Enhancement of an oxbow and wetlands at Big Bend State Fish and Wildlife Area

Completion Report

Natural Resource Injury Assessment Restoration Project (1 of 3)

November 24, 2015

Project Summary

The week of September 28, 2015, restoration and enhancement work began at Big Bend State Fish and Wildlife Area. This effort was funded through the Natural Resource Restoration Trust Fund per consent order No. 09 CH 905, *People of the State of Illinois v. Chicago, Central & Pacific Railroad Company*.

Big Bend State Fish and Wildlife Area (BBSFWA) is a 2,376 acre site located along the Rock River west of Prophetstown, Illinois. The BBSFWA is a very complex system that is highly influenced by Rock River flood pulses and other natural disturbances, readily changing site conditions. The site is owned by the Illinois Department of Natural Resources and preserved by Natural Resource Conservation Service (NRCS) Emergency Watersheds Protection Program Floodplain easements (75-5A12-1-8698; 75-5A12-1-8699; 75-5A12-1-8700).

The project repaired and enhanced a large oxbow system within BBSFWA that directly borders the Rock River as well as several small wetlands south of the oxbow (Figure 1).

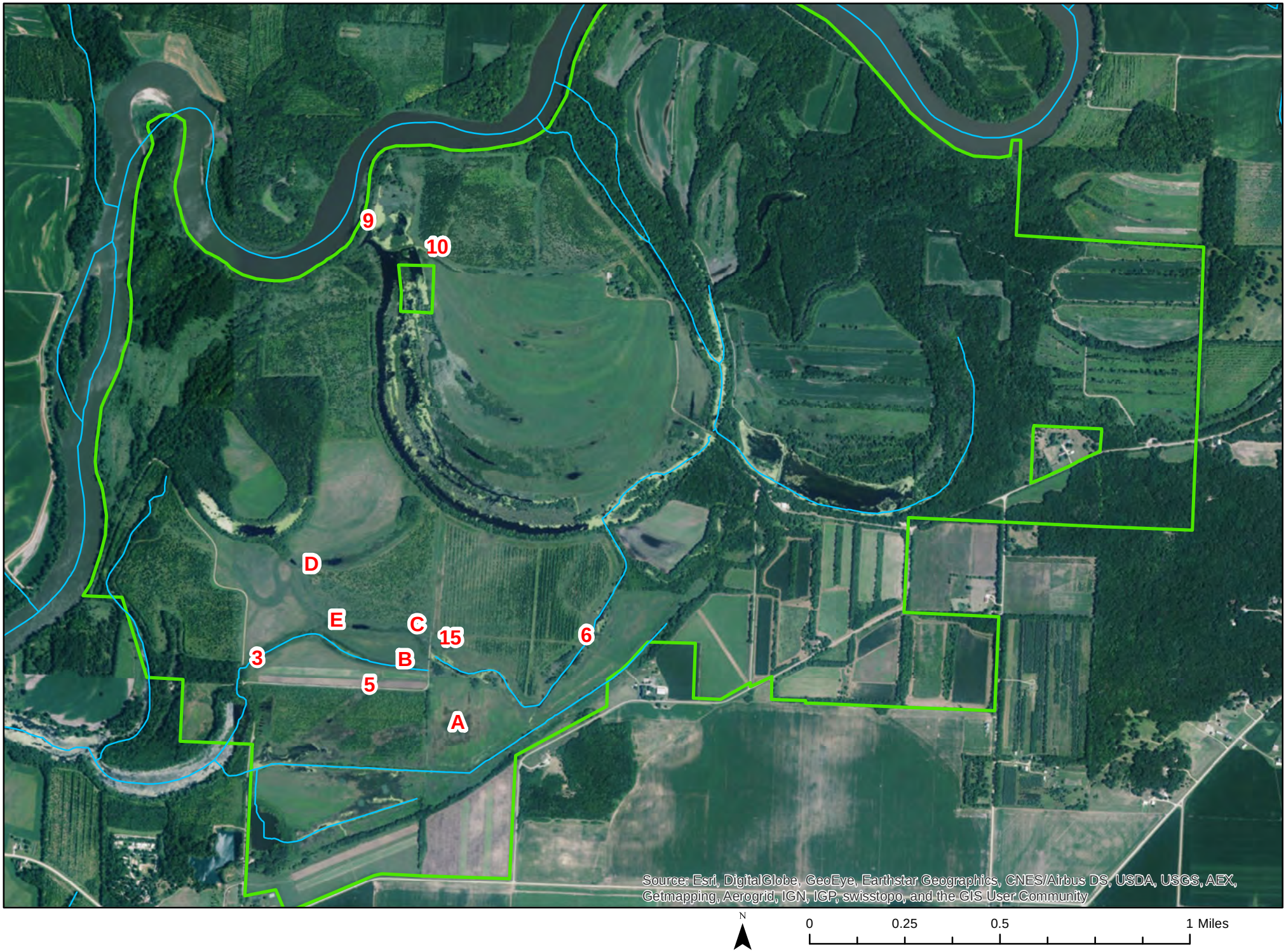
Oxbow Restoration (9 and 10): In early 2000s, NRCS implemented various site restoration projects, including, but not limited to, a crossing with a flap gate to control water in a small ditch (10) and a notched levee with water control structure (9) on the large oxbow island (Figure 2). Fall of 2015, the crossing was repaired and reinforced allowing for a stable crossing onto the island during prescribed burns, other natural resource management actions, and maintenance activities. Widening the levee in the vicinity of structure #9 and stabilizing the notch was completed, allowing for better management of the water levels in the large oxbow system to enhance fish and wildlife habitat. Completely armoring the notch should also stop the gully from advancing further into the wetland.

Wetland Restoration (A, B, C, D, E, 3, 5, 6 and 15): In areas depicted as A, B, C, D, E, 3, 5, 6 and 15 on Figure 1, minor excavations, armoring a wetland overflow and spring seep drainage, and installation of water control structures were implemented in an effort to facilitate floodwater storage, in turn providing additional shallow water wetland habitat for natural resources.

The project was completed October 15, 2015.

