Lobelia siphilitica</i>	GREAT BLUE LOBELIA	570.00	0.01	10
<i>Mentha arvensis</i>	WILD MINT	570.00	0.01	276
<i>Oligoneuron riddellii</i>	RIDDELL'S GOLDENROD	570.00	0.01	10
<i>Pedicularis canadensis</i>	WOOD BETONY	570.00	0.01	266
<i>Physostegia virginiana</i>	OBEDIENT PLANT	570.00	0.01	296
<i>Pontederia cordata</i>	PICKEREL WEED	570.00	0.01	266
<i>Pycnanthemum virginianum</i>	COMMON MOUNTAIN MINT	570.00	0.01	10
<i>Scutellaria lateriflora</i>	MAD-DOG SKULLCAP	570.00	0.01	266
<i>Senna hebecarpa</i>	WILD SENNA	570.00	0.01	266
<i>Sparganium eurycarpum</i>	COMMON BUR REED	570.00	0.01	286
<i>Sporobolus heterolepis</i>	PRAIRIE DROPSEED	570.00	0.01	80
<i>Veronicastrum virginicum</i>	CULVER'S ROOT	570.00	0.01	276
TOTAL				4460

Sedge Zone - intermix species at 10" on center within 3' wide zone from edge of sidewalk

SCIENTIFIC NAME	COMMON NAME	PLUG SPACING	PLUGS PER SQ FT	NUMBER OF PLUGS
<i>Carex pensylvanica</i>	COMMON OAK SEDGE	10" OC		1190
<i>Carex radiata</i>	STRAIGHT STYLED WOOD SEDGE	10" OC		1190
TOTAL				2380

DRY-MESIC SUPPLEMENTAL PLUG SPECIES

SCIENTIFIC NAME	COMMON NAME	PLUGS PER ACRE	PLUGS PER SQ FT	NUMBER OF PLUGS
<i>Asclepias purpurascens</i>	PURPLE MILKWEED	570.00	0.01	152
<i>Asclepias tuberosa</i>	BUTTERFLY MILKWEED	570.00	0.01	154
<i>Echinacea pallida</i>	PALE PURPLE CONEFLOWER	570.00	0.01	152
<i>Gentiana alba</i>	YELLOWISH GENTIAN	570.00	0.01	152
<i>Liatris pycnostachya</i>	PRAIRIE BLAZING STAR	570.00	0.01	154
<i>Pedicularis canadensis</i>	WOOD BETONY	570.00	0.01	154
<i>Tradescantia ohiensis</i>	SPIDERWORT	570.00	0.01	154
<i>Veronicastrum virginicum</i>	CULVER'S ROOT	570.00	0.01	154
TOTAL				1226

Prairie Dropseed Zone, plant plugs at 3' o.c. in a line parallel to the sidewalk.

SCIENTIFIC NAME	COMMON NAME	PLUG SPACING	PLUGS PER SQ FT	NUMBER OF PLUGS
<i>Sporobolus heterolepis</i>	PRAIRIE DROPSEED	3' O.C.		300
TOTAL				300

TREE SPECIES

Emergent & Wet-Mesic

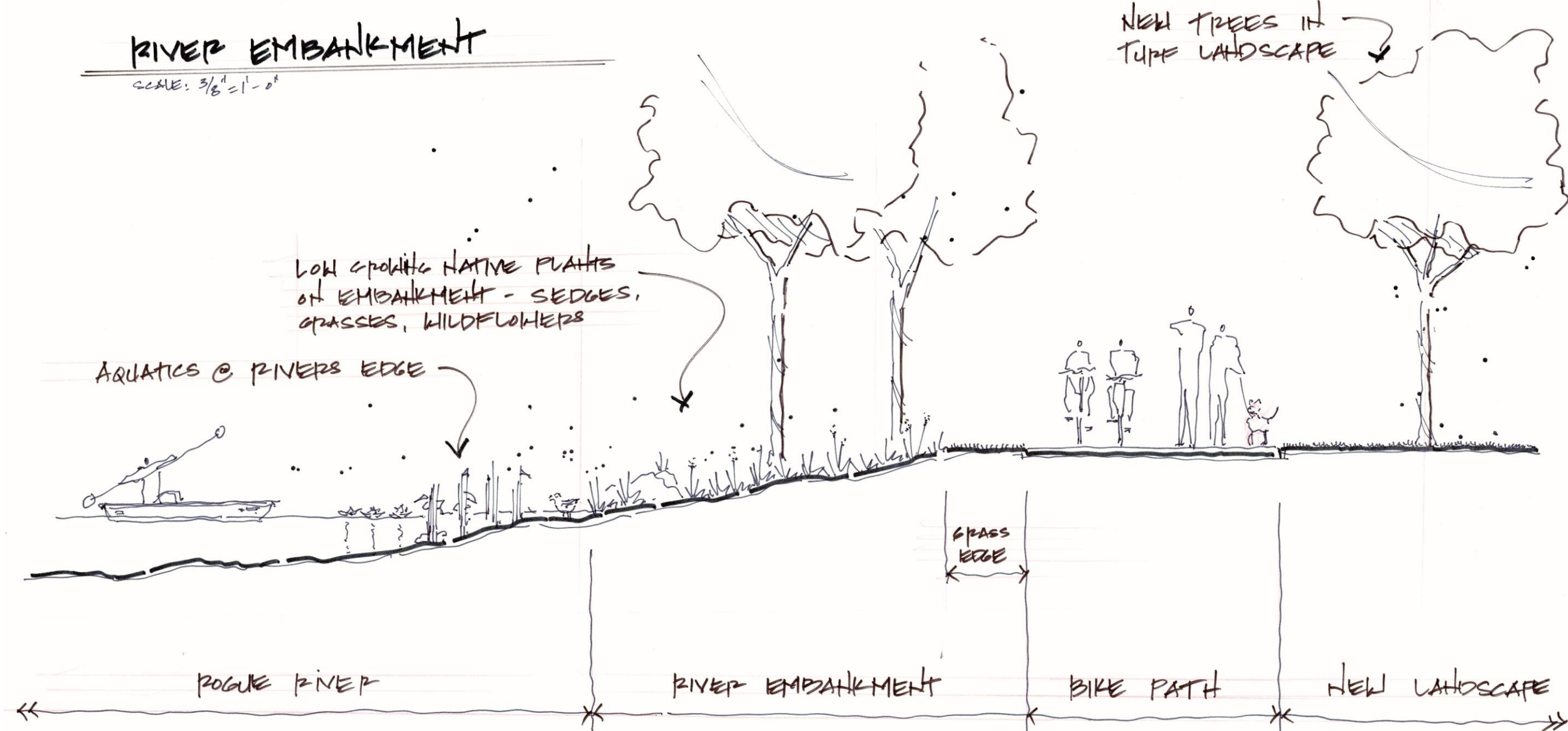
ACRONYM	SCIENTIFIC NAME	COMMON NAME	QUANTITY PROPOSED	UNIT
CEPOCC	<i>Cephalanthus occidentalis</i>	BUTTONBUSH	9	3 Gal
COAM2	<i>Cornus amomum</i>	SILKY DOGWOOD	9	3 Gal
NYSSYL	<i>Nyssa sylvatica</i>	BLACK TUPELO	2	15 Gal
PLAOCC	<i>Platanus occidentalis</i>	AMERICAN PLANETREE	2	2" CAL.
QUEBIC	<i>Quercus bicolor</i>	SWAMP WHITE OAK	5	15 Gal
QUEBIC	<i>Quercus rubra</i>	RED OAK	1	15 Gal
SUBTOTAL			28	

