

Planting # 116
2015 Planting History
Blue Stem Bottoms Wetland Planting
Prepared by Miko Jimenez and Jake Henry and Cody Considine
Maps by Cody

~10 Acres Total – Wetland Scrapes

Site Information

Location:

General location – located north of AOP site, south of Headquarters

GPS: 41.531183°N 89.294224°W Elevation: 716'-720'

County: Lee

Soil Types

102A La Hogue loam, 0-2 percent slopes. Somewhat poorly drained.

125A Selma loam, 0-2 percent slopes. Poorly drained.

Topography

The area was recently scraped to create berms. The area was separated into two separate wetlands. One was ~7 acres and one was ~3 acres. The berms connect the hills on the north with the south.

Agricultural History

The planting site was planted to a low diversity prairie planting in 1990. Bill and Cody determined to redo the planting based on low species diversity and high exotic weed populations. Blue Stem Bottoms was planted in corn 2013 and 2014. It was left unplanted in 2015. Bill and Cody mowed and sprayed milestone across the planting to control invasive legumes in August of 2015. Many prairie plants have sustained the two years of row crops and are present throughout the planting. Our plan is to continue to spray the area with milestone to eliminate invasive legumes. Once the weeds are gone we will plant the full diversity.

Site Preparations

Vincent Earthmoving under the direction of Chris Haring (Army Corps of Engineers) and with agreement from Bill and Cody came up with a plan to construct two additional berms to back up water. Elevations were taken across the entire area to determine where best to scrape and make the subtle berms. Two water control structures were installed. The water control structure for the east berm is located on the north section of the berm near the original stream/ditch. The other water control structure is located on the south section of the middle berm. The scraping was done by a Case 500 quadtrac pulling a belly pan scraper. Scraping took about 6 days to complete. We traded a couple wagons of combine seed with Byron Forest Preserve to use their dozer and operator. Don smoothed out the scraper ruts. We disked everything to make it even more smooth.

Planting the seed

Mikko Jimenez and Jake Henry planted the wetland as well as the berms around them using the gravity box seeders. Both seeders were opened all the way.

Weather: We started planting on Tuesday, October 13 and finished on Wednesday, October 14. The high temp for the first day was 64 degrees F, with an average wind speed of 13 mph and no precipitation. The high temp for the second day was 54 degrees F, with an average wind speed of 2 mph and no precipitation.

Wetlands – *Seed was collected in 2014 and planted in October 2015.

	Wet mix weight (lbs)	Wet mix lbs/acre	Mesic mix weight (lbs)	Mesic mix lbs/acre	Oat weight (lbs)	Oat lbs/acre	Total weight	Total lbs/acre
7-acre Middle Wetland	180.75	25.80	277.30	39.60	192	27.40	650.05	92.86
3-acre East Wetland	88.00	29.30	109.50	36.50	144	48.00	341.50	113.83

We used a combination of 2 seed mixes and store-bought oats to plant the wetlands. Seeds were spread by two separate seeders, one of which was pulled by the Kubota UTV and the other by a truck. The Kubota UTV generally covered more muddy areas towards the middle of the wetland whereas the truck focused on planting the perimeter of the wetland. Areas that were inaccessible by vehicle were seeded by hand, on foot. Only the areas that were scraped were planted. Areas not scraped will be planted with a combine mix and annually sprayed with milestone until the weed seed bank is exhausted.

On the first day we did 2 sweeps on the 3-acre wetland and 2 sweeps on the 7-acre wetland. On the second day we did one final sweep on the 7-acre wetland.

Berms

	Oat weight (lbs)	Oat lbs/acre
East Berm	144	
West Berm	96	

We used only store-bought oats to plant the berms. Seeds were spread by two separate seeders, one of which was pulled by the Kubota UTV and the other by a truck. The Kubota UTV planted the eastern berm and the truck planted the western berm.

Both berms were planted after the wetland planting was completed on the second day.

Mix Information

Species Richness

Wet: 60 species

Mesic: 110 species

Total Species for Blue Stem Bottoms Wetlands: 133

Mix Composition

SCIENTIFIC NAME	COMMON NAME	Mesic - 22.9 ac lbs/acre	Wet - 12.5 ac lbs/acre
<i>Acorus Calamus</i>	Sweet Flag		
<i>Actinomeris (Verbesina) alternifolia</i>	Wingstem	0.000	0.088
<i>Agastache scrophulariaefolia</i>	Purple Giant Hyssop	0.000	0.000
<i>Agrimonia parviflora</i>	Swamp Agrimony	0.146	0.560
<i>Agalinis purpurea</i>	Purple false foxglove	0.009	0.040
<i>Agalinis tenuifolia</i>	Slender False foxglove	0.000	0.340
<i>Agrostis hymenalis</i>	Tickle Grass	0.000	0.000
<i>Alisma subcordatum</i> (<i>Plantagoaquatica amer.</i>)	Common Water Plantain	0.000	0.032
<i>Allium cernuum</i>	Nodding Wild Onion	0.522	0.000
<i>Amphicarpa bracteata comesa</i>	Lowland hog peanut	0.000	0.000
<i>Amelanchier humilis</i>	Serviceberry	0.000	0.000
<i>Amelanchier leavis</i>	Allegheny Shadblow	0.000	0.000
<i>Amorpha canescens</i>	Leadplant	1.310	0.000
<i>Amorpha fruticosa</i>	Indigo Bush	0.000	0.000
<i>Andropogon gerardii</i>	Big Bluestem; Turkeyfoot	0.000	0.000
<i>Schizachyrium scoparium</i>	Little Bluestem	0.000	0.000
<i>Angelica grandifolia</i>	Great Angelica	0.000	0.000
<i>Anemone canadensis</i>	Meadow Anemone	0.022	0.008
<i>Anemone caroliniana</i>	Caroline Anemone	0.000	0.000
<i>Anemone cylindrica</i>	Thimbleweed	0.000	0.000
<i>Anemone patens (Pulsatilla p.)</i>	Pasque Flower	0.000	0.000
<i>Anemone quinquefolia</i>	Wood Anemone	0.000	0.000
<i>Anemone virginiana</i>	Tall Thimbleweed	0.000	0.000
<i>Angelica atropurpurea</i>	Alexander's Angelica; Great Angelica	0.000	0.000
<i>Antennaria neglecta</i>	Field Cat's Foot	0.000	0.000
<i>Antennaria plantaginifolia</i>	Pussy Toes (Everlasting)	0.000	0.000