Figure 1. Big Bend State Fish and Wildlife wetland area, Oxbow and Wetland Repair and Enhancement Restoration Project

Green outline represents IDNR property boundary



BIG BEND

SFWA

Erie TWP Sec 9, 10, 15,16

9
10
D
C
3
B
5
Spoil Area
Silt fence around perimeter
A
3

EAST PART PORTLAND/ EAST PART ERIE PLAT

T-19-N ◆ R-4-E

WHITESIDE COUNTY, ILLINOIS

(Landowners)

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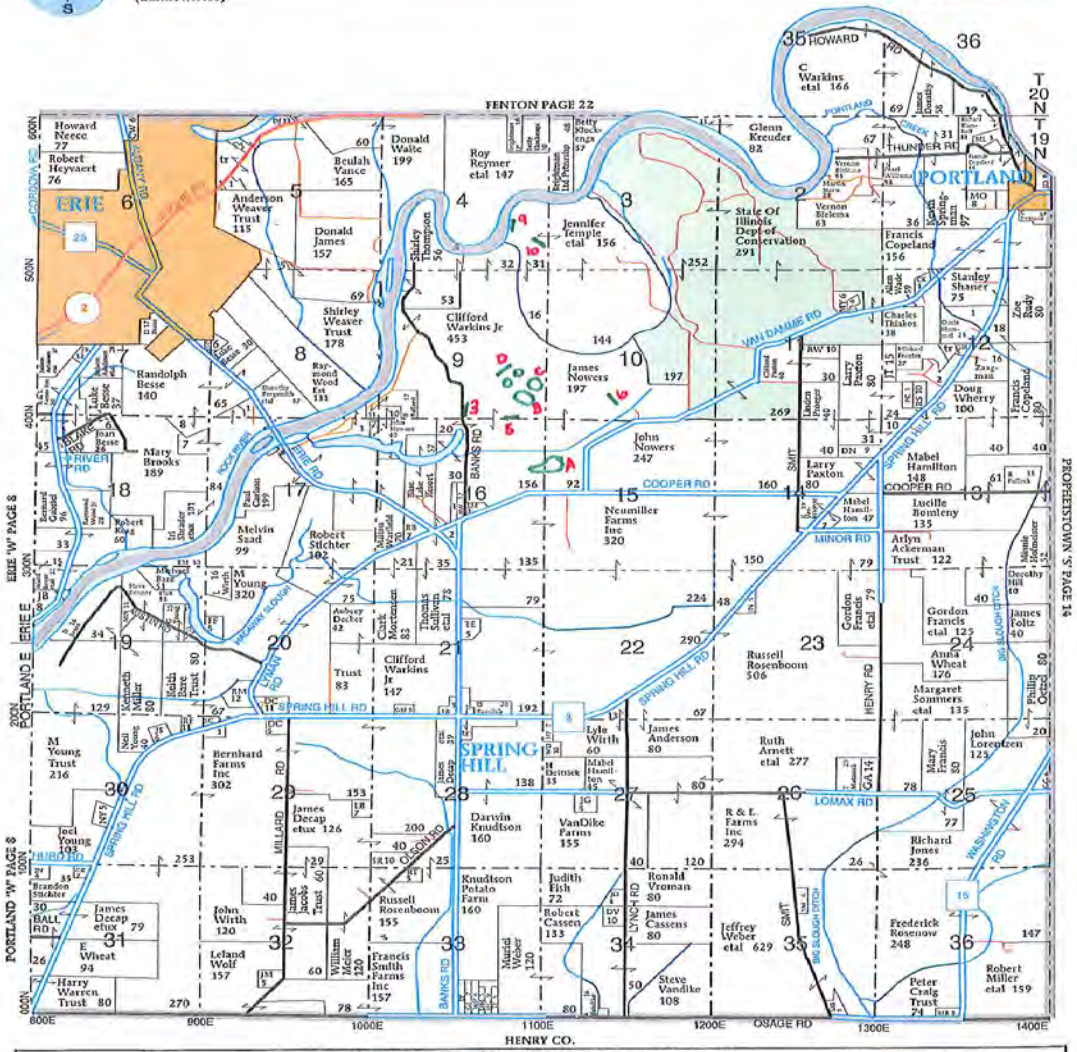
See Page 56 For Additional Names.



INVEST IN THEIR FUTURE

BE A

VOLUNTEER 4-H LEADER

SHARE YOUR TALENTS

Contact:
Whiteside County Extension Office
109 E. Knox Street, Morrison, IL 61270
815/772-4075; Fax 815/772-4077

UNIVERSITY OF ILLINOIS EXTENSION

(4)

