City of Shelbyville MCM #6 -

Pollution Prevention/Good Housekeeping for Municipal Operations

Shelbyville Public Works Stormwater BMP Demonstration Project

Project Description & Purpose:

Develop a sustainable/green campus for City of Shelbyville Public Works Department with budget constraints

To Educate:

City Employees / Elected Officials Developers Builders Property Managers General Public

To Provide:

 Quantity & Quality Stormwater Management for the Public Works Dept. using as many different BMP's as possible

•A teaching facility for the community

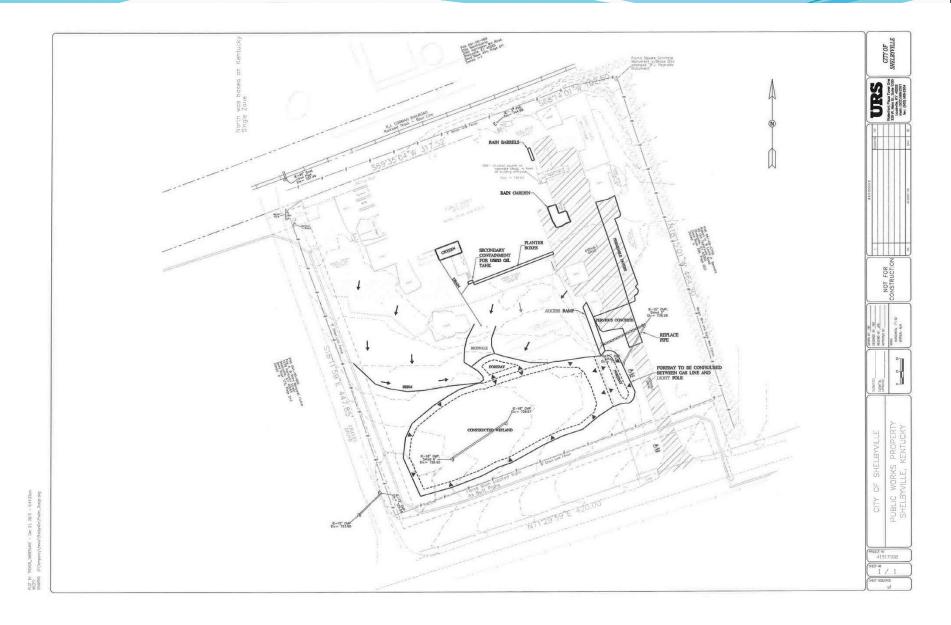


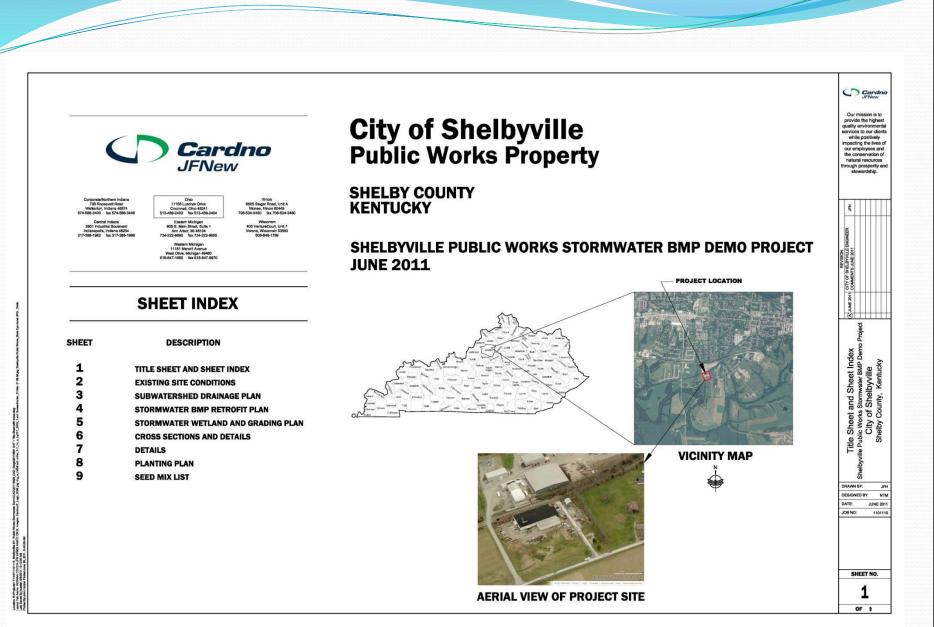


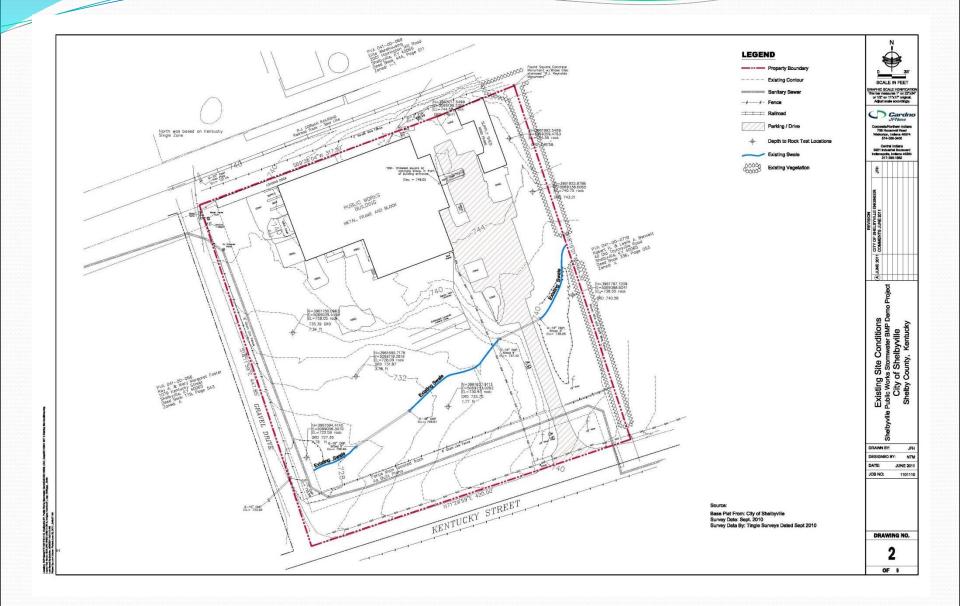
Shelbyville Public Works Stormwater BMP Demonstration Project