<i>Apocynum androsaemifolium</i>	Spreading Dogbane	0.000	0.000
<i>Apocynum cannabinum</i> (X medium)	Dogbane (Indian Hemp)	0.087	0.000
<i>Apocynum sibiricum</i>	Prairie Indian Hemp	0.000	0.000
<i>Aquilegia canadensis</i>	Wild Columbine	0.000	0.000
<i>Arenaria (Minuartia) stricta</i>	Stiff Sandwort	0.000	0.000
<i>Arenaria (Moehringia) lateriflora</i>	Wood Sandwort	0.000	0.000
<i>Arisaema dracontium</i>	Green dragon	0.000	0.000
<i>Arisaema triphyllum</i> (atrorubens)	Jack-in-the-Pulpit	0.000	0.000
<i>Aristida longiseta</i>	3 awn grass	0.000	0.000
<i>Aristida purpurascens</i>	Arrow Feather	0.000	0.000
<i>Aronia (Pyrus) prunifolia</i> (melanocarpa)	Black Chokeberry	0.000	0.000
<i>Artemisia caudata</i> (campestris)	Beach Wormwood	0.487	0.000
<i>Asclepias amplexicaulis</i>	Sand Milkweed	0.000	0.000
<i>Asclepias hirtella</i>	Hairy / tall Green Milkweed	0.000	0.000
<i>Asclepias incarnata</i>	Swamp Milkweed	0.000	0.076
<i>Asclepias lanuginosa</i> **	Woolly Milkweed	0.000	0.000
<i>Asclepias purpurascens</i>	Purple Milkweed	0.000	0.000
<i>Asclepias syriaca</i>	Common Milkweed	0.027	0.000
<i>Asclepias tuberosa interior</i>	Butterfly Weed	0.000	0.000
<i>Asclepias verticillata</i>	Whorled Milkweed	1.150	0.000
<i>Asclepias hirtella</i>		0.000	0.000
<i>Asclepias sullivantii</i>	Prairie Milkweed	0.000	0.000
<i>Asclepias viridiflora</i>	Short Green Milkweed	0.000	0.000
<i>Aster azureus</i> (oolentangiensis)	Sky-blue Aster	0.044	0.000
<i>Aster ericoides</i> (prostratus)	Heath Aster	0.131	0.000
<i>Aster furcatus</i> ***	Forked Aster	0.000	0.000
<i>Aster laevis</i>	Smooth (Blue) Aster	1.469	0.000
<i>Aster lateriflorus</i>	Calico (Starved) Aster	0.000	0.000
<i>Aster linariifolius</i>	Stiff Aster (Flax-Leaved)	0.000	0.000
<i>Aster novae-angliae</i>	New England Aster	0.000	0.000
<i>Aster oblongifolius</i>	Aromatic Aster	0.000	0.000
<i>Aster ontarionis</i> (missouriensis)	Ontario Aster	0.000	0.000
<i>Aster pilosus</i>	Hairy Aster	0.000	0.000
<i>Aster praealtus</i>	Willow Aster	0.000	0.000
<i>Aster ptarmicoides</i>	White Aster (Stiff Aster)	0.000	0.000
<i>Aster puniceus</i>	Swamp (Purple-stemmed) Aster	0.000	0.000
<i>Aster puniceus firmus</i> (?)	Shining Aster	0.000	0.000
<i>Aster sagittifolius drummondii</i>	Drummond's Aster	0.000	0.000

<i>Aster sericeus</i>	Silky Aster	0.105	0.000
<i>Aster shortii</i>	Short's Aster	0.000	0.000
<i>Aster umbellatus</i>	Flat-topped Aster	0.000	0.144
<i>Astragalus canadensis</i>	Canadian Milk Vetch	0.000	0.000
<i>Athyrium filix-femina michauxii</i> (angustum)	Lady Fern	0.000	0.000
<i>Aureolaria (Gerardia) grandiflora</i> pulchra	Yellow False Foxglove	0.000	0.000
<i>Aureolaria (Gerardia) pedicularia</i> ambigens	Clammy False Foxglove	0.000	0.000
<i>Baptisia leucantha</i>	White Wild Indigo	3.799	0.000
<i>Baptisia leucophaea</i>	Cream Wild Indigo	0.437	0.000
<i>Bidens comosa (tripartia)</i>	Swamp Tickseed	0.000	0.056
<i>Boltonia latisquama ** (asteroides)</i>	False Aster	0.000	0.944
<i>Botrychium virginianum</i>	Rattlesnake Fern	0.000	0.000
<i>Bouteloua curtipendula</i>	Side-Oats Grama	0.000	0.000
<i>Bouteloua hirsuta</i>	Hairy Grama	0.000	0.000
<i>Brachyelytrum erectum</i>	long awned wood grass	0.000	0.000
<i>Bromus kalmii</i>	Prairie brome	0.000	0.000
<i>Cacalia atriplicifolia</i>	Pale Indian Plantain	0.441	0.000
<i>Cacalia plantaginea (tuberosa)</i>	Indian Plantain	0.011	0.008
<i>Cacalia suaveolens</i>	Sweet-scented Indian Plantain	0.000	0.332
<i>Calamagrostis canadensis</i>	Blue Joint Grass	0.000	0.000
<i>Callirhoe triangulata</i>	Clustered Poppy Mallow	0.000	0.000
<i>Caltha palustris</i>	Marsh Marigold	0.000	0.000
<i>Carex annectens xanthocarpa</i>	Small Yellow Fox Sedge	0.000	0.000
<i>Carex bicknellii</i>	Copper-shouldered oval Sedge	0.286	0.000
<i>Carex blanda</i>	Common wood sedge	0.000	0.000
<i>Carex hystencinia</i>		0.000	0.000
<i>Carex haydenii (stricta)</i>	Long-scaled Tussock sedge	0.000	0.000
<i>Carex medeii</i>	Meads sedge	0.000	0.000
<i>Carex muhlenbergii (enervis)</i>	Sand Bracted Sedge (Muhlenberg's)	0.046	0.000
<i>Carex normalis</i>	Spreading Oval sedge	0.000	0.000
<i>Carex pellita (lanuginosa)</i>	Broad-leaved Woolly Sedge	0.000	0.000
<i>Carex pennsylvanica</i>	Common Oak (Penn) Sedge	0.000	0.000
<i>Carex richardsonii</i>	Prairie Hummock sedge	0.000	0.000
<i>Carex Springelii</i>	Long-beaked sedge	0.000	0.000
<i>Cares spp.</i>		0.000	0.000
<i>Carex stipata</i>	Common Fox Sedge	0.000	0.000
<i>Carya ovata</i>	shag bark hickory	0.000	0.000
<i>Carex scopana</i>		0.000	0.000

