


 Applied Ecological Services, Inc.
 7597 Smith Road, P.O. Box 256
 Brookings, SD 57003
 Phone: 605-897-8641 Fax: 605-897-4466
 Email: info@appliedeco.com

The Sanctuary of Bull Valley
 Woodstock, Illinois
Knickerbocker Properties, LLC
 700 McHenry Avenue
 Woodstock, Illinois 60098

Restoration Plan Map
 Drawn By: t.e.g. AES Project No.: 02-525
 Checked: File Name: concept.dwg
 Approved: Date: 10-24-2002

No.	By	Date	Description
1		10-25-02	Preliminary Version
2		04-18-03	Restoration Revision
3		05-19-03	Restoration Revision
4			
5			
6			

Sheet Number
1 of 6



Applied Ecological Services, Inc.
17921 Smith Road, P.O. Box 258
Brodhead, Wisconsin 53520
Phone: 608-897-8411 Fax: 608-897-8486
Email: info@appliedeco.com

SANCTUARY OF BULL VALLEY RESTORATION SEED AND PLANT LISTS

Restoration Planting Lists

AES Project No.: 02-525
File Name: concept.dwg
Date: 12-13-2002

The Sanctuary of Bull Valley
Woodstock, Illinois
Knickerbocker Properties, LLC
700 McHenry Avenue
Woodstock, Illinois 60098

Revisions:		
No.	By	Date
1		01-03
2		05-21-03
3		
4		
5		

Coordinate System
System:
Zone:
Datum:
Units:

Sheet Number
2 of 6

Oak Savanna & Woodland Enhancement Seed & Plant Lists

Savanna Enhancement (27.7 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Andropogon gerardii</i>	Big Bluestem	4.00
<i>Bromus purgans</i>	Woodland Brome	8.00
<i>Elymus canadensis</i>	Canada wild rye	32.00
<i>Elymus virginicus</i>	Virginia Wild Rye	16.00
<i>Panicum virgatum</i>	Switch grass	4.00
<i>Schizachyrium scoparium</i>	Little Bluestem	84.00
<i>Sorghastrum nutans</i>	Indian grass	4.00
Total grasses, sedges, etc. (lbs./ac.) 8.25		
Forbs		
<i>Agastache nepetoides</i>	Yellow Giant Hyssop	0.25
<i>Anemone virginiana</i>	Tail Anemone	0.50
<i>Asclepias syriaca</i>	Common Milkweed	0.50
<i>Asclepias verticillata</i>	Whorled Milkweed	0.50
<i>Aster azureus</i>	Sky-Blue Aster	1.00
<i>Aster pilosus</i>	Frost Aster	2.00
<i>Baptisia alba</i>	White wild indigo	0.10
<i>Coreopsis palmata</i>	Prairie Coreopsis	0.50
<i>Coreopsis tripteris</i>	Tail coreopsis	3.00
<i>Desmanthus illinoensis</i>	Illinois sensitive plant	0.10
<i>Desmodium canadense</i>	Showy tick trefoil	3.00
<i>Echinacea pallida</i>	Pale Purple coneflower	2.00
<i>Eupatorium altissimum</i>	Tail Boneset	2.00
<i>Eupatorium purpureum</i>	Savanna Joe Pyeweed	2.00
<i>Gaura biennis</i>	Biennial gaura	0.25
<i>Geum triflorum</i>	Prairie smoke	0.10
<i>Helianthus occidentalis</i>	Western Sunflower	0.10
<i>Helopsis helianthoides</i>	False Sunflower	2.00
<i>Kuhnia eupatoriodes</i>	False Boneset	0.50
<i>Lespedeza capitata</i>	Prairie Bush Clover	1.00
<i>Liatris aspera</i>	Rough blazing star	2.00
<i>Monarda fistulosa</i>	Bergamot	0.50
<i>Oenothera biennis</i>	Evening primrose	3.00
<i>Parthenium integrifolium</i>	Wild quinine	2.00
<i>Penstemon digitalis</i>	Foxglove beard tongue	0.10
<i>Ratibida pinnata</i>	Yellow coneflower	1.00
<i>Rudbeckia hirta</i>	Black Eyed-Susan	1.00
<i>Silene stellata</i>	Starry Starflower	0.01
<i>Siphium laciniatum</i>	Compass plant	1.00
<i>Siphium terebinthinaceum</i>	Prairie dock	1.00
<i>Sisyrinchium campestre</i>	Blue Eyed Grass	0.10
<i>Solidago rigida</i>	Stiff goldenrod	2.00
<i>Teucrium canadense</i>	Wood Germander	0.05
<i>Tradescantia ohimensis</i>	Spiderwort	1.00
Total forbs (lbs./ac.) 2.26		
Cover Crop		
<i>Avena sativa</i>	Oats	160
<i>Lolium multiflorum</i>	Annual Ryegrass	160
Total (lbs./ac.) 20		
SCIENTIFIC NAME	COMMON NAME	plugs/ac.
Plants (9 Ac.)		
<i>Allium cernuum</i>	Nodding Wild Onion	87
<i>Amorpha canescens</i>	Lead plant	87
<i>Anemone virginiana</i>	Tail Anemone	100
<i>Aster laevis</i>	Smooth blue aster	100
<i>Aster novae-angliae</i>	New England Aster	100
<i>Ceanothus americanus</i>	New Jersey Tea	32
<i>Heuchera richardsonii</i>	Alum Root	100
<i>Polemonium reptans</i>	Jacob's Ladder	100
<i>Carex bicknellii</i>	Prairie Sedge	100
<i>Carex grvida</i>	Long-awned Bracted Sedge	200
Total plants/ac. 1138		
SCIENTIFIC NAME	COMMON NAME	Total #
Shrubs		
<i>Ceanothus americanus</i>	New Jersey Tea	111
<i>Corylus americana</i>	Hazelnut	111
Total shrubs 222		