Project Timeline:

•Boundary /Topographic Survey of Public Works D	ept. August 2010
•Applied for Kentucky Water Resources Research In	nstitute
(KWRRI)	Sept. 2010
•Conceptual Site Plan Created	Sept. 2010
•Received KWRRI grant	Nov. 2010
•Final Design Plan Contract	Feb. 2011
•Final Design Complete	June 2011
•Construction	July –November 2011
•Install plantings	May 2012
•Install Rain Barrels	August 2012
Install Pervious Concrete	May 2013
•Install Brick Pavers	
 Purchased and delivered 	Sept. 2015
•Installation	To be determined









SU	BWATERSHED AREAS	LEGEND
	Northeast (0.70 Acres)	Prop
	Southeast (0.30 Acre)	Prop
	Southwest (2.42 Acres)	Wate
	Bidg South (0.06 Acre)	
	Bidg East (0.24 Acre)	
	Bidg West (0.12 Acre)	

Property Boundary

Proposed Contour Watershed Area (9.94 Acres)

> 3901 Industrial Bou-Indianapolis, Indiana 46 317-388-1962 Æ VILLE NON CITY OF S COMMENT 1102 S JUNE 2 Subwatershed Drainage Plan byville Public Works Stomwater BNP Demo Project City of Shelbyville Shelby County, Kentucky f DRAWN BY: JFH DESIGNED BY: NTM DATE: JUNE 2011 JOB NO: 1101110

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SCALE IN FEET RAPHIC SCALE VERIFICATION his bar measures 1° on 22°x34° or 1/2° on 11°x17° original. Adjust acale accordingly.

C Cardne 708 Roosevelt Road Walkerton, Indiana 4557-574-586-3400

	2	YR Total Runoff		2 YR P	eak Runoff (CFS)
Subwatershed	PRE-Development Runoff (ac-ft)	POST-Development Runoff (ac-ft)	Difference (ac-ft)	PRE- Development Peak Runoff (cfs)	POST- Development Peak Runoff (cfs)	Ofference (OFS)
northeast	0.161	0.211	0.051	3.22	3.35	0.13
southeast	0.069	0.073	0.004	1.38	1.39	0.01
southwest	0.550	0.631	0.081	11.08	11.37	0.29
building south	0.014	0.032	0.018	0.27	0.29	0.02
building east	0.059	0,132	0.073	1.16	1.24	0.08
building west	0.029	0.066	0.037	0.57	0.61	0.04
offsite	1.479	1.479	0.000	28.26	28.26	0.0
TOTAL	2.361	2.624	0.263	45.94	46.51	0.57

Source: Base Plat From: City of Shelbyville Survey Date: Sept. 2010 Survey Data By: Tingle Surveys Dated Aerial Photograph: 2010

Subwatershed Area (ac) Impervious Area (ac) Imperv % Rv WQv (ac-ft) WQv (ft3)

northeast	0.70	0.33	47.2	0.48	0.0166	725.0
southeast	0.30	0.01	4.0	0.09	0.0013	56.6
southwest	2.42	0.64	26.3	0.29	0.0347	1512.0
building south	0.06	0.06	100.0	0.95	0.0028	122.7
building east	0.25	0.24	97.1	0.92	0.0116	506.5
building west	0.12	0.12	100.0	0.95	0.0059	256.8
Total Site	3.86	1.41	36.5	0.38	0.0730	3179.6

Table 1. Water Quality Volume Calculations

Table 2. Post-Development Subwatershed Model Inputs

Drains To *:	Area (ac)	Impervious	Width (ft)	Slope
bioretention	0.701	47.2%	305	3.1%
wetland	0.301	4.0%	131	3.6%
wetland	2.419	26.3%	570	4.2%
wetland	0.059	100.0%	103	12.0%
rain barrels / raingarden / wetland	0.252	97.1%	169	4.6%
cistern / wetland	0.124	100.0%	83	4.6%
outlet	6.079	13.2%	1765	4.2%
	bioretention wetland wetland wetland rain barrels / raingarden / wetland oistern / wetland	bioretention 0.701 wetland 0.301 wetland 2.419 wetland 0.059 rain barrels / raingarden / wetland 0.252 cistern / wetland 0.124	bioretention 0.701 47.2% wetland 0.301 4.0% wetland 2.419 28.3% wetland 0.059 100.0% rain barrels / raingarden / wetland 0.252 97.1% cistern / wetland 0.124 100.0%	bioretention 0.701 47.2% 305 wetland 0.301 4.0% 131 wetland 2.419 28.3% 570 wetland 0.059 100.0% 103 rain barrels / raingarden / wetland 0.252 97.1% 169 oistern / wetland 0.124 100.0% 83