Carex stipata		0.000	0.000
Carex stricta	Tussock Sedge	0.000	0.000
Carex vulpoides		0.000	0.000
Cassia fasciculata	Partridge Pea	0.306	0.000
Cassia hebecarpa	Wild Senna	0.000	0.280
Cassia nictitans	Wild sensitive plant	0.000	0.000
Castilleja sessiliflora **	Downy Yellow Painted Cup	0.044	0.000
Ceanothus americanus	New Jersey Tea	0.000	0.000
Cephalanthus occidentalis	Buttonbush	0.000	0.672
Chelone glabra	Turtlehead	0.002	0.024
Chrysopsis camporum (Heterotheca)	Golden Prairie Aster	0.044	0.000
Cinna arundinacea	Common Wood Reed	0.000	0.000
Circaea lutetiana canadensis	Enchanter's Nightshade	0.000	0.000
Cirsium discolor	Pasture Thistle	0.000	0.000
Cirsium hillii *** (pumilum)	Hill's Thistle	0.000	0.000
Cirsium muticum	Swamp Thistle	0.000	0.008
Claytonia virginica	Spring Beauty	0.000	0.000
Clematis virginiana	Virgin's Bower	0.000	0.000
Comandra umbellata (richardsiana)	False Toadflax	0.000	0.000
Convolvulus (Calystegia) sepium	Hedge Bindweed	0.000	0.000
Coreopsis lanceolata	Sand Coreopsis	0.000	0.000
Coreopsis palmata	Prairie Coreopsis	0.199	0.000
Coreopsis tripteris	Tall Coreopsis	1.144	0.400
Corylus americana	American Hazelnut	0.000	0.000
Cuscuta campestris	field dodder	0.000	0.000
Crataegus sp	Hawthorn	0.000	0.000
Cyperus filiculmis	Slender Sand Sedge	0.000	0.000
Danthonia spicata	Poverty Oat Grass	0.000	0.000
Desmanthus illinoensis	Ill. Bundle Flower	0.000	0.000
Desmodium canadense	Showy Tick Trefoil	0.000	0.000
Desmodium glutinosum	Pointed Tick Trefoil	0.000	0.000
Desmodium illinoense	Ill. Tick Trefoil	0.000	0.000
Dicentra cucullaria	Dutchman's Breeches	0.000	0.000
Diarrhena americana	beak grass	0.000	0.000
Dodecatheon meadia	Shooting Star	0.000	0.000
Echinacea pallida	Pale Purple Coneflower	2.620	0.000
Echinocystis lobata	Wild Cucumber	0.000	0.000
Elymus canadensis	Prairie Wild Rye	1.048	0.000
Elymus riparius	Riverbank Wild Rye	0.000	0.000

<i>Elymus villosus</i>	Silky Wild Rye	0.000	0.000
<i>Elymus virginicus</i>	Va. Wild Rye	0.000	0.000
<i>Epilobium coloratum</i>	Cinnamon Willow Herb	0.000	0.036
<i>Eragrostis spectabilis</i>	Purple Love Grass	0.000	0.000
<i>Erechtites hieracifolia</i>	Fireweed	0.028	0.050
<i>Erigeron annuus</i>	Annual Fleabane	0.000	0.000
<i>Erigeron philadelphicus</i>	Marsh Fleabane	0.000	0.000
<i>Erigeron strigosus</i>	Daisy Fleabane	0.218	0.000
<i>Eryngium yuccifolium</i>	Rattlesnake Master	3.930	1.920
<i>Eupatorium altissimum</i>	Tall Boneset	0.190	0.080
<i>Eupatorium maculatum</i>	Spotted Joe Pye Weed	0.000	1.068
<i>Eupatorium perfoliatum</i>	Boneset	0.437	0.384
<i>Eupatorium purpureum</i>	Purple Joe-Pye Weed	0.000	0.080
<i>Eupatorium rugosum</i>	White Snakeroot	0.000	0.000
<i>Eupatorium serotinum</i>	Late Boneset	0.000	0.000
<i>Euphorbia corollata</i>	Flowering Spurge	0.105	0.000
<i>Festuca obtusa (subverticillata)</i>	Nodding Fescue	0.000	0.000
<i>Filipendula rubra **</i>	Queen-of-the-Prairie	0.000	0.000
<i>Galium borale</i>	Northern Bedstraw	0.105	0.192
<i>Gaura biennis pitcheri (longiflora)</i>	Common Gaura	0.100	0.000
<i>Gentiana (alba) flavida</i>	Cream Gentian	0.961	0.416
<i>Gentiana (Gentianopsis) crinita</i>	Fringed Gentian	0.022	0.140
<i>Gentiana andrewsii</i>	Bottle (or Closed) Gentian	0.044	0.280
<i>Gentiana purberulenta</i>	Prairie Gentian	0.007	0.000
<i>Gentiana saponaria</i>	Soapwort Gentian	0.000	0.000
<i>Geranium maculatum</i>	Wild Geranium	0.000	0.000
<i>Geum aleppicum strictum</i>	Yellow Avens	0.000	0.000
<i>Geum canadense</i>	White Avens; Wood Avens	0.000	0.000
<i>Geum triflorum</i>	Prairie Smoke (Long-plumed Purple Avens)	0.000	0.000
<i>Gnaphalium obtusifolium</i>	Sweet Everlasting (Old-Field Balsam)	0.000	0.000
<i>Habenaria leucophea</i>	E. Prairie Fringed Orchid	0.000	0.000
<i>Hedoma hispida</i>	Rough Pennyroyal	0.000	0.000
<i>Helenium autumnale</i>	Sneezeweed	0.087	0.876
<i>Helianthemum bicknellii</i>	Rock Rose	0.000	0.000
<i>Helianthemum canadense</i>	Common Rockrose (Frostweed)	0.000	0.000
<i>Helianthus divaricatus</i>	Woodland Sunflower	0.000	0.132
<i>Helianthus grosseserratus</i>	Sawtooth Sunflower	0.031	0.000
<i>Helianthus hirsutus</i>	Hispid sunflower	0.000	0.000

