ZONE A SEED MATERIAL COMPONENTS:

Zone A -- Wet Prairie (WP) / Stream Buffer Edge (BE)		Seeding Rate by WP / BE	
		Ounces / Acre	
Scientific Name	Common Name	WP	BE
Andropogon gerardii	Big bluestem	32	48
Anemone canadensis	Meadow anemone	2	3
Asclepias incarnata	Swamp milkweed	4	4
Aster novae-angliae	New England aster	1	2
Avena sativa	Oats (cover crop)	480	480
Bidens cernuus	Nodding beggar-ticks	2	3
Calamagrostis canadensis	Blue joint grass	4	4
Carex annectens	Yellow-fruited sedge	4	--
Carex cristatella	Crested sedge	4	--
Carex frankii	Frank's sedge	2	3
Carex vulpinoidea	Fox sedge	32	32
Cicuta maculata	Water hemlock	1	--
Echinochloa crus-galli	Barnyard grass (cover crop)	6	6
Eleocharis obtusa	Blunt spikerush	3	--
Elymus virginicus	Virginia Wild rye	10	24
Eupatorium perfoliatum	Boneset	2	2
Glyceria striata	Fowl manna grass	1	2
Helenium autumnale	Sneezeweed	1	--
Helianthus grosseserratus	Sawtooth Sunflower	3	4
Juncus torreyi	Torrey's rush	1	2
Leersia oryzoides	Rice cutgrass	2	0
Lobelia siphilitica	Great blue lobelia	1	1
Lycopus americanus	Common water horehound	1	1
Mimulus ringens	Monkey flower	1	1
Panicum virgatum	Switch grass	4	4
Rudbeckia laciniata	Wild golden glow	1	2
Scirpus atrovirens	Dark green rush	0.5	0.5
Scirpus validus	Softstem bulrush	0.5	0.5
Silphium perfoliatum	Cup plant	2	2
Solidago gigantea	Tall goldenrod	2	--
Spartina pectinata	Prairie cord grass	28	8
Teucrium canadense	Germander, Wood sage	1	2
Thalictrum dasycarpum	Purple meadow rue	2	--
Verbena hastata	Blue vervain	2	4
Veronicastrum virginiana	Culver's root	2	--
* 8 lbs. of graminoids (i.e., grasses, sedges, and bulrushes) and 2 lbs. of forbs *			

ZONE B SEED MATERIAL COMPONENTS:

MESIC PRAIRIE SPECIES LIST -- ZONE B			
Scientific Name	Common Name	Ounces / Acre	Flower Drift Species
Amorpha canescens	Lead plant	1	
Andropogon gerardii	Big bluestem grass	48	
Asclepias syriaca	Common milkweed	0.5	
Aster azureus	Sky blue aster	1	
Aster praealtus	Willow aster	1	
Avena sativa	Seed Oats (cover crop)	480	
Baptisia australis	Blue wild indigo	1	
Bouteloua curtipendula	Side oats grama	8	
Carex meadii	Mead's sedge	4	
Carex molesta	Pest sedge	4	
Coreposis palmata	Finger coreopsis	1	
Dalea purpurea	Purple prairie clover	1	
Desmodium canadense	Showy tick trefoil	1.5	X
Echinacea pallida	Pale purple coneflower	2	
Elymus canadensis	Canada wild rye	8	
Eryngium yuccifolium	Rattlesnake master	1.5	
Heliopsis helianthoides	FALSE sunflower	1	X
Lespedeza capitata	Bush clover	1.5	
Liatris pycnostachya	Prairie blazing star	1	
Monarda fistulosa	Wild bergamot	2	X
Oenothera biennis	Common evening primrose	1	X
Panicum virgatum	Switch grass	8	X
Penstemon digitalis	Smooth penstemon	0.5	
Ratibida pinnata	Yellow coneflower	3	X
Rudbeckia hirta	Black-eyed susan	3.5	X
Schizachyrium scoparium	Little bluestem grass	32	
Silphium laciniatum	Compass plant	2	
Solidago rigida	Stiff goldenrod	1	X
Solidago speciosa	Showy goldenrod	1	
Sorghastrum nutans	Indian grass	24	
Tradescantia ohiensis	Ohio spiderwort	1	
Verbena stricta	Hoary vervain	1	
Zizia aptera	Heart-leaved Alexander	1	
* 8 lbs. of grasses and sedges; 2 lbs. of forbs*			