Woodland Enhancement (2.4 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Andropogon gerardii</i>	Big Bluestem	4.00
<i>Bromus purgans</i>	Woodland Brome	16.00
<i>Carex sprengei</i>	Long-beaked sedge	4.00
<i>Elymus canadensis</i>	Canada wild rye	32.00
<i>Elymus villosus</i>	Silky Wild Rye	16.00
<i>Elymus virginicus</i>	Virginia Wild Rye	32.00
<i>Hystrix patula</i>	Bottle Brush Grass	16.00
<i>Panicum virgatum</i>	Switch grass	8.00
<i>Sorghastrum nutans</i>	Indian grass	4.00
Total grasses, sedges, etc. (lbs./ac.) 8.25		
Forbs		
<i>Actinomeria alternifolia</i>	Wingstem	0.10
<i>Agastache nepetoides</i>	Yellow Giant Hyssop	0.25
<i>Anemone virginiana</i>	Tail Anemone	0.30
<i>Aquilegia canadensis</i>	Columbine	0.50
<i>Asclepias syriaca</i>	Common Milkweed	0.50
<i>Aster azureus</i>	Sky-Blue Aster	0.70
<i>Aster pilosus</i>	Frost Aster	2.00
<i>Aster sagittifolius</i>	Arrow Leaf Aster	1.00
<i>Baptisia alba</i>	White wild indigo	0.10
<i>Campanula americana</i>	Tail Bellflower	0.25
<i>Coreopsis palmata</i>	Prairie Coreopsis	0.50
<i>Coreopsis tripteris</i>	Tail coreopsis	3.00
<i>Desmanthus illinoensis</i>	Illinois sensitive plant	0.10
<i>Desmodium glutinosum</i>	Tick Trefoil	0.50
<i>Echinacea pallida</i>	Pale Purple coneflower	2.00
<i>Eupatorium altissimum</i>	Tail Boneset	1.00
<i>Eupatorium purpureum</i>	Savanna Joe Pyeweed	1.00
<i>Euphorbia corollata</i>	Flowering Spurge	0.20
<i>Gaura biennis</i>	Biennial gaura	0.25
<i>Geranium maculatum</i>	Wild Geranium	0.10
<i>Helianthus divaricatus</i>	Woodland sunflower	0.20
<i>Helopsis helianthoides</i>	False Sunflower	2.00
<i>Kuhnia eupatoriodes</i>	False Boneset	0.20
<i>Lespedeza capitata</i>	Prairie Bush Clover	1.00
<i>Liatris aspera</i>	Rough blazing star	2.00
<i>Monarda fistulosa</i>	Bergamot	1.00
<i>Oenothera biennis</i>	Evening primrose	2.00
<i>Parthenium integrifolium</i>	Wild quinine	2.00
<i>Penstemon calycosus</i>	Smooth beard tongue	2.00
<i>Petalostemum purpureum</i>	Purple prairie clover	3.00
<i>Polemonium reptans</i>	Jacob's ladder	0.10
<i>Polygonatum biflorum</i>	Solomon's Seal	3.00
<i>Ratibida pinnata</i>	Yellow coneflower	6.00
<i>Rudbeckia hirta</i>	Black Eyed-Susan	1.50
<i>Smilacina racemosa</i>	False Solomon's Seal	0.25
<i>Solidago rigida</i>	Stiff goldenrod	0.25
<i>Solidago ulmifolia</i>	Elm-leaved goldenrod	0.30
<i>Teucrium canadense</i>	Germander	0.50
<i>Tradescantia ohimensis</i>	Spiderwort	2.00
Total forbs (lbs./ac.) 2.70		
Cover Crop		
<i>Lolium multiflorum</i>	Annual Ryegrass	160.00
<i>Avena sativa</i>	Oats	160.00
Total (lbs./ac.) 20		
SCIENTIFIC NAME	COMMON NAME	plugs/ac.
Plants (4.9 Ac.)		
<i>Carex radiata</i>	Straight-Styled Wood Sedge	100
<i>Geranium maculatum</i>	Wild Geranium	100
<i>Helianthus divaricatus</i>	Woodland Sunflower	100
<i>Elymus hystrix</i>	Bottle Brush Grass	100
<i>Elymus villosus</i>	Woodland Phlox	100
<i>Podophyllum peltatum</i>	May apple	30
<i>Solidago flexicaulis</i>	Zigzag Goldenrod	100
<i>Athyrium filix-femina</i>	Lady fern	50
<i>Uvularia grandiflora</i>	Beltwort	30
Total plants/ac. 1010		
SCIENTIFIC NAME	COMMON NAME	Total #
Shrubs		
<i>Amelanchier arborea</i>	Serviceberry	20
<i>Viburnum rafinesquianum</i>	Dowry Arrow Wood	19
<i>Ostrya virginiana</i>	Ironwood	19
Total shrubs 58		