<i>Helianthus mollis</i>	Hairy Sunflower	0.000	0.000
<i>Helianthus occidentalis</i>	Western Sunflower; Naked S.	0.655	0.000
<i>Helianthus rigidus</i> (laetiflorus)	Prairie Sunflower	0.022	0.000
<i>Helianthus</i> spp.	Sunflower Woods	0.000	0.000
<i>Helianthus tuberosus</i>	Jerusalem Artichoke	0.000	0.000
<i>Heliopsis helianthoides</i>	False Sunflower; " Ox-eye "	0.013	0.000
<i>Hepatica acutiloba</i>	Sharp-lobed Hepatica	0.000	0.000
<i>Heuchera richardsonii</i> grayana	Rough Heuchera; Alum root	0.000	0.000
<i>Hibiscus palustris</i>	Swamp Rose Mallow	0.000	0.000
<i>Hieracium gronovii</i>	Hairy Hawkweed	0.000	0.000
<i>Hieracium longipilum</i>	Long-Bearded Hawkweed	0.000	0.000
<i>Hieracium scabrum</i>	Rough Hawkweed	0.000	0.000
<i>Hierochloe odorata</i>	Sweet or Vanilla Grass	0.000	0.000
<i>Houstonia</i> (<i>Hedyotis</i>) <i>longifolia</i> (canadense)	Long-Leaved Bluets	0.000	0.000
<i>Humulus lupulus</i>	Common Hop	0.000	0.000
<i>Hypericum mutilum</i>	Weak St. Johnswort	0.000	0.008
<i>Hypericum majus</i>	Sand St. Johnswort	0.000	0.000
<i>Hypericum punctatum</i>	Spotted St. Johnswort	0.000	0.000
<i>Hypericum pyramidatum</i>	Great St. Johnswort	0.087	0.064
<i>Hypericum spaerocarpum</i>	Round-fruited St. Johnswort	0.000	0.000
<i>Hypoxis hirsuta</i>	Yellow Star Grass	0.000	0.000
<i>Hystrix patula</i> (<i>Elymus hystrix</i>)	Bottlebrush Grass	0.000	0.000
<i>Impatiens capensis</i> (biflora)	Spotted Touch-Me-Not (Jewelweed)	0.000	0.000
<i>Impatiens pallida</i>	Pale Touch-Me-Not (Jewelweed)	0.000	0.000
<i>Iris versicolor</i>	tall blue flag iris	0.000	0.000
<i>Iris virginica</i> shrevei	Blue Flag	0.000	0.000
<i>Juglans Cinerea</i>	butternut	0.000	0.000
<i>Isanthus</i> (<i>Trichostema</i>) <i>brachiatus</i> (m)	False Pennyroyal	0.000	0.000
<i>Juncus dudleyi</i>	Dudley's Rush	0.000	0.000
<i>Juncus greenei</i>	Greene's Rush	0.000	0.000
<i>Juncus interior</i>	Inland Rush	0.242	0.000
<i>Juncus tenuis</i>	Path Rush	0.000	0.000
<i>Juncus torreyi</i>	Torrey's Rush	0.013	0.012
<i>Koeleria cristata</i> (macrantha)	Prairie June Grass	1.310	0.000
<i>Krigia biflora</i>	Two-flowered Cynthia (False Dandelion)	0.000	0.000
<i>Krigia virginica</i>	Dwarf Dandelion	0.000	0.000
<i>Kuhnia</i> (<i>Brickellia</i>) <i>eupatoroides</i> <i>corymbulosa</i>	False Boneset	0.172	0.000

<i>Lactuca canadensis</i>	Wild Lettuce	0.000	0.000
<i>Lactuca floridana</i>	Blue Lettuce	0.000	0.000
<i>Leachea minor</i>		0.000	0.000
<i>Lechea stricta</i>	Bushy Pinweed	0.000	0.000
<i>Lechea tenuifolia</i>	Slender-Leaved Pinweed	0.000	0.000
<i>Lechea villosa (mucronata)</i>	Hairy Pinweed	0.066	0.000
<i>Leersia oryzoides</i>	Rice Cut Grass	0.000	0.000
<i>Leptoloma cognatum</i>	Fall Witch Grass	0.000	0.000
<i>Lespedeza capitata --</i>	Round-headed Bush Clover	3.550	0.000
<i>Lespedeza leptostachya ****</i>	Prairie Bush Clover	0.000	0.000
<i>Liatris aspera</i>	Rough Blazing-star (Rough Gayfeather)	1.397	0.000
<i>Liatris cylindracea</i>	Dwarf Blazingstar	0.000	0.000
<i>Liatris pycnostachya</i>	Tall Gayfeather; Prairie Blazing Star	1.727	0.660
<i>Lilium michiganense</i>	Turk's Cap lily	0.013	0.000
<i>Lilium philadelphicum andinum</i>	Prairie Lily; Wood Lily; Western Lily	0.000	0.000
<i>Linaria canadensis</i>	Blue Toadflax	0.000	0.000
<i>Linum sulcatum</i>	Groved Yellow Flax	0.000	0.000
<i>Lithospermum croceum</i>	Hairy Puccoon	0.000	0.000
<i>Lithospermum canescens</i>	Hoary Puccoon	0.000	0.000
<i>Lithospermum incisum</i>	Fringed (Narrow-leaved) Puccoon	0.004	0.000
<i>Lobelia cardinalis</i>	Cardinal Flower	0.000	0.000
<i>Lobelia inflata</i>	Indian Tobacco	0.000	0.000
<i>Lobelia siphilitica</i>	Great Lobelia	0.000	0.124
<i>Lobelia spicata</i>	Pale-spike Lobelia	0.004	0.000
<i>Lonicera prolifera</i>	Yellow Honeysuckle	0.000	0.000
<i>Ludwigia alternifolia</i>	Seed Box	0.000	0.000
<i>Lupinus perennis</i>	Wild Lupine	0.000	0.000
<i>Lycopus americanis</i>	common horehound	0.000	0.008
<i>Lysimachia ciliata</i>	Fringed Loosestrife	0.000	0.000
<i>Lysimachia lanceolata</i>	Lance-Leaved Loosestrife	0.000	0.000
<i>Lysimachia quadriflora</i>	Narrow-Leaved (Whorled) Loosestrife	0.004	0.060
<i>Lysimachia thrysiflora</i>	Tufted Loosestrife	0.000	0.000
<i>Lythrum alatum</i>	Winged Loosestrife	0.000	0.000
<i>Malus ioensis</i>	Iowa Crab	0.000	0.000
<i>Menispermum canadense</i>	Moonseed	0.000	0.000
<i>Mertensia virginica</i>	Virginia Bluebells	0.000	0.000
<i>Mimulus glabratus fremontii **</i>	Yellow Monkey Flower	0.000	0.000