Dry-Mesic

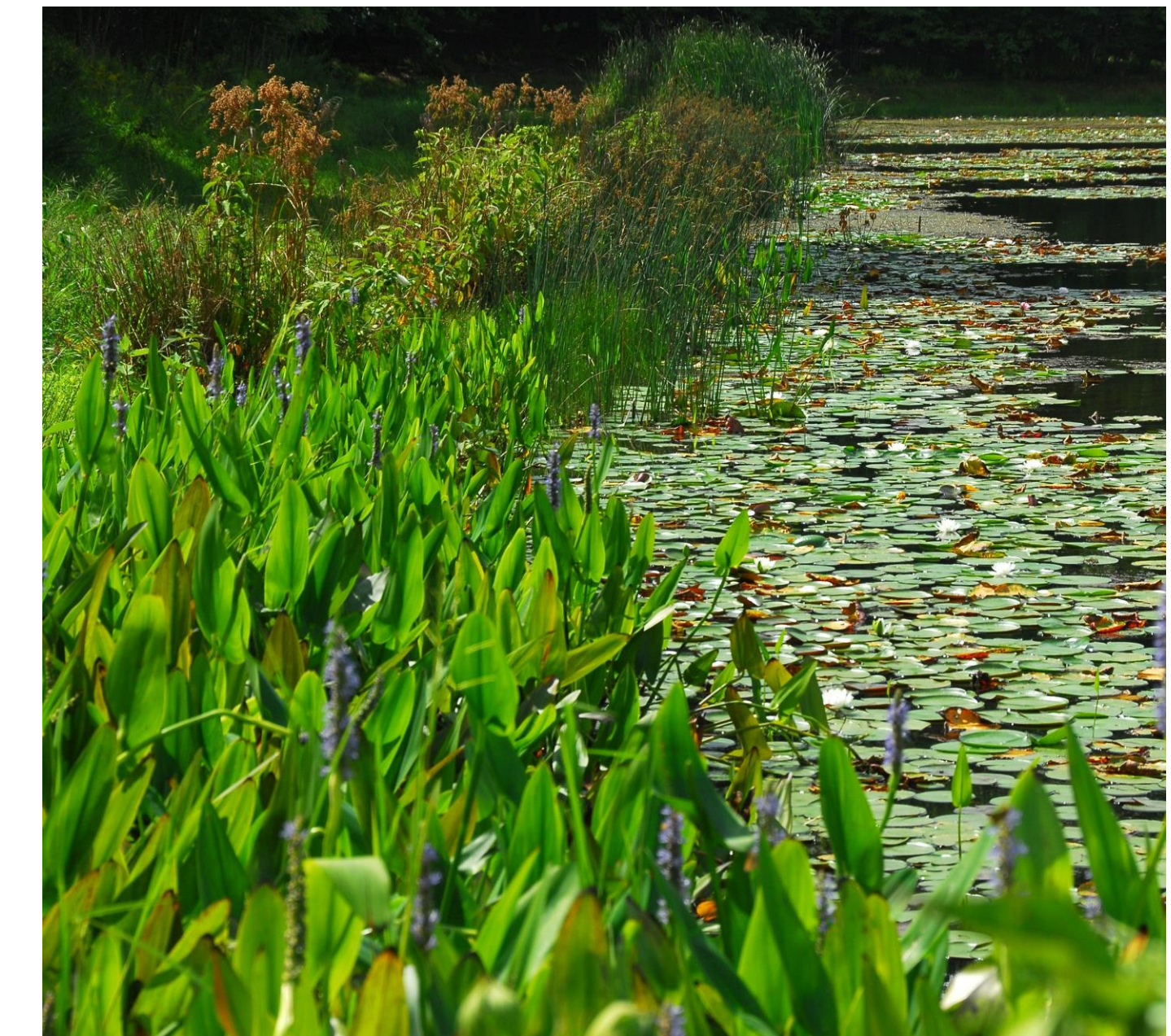
ACRONYM	SCIENTIFIC NAME	COMMON NAME	QUANTITY PROPOSED	UNIT
QUEMAC	<i>Qurcus macrocarpa</i>	BUR OAK	4	15 Gal
SUBTOTAL			4	

Turf

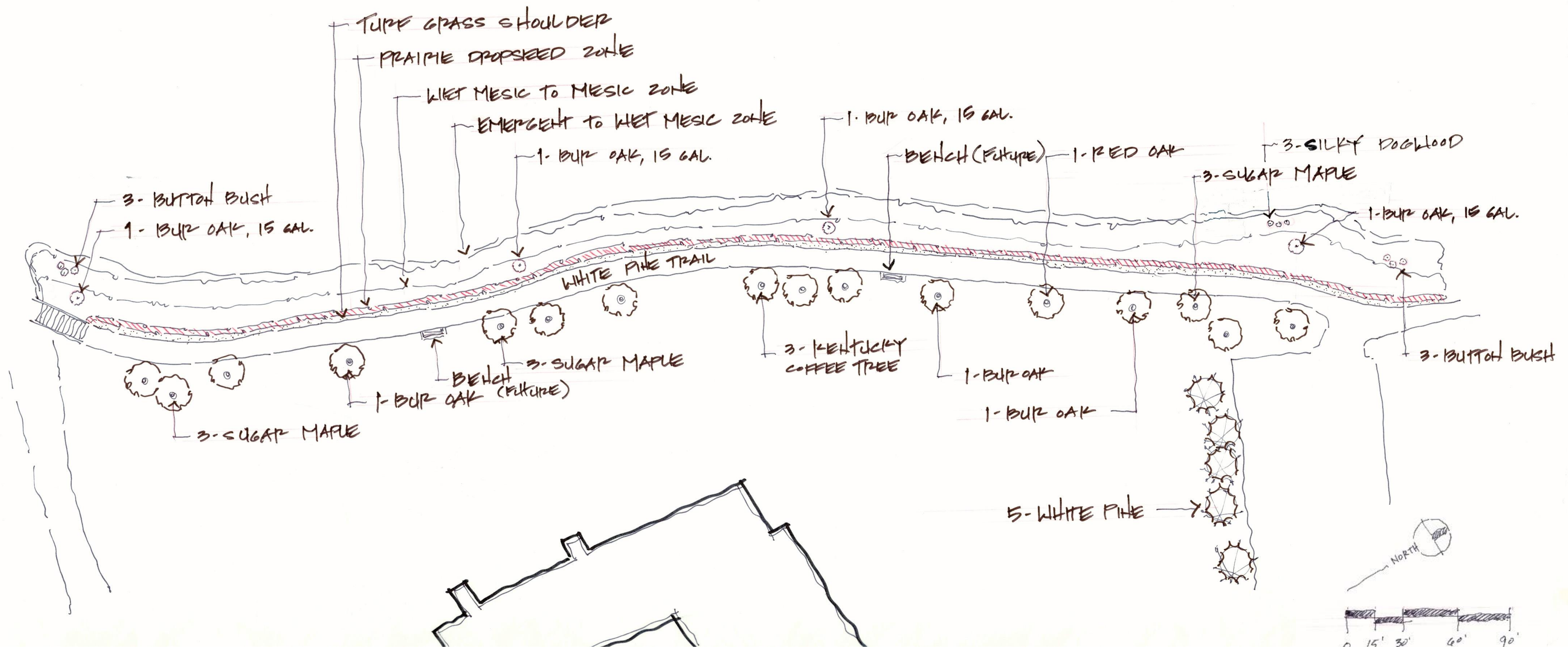
ACRONYM	SCIENTIFIC NAME	COMMON NAME	QUANTITY PROPOSED	UNIT
ACESAC	<i>Acer saccharum</i>	SUGAR MAPLE	12	2" CAL.
CELOCC	<i>Celtis occidentalis</i>	HACKBERRY	2	2" CAL.
GYMDIO	<i>Gymnocladus dioicus</i>	KENTUCKY COFFEETREE	4	2" CAL.
PINSTR	<i>Pinus strobus</i>	WHITE PINE	5	8' HGT.
QUEMAC	<i>Qurcus macrocarpa</i>	BUR OAK	3	2" CAL.
QUERUB	<i>Quercus rubra</i>	RED OAK	12	2" CAL.
SUBTOTAL			38	
TOTAL			70	