ZONE C SEED MATERIAL COMPONENTS:

Scientific Name	Common Name
Bouteloua dactyloides	buffalograss
Bouteloua gracilis	blue grama

SEEDING NOTES:

1. VEGETATION SELECTED FOR THE PROJECT CONSISTS OF PLANTS AT MATURITY THAT CAN GROW OVER 12 INCHES IN HEIGHT. VEGETATION IS TO BE MAINTAINED FOR THE RIPARIAN CORRIDOR TO PROVIDE BENEFITS THAT INCLUDE WILDLIFE HABITAT, RIPARIAN CORRIDOR CONSERVATION, PUBILC OUTREACH AND EDUCATION, STORMWATER TREATMENT FOR WATER QUALITY BENEFITS, AND THE DEMONSTRATION OF THE AESTHETICS NATIVE PLANTS.
2. SEEDING INSTALLATION SPECIFICATIONS REFER TO MID-AMERICA REGIONAL COUNCIL AND AMERICAN PUBLIC WORKS ASSOCIATION: MANUAL OF BEST MANAGEMENT PRACTICES FOR STORMWATER QUALITY, NOVEMBER 2007, SECTION A2. SEEDING RATES AND BLEND COMPONENT QUANTITY BREAKDOWNS, SITE PREPARATION AND SEED BED PREPARATION AND INSTALLATION SHALL FOLLOW THESE STANDARDS.
3. FOR ZONE A REFER TO REQUIREMENTS OF "2. MESIC PRAIRIE SPECIES LIST".
4. FOR ZONE B REFER TO REQUIREMENTS OF "3. WET PRAIRIE (WP) AND STREAM BUFFER EDGE (WET MESIC PRAIRIE; BE) SPECIES LIST".
5. FOR ZONE C, APPLY A 50/50 (PLS) MIX OF THE BLEND AT A RATE OF 110 POUNDS PER ACRE.

TREE SPECIES:

Scientific Name	Common Name	Quantity
Quercus bicolor	swamp white oak	15
Quercus imbricaria	shingle oak	25
Quercus macrocarpa	burr oak	45
Quercus muehlenbergii	chinquapin oak	20
Quercus stellata	post oak	15

TREE PLANTING NOTES:

1. REFER TO WICHITA STANDARD SPECIFICATIONS REGARDING TREE PLANTING REQUIREMENTS.
2. TREES SHALL BE PLACED THROUGHOUT THE PROJECT AS SPACE ALLOWS, IN A SOMEWHAT RANDOM FASHION, WITH A TEN FOOT MINIMUM SPACING BETWEEN TREES.
3. TREES SHALL BE LOCATED A MINIMUM OF SIX FEET AWAY FROM ANY UNDERGROUND UTILITY OR MANHOLE, RETAINING WALL, BACK OF STREET CURB, SIDEWALK, PARKING LOT, OR ANY OTHER UNDERGROUND OR ABOVE GROUND STRUCTURE.
4. TREES SHALL BE LOCATED A MINIMUM OF TWENTY FEET FROM OVERHEAD UTILITIES.

SEEDING SPECIFICATIONS:

SECTION A2 -- SPECIFICATIONS FOR PLANTING AND MANAGING NATURAL VEGETATION FOR BMPs, ADAPTED FROM 2007 APWA BMP MANUAL

1. PRAIRIE AND WETLAND SPECIES (SEED): ALL GRASS SPECIES SHALL BE SUPPLIED AS PURE LIVE SEED. SUBMIT TO THE ENGINEER/PLANT SPECIALIST LAB GERMINATION TEST RESULTS. SEED OF ALL SPECIES NATIVE TO EASTERN KANSAS OR WESTERN MISSOURI SHALL BE FROM WITHIN A 100-MILE RADIUS OF THE PROJECT SITE IF AT ALL POSSIBLE. SEED MIXES AND SPECIES PROPORTIONS FOR PRAIRIE, EMERGENT WETLAND, AND SAVANNA PLANT COMMUNITIES WILL VARY DEPENDING ON THE TYPE OF PROJECT, SITE CONDITIONS, PLANT SPECIES AGGRESSIVENESS, SEED VARIABLES (E.G., COST, AVAILABILITY, AND WEIGHT), HABITAT TYPE, AND THE PURPOSE OF THE PLANTING. A MORE ECONOMIC SEED MIX FOR DRY, MESIC, WET MESIC (STREAM BUFFER EDGE), AND WET PRAIRIES WOULD INCLUDE 6 TO 8 POUNDS OF GRASSES AND SEDGES AND 2 POUNDS OF WILDFLOWERS OR FORBS PER ACRE (SEE EXAMPLES BELOW). IF QUICKER ESTABLISHMENT OR A SHOWIER SITE IS DESIRED, SEED MIXES CAN BE ADJUSTED TO A HIGHER POUNDAGE SUCH AS 10 TO 15 POUNDS OF GRASSES AND FORBS OR A MORE EVEN PROPORTION OF 4 POUNDS EACH OF GRASSES/SEDGES AND WILDFLOWERS, RESPECTIVELY. THE HIGHER SEEDING RATES WILL ALSO HELP SUPPRESS WEEDY VEGETATION AS THE PRAIRIE BECOMES ESTABLISHED. SIMILAR PROPORTIONS CAN BE USED FOR SAVANNA RESTORATIONS, GIVEN THAT THE MAJOR COMPONENT IS PRAIRIE. FOR EMERGENT WETLANDS, LESS SEED PER ACRE IS NECESSARY. TRY 1 TO 2 POUNDS OF GRASSES/SEDGES PER ACRE AND 1 TO 2 POUNDS OF WILDFLOWERS PER ACRE. A CERTAIN AMOUNT OF WATER DRAWDOWN WILL BE NEEDED FOR SEED GERMINATION. STRAW OR HAY FOR EROSION CONTROL SHALL BE CLEAN, SEED-FREE HAY OR THRESHED STRAW OF WHEAT, RYE, OATS, OR BARLEY.

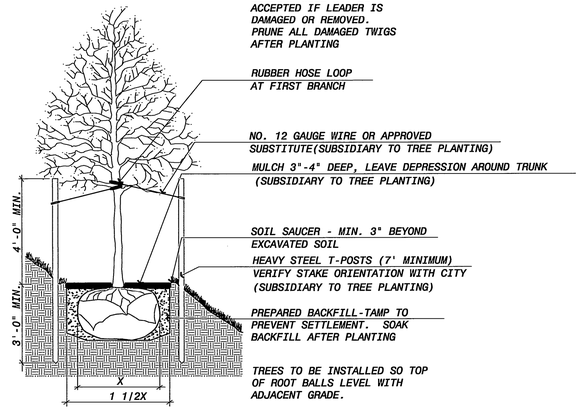
2. SEEDING, ADAPTED FROM 2007 APWA BMP MANUAL, SECTION A2-8 SEEDING

A. DESCRIPTION: THIS SECTION INCLUDES INSTALLATION OF SEED.
1. METHOD
A. SEEDS SHALL HAVE PROPER STRATIFICATION AND/OR SCARIFICATION TO BREAK SEED DORMANCY FOR SPRING PLANTING.
B. ALL LEGUMES SHALL BE INOCULATED WITH PROPER RHIZOBIA AT THE APPROPRIATE TIME PRIOR TO PLANTING.
C. SEEDING SHALL BE PREFERENTIALLY CONDUCTED AS A LATE FALL DORMANT SEEDING (AFTER NOVEMBER 1) OR IN EARLY SPRING (AS SOON AS THE SOIL IS FREE OF FROST AND IN A WORKABLE CONDITION BUT NO LATER THAN JULY 15).
D. ALL SEED ON DRIVABLE SLOPES SHALL BE PREFERENTIALLY INSTALLED WITH A RANGELAND TYPE GRAIN DRILL OR NO-TILL PLANTER, SUCH AS BY TRUAX, OR EQUIVALENT AS APPROVED IN WRITING BY THE OWNER.
E. IF SOIL IS TOO WET TO INSTALL SEED AS DESCRIBED IN 3.1D. ABOVE, A MECHANICAL BROADCAST SEEDER, SUCH AS BY CYCLONE, SHALL BE USED. HAND BROADCASTING OF SEED MAY ALSO BE EMPLOYED. WITHIN 24 HOURS, OR AS SOON AS SITE CONDITIONS PERMIT, BROADCAST SEEDED AREAS SHALL BE ROLLED OR DRAGGED PERPENDICULAR TO THE SLOPE. HYDRO SEEDING AND MULCHING ONTO A LIGHTLY DISKED SOIL SURFACE IS ALSO AN ACCEPTABLE METHOD. CONTRACTOR SHALL PROVIDE SPECIFICATIONS ON THE NATURE OF THE EQUIPMENT, MULCHING SYSTEM, AND TACKIFIER THAT WOULD BE USED IF HYDRO SEEDING/MULCHING IS THE CHOSEN PROCEDURE.
F. WITHIN SEVEN DAYS OF SEEDING, CRIMP 2,000 POUNDS PER ACRE OF CLEAN WEED FREE STRAW OR HAY FOR EROSION CONTROL ONTO SLOPES GREATER THAN ONE FOOT HORIZONTAL TO FIVE FOOT VERTICAL (1:5).
G. IF AREA TO BE SEEDED WAS TREATED WITH HERBICIDE, SEEDING SHALL OCCUR NO LESS THAN 14 DAYS AFTER HERBICIDE APPLICATION.