Mimulus ringens	Monkey Flower	0.003	0.006
Monarda fistulosa	Wild Bergamot	0.131	0.033
Monarda punctata villicualis	Horse Mint	0.000	0.000
Napaea dioica	Glade Mallow	0.087	0.032
Oenothera biennis canescens	Common Evening Primrose	0.234	0.000
Oenothera clelandii (rhombipetala)	Sand Evening Primrose	0.000	0.000
Onoclea sensibilis	Sensitive Fern	0.000	0.000
Onosmodium hispidissimum	Marbleseed	0.009	0.000
Opuntia humifusa (compressa)	Prickly Pear Cactus	0.000	0.000
Orchis (Galearis) spectabilis	Showy Orchis	0.000	0.000
Osmorhiza claytonii	Hairy Sweet Cicely	0.000	0.000
Osmorhiza longistylis	Smooth Sweet Cicely	0.000	0.000
Osmunda claytoniana	Interrupted Fern	0.000	0.000
Oxalis stricta (dillenii)	Yellow Wood Sorrel	0.000	0.000
Oxalis violacea	Violet Wood-sorrel	0.000	0.000
Oxypolis rigidor	Cowbane	0.000	0.000
Panicum implicatum (languinosa)	Old-field Panic Grass	0.000	0.000
Panicum latifolium (bosci)	Braod-leaved Panic Grass	0.000	0.000
Panicum leibergii	Prairie Panic Grass	0.001	0.000
Panicum lindheimeri	Smooth Wolly Panic Grass	0.000	0.000
Panicum oligosanthos scribneria	Scribner's Panic Grass	0.000	0.000
Panicum perlongum	Long-stalked Panic Grass	0.000	0.000
Panicum villosissimum	White-Haired Panic Grass	0.000	0.000
Panicum virgatum	Prairie Switch Grass	0.061	0.000
Parnassia glauca	Grass of parnassus	0.000	0.000
Parthenium integrifolium	Wild Quinine (Feverfew)	0.616	0.000
Paspalum ciliatifolium muhlenbergii	Hairy Lens Grass	0.000	0.000
Pedicularis canadensis	Wood Betony	0.017	0.000
Pedicularis lanceolata	Fen (Swamp) Betony; Lousewort	0.007	0.560
Penthorum sedoides	Ditch Stone crop	0.000	0.000
Penstemon digitalis	Foxglove Beardtongue	0.262	0.000
Penstemon grandiflorus	Large Flowered Beardtongue	0.000	0.000
Penstemon hirsutus	Hairy Beard tongue	0.000	0.000
Penstemon pallidus	Pale Beard Tongue	0.000	0.000
Petalostemum (Dalea) candidum	White Prairie Clover	2.368	0.000
Petalostemum (Dalea) purpureum	Purple Prairie Clover	2.135	0.000
Phlox bifida	Sand Phlox	0.000	0.000
Phlox divaricata	Woodland Phlox (Blue Phlox)	0.000	0.000

Phlox maculata	Sweet William Phlox	0.000	0.000
Phlox pilosa	Prairie phlox	0.012	0.000
Phyrma leptostachya	Lopseed	0.000	0.000
Physocarpus opulifolius	Ninebark	0.072	0.000
Physostegia virginiana arenaria	Prairie Obedient Plant	0.000	0.000
Polemonium reptans	Jacob's Ladder	0.000	0.000
Polygala incarnata **	Pink Milkwort	0.000	0.000
Polygala polygama obtusata	Purple Milkwort	0.000	0.000
Polygala sanguinea	Field Milkwort	0.004	0.000
Polygala verticillata isocycla	Short Whorled Milkwort	0.000	0.000
Polygonatum canaliculatum (commutatum)	Smooth Solomon's Seal	0.000	0.000
Polygonum tenue	Slender Knotweed	0.000	0.000
Polypodium virginianum (vulgare)	Polypody	0.000	0.000
Polytaenia nuttallii	Prairie Parsley	0.000	0.000
Potentilla arguta	Prairie Cinquefoil	0.210	0.000
Prenanthes aspera	rough white lettuce	0.000	0.000
Prunus americana	Wild Plum	0.011	0.000
Ptelea trifoliata	Wafer Ash, Hop Tree	0.000	0.000
Pycnanthemum tenuifolium	Narrow-leaved Mountain Mint	0.000	0.000
Pycnanthemum virginianum	Mountain mint (Prairie Hyssop)	1.266	1.200
Quercus alba	White Oak	0.000	0.000
Quercus coccinea (ellipsoidalis)	Scarlet Oak	0.000	0.000
Quercus macrocarpa	Bur Oak	0.000	0.000
Quercus rubra	Red Oak	0.000	0.000
Quercus velutina	Black Oak	0.000	0.000
Ratibida pinnata	Yellow Coneflower	0.000	0.000
Rhexia virginica	Meadow Beauty	0.000	0.000
Rhus aromatica	fragrant sumac	0.000	0.000
Rhus glabra	Smooth Sumac	0.000	0.000
Rosa blanda	Early wild Rose	0.000	0.000
Rosa carolina	Pasture Rose	0.183	0.000
Rudbeckia hirta	Black-eyed Susan	0.218	0.000
Rudbeckia laciniata	Wild Golden Glow	0.000	0.000
Rudbeckia subtomentosa	Sweet Blackeyed Susan	0.262	0.080
Ruellia humilis	Wild Petunia	0.000	0.000
Rumex orbiculatus	Great Water dock	0.000	0.200
Salix humilis	Prairie Willow	0.000	0.000
Sambucus canadensis	Elderberry	0.000	0.008

<i>Saxifraga pennsylvanica</i>	Swamp Saxifrage	0.000	0.000
<i>Scirpus atrovirens</i>	Dark Green Rush	0.000	0.000
<i>Scirpus cyperinus</i>	Wool Grass	0.000	0.000
<i>Scirpus fluviatilis</i>	River Bulrush	0.000	0.000
<i>Scirpus validus creber</i> (<i>tabernaemontanii</i>)	Great Bulrush	0.000	0.000
<i>Scrophularia lanceolata</i>	Early figwort	0.000	0.000
<i>Scrophularia marilandica</i>	Late Figwort	0.000	0.000
<i>Scutellaria lateriflora</i>	Mad-dog Skullcap	0.000	0.000
<i>Scutellaria ovata versicolor</i>	Heart-leaved Skullcap	0.000	0.000
<i>Scutellaria parvula leonardi</i>	Small Skullcap	0.000	0.000
<i>Selaginella rupestris</i>	Sand Club moss	0.000	0.000
<i>Senecio pauperculus</i>	Balsam Ragwort	0.131	0.044
<i>Senecio plattensis</i>	Prairie Ragwort	0.000	0.000
<i>Sicyos angulatus</i>	Bur Cucumber	0.000	0.000
<i>Silene antirrhina</i>	Sleepy Catchfly	0.000	0.000
<i>Silene stellata</i>	Starry Campion	0.007	0.000
<i>Silphium integrifolium</i>	Rosinweed	2.031	0.000
<i>Silphium integrifolium deamii</i>	Rosinweed	0.000	0.000
<i>Silphium laciniatum</i>	Compass plant	1.083	0.000
<i>Silphium perfoliatum</i>	Cup-plant	0.238	0.436
<i>Silphium terebinthaceum</i>	Prairie Dock	0.448	0.000
<i>Sisyrinchium albidum</i>	Common Blue-eyed Grass	0.017	0.000
<i>Sisyrinchium angustifolium</i>	Narrow-leaved Blue-eyed Grass	0.000	0.000
<i>Smilacina stellata</i>	Starry False Solomons plume	0.000	0.000
<i>Smilacina racemosa</i>	Solomons Plume	0.000	0.000
<i>Solidago (Euthamia) graminifolia</i>	Viscid Bushy Goldenrod	0.000	0.000
<i>Solidago (Euthamia) graminifolia</i> <i>nuttallii</i>	Grass-leaved Goldenrod	0.000	1.060
<i>Solidago (Euthamia)</i> <i>gymnospermoides</i>	Viscid Grass-leaved Goldenrod	0.502	0.000
<i>Solidago missouriensis fasciculata</i>	Missouri Goldenrod	0.537	0.000
<i>Solidago nemoralis</i>	Gray Goldenrod; Oldfield	0.814	0.000
<i>Solidago ohioensis</i>	Ohio Goldenrod	0.000	0.000
<i>Solidago patula</i>	Swamp Goldenrod	0.000	0.336
<i>Solidago riddellii</i>	Riddell's goldenrod	0.004	0.072
<i>Solidago rigida</i>	Stiff Goldenrod	0.218	0.164
<i>Solidago speciosa</i>	Showy Goldenrod	0.299	0.000
<i>Solidago ulmifolia</i>	Elm-leaved Goldenrod	0.000	0.000
<i>Sorghastrum nutans</i>	Indian Grass	0.000	0.000
<i>Spartina pectinata</i>	Prairie Cord Grass	0.175	0.800