Savanna Restoration Seed & Plant List

Savanna Restoration (Dry Mesic Prairie) (8 Ac. of 39.8 Ac. Remaining)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Andropogon gerardii</i>	Big bluestem grass	4.00
<i>Bromus purgans</i>	Little bluestem grass	80.00
<i>Bouteloua curtipendula</i>	Side-oats grama	80.00
<i>Elymus canadensis</i>	Canada wild rye	8.00
<i>Panicum virgatum</i>	Switch grass	1.92
<i>Sorghastrum nutans</i>	Indian grass	4.00
Total grasses, sedges, etc. (lbs./ac.) 11.12		
Forbs		
<i>Aster azureus</i>	Sky blue aster	0.80
<i>Aster laevis</i>	Smooth blue aster	1.60
<i>Cassia fasciculata</i>	Partridge pea	8.00
<i>Coreopsis lanceolata</i>	Sand/Lance-ld coreopsis	1.60
<i>Echinacea purpurea</i>	Purple coneflower	1.60
<i>Helopsis helianthoides</i>	Ox-eye/false sunflower	0.80
<i>Lespedeza capitata</i>	Round-hd bush clover	1.60
<i>Lupinus perennis</i>	Wild lupine	0.80
<i>Monarda fistulosa</i>	Wild bergamot	3.20
<i>Oenothera biennis</i>	Common evening primrose	4.80
<i>Penstemon digitalis</i>	Foxglove beard tongue	4.00
<i>Petalostemum candidum</i>	White prairie clover	1.60
<i>Petalostemum purpureum</i>	Purple prairie clover	3.20
<i>Ratibida pinnata</i>	Yellow coneflower	8.00
<i>Rudbeckia hirta</i>	Black-eyed susan	4.80
<i>Silphium terebinthinaceum</i>	Prairie dock	0.80
<i>Solidago nemoralis</i>	Old-field goldenrod	1.92
<i>Solidago rigida</i>	Stiff goldenrod	4.80
<i>Verbena stricta</i>	Wild vervain	1.60
<i>Zizia aurea</i>	Golden alexanders	0.96
Total forbs (lbs./ac.) 3.53		
Cover Crop		
<i>Secale Cereale</i>	Wintercereal rye	640.00
Total (lbs./ac.) 40		
SCIENTIFIC NAME	COMMON NAME	Total #
Trees		
<i>Quercus macrocarpa</i>	Bur oak	90
<i>Quercus alba</i>	White oak	60
<i>Carya ovata</i>	Shagbark hickory	45
<i>Quercus alba</i>	White oak	15
<i>Quercus rubra</i>	Red oak	30
Total trees and shrubs 240		
Shrubs		
<i>Ceanothus americanus</i>	New Jersey Tea	159
<i>Corylus americana</i>	Hazelnut	159
Total trees and shrubs 558		

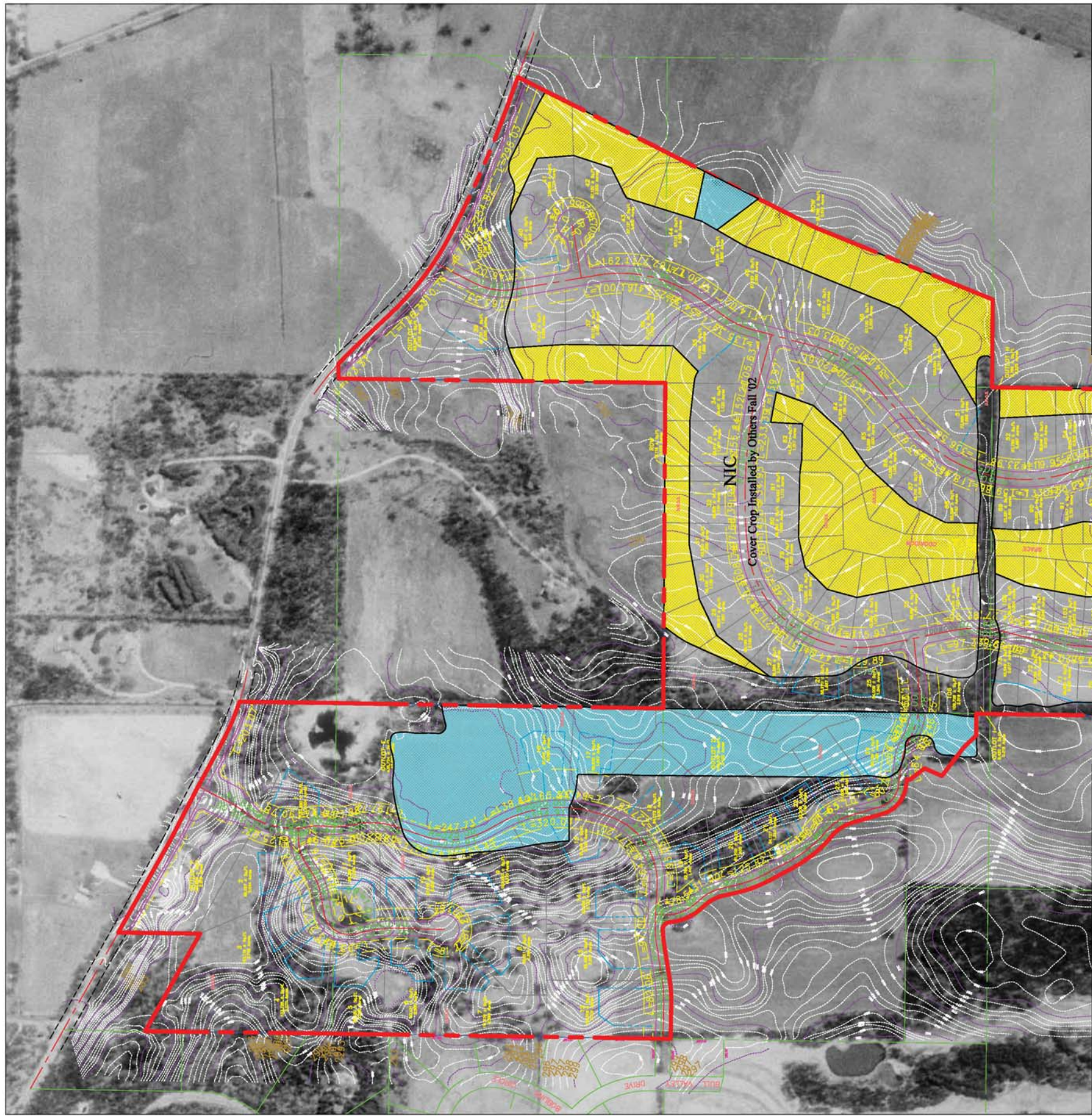
Prairie Enhancement Drifts (4.2 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Carex bicknellii</i>	Prairie sedge	8.00
<i>Koeleria cristata</i>	June grass	1.60
<i>Panicum leibergeri</i>	Prairie panic grass	1.60
<i>Sporobolus heterolepis</i>	Prairie dropseed	0.80
Total grasses, sedges, etc. (lbs./ac.) 0.75		
Forbs		
<i>Asclepias tuberosa</i>	Butterfly milkweed	1.60
<i>Aster sericeus</i>	Silky aster	0.80
<i>Coreopsis palmata</i>	Prairie coreopsis	1.60
<i>Desmanthus illinoensis</i>	Illinois sensitive plant	3.20
<i>Geum triflorum</i>	Prairie smoke	0.80
<i>Monarda punctata</i>	Horse mint	3.20
<i>Rosa carolina</i>	Pasture rose	1.60
<i>Tradescantia ohimensis</i>	Spiderwort	1.60
Total forbs (lbs./ac.) 0.90		
Plants (4.9 Ac.)		
SCIENTIFIC NAME	COMMON NAME	plugs./ac.
<i>Amorpha canescens</i>	Lead plant	128
<i>Baptisia bracteata</i>	Cream wild indigo	64
<i>Geum triflorum</i>	Prairie smoke	192
<i>Liatris aspera</i>	Rough blazing star	192
<i>Siphium integrifolium</i>	Rosin weed	128
<i>Sisyrinchium campestre</i>	Blue-eyed grass	192
<i>Sporobolus heterolepis</i>	Prairie dropseed	192
Total plants/ac. 1,088		