Example of Prairie Dropseed Zone



Example of Waters Edge



DATE	BY	REVISIONS	FILE NO.	DRAWN BY
06/23/16	TDH	CONCEPTUAL DESIGN PLANS FOR BIOLOGICAL PURPOSES ONLY	6233501_18_141	BHS
				DESIGN BY
				BHS
				DATE
				06/23/16

ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL-ENVIRONMENTAL-ECOLOGICAL-WATER-CONSTRUCTION MANAGEMENT

PROJECT NO.
16.0062335.01

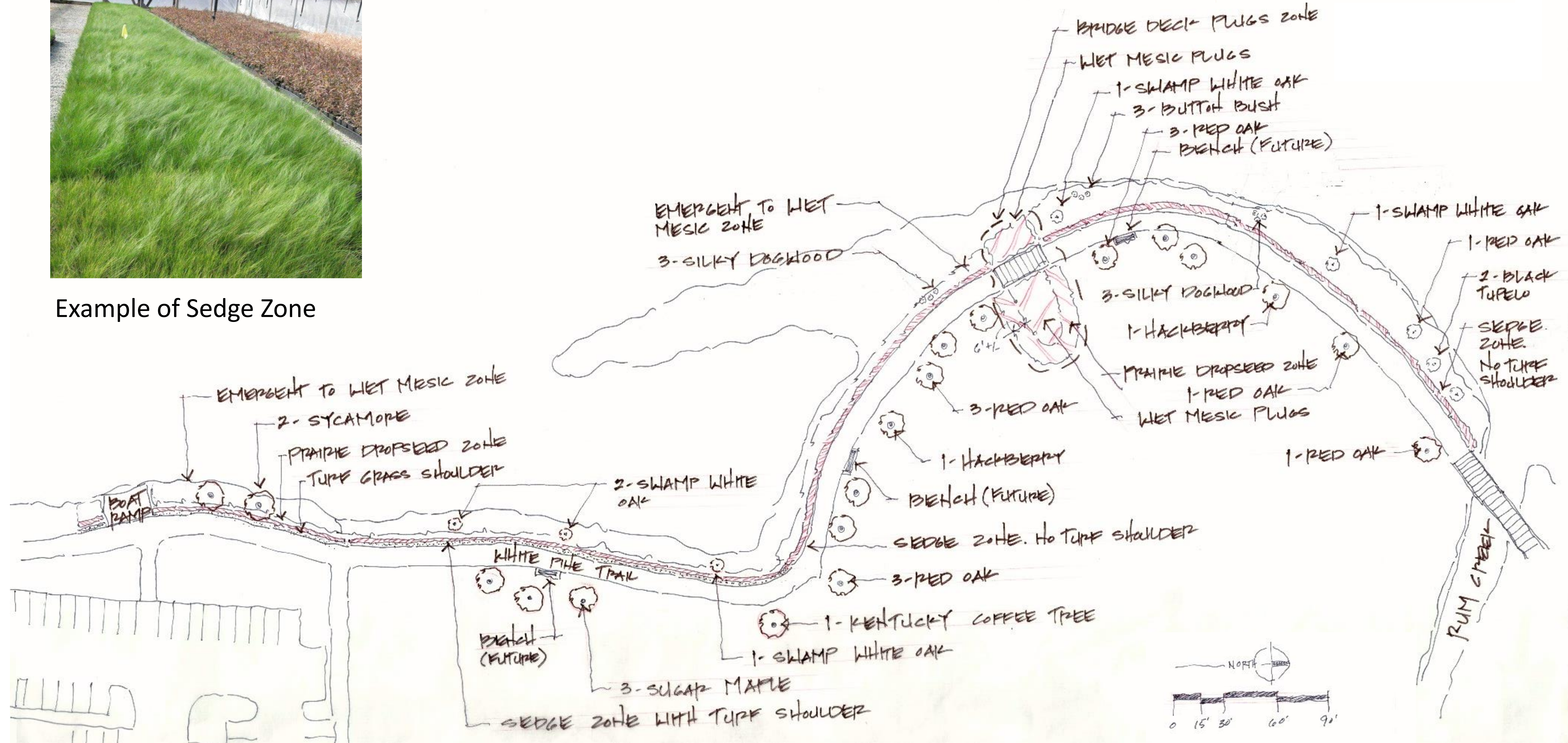
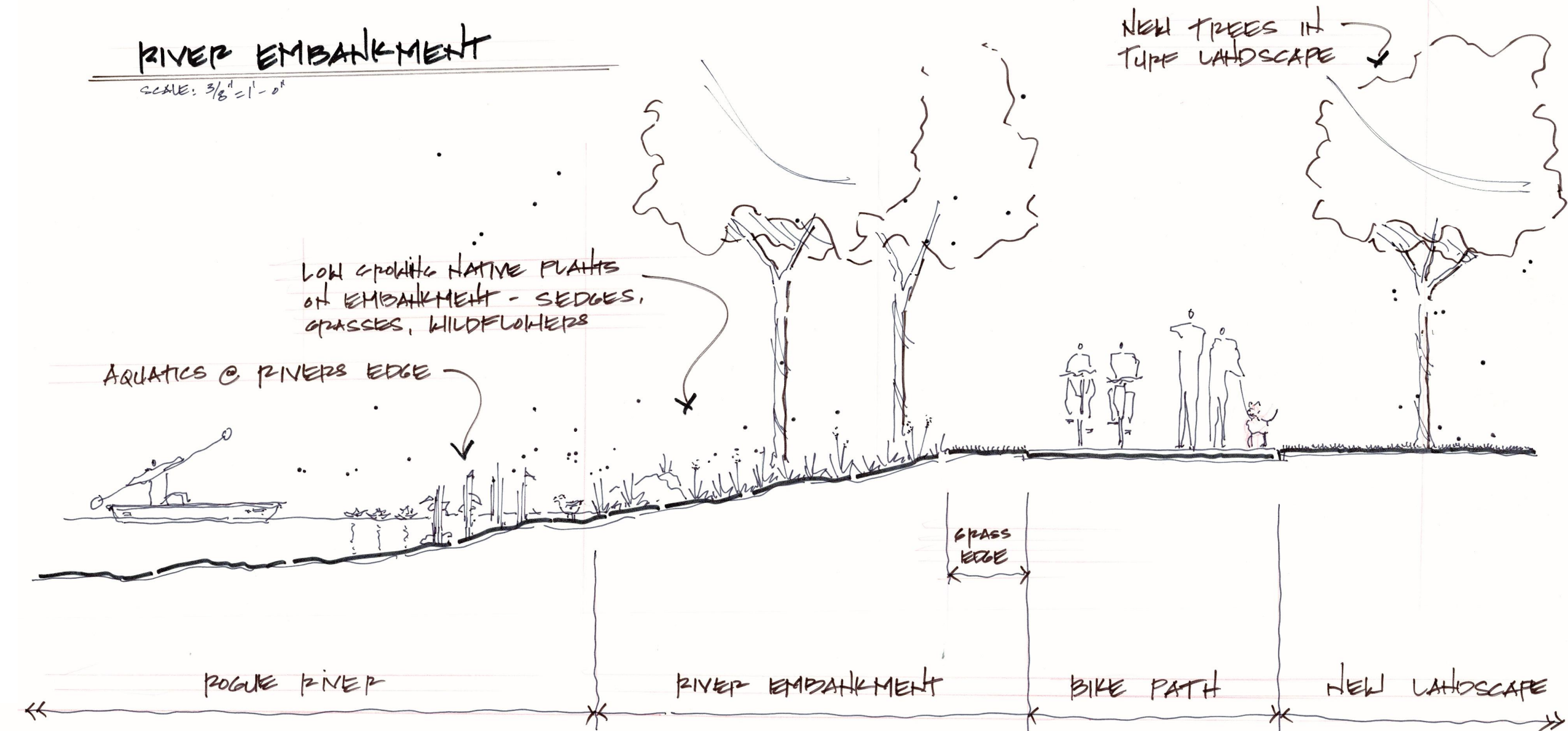
SHEET NO.
9LA