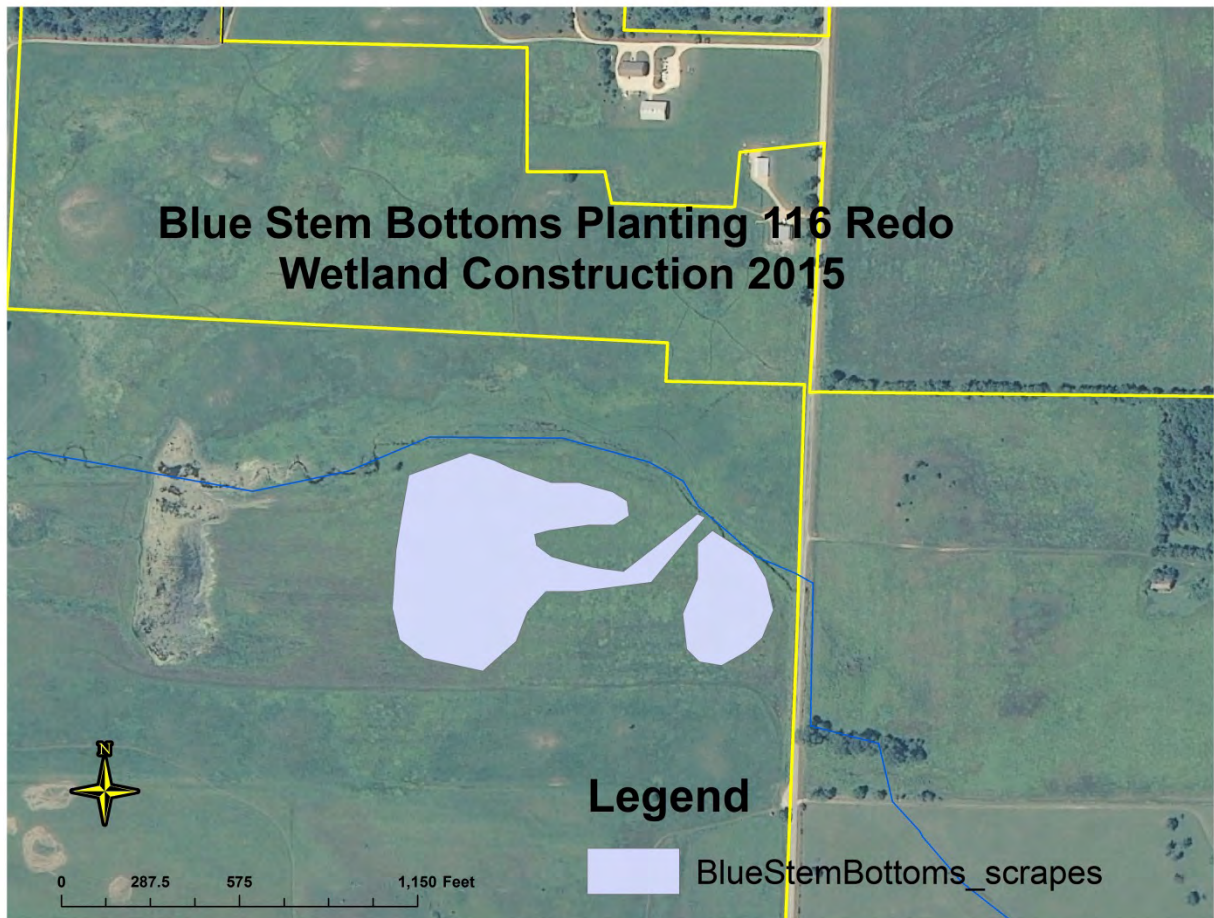
<i>Specularia (Triodanis) perfoliata</i>	Venus' Looking Glass	0.000	0.000
<i>Spiraea alba</i>	Meadowsweet	0.020	0.192
<i>Spiranthes cernua</i>	Nodding Ladies Tresses	0.000	0.000
<i>Spiranthes lacera</i>	Slender Ladies Tresses	0.000	0.000
<i>Sporobolus cryptandrus</i>	Sand Dropseed	0.000	0.000
<i>Sporobolus heterolepis</i>	Prairie Dropseed	0.000	0.000
<i>Stachys palustris homotricha</i>	Woundwort	0.002	0.032
<i>Stipa spartea</i>	Porcupine Grass	0.000	0.000
<i>Symplocarpus foetidus</i>	Skunk Cabbage	0.000	0.000
<i>Talinum rugospermum</i> ***	Sand Fameflower	0.000	0.000
<i>Tephrosia virginiana</i>	Goat's Rue	0.000	0.000
<i>Teucrium canadense</i>	American Germander (Wood Sage)	0.000	0.000
<i>Teucrium occidentale</i>	Gray Germander	0.000	0.000
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	0.000	0.000
<i>Tradescantia ohiensis</i>	Ohio Spiderwort	0.838	0.000
<i>Trillium recurvatum</i>	Red (Prairie) Trillium	0.000	0.000
<i>Triosteum aurantiacum</i>	Early Horse Gentian (Orange-fruited)	0.000	0.000
<i>Triosteum perfoliatum</i>	Horse Gentian (Feverwort)(Tinker's Weed)	0.079	0.000
<i>Verbena hastata</i>	Blue Vervain	0.655	0.428
<i>Verbena stricta</i>	Hoary Vervain	0.203	0.000
<i>Verbena urticifolia</i>	Hairy White Vervain	0.031	0.000
<i>Vernonia fasciculata</i>	Common Ironweed	3.600	0.000
<i>Veronicastrum virginicum</i>	Culver's Root	0.568	0.920
<i>Viburnum lentago</i>	Nannyberry Viburnum	0.000	0.000
<i>Viburnum prunifolium</i>	Black Haw	0.000	0.000
<i>Viola fimbriatula</i>	Sand Violet	0.000	0.000
<i>Viola lanceolata</i>	Lance-leaved Violet	0.000	0.000
<i>Viola pedata lineariloba</i>	Birdsfoot Violet	0.000	0.000
<i>Viola pedatifida</i>	Prairie Violet	0.000	0.000
<i>Viola sagittata</i>	Arrow-leaved violet	0.000	0.000
<i>Viola sororia (pratensis) (papilionacea)</i>	Common blue Violet	0.000	0.000
<i>Viola subsinuata (triloba)</i>	Lobed Blue Violet	0.000	0.000
<i>Wulfenia bullii</i> *** (Besseyia)	Kittentails	0.000	0.000
<i>Zizia aptera</i>	Heart-leaved Meadow Parsnip	0.000	0.000
<i>Zizia aurea</i>	Golden Alexanders	1.310	1.536
	Common Water Plantain	0.000	0.000
		0.000	0.000