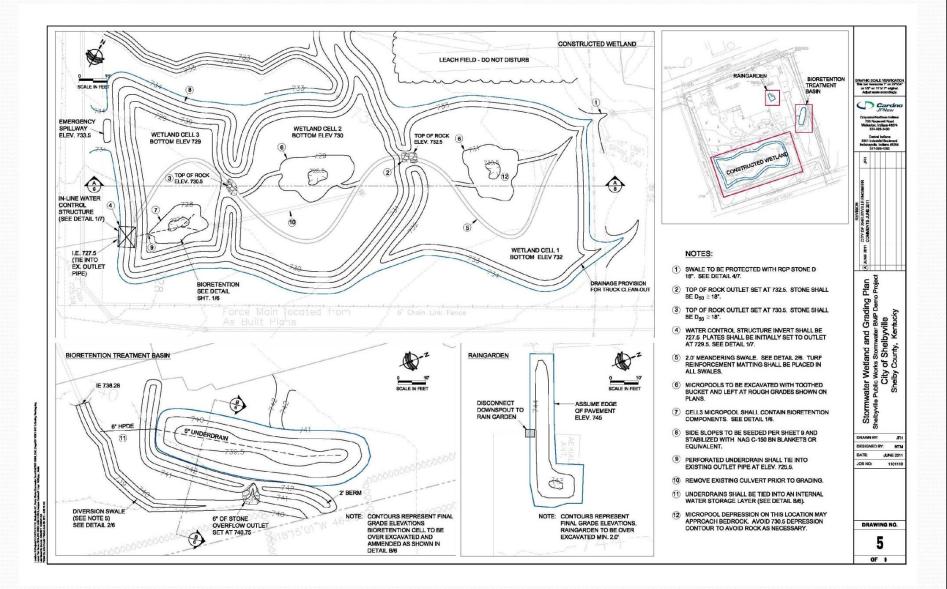
Table 3. 2-Year Design Event Runoff Summary

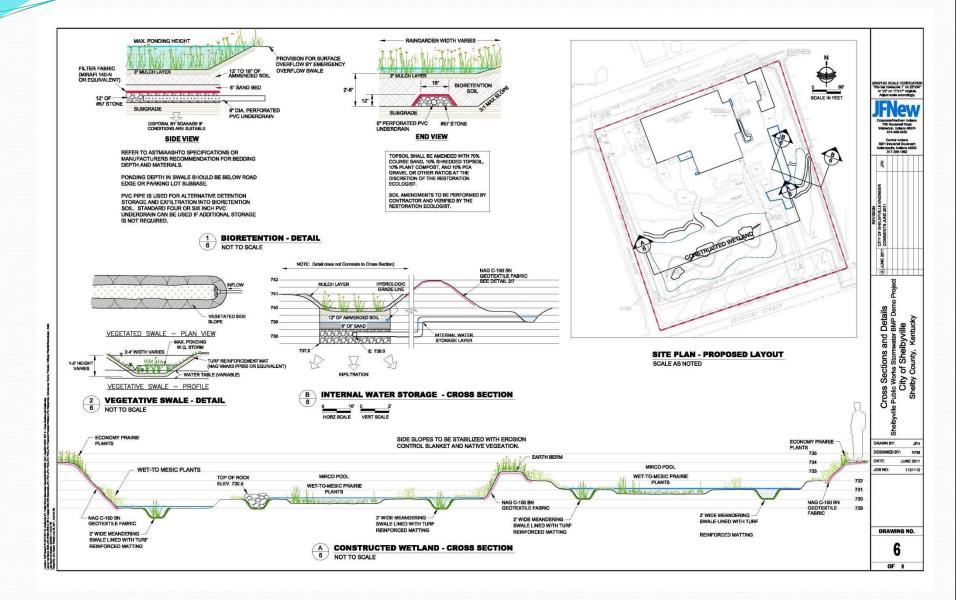
	2	2 YR Total Runoff			2 YR Peak Runoff (CFS)		
Subwatershed	PRE-Development Runoff (ac-ft)	POST-Development Runoff (ac-ft)	Difference (ac-ft)	PRE- Development Peak Runoff (cfs)	POST- Development Peak Runoff (cfe)	Ofference (CFS)	
northeast	0.066	0.072	0.006	1.49	1.51	0.006	
southeast	0.028	0.030	0.002	0.64	0.64	0.002	
southwest	0.226	0.260	0.034	5.03	5.27	0.034	
building south	0.006	0.015	0.009	0.13	0.14	0.009	
building east	0.025	0.062	0.037	0.54	0.59	0.037	
building west	0.012	0.031	0.019	0.26	0.29	0.019	
offsite	0.613	0.613	0.000	13.07	13.07	0.000	
TOTAL	outlet	1.084	0.108	21.16	21.51	0.35	