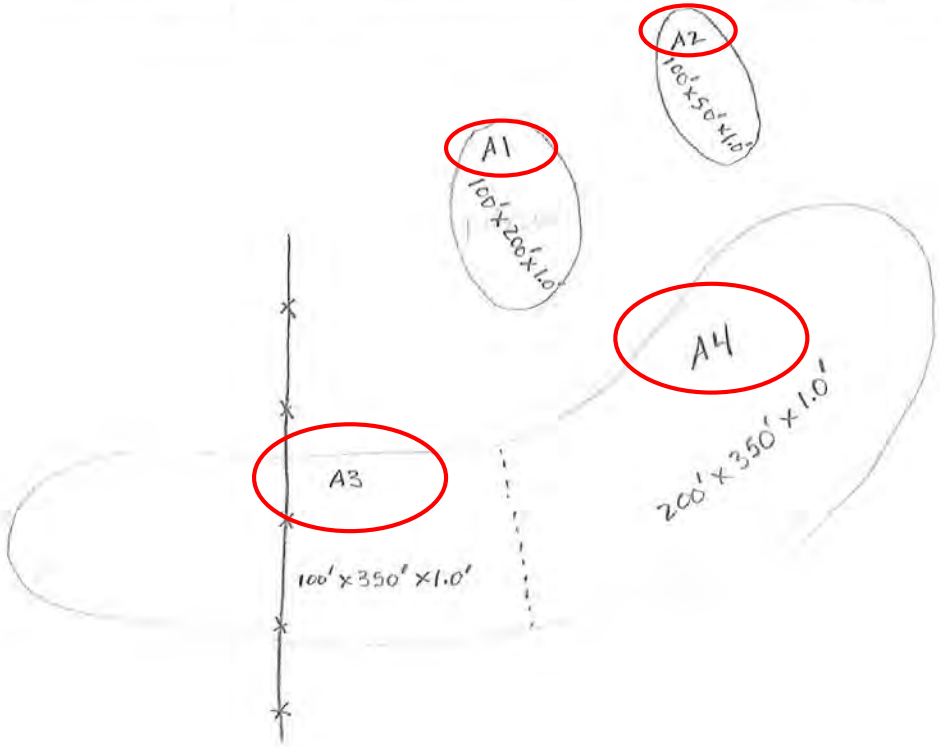
B
A

A

COMPUTATION SHEET
NRCS-ENG-522 Rev. 10-97

U. S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

STATE ILLINOIS		PROJECT Wetland A		BIG BEND
BY TREY	DATE 4/15	CHECKED BY	DATE	JOB NO.
SUBJECT A1, A2, A3, A4				SHEET ____ OF ____



Name Big Bird Program # _____ Contract # _____

Date 4/14/15 Tract _____ Farm _____

Cost Estimate For Wetland

By: Jim Doeden 1/18/00

Typical Wetland Sizes

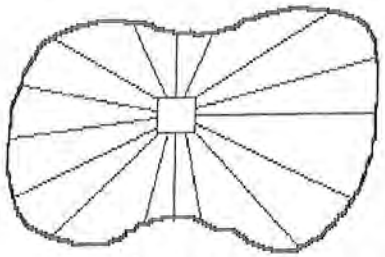
100' X 200'

370 Cu. Yds.

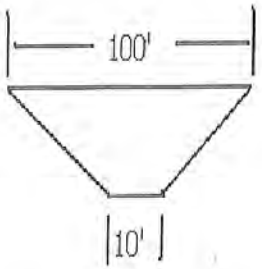
Minimum side slopes

8:1

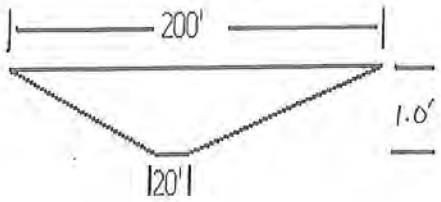
Top View



End View



Side View



CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Whiteside
CITY-TOWNSHIP Erie Twp
SEC. & ¼ SEC. No.# Sec 15 NW¼
48 Hours Before You Dig.
(TWO WORKING DAYS)

5

Name Big Bend Program # _____ Contract # _____

Date 4/14/15 Tract _____ Farm _____

Cost Estimate For Wetland

By: Jim Doeden 1/18/00

Typical Wetland Sizes

100' X 50'

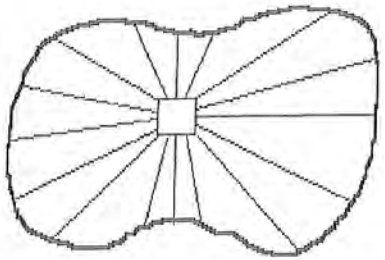
93 Cu. Yds.

Minimum side slopes

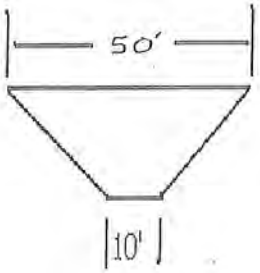
8:1

A2

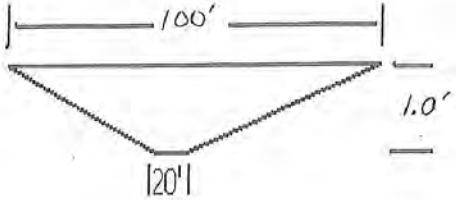
Top View



End View



Side View



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COUNTY Whiteside

CITY-TOWNSHIP Erie Twp

SEC. & ¼ SEC. No.# Sec 15 NW¼

48 Hours Before You Dig.

(TWO WORKING DAYS)

6

Name Big Bend Program # _____ Contract # _____

Date 4/14/15 Tract _____ Farm _____

Cost Estimate For Wetland

By: Jim Doeden 1/18/00

Typical Wetland Sizes

100' X 350'

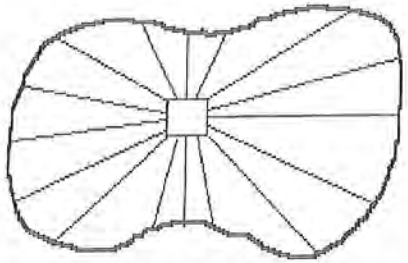
648 Cu. Yds.

"A"

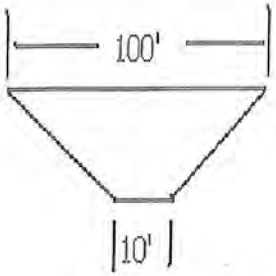
Minimum side slopes

8:1

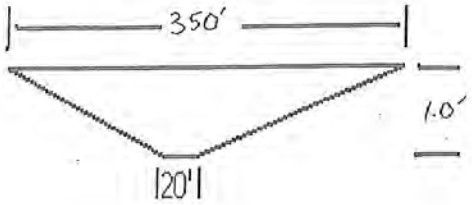
Top View



End View



Side View



CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Winnebago
CITY-TOWNSHIP Glenn Twp
SEC. & ¼ SEC. No.# Sec 15 NW¼
48 Hours Before You Dig.
(TWO WORKING DAYS)

(7)

Name B. G Bend Program # _____ Contract # _____

Date 11/14/10 Tract _____ Farm _____

Cost Estimate For Wetland

By: Jim Doeden 1/18/00

"A"

Typical Wetland Sizes

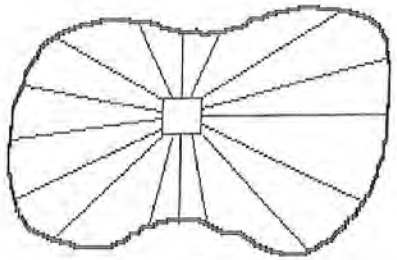
350' X 200'