Example of Emergent to Wet Mesic Zone



Example of Sedge Zone



DATE	DATE	DATE	DATE
BY	BY	BY	BY
REVISIONS	REVISIONS	REVISIONS	REVISIONS
CONCEPTUAL DESIGN PLANS FOR BRIDGE PURPOSES ONLY	CONCEPTUAL DESIGN PLANS FOR BRIDGE PURPOSES ONLY	CONCEPTUAL DESIGN PLANS FOR BRIDGE PURPOSES ONLY	CONCEPTUAL DESIGN PLANS FOR BRIDGE PURPOSES ONLY
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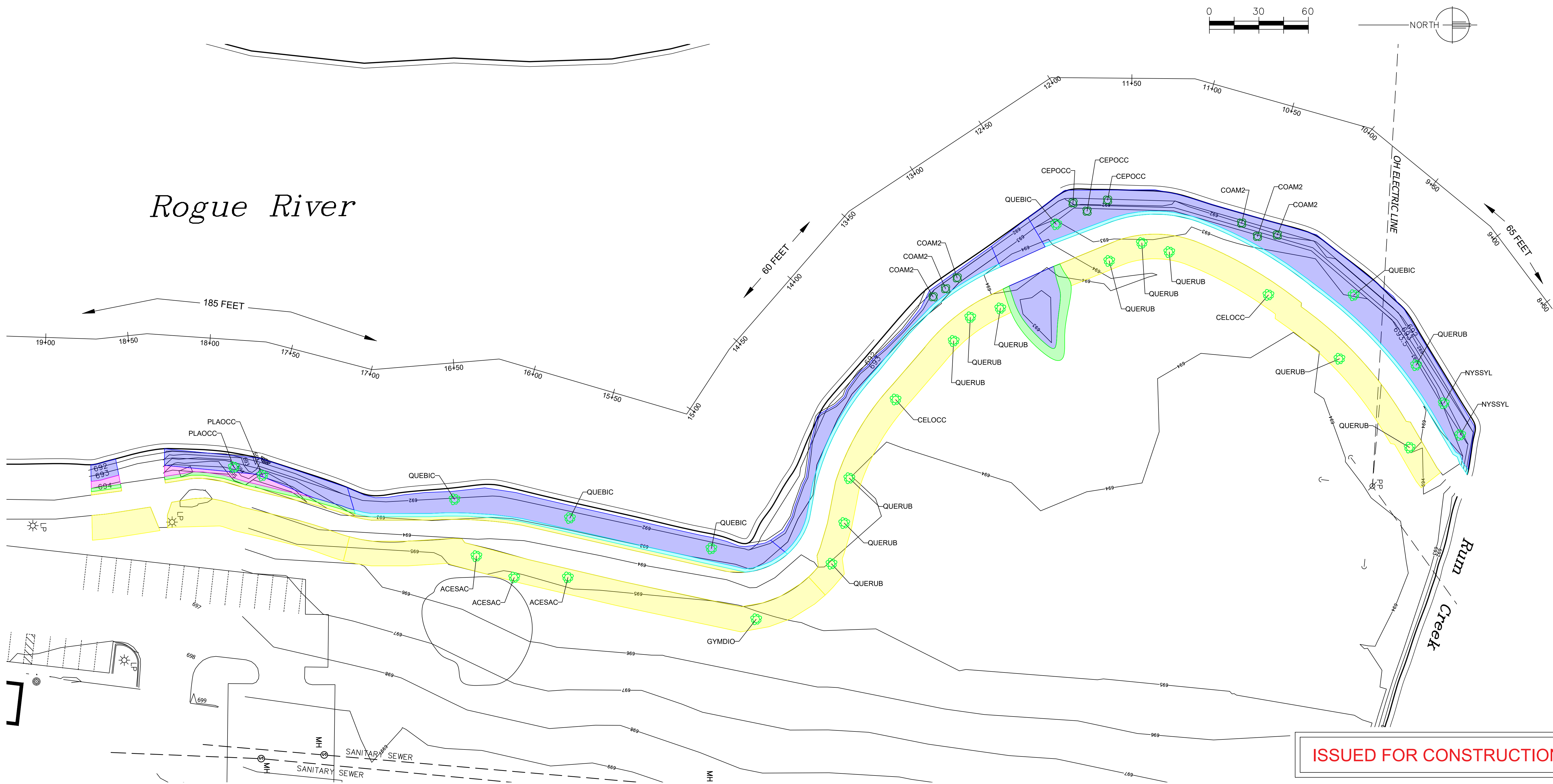
- 1. EDGE OF RIVER SHOWN IS BASED ON AERIAL TOPOGRAPHIC SURVEY. PLANTING ZONES MEET CURRENT EDGE OF RIVER.
- 2. RESTORATION TO OCCUR WITHIN LIMITS OF SEEDING ZONES AS SHOWN.
- 3. FOR SEED MIXES, PLUGS, SHRUBS, AND TREE SPECIES, SEE SPECIFICATIONS SECTION 32 93 00 - PLANTS.
- 4. TREE AND SHRUB LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD LOCATED BY QUALIFIED BOTANIST AT INSTALLATION.
- 5. REFER TO FIGURE 9E FOR TYPICAL RESTORATION CROSS SECTIONS AND FIGURE 9F FOR TYPICAL RESTORATION DETAILS.
- 6. REFER TO FIGURE 10C FOR PLANTING DETAILS.