Mesic Forest Seed & Plant List

Mesic Forest (8.3 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Brachyelytrum erectum</i>	Long-awned wood grass	1.00
<i>Bromus purgans</i>	Woodland brome	16.00
<i>Carex sprengei</i>	Long-beaked sedge	4.00
<i>Elymus hystrix</i>	Bottlebrush grass	16.00
<i>Muhlenbergia mexicana</i>	Leafy satin grass	2.00
Total grasses, sedges, etc. (lbs./ac.) 2.44		
Forbs		
<i>Actinomeria alternifolia</i>	Wingstem	0.30
<i>Aquilegia canadensis</i>	Wild columbine	0.50
<i>Aster sagittifolius</i>	Arrow-leaved aster	1.00
<i>Clematis virginiana</i>	Virgin's bower	0.20
<i>Desmodium glutinosum</i>	Pointed tick trefoil	0.50
<i>Dicentra cucullaria</i>	Dutchman's breeches	0.25
<i>Eupatorium rugosum</i>	White snakeroot	0.20
<i>Geranium maculatum</i>	Wild geranium	0.10
<i>Helianthus divaricatus</i>	Woodland sunflower	0.20
<i>Polemonium reptans</i>	Jacob's ladder	0.10
<i>Polygonatum biflorum</i>	Solomon's seal	3.00
<i>Samolus grigaria</i>	Black snakeroot	0.20
<i>Smilacina racemosa</i>	Feathery false Solomon's seal	0.25
<i>Solidago ulmifolia</i>	Elm-leaved goldenrod	0.30
Total forbs (lbs./ac.) 0.44		
SCIENTIFIC NAME	COMMON NAME	plugs./ac.
Plants (2.7 Ac.)		
<i>Actaea rubra</i>	Red baneberry	30
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	100
<i>Athyrium filix-femina</i>	Lady fern	50
<i>Carex pensylvanica</i>	Pennsylvania sedge	100
<i>Caulophyllum thalictroides</i>	Blue cohosh	40
<i>Elymus hystrix</i>	Bottlebrush grass	100
<i>Erythronium albidum</i>	White trout lily	transplants
<i>Geranium maculatum</i>	Wild geranium	100
<i>Helianthus divaricatus</i>	Woodland sunflower	100
<i>Hydrophyllum virginianum</i>	Virginia waterleaf	75
<i>Osmunda cinnamomea</i>	Cinnamon fern	50
<i>Phlox divaricata</i>	Woodland phlox	100
<i>Podophyllum peltatum</i>	May apple	30
<i>Solidago flexicaulis</i>	Zig-zag goldenrod	100
<i>Trillium grandiflorum</i>	Large-flowered trillium	30
<i>Trillium recurvatum</i>	Red trillium	30
<i>Uvularia grandiflora</i>	Beltwort	30
Total plants/ac. 1065		
SCIENTIFIC NAME	COMMON NAME	Total #
Trees		
<i>Acer nigrum</i>	Black (sugar) maple	40
<i>Acer rubrum</i>	Red maple	40
<i>Fraxinus americana</i>	White ash	40
<i>Quercus alba</i>	White oak	30
<i>Quercus rubra</i>	Red oak	30
<i>Tilia americana</i>	Basswood	30
<i>Carya cordiformis</i>	Bitternut Hickory	30
Shrubs		
<i>Carpinus caroliniana</i>	Blue beech	67
<i>Ostrya virginiana</i>	Ironwood	66
Total trees and shrubs 373		

Sedge Meadow Restoration Seed & Plant List

Sedge Meadow Restoration (2.0 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Carex scoparia</i>	Pointed broom sedge	32.00
<i>Glyceria striata</i>	Fowl manna grass	2.00
Total grasses, sedges, etc. (lbs./ac.) 2.13		
Forbs		
<i>Angelica atropurpurea</i>	Great angelica	3.00
<i>Aster novae-angliae</i>	New England aster	2.00
<i>Aster simplex</i>	Panicled aster	1.00
<i>Bidens cernua</i>	Nodding bur marigold	2.00



Sanctuary Bull Valley (02-525)