1296 Cu. Yds.

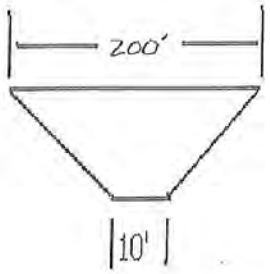
Minimum side slopes

8:1

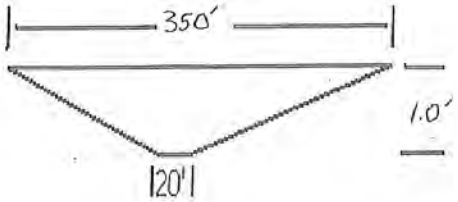
Top View



End View



Side View



CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Ottawa
CITY-TOWNSHIP Lake Twp
SEC. & ¼ SEC. No.# Sec 15 NW¼
48 Hours Before You Dig.
(TWO WORKING DAYS)

(8)

C
B
5
A

Name Big Bends Program # _____ Contract # _____

Date 11/14/15 Tract _____ Farm _____

"B"

Cost Estimate For Wetland

By: Jim Doeden 1/18/00

Typical Wetland Sizes

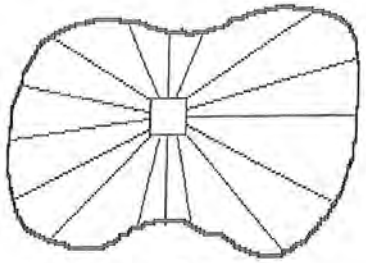
400' X 300'

3333 Cu. Yds.

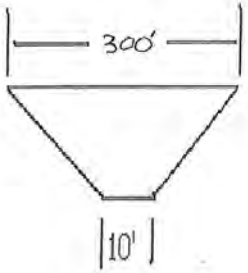
Minimum side slopes

8:1

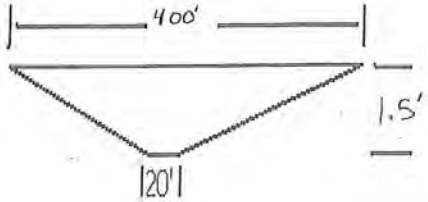
Top View



End View



Side View



CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Whiteside
CITY-TOWNSHIP Erie Twp
SEC. & ¼ SEC. No.# Sec 9 SE¼
48 Hours Before You Dig.
(TWO WORKING DAYS)

9

C
B
5
A

Name Big Bend Program # _____ Contract # _____

Date 4/14/15 Tract _____ Farm _____

"C"

Cost Estimate For Wetland

By: Jim Doeden 1/18/00

Typical Wetland Sizes

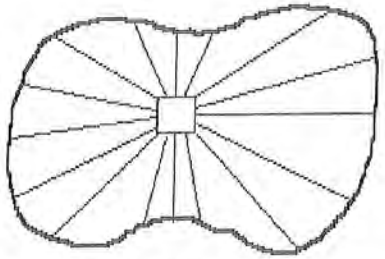
100' X 200'

740 Cu. Yds.

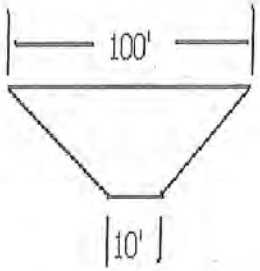
Minimum side slopes

8:1

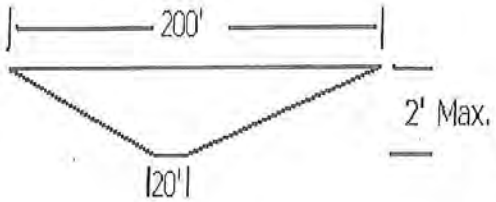
Top View



End View



Side View



CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Whiteside
CITY-TOWNSHIP Rock Twp
SEC. & ¼ SEC. No.# Sec 9 SE ¼
48 Hours Before You Dig.
(TWO WORKING DAYS)

(10)

D

Name BIG BEND Program # _____ Contract # _____

Date 4/14/15 Tract _____ Farm _____

"D"

Cost Estimate For Wetland

By: Jim Doeden 1/18/00

Typical Wetland Sizes

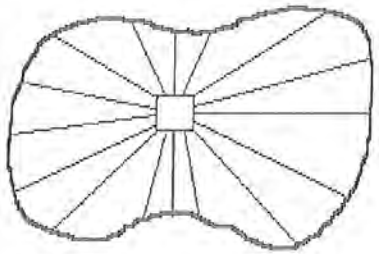
75 ft. X 300 ft.