LEGEND:

- TOPOGRAPHIC CONTOURS
- PROPERTY LIMIT
- EDGE OF RIVER (~ EL. 691.5 AT TIME OF AERIAL TOPOGRAPHIC SURVEY)
- EMERGENT / WET-MESIC PLANTING ZONE
- DRY-MESIC PLANTING ZONE
- PRAIRIE DROPSEED PLANTING ZONE
- CAREX PLANTING ZONE
- TURF PLANTING ZONE
- PROPOSED TREE
- PROPOSED SHRUB

TREE AND SHRUB ABBREVIATIONS:

- ACESAC ACER SACCHARUM (SUGAR MAPLE)
- CELOCC CELTIS OCCIDENTALIS (COMMON HACKBERRY)
- CEPOCC CEPHALANTHUS OCCIDENTALIS (BUTTON BUSH)
- COAM2 CORNUS AMOMUM (SILKY DOGWOOD)
- GYMDIO GYMNOCLADUS DIOICUS (KENTUCKY COFFEETREE)
- NYSSYL NYSSA SYLVATICA (BLACK TUPELO)
- PINSTR PINUS STROBUS (WHITE PINE)
- PLAOCC PLATANUS OCCIDENTALIS (SYCAMORE)
- QUEBIC QUERCUS BICOLOR (SWAMP WHITE OAK)
- QUEMAC QUERCUS MACROCARPA (BUR OAK)
- QUERUB QUERCUS RUBRA (NORTHERN RED OAK)