PRE-CONSTRUCTION SEEDING LISTS

Dry-Mesic Prairie Seeding List

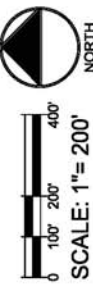
Grasses, sedges, etc.	Lb/Lac	Common Name	Lb/Lac
Andropogon scoparius	5.00	Little bluestem grass	5.00
Bouteloua curtipendula	5.00	Side-oats grama	5.00
Elymus canadensis	0.12	Canada wild rye	0.12
Panicum virgatum	0.25	Switch grass PLS	0.25
Andropogon gerardi	0.25	Big bluestem grass	0.25
SECALE CEREALE	40.00	Indian grass	40.00
Grasses, sedges, etc.	51.12	Winter/cereal rye	51.12
Forbs			
Aster azureus	0.05	Sky blue aster	0.05
Aster laevis	0.10	Smooth blue aster	0.10
Cassia fasciculata	0.50	Partridge pea	0.50
Cereopsis lanceolata	0.10	Sand-lance-ivd conopsis	0.10
Petalostemum candidum	0.20	White prairie clover	0.20
Petalostemum purpureum	0.10	Purple prairie clover	0.10
Echinacea purpurea	0.05	Broad-ivd purple coneflower	0.05
Helipopsis helianthoides	0.10	Ox-eye/yellse sunflower	0.10
Lespedeza capitata	0.10	Round-hd bush clover	0.10
Lupinus perennis occidentalis	0.05	Wild lupine	0.05
Monarda tobioba	0.20	Common evening primrose	0.20
Cenothera biennis	0.25	Foglove beard tongue	0.25
Pennisetum digitatis	0.50	Yellow coneflower	0.50
Rudbeckia hirta	0.50	Black-eyed susan	0.50
Siphium tercbinthaceum	0.05	Prairie dock	0.05
Elymus canadensis	0.12	Ch-lf'd goldenrod	0.12
Solidago rigida	0.10	Stur goldenrod	0.10
Veronica sericea	0.05	Isary vervain	0.05
Zizia aurea	0.05	Golden alexanders	0.05
Forbs	3.85		
Cover Crop List			
Grasses, sedges, etc.	Lb/Lac	Common Name	Lb/Lac
Panicum virgatum	2.00	Switch grass	2.00
Elymus canadensis	1.00	Canada wild rye	1.00
Triticum aestivum X Secale cereale	40.00	Pioneer triticale	40.00
Cover crop grasses			

LEGEND

- Dry-Mesic Prairie
31.8 Acres
- Cover Crop
18.8 Acres
- NIC-Not in Contract

PRE-CONSTRUCTION SEEDING NOTES:

- All currently tilled agricultural fields (i.e. beans) designated as Open Space areas (either Common and D.O.S.) in the Phase I area of the property were planted this fall (November '02) with Dry-Mesic Prairie (31.8 acres) or cover crop (18.8 acres). These areas were planted this fall to prevent erosion and to start the restoration process.
- Selection of the dry-prairie species mix is consistent with the final goal of the master restoration plan to restore savanna with open prairie pockets in all upland areas (non-wetland) on the site. Prairie species historically comprised much of the ground layer in savannas.
- Seed was installed using a no-till drill.
- Seeding these areas required no soil preparation because the fields consisted of bean stubble and patches of non-aggressive agronomic weeds, including Japanese brome (*Bromus japonicus*), foxtail (*Setaria spp.*), and nodding thistle (*Carduus nutans*).
- Straw mulch was applied and crimped in the dry-mesic prairie planting areas. No mulch was applied in the cover crop areas.



SCALE: 1" = 200'

Revisions:

No.	By	Date	Description
1		10-25-02	Preliminary Version
2		10-31-02	Revised Version
3		11-12-02	Final Version
4			
5			
6			

The Sanctuary of Bull Valley

Woodstock, Illinois
Knickerbocker Properties, LLC
 700 McHenry Avenue
 Woodstock, Illinois 60098



Applied Ecological Services, Inc.
 17921 Smith Road, P.O. Box 256
 Brookfield, Wisconsin 53020
 Phone: 608-897-6641 Fax: 608-897-6486
 Email: info@appliedeco.com

**Pre-Construction
 Planting Plan**

Drawn By: t.e.g. AES Project No.: 02-525
 Checked: File Name: restoration.dwg
 Approved: Date: 10-24-2002

Sheet Number
3 of 6



SANCTUARY OF BULL VALLEY (02-225)

Species	Keep	Eliminate	Thin	Removal Criteria DBH (in)	Approximate # Removed
American Elm	X				
Bitternut Hickory	X				
Black Walnut	X				
Burr Oak	X				
Hornbeam	X				
Pin Oak	X				
Red Oak	X				
Shagbark Hickory	X				
White Oak	X				
Green Ash		X			1
Black Locust		X			16
Blue Spruce		X			3
Bovvelder		X			344
Chinese Elm		X			35
Crabapple		X			1
Green Spruce		X			3
Malberry		X			2
Norway Spruce		X			7
White Pine		X			66
White Poplar		X		Client will keep most	6
Basswood		X		-8	4
Black Cherry		X		<14.6 -1/3 >14	417
Cottonwood		X		<12	1
Hackberry		X		-9	5
Sugar Maple		X		-10	1
Total					941
Total trees in Phase I area					2959
Trees removed from Phase I area					941
Trees remaining in Phase I area					1109

LEGEND

- Existing Trees
- Existing Trees to be Removed

0 100' 200' 400'

SCALE: 1"= 200'

NORTH

Revisions:

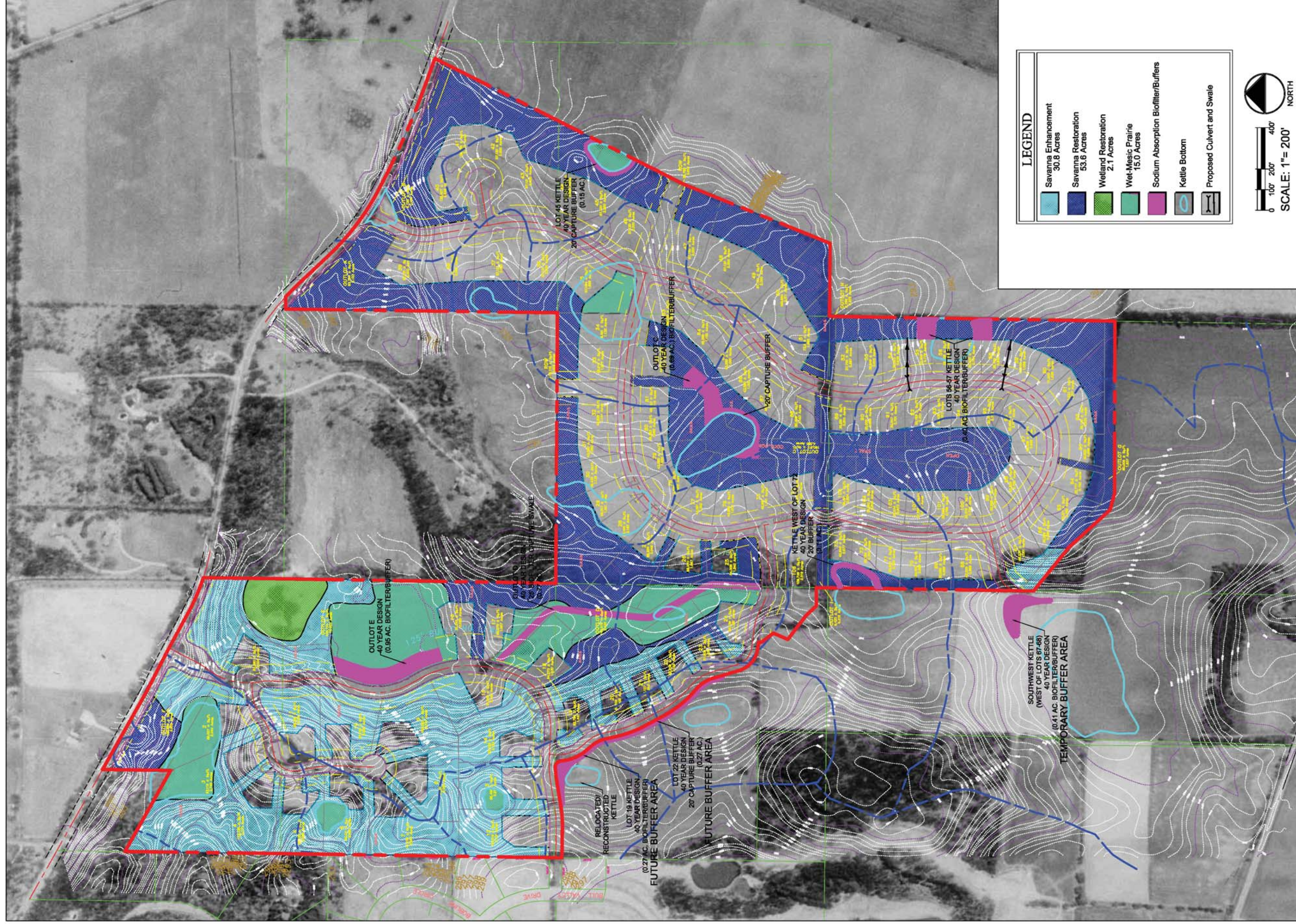
No.	By	Date	Description
1			Unreleased
2			
3			
4			
5			
6			

The Sanctuary of Bull Valley
 Woodstock, Illinois
Knickerbocker Properties, LLC
 700 McHenry Avenue
 Woodstock, Illinois 60098


 Applied Ecological Services, Inc.
 17921 Smith Road, P.O. Box 256
 Brookfield, Wisconsin 53020
 Phone: 608-897-9941 Fax: 608-897-9486
 Email: info@appliedeco.com

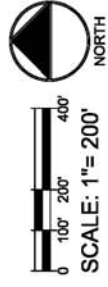
Tree Removal Plan

Drawn By: t.e.g.
 Checked: AES Project No.: 02-525
 File Name: tree_remove.dwg
 Approved: Date: 10-23-2002



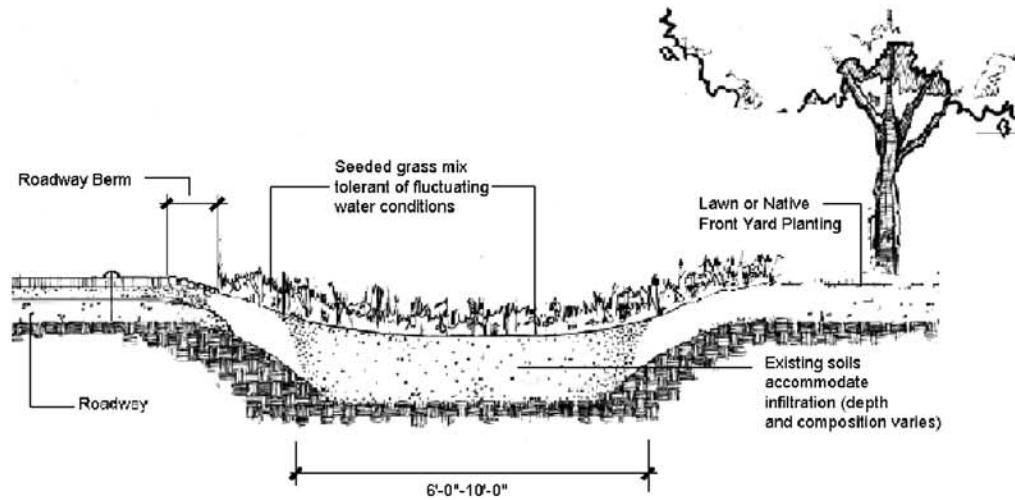
LEGEND

	Savanna Enhancement 30.8 Acres
	Savanna Restoration 53.6 Acres
	Wetland Restoration 2.1 Acres
	Wet-Mesic Prairie 15.0 Acres
	Sodium Absorption Biofilter/Buffers
	Kettle Bottom
	Proposed Culvert and Swale