834 Cu. Yds.

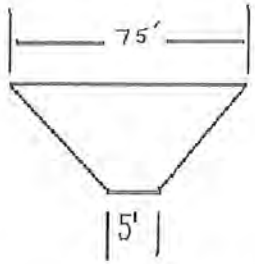
Minimum side slopes

6 : 1

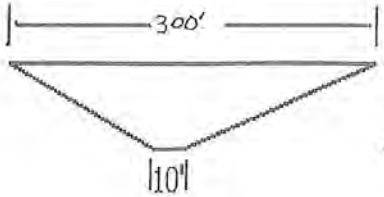
Top View



End View



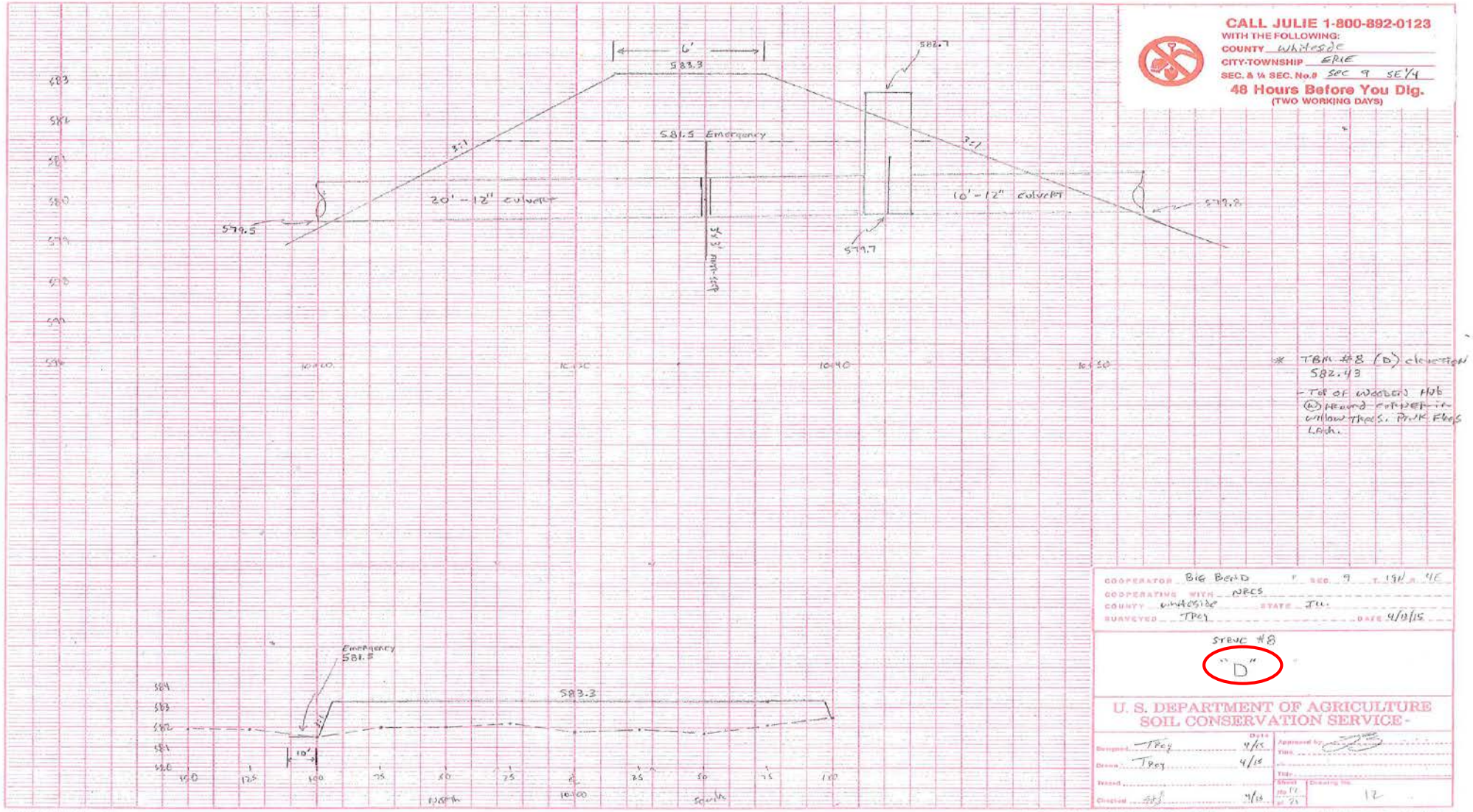
Side View



2' Max.

CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Wisconsin
CITY-TOWNSHIP ERIE TWP
SEC. & ¼ SEC. No.# Sec 9 SE¼
48 Hours Before You Dig.
(TWO WORKING DAYS)

11


CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Whiteside
CITY-TOWNSHIP ERIE
SEC. & ¼ SEC. No.# SEC 9 SE 1/4
48 Hours Before You Dig.
(TWO WORKING DAYS)
6'
583.3
582.7
581.5 Emergency
3:1
3:1
20' - 12" culvert
10' - 12" culvert
579.5
579.7
579.8
583
582
581
580
579
578
577
576
10+00
10+30
10+40
10+50
* TBM #8 (D) elevation 582.43
- Top of Wooden Hub (W) Around corner in willow trees. Pink Flags Lash.
Emergency 581.5
583.3
10'
584
583
582
581
580
150
125
100
75
50
25
25
50
75
100
North
South
COOPERATOR Big Bend SEC. 9 T. 19N R. 4E
COOPERATING WITH NRCS
COUNTY Whiteside STATE Ill.
SURVEYED Troy DATE 4/13/15
STRUC #8
"D"
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Designed Troy 4/15
Drawn Troy 4/15
Traced
Checked 4/15
Approved by
Title
Sheet No. 12 of 21
Drawing No. 12
GPO: 1989-545-818
ORDER THIS BLANK DATA SHEET BY DRAWING NUMBER

NRCS Natural Resources Conservation Service

Critical Area Planting

Illinois Job Sheet - 342 June 2011

Field/Site: "D"	Area (Acres or 1000 ft²): c.3 ac
Name: [illegible]	Date: 4/15/15
Farm #	Tract #
Planned by: Troy Brown SCT	

Definition
The establishment of permanent vegetation on sites that have or are expected to have high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.

USDA Natural Resources Conservation Service

Conditions where practice applies
On areas with existing or expected high rates of erosion or degraded sites that usually cannot be stabilized by ordinary conservation treatment and/or management, and if left untreated, could be severely damaged by erosion or sedimentation or could cause significant off-site damage. Examples are dams, dikes, mine spoils, levee cuts, fills, surfaced mined areas, and denuded or gullied areas. The practice also applies to vegetating concentrated flow channels such as natural or constructed waterways.

Seedbed preparation and seeding
Incorporate required amendments to depth of 3 inches leaving a firm seedbed free of large clods, stones, and debris larger than 6 inches in diameter. Seedbed must be firmed with a cultipacker/cultimulcher, harrow, or similar tool designed to break clods, level, and firm the seedbed. Seedbeds are considered firm when footprints leave no more than a 1/2 inch deep depression. Apply seed uniformly at a depth of 1/4-1/2 inch with a drill or cultipacker type seeder. Broadcast methods are acceptable where the seed will be applied uniformly and covered 1/4-1/2 inch deep with a cultipacker/cultimulcher, harrow, or similar tool designed to break clods, level, and firm the seedbed.