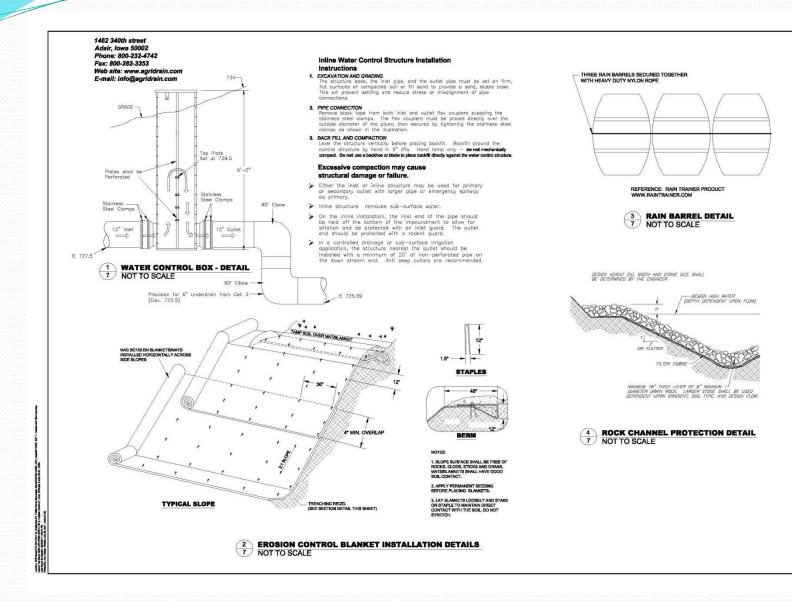
DRAWING NO. 3

OF 9

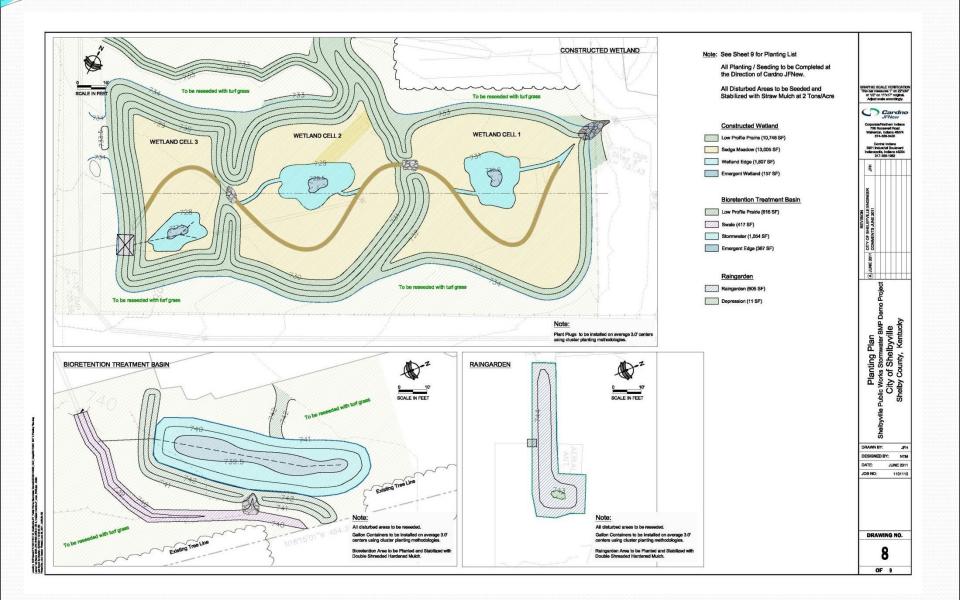








RAPHIC SCALE VERIFICATI his bar measures 1° on 22% or 1/2° on 11%17° original. Adapt and a scale area C Cardno Ŧ, Ħ AEVISION LEVALLE CITY OF S 5 AJUNE Project Details le Public Works Stomwater BMP Demo Pr City of Shelbyville Shelby County, Kentucky ville 6 DRAWN BY: JFH DESIGNED BY: NTM DATE: JUNE 2011 JOB NO: 1101110 DRAWING NO. 7 OF 9



Lookine NIV represent rition 1011111. Discherden Kr. Punke Rinner der Konnelen Derrechte Leisen Konnelen (2014-2014) 1920 ANB 0 OR & Preper Control 9. Jope (2018) 26 Ferg Freide Ry Johnson (2021) 1920 ANB 0 OR & Preper Control 9. Jope (2018) 26 Ferg Present Ry Johnson Present Jone 8. Ref. 1821; 487:48 ANB

Ē		Cardno JFNew Live Pl	ant Plugs	
	7//////	Low Profile Prairie (10,748 S	F)	
	gunn.	Common Name	Scientific Name	Qty
		Side-Oats Grama	Bouteloua curtipendula	152
		Sand Coreopsis	Coreopsis lanceolata	114
		Rough Blazing Star	Llatris aspera	152
		Sweet Black-Eyed Susan Little Bluestern	Rudbeckia subtomentosa Schizachyrlum scoparium	152 114
		Chie Dioblem	TOTAL	684
		Sedge Meadow (13,005 SF)		
		Common Name	Scientific Name	Qty
물		Bottlebrush Sedge	Carex lunida	76
2		Brown Fox Sedge Common Rush	Carex vulpinoidea Juncus effusus	114 114
E C		Marsh Blazing Star	Lintris spicata	76
2		Great Blue Lobelia Obedient Plant		76
삩		Obedient Plant Great Bulrush	Physostegia virginiana Scirpus validus	114 76
3		Wild Senna		
Ë		Common Bur Reed	Sparganium hebecarpa TOTAL	76 798
CONSTRUCTED WETLAND		Wetland Edge (1,807 SF)	10172	100
0		Common Name	Scientific Name	Qty
		Swamp Milkweed	Asclepias incarnata Mimulus ringens	38
		Swamp Milkweed Monkey Flower Chairmakers Rush	Mimulus ringens	38
		Chairmakers Rush	Scirpus pungens TOTAL	38 114
		Emergent Wetland (157 SF)		
		Common Name	Scientific Name	Qty
		Sweet Flag	Acorus calamus	10
		Spotted Joe-Pye Weed Rice Cut Grass Hard-Stemmed Bulrush	Eupatorium maculatum	10
		Hard-Stemmed Bulrush	Leersla oryzoides Scirpus acutus	10
L			TOTAL	40
F		Cardno JFNew Live G	allon Container	
		Low Profile Prairie (616 SF)		
	2111111	Common Name	Scientific Name	Qty
		Side-Oats Grama	Bouteloua curtipendula	8
		Sand Coreopsis	Coreopsis lanceolata	8
		Rough Blazing Star Sweet Black-Eyed Susan	Liatris aspera Rudbeckia subtomentosa	8
		Little Bluestern	Schizachyrium scoparium	8
z			TOTAL	40
BASIN	11/1	Swale (417 SF)		
<u>۳</u>		Common Name	Scientific Name	Qty
S.		New England Aster	Astor novao-angliae	8
₽		Bristly Sedge	Carex comosa Scirpus atrovirens	8
TREATMENT		Bristly Sedge Dark Green Rush Wool Grass	Scirpus cyperinus	8
Ë		Diaman (4 054 05)	TOTAL	40
ORETENTION		Stormwater (1,054 SF) Common Name	Scientific Name	Qty
S.		Bottlebrush Sedge	Carex lurida	15
E		Fowl Manna Grass	Glyceria striata	15
В		Common Rush Common Water Horehound	Juncus effusus	15 15
m		Monkey Flower	Lycopus americanus Mimulus ringens	15
			TOTAL	75
	1940	Emergent Edge (367 SF)		~
		Common Name	Scientific Name	Qty 8
		Swamp Milkweed Blue Flag	Ascepias incarnata Iris virginica	8
		Rice Cut Grass	Leersia oryzoides	8
		Wild Golden Glow Chairmaker's Rush	Rudbeckia lanciniata	8
		Chairmakers Rush	Solrpus pungens TOTAL	
L				
Г		Cardno JFNew Gallon	Container	
		Raingarden (605 SF)		
	19411-1940	Common Name	Scientific Name	Qty
		Tall Corecpsis Rattlesnake Master Queen of the Prairie	Coreopsis tripteris Erygium yuccifolium Filipendule rubre	5
B		Queen of the Prairie	Filipendule rubra	5
8		Marsh Blazing Star	Lietris spicete	5
GA		Wild Bergamot Foxglove Beard Tongue	Monarda fistulosa Penstemun digitalis	5
2		Prairie Dropseed Meadowsweet	Sporobolus heterolepis Spriraea alba	5
2			Spriraea alba	5
R				
RAI		Depression (11 SF)		
RAI		Common Name	Scientific Name	
RAINGARDEN			Scientific Name Ins virginica TOTAL	5 42