ISSUED FOR CONSTRUCTION

PLANTING PLAN - SOUTH

WOLVERINE WORLD WIDE/
WARNER, NORCROSS and JUDD
FORMER TANNERY SITE, 123 MAIN ST, ROCKFORD, MI
REMEDIAL ACTION

ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL-ENVIRONMENTAL-WATER-CONSTRUCTION MANAGEMENT

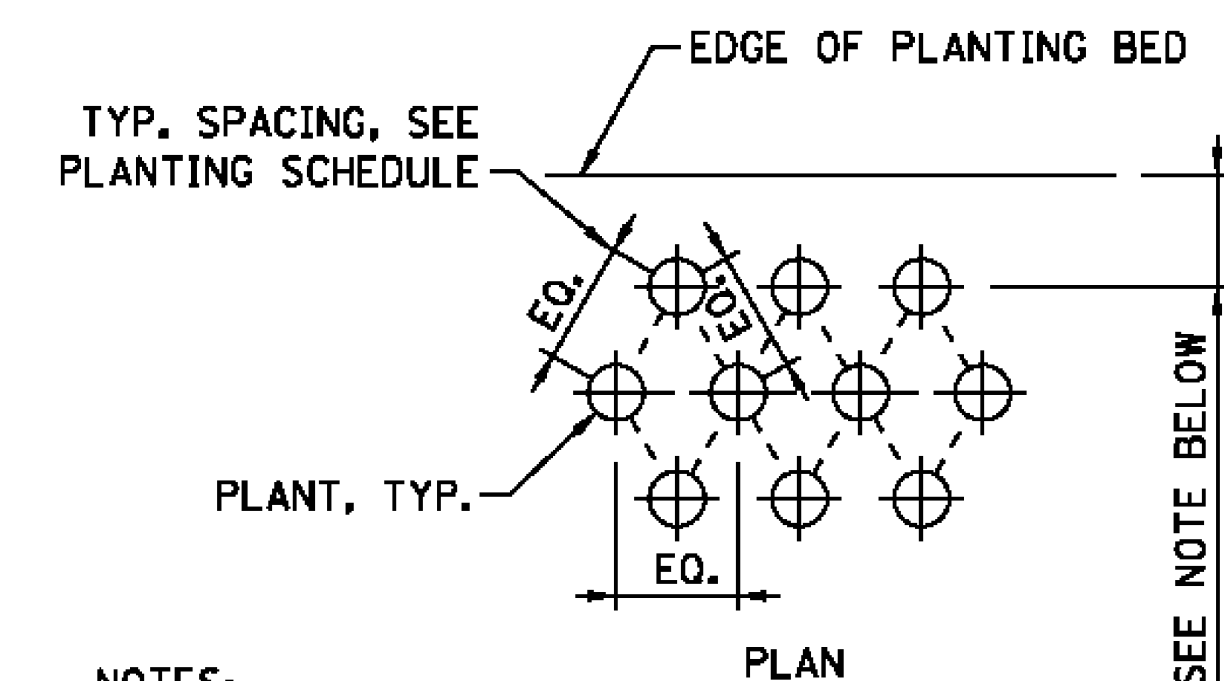
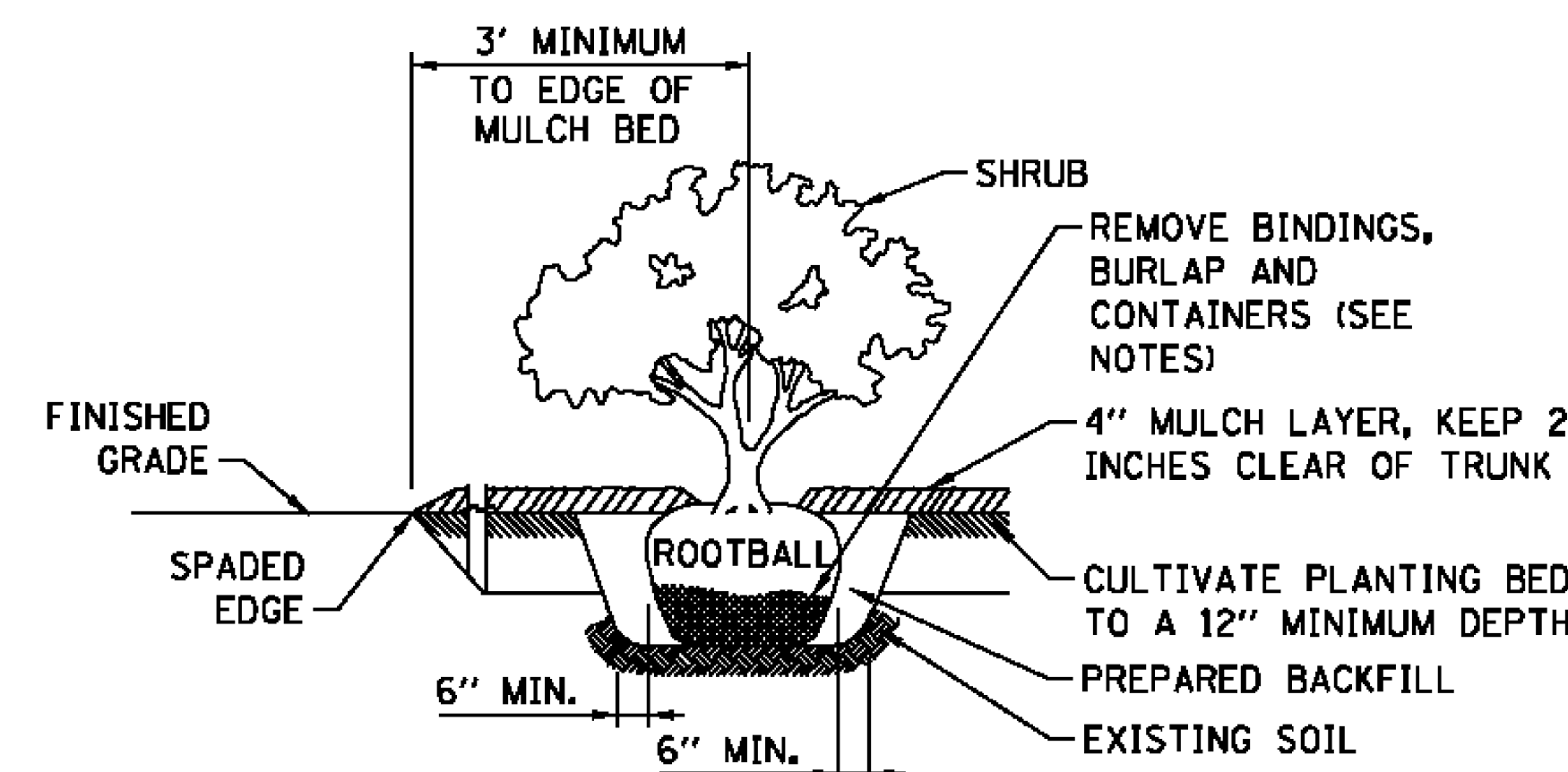
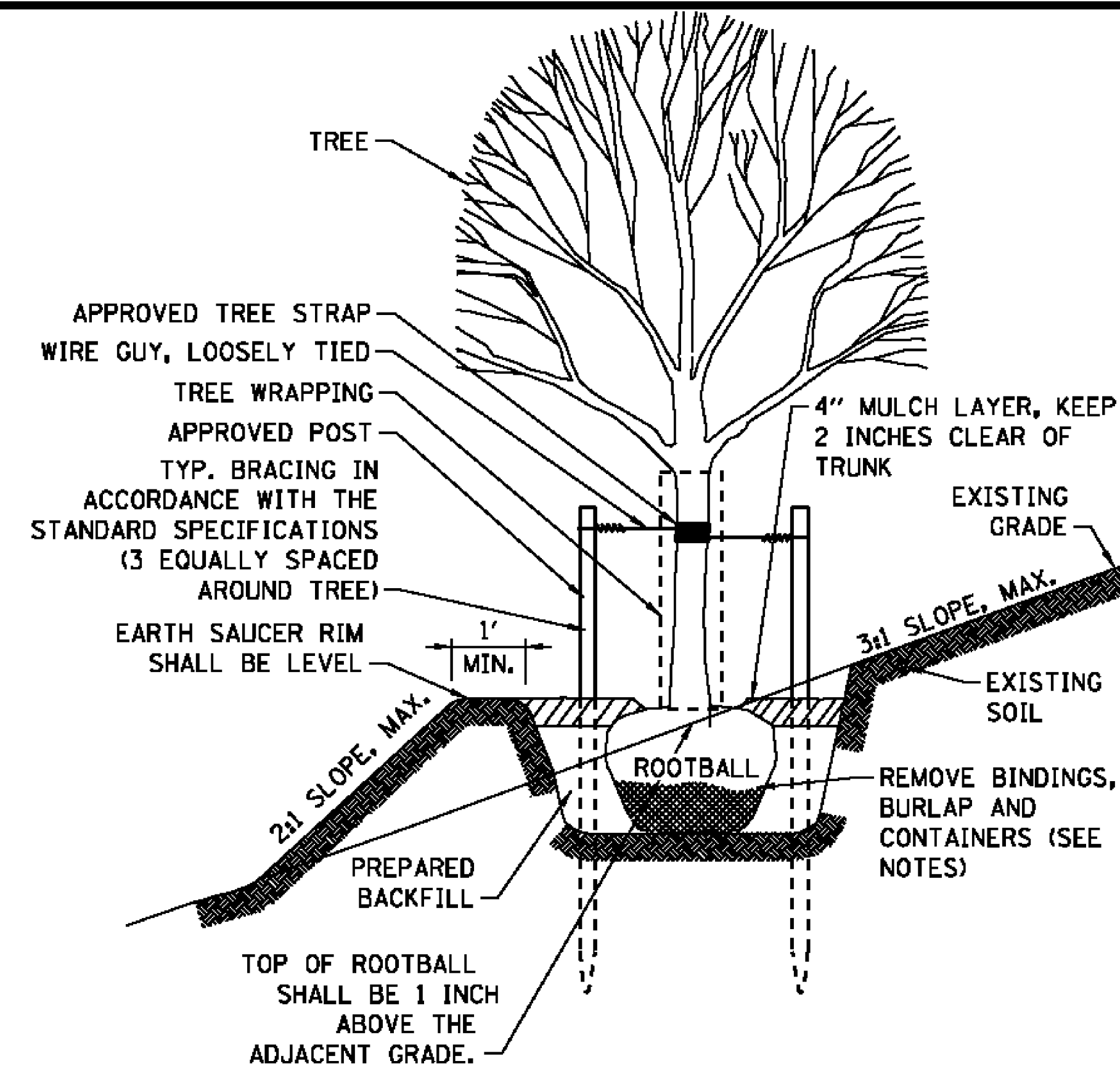
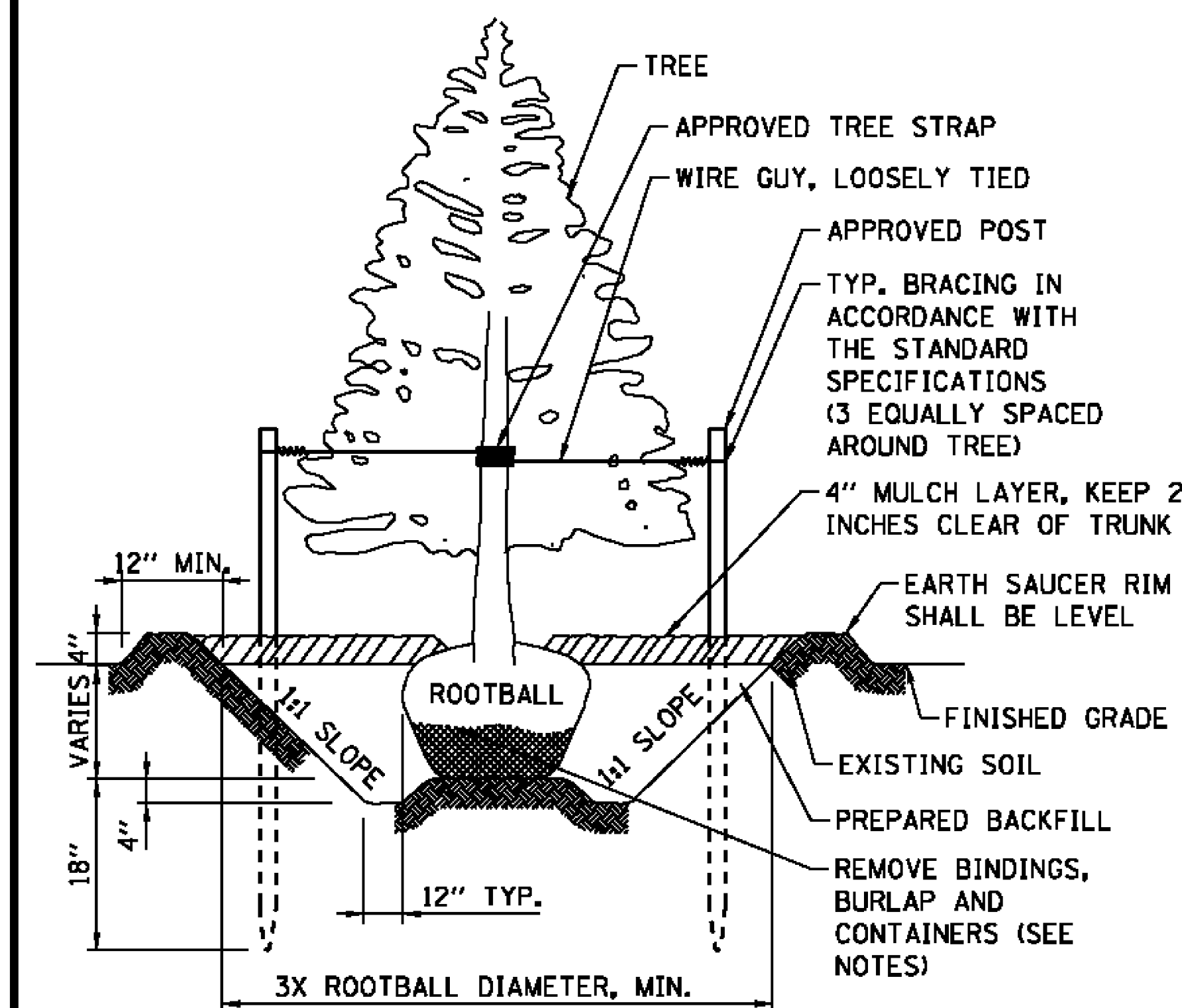
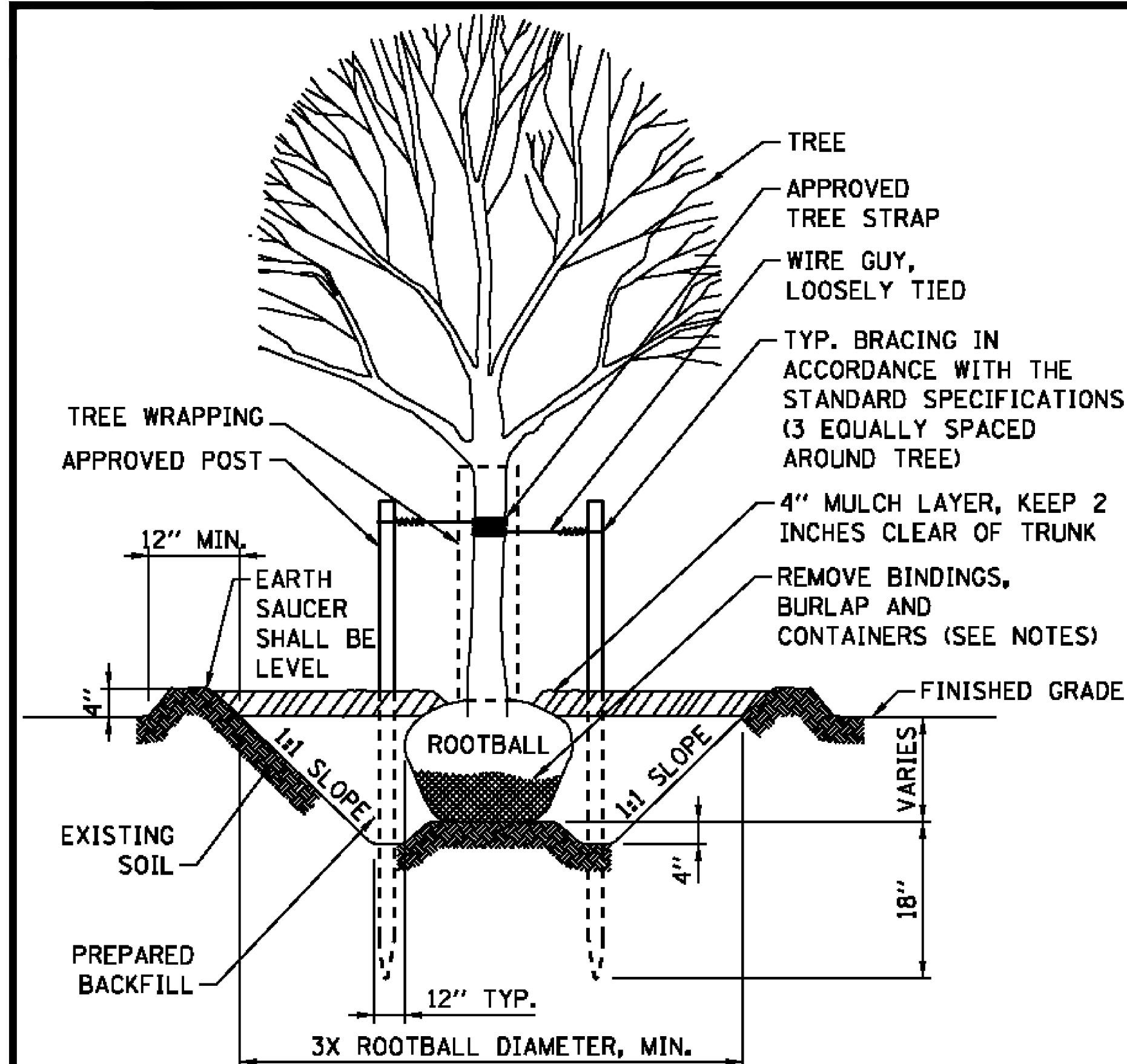
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NOTES:

OFFSET OF PLANTS FROM EDGE OF PLANTING AREA SHALL BE EQUAL TO HALF OF THE PLANT SPACING REQUIREMENT FOR EACH PLANT SPECIES AS SHOWN IN THE PLANTING SCHEDULE, OR 3' MINIMUM, UNLESS OTHERWISE INDICATED.

PLANTING NOTES:

1. MARK THE LOCATIONS OF ALL UNDERGROUND UTILITIES BEFORE BEGINNING WORK. REPORT ANY CONFLICTS TO THE ENGINEER IMMEDIATELY FOR RESOLUTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UNDERGROUND, SURFACE AND OVERHEAD UTILITIES REGARDLESS OF LOCATION OR LACK OF LOCATION ON PLANS.
3. PLANTING PLANS ARE DIAGRAMMATIC. PLANT LOCATIONS SHALL BE REVIEWED BY THE CONTRACTOR AND ENGINEER AND OR ILLINOIS TOLLWAY LANDSCAPE ARCHITECT AND ADJUSTED IN THE FIELD AS NECESSARY PRIOR TO PLANTING.
4. TREES SHALL BE LOCATED CLEAR OF ROADWAY PAVEMENT EDGES, FIFTY (50) FEET MINIMUM.
5. TREE AND SHRUB PLANTINGS SHALL NOT BLOCK ACCESS TO GATES IN FENCES, HYDRANTS ON NOISE WALLS, OR OTHER SERVICE ACCESS DOORS.
6. TREES PLANTED IN TURF AREAS SHALL BE LOCATED TEN (10) FEET MINIMUM CLEAR FROM THE EDGE OF PLANTINGS BEDS.
7. TO AVOID POTENTIAL CONFLICTS, TREES AND SHRUBS SHALL BE OFFSET FROM UTILITIES A MINIMUM OF TEN (10) FEET AND ANY ADDITIONAL CLEARANCE REQUIRED BY UTILITY COMPANIES. ADDITIONALLY, TREES SHALL BE LOCATED TEN (10) FEET MINIMUM CLEAR FROM FENCES, WALLS, BRIDGES, AND OTHER STRUCTURES. THIS DISTANCE SHALL BE INCREASED, PER THE PROJECTED MATURE TREE CANOPY SIZE, TO PREVENT OVERHANGING LIMBS ON HIGHWAYS AND BRIDGES.
8. THE VERTICAL CLEAR DISTANCE BETWEEN DITCH BOTTOMS, PLANTINGS AND PLANTING BEDS SHALL BE THREE (3) FEET MINIMUM AND NINE (9) FEET MINIMUM HORIZONTAL DISTANCE FOR DITCHES LESS THAN THREE (3) FEET DEEP.
9. PERFORM PERCOLATION TESTS WITHIN PLANTING AREAS. - ONE TEST PER AREA OR 1000 SF OF PLANTING BED. MAX. EXCAVATE A 12 INCH X 12 INCH X 12 INCH PIT AND FILL WITH WATER. RECORD THE PER HOUR RATE OF WATER DISPERSAL FROM THE PIT. IF PERCOLATION IS LESS THAN 2 INCHES PER HOUR, CONTACT THE ENGINEER FOR FURTHER INSTRUCTIONS. RELOCATE PLANTINGS AS INSTRUCTED BY THE ENGINEER. RESTORE PIT TO SURROUNDING CONDITION.
10. PRUNING SHALL ONLY BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS. IMPROPERLY PRUNED PLANTING WILL BE REJECTED AND REPLACEMENTS WILL IMMEDIATELY BE MADE BY THE CONTRACTOR.
11. SCARIFY THE SIDES OF PLANTING PITS TO LOOSEN SOIL PRIOR TO PLANTING.
12. WHEN INDICATED ON PLANS, TREE WRAPPING SHALL BE INSTALLED ON ALL DECIDUOUS TREES TO PROTECT FROM DEER AND RODENT DAMAGE. WRAPPING SHALL BE ANCHORED TO GROUND AND EXTEND UP TO LOWEST BRANCH. WRAPPING PLACEMENT SHALL NOT BEAR AGAINST OR INHIBIT GROWTH OF TRUNK OR LOWEST BRANCH.
13. TOP OF ROOT BALL SHALL BE APPROXIMATELY ONE (1) INCH ABOVE ADJACENT FINISHED GRADE. REMOVE DEBRIS AND MULCH FROM AROUND ROOT COLLAR.
14. SHRUB PLANTINGS, UNLESS OTHERWISE NOTED, SHALL BE PLANTED IN MULCHED BEDS. THE EDGE OF THE MULCHED BEDS SHALL EXTEND A MINIMUM OF THREE (3) FEET BEYOND THE CENTERS OF THE PERIPHERAL PLANTS IN THE BED. THE EDGE OF THE MULCHED BED FOR SHRUB PLANTINGS ADJACENT TO A WALL, FENCE, GUARDRAIL, OR OTHER FIXED OBJECT SHALL EXTEND TO THE OBJECT. THE PERIPHERAL PLANTS IN THE BED SHALL BE PLANTED FIVE (5) FEET CLEAR OF THE OBJECT. WHEN A TREE IS LOCATED IN A SHRUB BED, THE MINIMUM DISTANCE BETWEEN THE TREE AND THE ADJACENT SHRUB SHALL BE SIX (6) FEET.
15. ALL FACILITIES AND LANDSCAPE AREAS ON AND OFF SITE DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
16. ALL TREE SUPPORTS INCLUDING STAKES AND GUY WIRES, BRACING STRAPS AND ANCHORS SHALL BE REMOVED AFTER ONE (1) YEAR OR AS DIRECTED BY THE ENGINEER.
17. REMOVE ALL BINDING MATERIALS, CONTAINERS, AND MARKING TAPES FROM PLANTINGS PRIOR TO BACKFILLING. REMOVE SYNTHETIC BURLAP ENTIRELY, REMOVE NATURAL BURLAP, TWINE, AND WIRE BASKETS FROM THE TOP HALF OF ROOT BALLS. THE LOWER HALF OF NATURAL BURLAP SHALL BE FOLDED TOWARD THE BOTTOM OF THE ROOT BALL.
18. PLANTINGS SHALL BE INSTALLED PLUMB WITH THE BEST SIDE FACING THE PRIMARY VIEWING DIRECTION.
19. PLANTS SHALL COMPLY WITH ANSI Z60.1. LATEST EDITION, AND SHALL BE WELL FORMED WITH FULL FOLIAGE MASS. PLANTS SHALL BE HEALTHY, VIGOROUS, FREE OF DISEASE, INSECT PESTS AND THEIR EGGS. BASIS OF PLANT REJECTION INCLUDES BUT IS NOT LIMITED TO: PLANT IS MORE THAN 10% DEAD, ROOT BOUND, IMPROPERLY PRUNED, EXHIBITS DISPROPORTIONAL GROWTH PATTERN OR DOES NOT MEET SPECIFIED SIZE REQUIREMENTS.
20. DO NOT DISTURB OR DAMAGE ROOT BALL WHEN PLANTING. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING PLANTING PITS. WHEN PIT IS HALF FULL OF SOIL, LIGHTLY TAMP, WATER THOROUGHLY. ADD REMAINING SOIL AND WATER FURTHER UNTIL SOIL IS COMPLETELY CONSOLIDATED AND NO MORE WATER IS ABSORBED.
21. PREPARED BACKFILL SHALL CONSIST OF EQUAL PARTS TOPSOIL, COMPOST AND EXISTING SITE SOIL SUITABLE FOR PLANT GROWTH. TOPSOIL SHALL COMPLY WITH SECTION 211 OF THE SPECIFICATIONS.
22. THE CONTRACTOR SHALL COMPLETE FORM A-37 TO DOCUMENT MILESTONE DATES ASSOCIATED WITH PLANT INSTALLATION AND ESTABLISHMENT AS REQUIRED BY THE ILLINOIS TOLLWAY.

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