Sketch of Area to be treated

See Attached Photo

Seed, Lime, and Fertilizer (Specify rates per acre or per 1000 ft^2) 0.3 Ac

Materials	Kind	Rate per acre or per 1000 ft^2	Total
Lime	Agricultural	PH of 6.0 - 7.5	As needed
Nitrogen(N)		120	36 lbs
Phosphorus(P_2O_5)		120	36 lbs
Potassium (K_2O)		120	36 lbs
Companion Crop	Spring oats / Summer wheat or rye	20 lbs	6 lbs
Seed (PLS#/Ac.)	Smooth Bromegrass	30 lbs	9 lbs
	Alfalfa	9 lbs	3 lbs
Temporary Seeding	Wheat or Rye	90 lbs	27 lbs
Mulch	straw	2 tons	
Anchor	Disk 2 inch deep		

Seeding Dates: Early spring to June 1. August to Sept 1. After Sept 1 until October 1 150 lbs wheat or rye temporary cover

All seed shall be of high quality and comply with Illinois Seed and Weed Laws; and originate from the United States or Canada.

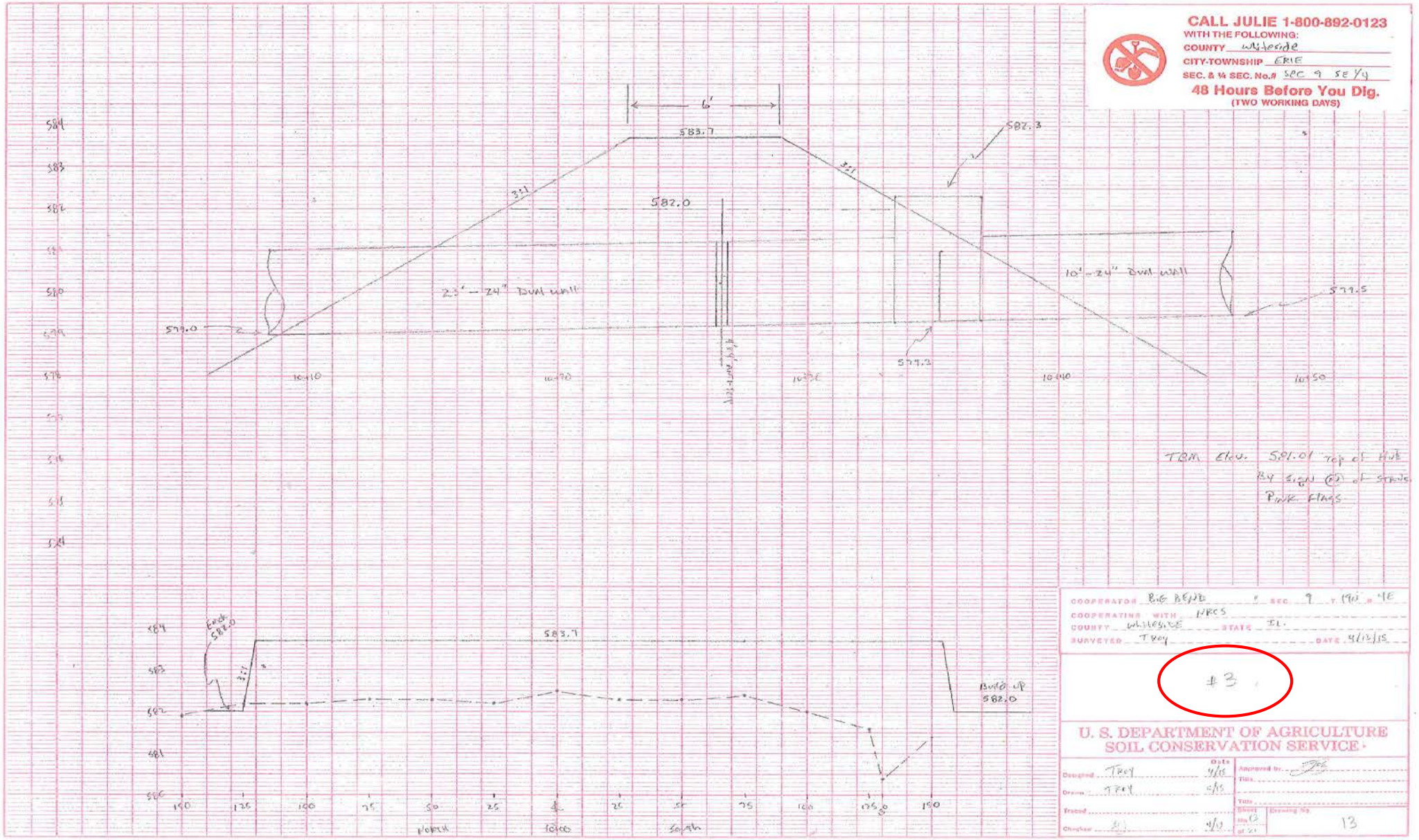
Seed quality shall not drop below 70% Pure Live Seed (PLS) for bromegrass and 80% for other cool season grass and legume species.

$$\text{PLS} = \frac{(\%\ \text{germination} + \%\ \text{dormant seed})\ X\ \%\ \text{purity}}{100}$$

Minimum germination percent for warm season grasses shall be as follows:
Switchgrass - 75%,
Indiangrass - 60%,
Big Bluestem - 60%, and
Eastern Gamagrass - 50%.

Germination tests are required for all warm and cool season grasses and legumes (excluding companion crops). Germination tests may not be older than 12 months at time of seeding excluding the month of testing. Inoculate legume seed before seeding with inoculant specific for the species. Re-inoculate uncoated seed if pre-inoculated more than 60 days prior to seeding.

3


CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Whiteside
CITY-TOWNSHIP ERIE
SEC. & ¼ SEC. No.# SEC 9 SE 1/4
48 Hours Before You Dig.
(TWO WORKING DAYS)
6'
583.7
582.3
582.0
3:1
23' - 24" Dual wall
10' - 24" Dual wall
579.0
579.3
579.5
10+10
10+20
10+30
10+40
10+50
TBM Elev. 581.01 Top of Hub
By Sign @ of Stairs
Pink Flags
Back 582.0
583.7
Build up 582.0
North
10+00
South
COOPERATOR BIG BEND SEC. 9 T 19N R 4E
COOPERATING WITH NRCS
COUNTY Whiteside STATE IL.
SURVEYED Troy DATE 4/13/15
#3
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Designed Troy 4/15
Drawn Troy 5/15
Traced
Checked 4/15
Approved by
Title
Sheet No. 13 of 21
Drawing No. 13
GPO: 1989-645-818
ORDER THIS BLANK DATA SHEET BY DRAWING NUMBER 3-H-45090-0