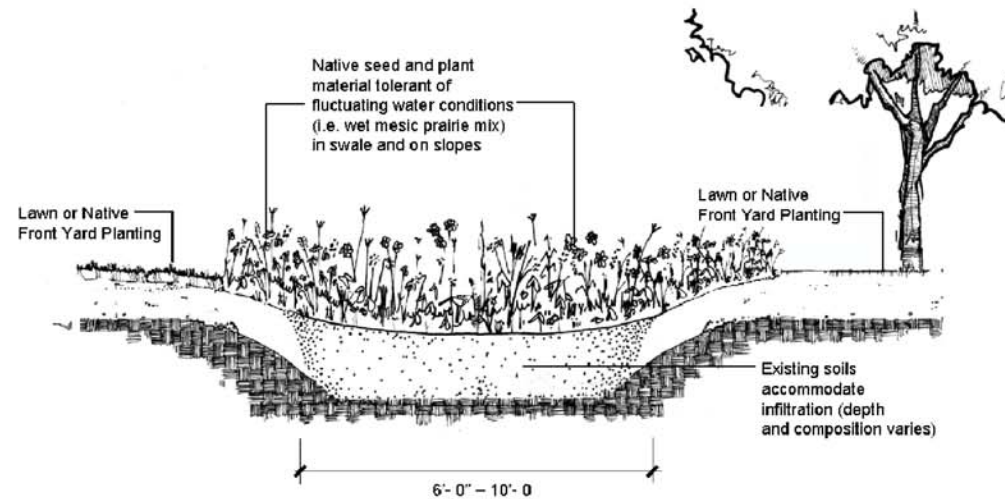


<p>Applied Ecological Services, Inc. 17821 Smith Road, P.O. Box 256 Brookwood, Wisconsin 53520 Phone: 608-897-8641 Fax: 608-897-8498 Email: info@appliedeco.com</p>	<p>The Sanctuary of Bull Valley Woodstock, Illinois</p> <p>Knickerbocker Properties, LLC 700 McHenry Avenue Woodstock, Illinois 60098</p>		<p>Conceptual Restoration Plan with Minimum Sodium Buffer Areas</p>		<p>Revisions:</p> <table border="1"> <thead> <tr> <th>No.</th> <th>By</th> <th>Date</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>10-25-02</td> <td>Preliminary Version</td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	No.	By	Date	Description	1		10-25-02	Preliminary Version	2				3				4				5				6			
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	<p>Drawn By: t.e.g. Checked: Approved: </p>	<p>AES Project No.: 02-525 File Name: concept_sw.dwg Date: 10-24-2002</p>	<p>Sheet Number 5 of 6</p>																														

SANCTUARY OF BULL VALLEY STORMWATER MANAGEMENT CONVEYANCE SWALE TYPICAL CROSS SECTIONS



Typical Roadside Grass Swale Section



Typical Side-yard Vegetated Swale Section

STORMWATER MANAGEMENT AREAS SEED & PLANT LISTS

Wet-Mesic Prairie (16.2 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Andropogon gerardi</i>	Big bluestem grass	40.00
<i>Elymus virginicus</i>	Virginia wild rye	32.00
<i>Panicum virgatum</i>	Switch grass	16.00
<i>Sorghastrum nutans</i>	Indian grass	16.00
Total grasses, sedges, etc. (lbs./ac.)		6.50
Forbs		
<i>Actinomeris alternifolia</i>	Wingstem	1.60
<i>Aster novae-angliae</i>	New England aster	1.92
<i>Aster pilosus</i>	Frost aster	1.60
<i>Aster puniceus</i>	Swamp aster	0.96
<i>Coreopsis tripteris</i>	Tall coreopsis	4.00
<i>Desmodium canadense</i>	Showy tick trefoil	1.92
<i>Eupatorium maculatum</i>	Joe pye weed	3.20
<i>Eupatorium perfoliatum</i>	Common boneset	3.20
<i>Helenium autumnale</i>	Sneezeweed	0.96
<i>Helianthus grosseserratus</i>	Sawtooth sunflower	0.96
<i>Lycopus americanus</i>	Water horehound	0.32
<i>Monarda fistulosa</i>	Wild bergamot	1.92
<i>Pycnanthemum virginianum</i>	Common mountain mint	0.16
<i>Ratibida pinnata</i>	Yellow coneflower	5.44
<i>Rudbeckia hirta</i>	Black-eyed susan	4.00
<i>Siphium perfoliatum</i>	Cup plant	0.96
<i>Solidago gigantea</i>	Late goldenrod	0.96
<i>Solidago rigida</i>	Stiff goldenrod	1.92
<i>Tradescantia ohioensis</i>	Common spiderwort	0.48
<i>Zizia aurea</i>	Golden alexanders	0.96
Total forbs (lbs./ac.)		2.34
Cover Crop		
<i>Secale Cereale</i>	Wintercereal rye	640.00
Total (lbs./ac.)		40
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Plants (8 Ac.)		
<i>Aster novae-angliae</i>	New England aster	240
<i>Coreopsis tripteris</i>	Tall coreopsis	240
<i>Eupatorium maculatum</i>	Spotted Joe Pye weed	240
<i>Pycnanthemum virginianum</i>	Common mountain mint	240
<i>Tradescantia ohioensis</i>	Common spiderwort	240
<i>Zizia aurea</i>	Golden alexander	240
Total plants/ac.		1440

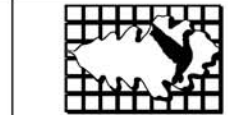
NOTE: NOT ALL THE WET MESIC PRAIRIE RESTORATION AREA WILL BE USED FOR STORMWATER MANAGEMENT.