A. (CONTINUED)
2. CLEAN-UP, REMOVAL AND REPAIR
A. CLEAN-UP: THE WORK AREA SHALL BE KEPT FREE OF DEBRIS BY THE CONTRACTOR. AFTER SEED INSTALLATION IS COMPLETE, CLEAN UP ANY REMAINING MATERIALS, DEBRIS, TRASH, ETC. AVOID DRIVING OVER SEEDED AREAS TO MINIMIZE DISTURBANCE.
B. REMOVAL: AFTER WORK HAS BEEN COMPLETED REMOVE ANY TOOLS, EQUIPMENT, EMPTY CONTAINERS, AND ALL OTHER DEBRIS GENERATED BY THE CONTRACTOR.
C. REPAIR: REPAIR ANY DAMAGES CAUSED BY THE CONTRACTOR DURING COMPLETION OF THE WORK DESCRIBED IN THIS SECTION.

3. INSPECTION: AFTER COMPLETION OF SEEDING, THE CONTRACTOR SHALL SCHEDULE WITH OWNER A PROVISIONAL ACCEPTANCE INSPECTION OF THE WORK.

4. ACCEPTANCE AND GUARANTEE
A. PROVISIONAL ACCEPTANCE: THE WORK SHALL BE CONSIDERED 90% COMPLETE AFTER ALL SEED HAS BEEN INSTALLED AND THE CONTRACTOR HAS COMPLETED ALL REQUIRED CLEAN UP, REMOVAL, AND REPAIR AS DESCRIBED IN THIS SECTION.
B. FINAL ACCEPTANCE: THE WORK SHALL BE CONSIDERED 100% COMPLETE AFTER THE CONTRACTOR HAS MET OR EXCEEDED THE PERFORMANCE STANDARDS GIVEN IN THIS SECTION, AND COMPLETED ALL REQUIRED CLEAN UP, REMOVAL, AND REPAIR AS DESCRIBED IN THIS SECTION.
C. THE CONTRACTOR SHALL GUARANTEE SEEDED AREAS WILL MEET OR EXCEED THE FOLLOWING PERFORMANCE CRITERIA ONE FULL GROWING SEASON AFTER PROVISIONAL ACCEPTANCE: 70% PLANT COVER, SEEDLINGS OF THREE PLANTED GRASS/SEDGE SPECIES FOUND, AND SEEDLINGS OF THREE PLANTED FORB SPECIES FOUND.
D. THE CONTRACTOR SHALL GUARANTEE SEEDED AREAS WILL MEET OR EXCEED THE FOLLOWING PERFORMANCE CRITERIA TWO FULL GROWING SEASONS AFTER PROVISIONAL ACCEPTANCE: 80% PLANT COVER, 5% COVER BY PLANTED NATIVE GRASS/SEDGE SPECIES, 10% COVER BY PLANTED FORB SPECIES, AND 20% OF PLANTED SPECIES ARE FOUND.



TREE PLANTING & STAKING DETAIL:
SLOPE AREA PLANTING — NO SCALE

NO.	BY	CK.	APP
4	DEC		
3	DEC		
1	DEC		

DATE	REVISIONS AND RECORD OF ISSUE
03/13/09	FINAL - CONSTRUCTION SET
2/13/08	100% SUBMITTAL
11/21/07	90% SUBMITTAL - FOR REVIEW ONLY

CYBNET ID: 143234-320-MR-C-T000007TH
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USER: CDO37033
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
143234

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SHEET
41 OF 42

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