		0.000	0.000
ODD MIXES		0.000	0.000
mo gr grass leaved gr oldfield		0.000	0.000
TCP - Dry, dry mesic, Cor pal, Amo can, Par int, great mix		0.000	0.000
TCP - Aster mix		0.000	0.000
Wet sedges and juncus		0.000	0.000
WET MIX 2011	14 species	0.000	3.760
Wet Aster mix		0.131	0.452
Mesic mix		0.000	0.000
Savanna mix 2011 -Eup pur, Ast sho, Pre alt, Hie can, Cin arv	5 species	0.000	0.000
Bills Mesic mix		0.000	0.000
Mesic mix		0.000	0.000
dry mix		0.000	0.000
dry mesic mix		0.000	0.000
Aster mix: smooth, sky blue		0.000	0.000
solidago miss, oldfield, grassleaved		0.000	0.000
Wool grass and Bullrush		0.000	0.000
Weedy species-Rat pin, Men fit, etc		0.000	0.000
Seed stripped Little blue		0.000	0.000
Combine Little blue yellow house		8.199	0.000
Little blue mixed with thimble		1.417	0.000
little blue mixed with il ticktrefoil		0.000	0.000
Little blue with cut stems no pure seed in 2012 and 2013		0.000	0.000
Thimble weed mixed with little blue		0.000	0.000
Dropseed Garden Combine Mix		5.240	0.000
Northern Drop seed cut with stems		0.000	0.000
bushy, hairy pin weed and frost weed		0.000	0.000
sweet ever, lia asp, rose, purple love,		0.000	0.000
woodland grass mix		0.000	0.000
prairie coreopsis and w sunflower		0.000	0.000
bicnells sedge and Sally's sedgemeanow crew mistake mixed them together		0.000	0.000
tall grasses combine - big blue and indian		0.249	0.000
woodland grass mix		0.000	0.000
Ayres Hallowell mix 37 species for uplands		0.000	0.000
NUMBER OF SPECIES		110	60

Lessons Learned:

Engineer estimated project without contractor looking at project. Have contractor give work estimate. We barely made it. Total earth moving cost was 30k.