				PLS
	Botanical Name	Common Name		Ounces/A
	Permanent Grasses:			
	Andropogon scoparius	Little Blue Stem		28
	Bouteloua curtipendula Carex bick nelli/molesta/brevio	Side Oats Grama		10
	Elvmus canadensis	Prairie Wild Rye		16
	Koeleria cristata	June Grass		2
	Panicum virgatum	Prairie Switch Grass		1
	Sporobolus heterolepis	Prairie Drop Seed	Total	3
	Temporary Cover:			
	Avena sativa	Seed Oats		360
	Lolium multiflorum	Annual Rye	Total	120
	Forbs: Amorpha canescens	Lead Plant		1
	Amorpha canescens Anemone cylindrica	Lead Plant ThimbleWeed		0
	Aquilegia canadensis	Wild Columbine		0
	Asclepias tuberosa	Butterfy MilkWeed		2
	Aster ericoides	Heath Aster		0
	Aster laevis Aster novae-angliae	Smooth Blue Aster New England Aster		0
	Baotisia leucantha	White Wild Indigo		2
	Cassia fasciculata	Partridge Pea		9
	Coreopais lanceolata	Sand Coreopsis		1
	Coreopsis tripteris	Tall Coreopsis Purple Coneflower		0
	Echinacea purpurea Eryngium yuccifolium	Rattlesnake Master		3
	Lespedeza capitata	Round-Head Bush Cl	over	2
	Liatris aspera	Rough Blazing Star		3
	Lupinus perennis	Wild Lupine		1
	Monarda fistulosa Parthenium integrifolium	Prairie Bergamot Wild Quinine		0
	Penstemon digitalis	Foxglove Beard Tong	ue	0
	Petalostemum purpureum	Purple Prairie Clover		1
	Petalostemum candidum	White Prairie Clover		1
	Physostegia virginiana Pycnanthemum virginianum	False Dragonhead Common Mountain M	int.	1
	Ratibida pinnata	Yellow Coneflower	ed.	3
	Rudbeck is hirts	Black-Eyed Susan		3
	Rudbeck is subtomentosa	Sweet Black-Eyed Si	isan	2
	Silphium Integrifolium Silphium terebirthinaceum	Rosin Weed Prairie Dock		3
	Silphum terebinthinaceum Solidago nemoralis	Old-Field Goldenrod		2
	Solidago rigida	Stiff Goldenrod		1
	Tradescantia chiensis	Common Spiderwort		1
	Vernonia altissima taeniotricha			1
	Veronicastrum virginianum	Culvers Root	Total	56
	Annual/Perennial Forbs Mix			32
Wetland Edge Seed		d Mix		3
		Common Name		LS es/Acre
	Permanent Grasses/Sedges	E		
	Carex lurida	Bottlebrush Sedge		4.00
		Franks Sedge		4.00
	Carex frankii			
	Carex frankii Carex vulpinoidea	Brown Fox Sedge		
	Carex frankii Carex vulpinoidea Eleocharis palustris	Spike Rush		1.50
	Carex frankii Carex vulpinoidea	Brown Fox Sedge Spike Rush Virginia Wild Rye Fowl Manna Grass		
	Carex frankii Carex vulpinoidea Eleocharis palustris Elymus virginicus	Spike Rush Virginia Wild Rye Fowl Manna Grass Rice Cut Grass		1.50 14.00 2.00 2.00
	Carex frankii Carex vulpinoidea Eleocheris palustris Elymus virginicus Giyceria striata Leersia oryzoides Soirpus atrovirens	Spike Rush Virginia Wild Rye Fowl Manna Grass Rice Cut Grass Green Bulrush		1.50 14.00 2.00 2.00 2.00
	Carex frankii Carex vulpinoidea Eleocharis palustris Elymus virginicus Glyceria striata Leersia oryzoides	Spike Rush Virginia Wild Rye Fowl Manna Grass Rice Cut Grass		1.50 14.00 2.00 2.00