Side Yard Vegetated Swale (2.0 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Andropogon gerardi</i>	Big bluestem	48.00
<i>Bouteloua curtipendula</i>	Side-oats grama	16.00
<i>Elymus canadensis</i>	Canada wild rye	32.00
<i>Carex scoparia</i>	Pointed broom sedge	32.00
<i>Juncus dudleyi</i>	Dudley's rush	1.00
<i>Juncus torreyi</i>	Torrey's rush	0.20
<i>Scirpus atrovirens</i>	Dark green rush	2.00
<i>Elymus virginicus</i>	Virginia wild rye	2.00
<i>Panicum virgatum</i>	Switch grass	8.00
<i>Schizachyrium scoparium</i>	Little bluestem	16.00
<i>Sorghastrum nutans</i>	Indian grass	48.00
Total grasses, sedges, etc. (lbs./ac.)		12.83
Forbs		
<i>Aster laevis</i>	Smooth blue aster	2.00
<i>Aster simplex</i>	Panicled aster	1.00
<i>Aster novae-angliae</i>	New England aster	2.00
<i>Eupatorium perfoliatum</i>	Common boneset	2.00
<i>Helenium autumnale</i>	Sneezeweed	2.00
<i>Helianthus grosseserratus</i>	Sawtooth sunflower	1.00
<i>Solidago gigantea</i>	Late goldenrod	2.00
<i>Verbena hastata</i>	Blue vervain	2.00
<i>Bidens cernua</i>	Nodding bur marigold	1.00
<i>Coreopsis tripteris</i>	Tall coreopsis	2.00
<i>Monarda fistulosa</i>	Wild bergamot	2.00
<i>Petalostemum purpurea</i>	Purple prairie clover	2.00
<i>Pycnanthemum virginianum</i>	Common mountain mint	1.00
<i>Ratibida pinnata</i>	Yellow coneflower	16.00
<i>Rudbeckia hirta</i>	Black-eyed Susan	4.00
<i>Siphium acutatum</i>	Compass plant	3.00
<i>Siphium serebinthaceum</i>	Prairie dock	3.00
<i>Solidago rigida</i>	Stiff goldenrod	2.00
<i>Tradescantia ohioensis</i>	Common spiderwort	2.00
<i>Vernonia fasciculata</i>	Common ironweed	1.00
Total forbs (lbs./ac.)		3.31
SCIENTIFIC NAME	COMMON NAME	plugs/ac.
Plants (2.0 Ac.)		
<i>Spartina pectinata</i>	Prairie cord grass	1000
Total plants/ac.		1000

NOTE: THE RESTORATION PLAN FOR EACH PLANTING ZONE DETAILING THE OBJECTIVE, STRATEGY, AND TASKS IS FOUND IN THE SANCTUARY OF BULL VALLEY ECOLOGICAL ASSESSMENT AND RESTORATION PLAN.

Wet Prairie Biofilter (0.8 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Carex scoparia</i>	Pointed broom sedge	32.00
<i>Carex vulpinoidea</i>	Fox sedge	4.00
<i>Eleocharis obtusa</i>	Blunt spike rush	2.00
<i>Elymus canadensis</i>	Canada wild rye	32.00
<i>Elymus virginicus</i>	Virginia wild rye	4.00
<i>Leersia oryzoides</i>	Rice cut grass	4.00
<i>Panicum virgatum</i>	Switch grass	6.00
<i>Scirpus atrovirens</i>	Dark green bulrush	2.00
Total grasses, sedges, etc. (lbs./ac.)		5.38
Forbs		
<i>Alisma subcordatum</i>	Common water plantain	1.00
<i>Asclepias incarnata</i>	Swamp milkweed	1.00
<i>Aster novae-angliae</i>	New England aster	2.00
<i>Aster simplex</i>	Panicled aster	1.00
<i>Bidens cernua</i>	Nodding beggars ticks	4.00
<i>Eupatorium perfoliatum</i>	Common boneset	2.00
<i>Helenium autumnale</i>	Common sneezeweed	2.00
<i>Helianthus grosseserratus</i>	Sawtooth sunflower	1.00
<i>Solidago gigantea</i>	Late goldenrod	1.00
<i>Verbena hastata</i>	Blue vervain	2.00
<i>Vernonia fasciculata</i>	Common iron weed	1.00
<i>Zizia aurea</i>	Golden Alexander	1.00
Total forbs (lbs./ac.)		1.19
Cover Crop		
<i>Agrostis alba</i>	Red top	32.00
<i>Lolium multiflorum</i>	Annual rye	640.00
Total (lbs./ac.)		42.00
SCIENTIFIC NAME	COMMON NAME	plugs/ac.
Plants (0.8 Ac.)		
<i>Alisma subcordatum</i>	Common water plantain	240
<i>Asclepias incarnata</i>	Swamp milkweed	240
<i>Aster novae-angliae</i>	New England aster	240
<i>Eleocharis acicularis</i>	Needle spike rush	240
<i>Eupatorium maculatum</i>	Joe Pye weed	240
<i>Helenium autumnale</i>	Sneezeweed	240
<i>Spartina pectinata</i>	Prairie cord grass	240
<i>Vernonia fasciculata</i>	Common ironweed	240
<i>Zizia aurea</i>	Golden alexander	240
Total plants/ac.		2,160

Roadside Grass Swale (6.0 Ac.)		
SCIENTIFIC NAME	COMMON NAME	oz./ac.
Grasses		
<i>Agrostis alba</i>	Red top	32.00
<i>Panicum virgatum</i>	Switch grass	32.00
<i>Lolium perenne</i>	Perennial rye grass	640.00
<i>Lolium multiflorum</i>	Annual rye grass	640.00
Total grasses (lbs./ac.)		84.00



Applied Ecological Services, Inc.
17921 Smith Road, P.O. Box 256
Brookfield, Wisconsin 53020
Phone: 608-897-8641 Fax: 608-897-8466
Email: info@appliedeco.com

Stormwater Management Area Details & Planting Lists
 Drawn By: t.e.g. AES Project No.: 02-525
 Checked: File Name: stormwater2.dwg
 Approved: Date: 12-13-2002

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 700 McHenry Avenue
 Woodstock, Illinois 60098

Revisions:			
No.	By	Date	Description
1		01-03	Draft
2		05-21-03	Final
3			
4			
5			

Coordinate System
System:
Zone:
Datum:
Units:

Sheet Number
6 of 6