Maps: in folder

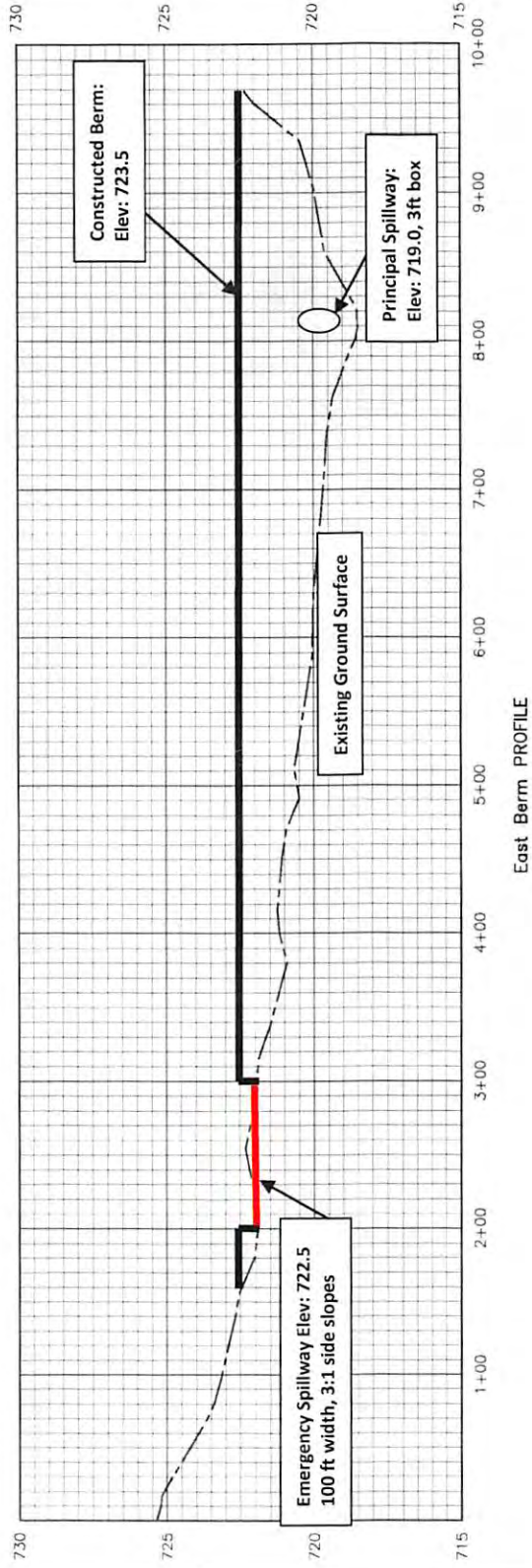




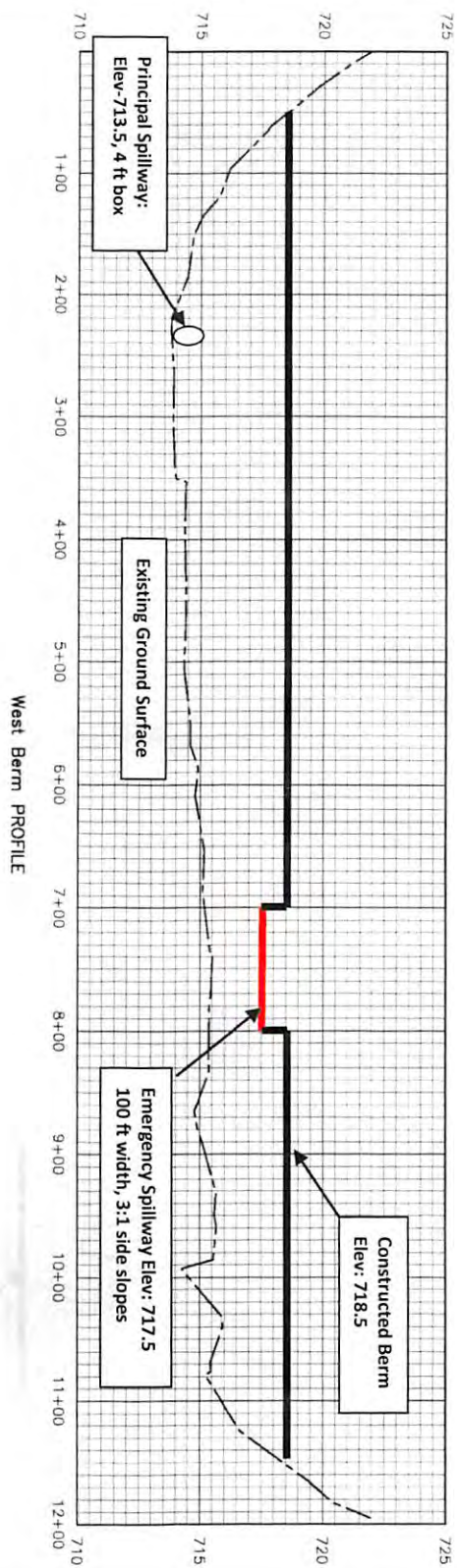




#3 Upstream Berm Construction Plans



#2 Middle Berm Construction Plans



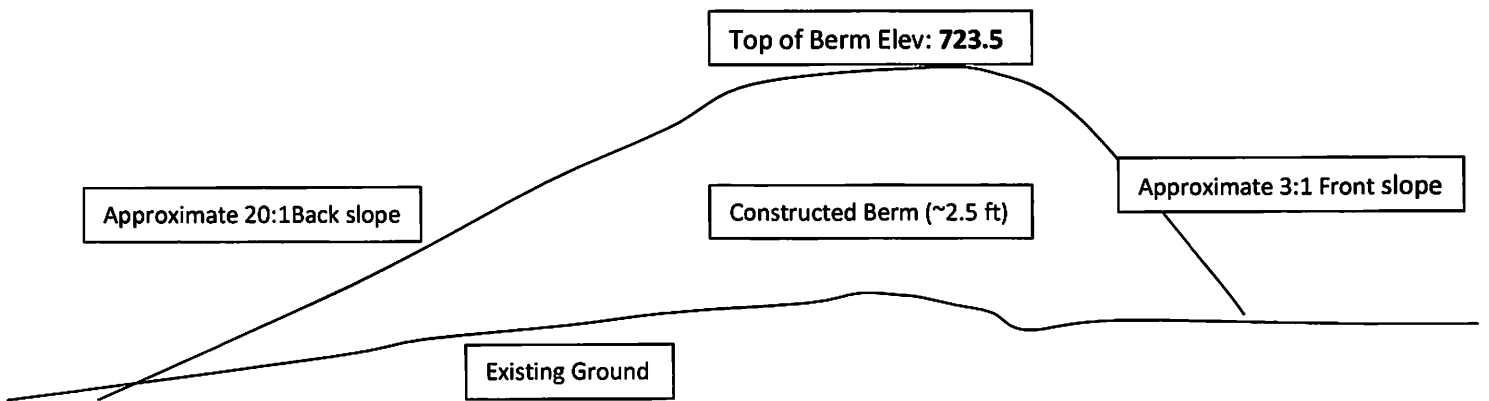
Nachusa Grasslands Profile Plot - West Berm


 United States Department of Agriculture
 Natural Resources Conservation Service
Project: Nachusa Grasslands
 Survey: 2017-2019

Ogle County, Illinois

#3-Upstream Berm :

- Average excavation depth for wetland is 2.5 ft
- add 0.4 ft to Top of Berm Elev for settlement



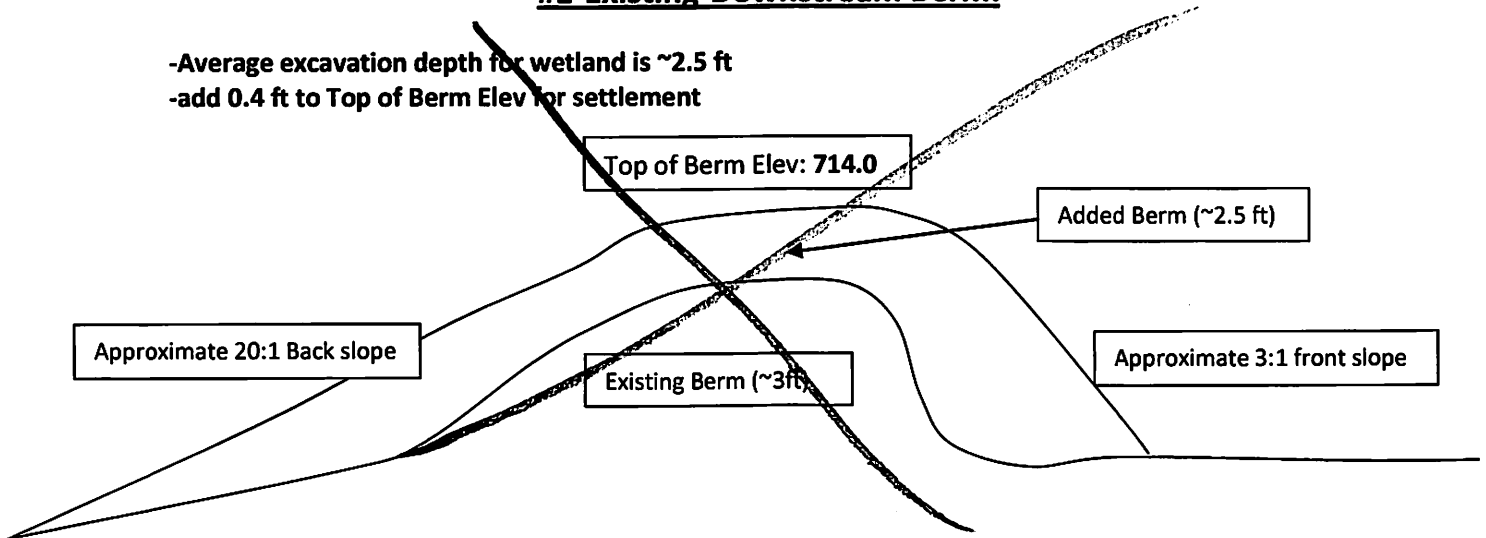
Nachusa Wetlands Project

Construction Typical Sections

Sept 24, 2015

#1-Existing-Downstream Berm:

- Average excavation depth for wetland is ~2.5 ft
- add 0.4 ft to Top of Berm Elev for settlement



#2-Middle Berm:

- Average excavation depth for wetland is ~3.0 ft
- add 0.4 ft to Top of Berm Elev for settlement