NRCS Natural Resources Conservation Service

Critical Area Planting

Illinois Job Sheet - 342 June 2011

Field/Site: #3	**Area (Acres or 1000 ft²):** 0.3 Ac
Name: Big Bend	**Date:** 4/15/15
Farm #	**Tract #**
Planned by: Troy Brown SCT	

Definition
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Seedbed preparation and seeding
Incorporate required amendments to depth of 3 inches leaving a firm seedbed free of large clods, stones, and debris larger than 6 inches in diameter. Seedbed must be firmed with a cultipacker/cultimulcher, harrow, or similar tool designed to break clods, level, and firm the seedbed. Seedbeds are considered firm when footprints leave no more than a 1/2 inch deep depression. Apply seed uniformly at a depth of 1/4-1/2 inch with a drill or cultipacker type seeder. Broadcast methods are acceptable where the seed will be applied uniformly and covered 1/4-1/2 inch deep with a cultipacker/cultimulcher, harrow, or similar tool designed to break clods, level, and firm the seedbed.

Sketch of Area to be treated

See Attached Photo

#3

Seed, Lime, and Fertilizer (Specify rates per acre or per 1000 ft^2) 0.3 AC

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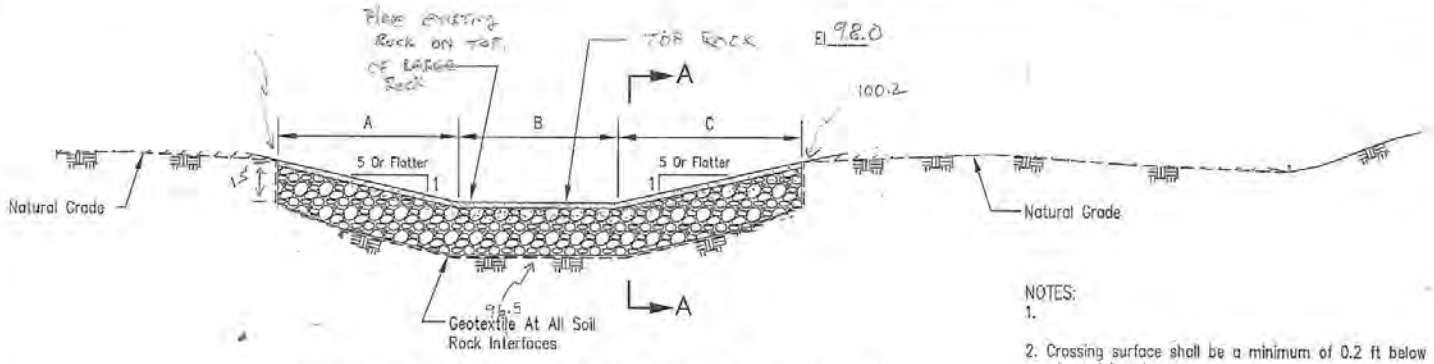
Big Bluestem - 60%, and
Eastern Gamagrass - 50%.

Germination tests are required for all warm and cool season grasses and legumes (excluding companion crops). Germination tests may not be older than 12 months at time of seeding excluding the month of testing. Inoculate legume seed before seeding with inoculant specific for the species. Re-inoculate uncoated seed if pre-inoculated more than 60 days prior to seeding.

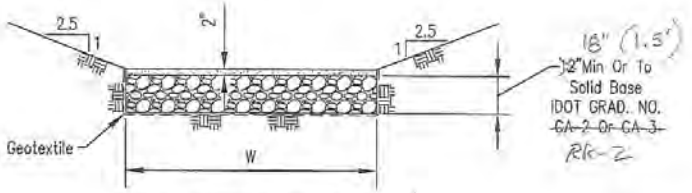
NRCS - ILLINOIS
June, 2011

B
5

* Remove culvert



PROFILE ALONG CENTERLINE OF CROSSING



SECTION A–A

NOTES:
1.
2. Crossing surface shall be a minimum of 0.2 ft below channel invert.
3. Surfacing material shall be compacted so that the entire surface is traversed by not less than one tread track of the load hauling equipment.
4. Berms at each end of the crossing shall be constructed to direct surface flow away from excavated crossing, as directed by the engineer.
5. All disturbed areas not covered by gravel shall be seeded in accordance with Crtical Area Planting Standard (Practice Code 342).
6. Excavated material shall be removed from site, used for diversion berms or placed at least 12 feet from top edge of back slope and spread so that the height does not exceed 1 foot. The spoil material shall drain freely.
7. Geotextile (non-woven, needle punched) Minimum criteria:
   Grab tensile strength (lb) ASTM D 4632 ____ 202
   Elongation at failure (%) ASTM D 4632 ____ ≥ 50
   Trapezoidal tear strength (lb) ASTM D 4533 ____ 79
   Puncture strength (lb) ASTM D 6241 ____ 433
   Ultraviolet light (% retained strength) ASTM D 4355 ____ min 50
   Apparent opening size (AOS) ASTM D 4751 ____ max 0.22 mm (US sieve size70)
   Permittivity sec^{-1} ASTM D 4491 ____ min 0.70
8. Any geotextile splices shall overlap a minimum of 18 inches, with upstream or upslope geotextile overlapping the abutting downslope geotextile.

DIMENSIONS
A = 50 (Ft)
B = 50 (Ft)
C = 50 (Ft)
W = 15 (Ft)
Station 10+00 @ culvert

ESTIMATED QUANTITIES		
Excavation	—	Cu.Yd.
Coarse Aggregate	252	Tons.
Geotextile	250	Sq.Yd.
Seeding	N/A	Acres