	PLS	
lun	ces/Acre	Botanical Name Common Name
		Permanent Grasses/Sedges
	28.00	Calamagrostis caradensis Blue Joint Grass
	10.00	
	1.00	Carex comosa Bristly Sedge Carex Juride Bottlebrush Sedge
	16.00	Carex unda Botteorush Sedge Carex frankai Franka Sedge
	2.00	Carex rubinoidea Brown Fox Sedge
	1.00	Elimus virginicus Virginia Wild Rve
	3.00	Glycerie striete Fow Manna Grass
-	61.00	Juncus effusus Common Rush
	360.00	
	120.00	Scipus atrovirens Dark Green Rush
-	480.00	Scipus pendulus Red Bultush
		Scipus pungens Chairmakers Rush
		Scipus validus Great bulrush (Soft
		Spartina pectinata Prairie Cord Grass
	1.00	Temporary Cover:
	0.75	Avena sativa Seed Oats
	0.75	
	2.00	
	0.50	Forbs
	0.75	Alisma sop. Water Plantain
	.50	Angelica atropurpurea Great Angelica
2.0		Asclepias incarneta Svamp Milk veed
9.0		Aster novae-angliae New England Aster
	50	Asterpuniceus Svamp Aster
0.50		Astersimplex Panided Aster
3.5		Asterumbellatus Flat-top Aster
2.50		Bidens cemua Notiding Swemp III
2	.00	Cassia hebecatta Wild Senna
3,00		Coreapsis tripteris Tal Corecesia
1.5		Eupatorium maculatum Spotted Joe P ye W
0.50		Eupatorium perfoliatum Common Boneset
1.00	5	Filipendula rubra Queen of the Prairie
0.50		Gentiana and musi/ Bottle Gentian
1.50		Helenum autumnale Sneezeveed
1.50	Ē	Inis virginical shreve/ Blue Flag Inis
1.0	0	Liatris spicate Marsh Blazing Star
0.5	50	Lobela cardinalia Cardinal Flover
3.0		Lobela sighilitica Great Blue Lobela
3.0		Ludwigia alternifolia Seed Box
2)		
	00	Physostegia virginiana False Dragonhead
	00	Pycnanthemum virginianum Virginia Mountain IV Saciltaria latifolia Broad-Leaf Arroyhe
	50	
	.00	Silphium perfoliatum Cup Plant
13		Solidago rugosa Rough Goldenrod
1.7		Sparganium eurycarpum Common Bur Reed
0.50		Spiraea alba/tomentosa III eadovaveet/Stee
		Verbena hastata Blue Vervain
56.25		Vernonia fasciculata Common IronWeed Zizia auree Golden Alexanders

		PLS
Botanical Name	Common Name	Ounces/Acre
Permanent Grasses/Sed	ges:	
Carex lurida	Bottlebrush Sedge	4.00
Carex frankii	Franks Sedge	4.00
Carex vulpinoidea	Brown Fox Sedge	3.00
Eleocharis palustris	Spike Rush	1.50
Elvmus virginicus	Virginia Wild Rye	14.00
Givceria striata	Fowl Manna Grass	2.00
Leersia oryzoides	Rice Cut Grass	2.00
Scirpus atrovirens	Green Bulrush	2.00
Scirpus pungens	Chaimakers rush	2.00
Scirpus validus	Great Bulrush (Softsten	4.00
	Total	38.50
Temporary Cover:		
Avena sativa	Seed Oats	360.00
Lolium multiflorum	Annual Rye	100.00
	Total	460.00
Forbs		
Actinomeria alternifolia	Wingstem	0.75
Alisma soo.	Water Plantain	3.00
Asclepias incarnata	Swamp Mikweed	4.00
Aster simplex/puniceus	Panicled/swamp Aster	1.00
Bidens soo.	Bidens, various	2.00
Cassia hebecarpa	Wild Senna	1.25
Eupatorium perfoliatum	Boneset	1.00
Helenium autumnale	Sneezeweed	2.00
Hibiscus spp.	Rosemallow, various	1.75
Iris virginica shrevei	Blue Flag Iris	3.50
Lobella siphilitica	Blue Lobelia	1.00
Ludwigia alternifolia	Seedbox	0.25
Mimulus ringens	Monkey Flower	1.50
Rudbeckia laciniata	Cut-Leaf Coneflower	0.75
Sagittaria latifolia	Broad-Leaf Arrowhead	2.00
Verbena hastata	Blue Venain	1.50
Vemonia spp.	IronWeed, various	2.00
	Total	29.25

Permanent Grasses/Sedge	35	
Calamagrostis caradensis	Blue Joint Grass	3.00
Carex comosa	Bristly Sedge	2.00
Carex lurida	Bottlebrush Sedge	4.00
Carex frank i	Franka Sedge	3.00
Carex vulpinoidea	Brown Fox Sedge	3.00
Elymus virginicus	Virginia Wild Rye	30.00
Glyceria striata	Fow Mama Grass	4.00
Juncus effusus	Common Rush	0.50
Leersia oryzoides	Rice Cut Grass	2.00
Panicum vigatum	Prairie Switch Grass	2.00
Scipus atrovirens	Dark Green Rush	3.00
Scirpus pendulus	Red Bulrush	0.50
Scipus pungens	Chairmakers Rush	5.00
Scipus validus	Great bulrush (Softstem)	4.00
Sparting pectinata	Praine Cord Grass	6.00
	Total	72.00
Temporary Cover:		
Avera sativa	Seed Oats	372.00
Forbs		
Alisma sop.	Water Plantain	1.50
Angelica atropurpurea	Great Angelica	2.50
Asclepias incarneta	Svamp Milk weed	1.50
A ster novae-angliae	New England Aator	1.00
Asterouniceus	S vamp Aster	1.00
A ster simplex	Panicled Aster	1.00
A ster umbellatus	Flat-top Aster	1.00
Bidens cemua	Nodding Swamp Marigold	2.00
Cassia hebecama	Wid Senna	1.00
Coreapsis tripteris	Tal Corecesis	1.00
Eupatorium maculatum	Spotted Joe P ye Weed	1.75
Eupatorium perfoliatum	Common Boneset	1.00
Filipendula rubra	Queen of the Prairie	0.50
Gentiana andmusii	Bottle Gentian	0.00
Helenium autumnale	Sneezeweed	2.00
		3.00
Iris virginica shrevel Liatris spicata	Blue Flag Iris Marsh Blazing Star	5.00
Liatris spicata Lobalia cardinalis	Cardinal Flower	
Lobela cardinalis Lobela sighiltica	Great Blue Lobelia	0.50
Ludvigia alternifolia	Seed Bax	0.25
Physostegia virginiana	False Dragonhead	0.50
Pycnanthemum virginianum	Virginia Mountain Mint	0.25
Sagittaria latifolia	Broad-Leaf Arrowhead	3.00
Silphium perfoliatum	Cup Plant	3.00
Solidago rugosa	Rough Goldenrod	1.00
Sparganium euryca:pum	Common Bur Reed	2.50
Spiraea alba/tomentosa	Meadowsweet/Steeple Bust	0.75
Verbena hastata	Blue Vervain	2.00
Vernonia fasciculata	Common IronWeed	3.00
Zizia aurea	Golden Alexanders	1,00
	Total	46.25

Emergent Wetland Seed Mix

		PLS
Botanical Name	Common Name	Ounces/Acre
Permanent Grasses/Sedges/	Rushes:	
Carex comosa	Bristly Sedge	2.00
Carex lacustria	Common Lake Sedoe	1.50
Carex lurida	Bottlebrush Sedge	4.00
Eleocharis obtusa	Spike Rush	3.00
Juncus effusus	Common Rush	4.00
Leers a orzvoides	Rice Cut Grass	3.0
Scirpus acutus	Hard-stemmed bulrush	6.00
Scirpus pungens	Chairmakers rush	6.0
Scirpus validus	Great Bulrush (Softsten	8.01
	Total	37.5
Temporary Cover:		
Avena sativa	Seed Oats	360.00
Lolum multiforum	Annual Rye	104.00
	Total	464.0
Forbs:		
Acorus calamus	Sweet Flag	3.00
Asclepias incarnata	Swamp Milkweed	2.00
Alisma spp.	Water Plantain	4.00
Eupatorium maculatum	Spotted Joe Pye Weed	0.75
Hibiscus spp.	Rosemallow, various	3.00
Iris virginica shrevei	Blue Flag Its	4.00
Lobelia cardinalis	Cardinal Flower	0.75
Lobelia siphilitica	Great Blue Lobelia	0.75
Luchvigia alternifolia	Seedbox	0.25
Mimulus ringens	Monkey Flower	1.00
Peltandra virginica	Arrow Arum	12.00
Pontedería cordata	Pickerel Weed	8.00
Sagittaria latifolia	Broad-Leaf Arrowhead	8.00
Sparganium americanum	American Burr Reed	2.01
Sparganium eurycarpum	Bur Reed	4.00
Verbena hastate	Blue Vervain	2.01
Zizania aquatica	Wild Rice	10.00
	Total	65.5

Swale Seed Mix

PLS Ounces/Acre

		PLS	
Botanical Name	Common Name	Ounces/Acre	
Permanent Grasses/Sed	oes		
Andropogon gerardi/	Big Blue Stem	6.00	
Carex comosa	Bristly Sedge	2.00	
Carex hystericinia	Porcupine Sedge	2.50	
Carex vulpinoidea	Brown Fox Sedge	3.00	
Elymus virginicus	Virginia Wild Rye	14.00	
Glyceria striata	Fow Manna Grass	1.00	
Panicum virgatum	Prairie Switch Grass	2.00	
Scipus atrovirens	Dark Green Rush	2.00	
Scipus cyperinus	Woolgrass	0.50	
Spartina pectinata	Prairie Cord Grass	5.00	
	Total	38.00	
Temporary Cover:			
Avera sativa	Seed Oats	360.00	
Lolum mut florum	Amual Rye	28.00	
Editori non right rolani	Total	388.00	
Forbs			
Alisma sop.	Water Plantain	0.50	
Asciepias incarneta	Swomp Milkwood	2.00	
A ster novae-angliae	New England Aater	0.50	
Coreopsis tripteris	Tall Coreopsis	0.50	
Eupetorium maculatum	Spotted Joe Piye Week	0.25	
Ins virginica shrevei	Blue Flag Iris	3.00	
Liatris spicata	Marsh Blazing Star	2.00	
Lobelia cardinalis	Cardinal Flower	0.25	
Lobelia siphiltica	Great Blue Lobelia	0.50	
Sagittaris latifoša	Broad-Leaf Arrowhead	1.50	
Silphium perfoliatum	Cup Plant	0.50	
Verbena hastata	Blue Vervain	1.50	
Zizia aurea	Golden Alexanders	1.25	
	Total	14.25	

Stormwater Seed Mix

Forbs & Shrubs: Aisma app. Aschejas incamata Bidens spp. Helenium autumnalo Mmulus ringens Penthorum sedoides Polygonum pensylvanicum Sagittaria latifolia

Botanical Name	Common Name	PLS Ounces/Ac
Permanent Grasses/Sedge	s/Rushes:	
Carex Jurida	Bottlebrush Sedge	2.0
Carex vulpinoidea	Brown Fox Sedge	7.0
Eleocharis obtusa	Spike Rush	0.5
Elymus virginicus	Virginia Wild Rye	16.0
Glyceria striata	Fowl manna Grass	4.5
Juncus effusus	Common Rush	3.0
Juncus tomeyi	Torreys Rush	3.0
Leersia oryzoides	Rice Cut Grass	4.0
Panicum virgatum	Prairie Switch Grass	10.0
Scirpus atrovirens	Dark Green Rush	1.0
Scirpus fluviatilis	River Bulrush	1.0
Scirpus validus	Great Bulrush (Softsten	12.0
	Total	64.0
Temporary Cover:		
Avena sativa	Seed Oats	360.0
Lolium multiflorum	Annual Rye	116.0
	Total	476.0

-	Plantain		0.50
	p Milkweed		2.00
	ingland Aster		0.50
	reopsis		0.50
atte	d Joe Pye Weer		0.25
	lag Iris		3.00
rsh	Blazing Star		2.00
	al Flover		0.25
	Blue Lobelia		0.50
	Leaf Arrowhead		1.50
	lant		0.50
	/ervain		1.50
de	n Alexanders		1.25
	Total		14.25
1			
-			
			PLS
	Common Nam		Ounces/Acre
she			
	Bottlebrush Sec		2.00
	Brown Fox Sed	ge	7.00
	Spike Rush		0.50
	Virginia Wild Ry		16.00
	Fowl manna Gr	ass	4.50
	Common Rush		3.00
	Torreys Rush Rice Cut Grass		3.00
	Prairie Switch G Dark Green Rus		10.00
	River Bulrush	sh	1.00
	Great Bulrush ()		
	Great Buirush (Total	64.00
		Total	04.00
	Seed Oats		360.00
	Annual Rye		116.00
		Total	476.00
	Water Plantain		4,25
	Swamp Mikwee		2.50
	Bidens, various		2.00
	Sneezeweed		2.50
	Monkey Flower		2,50
	Ditch Stonecrop	P	0.50
	Smartweed		4.00
	Broad-Leaf Arro		8.00
		Total	26.25

Note: See Sheet 8 for Planting Zones

DRAWING NO. 9

OF 9

SRAPHIC SCALE VERIFICATION This bar measures 1° on 221:34° or 1/2° on 111x17° oliginal. Adjust scale accordingly.

Corporate/Notthern Indiana TOG Roosevell Read Walawaron, Kealana 48574 Walawaron, Kealana 48574 Walawaron, Kealana 48576 Oceana Indiana 3001 Induatrol Baulaward Indianayada, Indiana 48756 3173884-1982

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2011 COMMENTS JUNE 2011

Seed Mix List Shebyville Public Works Stormwater BMP Demo Project City of Shelbyville Shelby County, Kentucky

DRAWN BY:

JOB NO:

JFH DESIGNED BY: NTM DATE:

JUNE 2011

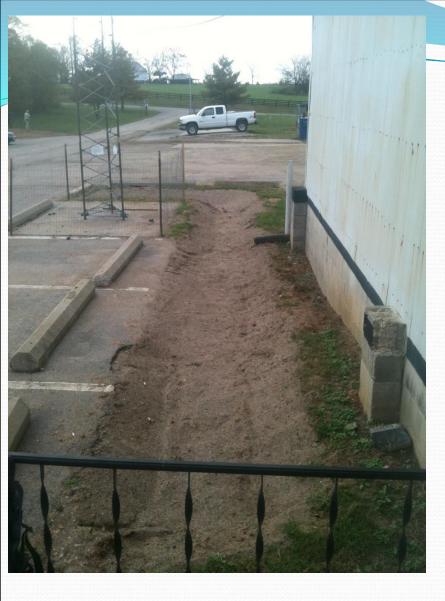
1101110













Shelbyville Public Works Stormwater BMP Demonstration Project Green Infrastructure

Budget:

Grant from :	\$24,000
City Funds :	<u>\$21,000</u> **
Total:	\$45,000
** Labor cost not included	

Actual Cost:

Conceptual Design:	\$2,550
Topographic and Boundary Survey	\$3,400
Green Infrastructure Final Design – On Site Construction Management Materials/Supplies/Equipment Rental Total:	\$12,500 \$4,800 <u>\$24,500</u> \$47,750

** Labor cost not included

Shelbyville Public Works Stormwater BMP Demonstration Project Pervious Concrete – Spring 2013





Shelbyville Public Works Stormwater BMP Demonstration Project Pervious Concrete



Budget:

In-Kind : (discounts, donations) City Funds : Total: ** Labor cost not included \$5,000

<u>\$8,000</u>** \$13,000

Shelbyville Public Works Stormwater BMP Demonstration Project **Pavers**

ARCHED BLOCKS

END BLOCKS

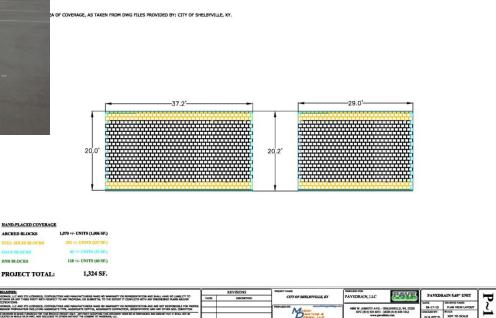


Budget:

City Funds Spent to date: **Estimated Expenses:** Total:

** Labor cost not included

\$8,000 \$ 5,000** \$13,000



Shelbyville Public Works Stormwater BMP Demonstration Project Miscellaneous Projects

Public Works New Salt Bin

Shelbyville Police Garage Bioretention Basin

Shelbyville Police Department – Basin for Parking Lot additions

•5 - Storm Drain Inserts for City Curb Box Inlets

Asset Management Program with Tablets

Jennifer Herrell, P.E. City Engineer/Director of Public Works &MS4 Coordinator City of Shelbyville 502-633-1094 jpherrell@mw.twcbc.com