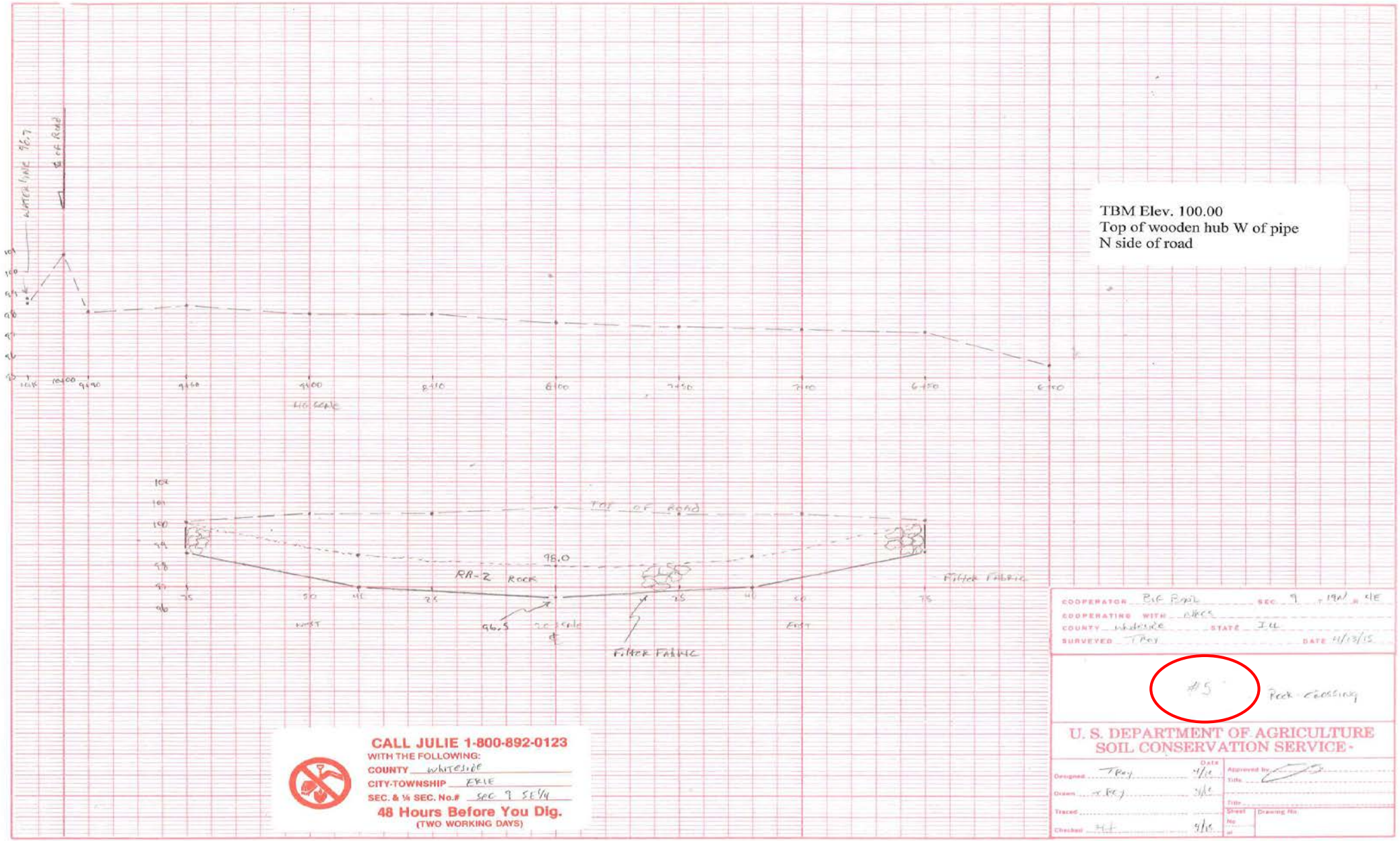
Landowner	Big Bend #5 Crossing	Location	#5

Designed
Drawn
Checked
Approved
Date

ROCK CROSSING

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File No.
IL-ENG-
Drawing No.
Page 1 of 1
Sheet of

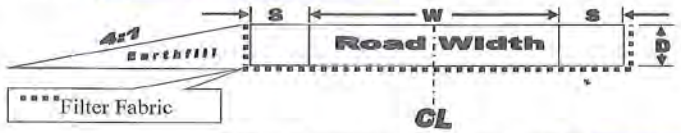

TBM Elev. 100.00
Top of wooden hub W of pipe
N side of road
WATERLINE 96.7
℄ of Road
HG SCALE
TOP OF ROAD
98.0
RR-2 ROCK
Filter Fabric
96.5
Filter Fabric
WEST
EAST
CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Whiteside
CITY-TOWNSHIP ERIE
SEC. & ¼ SEC. No.# SEC 9 SE¼
48 Hours Before You Dig.
(TWO WORKING DAYS)
COOPERATOR Bif Bond SEC. 9 19N 4E
COOPERATING WITH NRCS
COUNTY Whiteside STATE Ill
SURVEYED TRey DATE 4/13/15
#5 Rock Crossing
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Designed TRey 4/15
Drawn TRey 4/15
Traced
Checked 4/15
Approved by
Title
Sheet No.
Drawing No.
GPO: 1989-645-818
ORDER THIS BLANK DATA SHEET BY DRAWING NUMBER 3-N-45090-D

6

ACCESS ROAD – TWO-WAY TRAFFIC Ver 1.09 updated 02-01-12 S.Hobson/M. Johnson

TYPICAL CROSS SECTION

Landowner: Big Bend #6 Crossing **Date** 4/20/15



Choose Gravel Conversion Factor	2.05	Tons/CY

ESTIMATED QUANTITIES:

L = Length of Road (Feet)	D = Depth of Gravel (Inches) *Min. 6-In	W = Width of Road (Feet) *Min. 16-ft	S = Shoulder Width (Feet each side)	Total Width of Road + Shoulders (Feet) 8 *Min. 20-ft	Total Tons of Gravel (Tons)	*Fabric Sq. Yd. (L x (W+2S)) *Includes 18 inch overlap of fabric*
200	6	16	2	20	152.0	500.0

* no overlap calculated for length lap usually every 300-ft

Construction Notes:

1. Filter fabric shall be installed as recommended by manufacturer's instructions. Overlaps minimum 18 inches.
2. Filter Fabric shall be as specified in IL-ENG-81 Standard Drawing - ACCESS ROAD DETAIL
3. Rock size shall be as specified in IL-ENG-81 Standard Drawing - ACCESS ROAD DETAIL
4. **Either** - excavate typical road cross-section or add earthfill adjacent to both shoulders.
5. *Typical Road Cross-Section is symmetrical along the centerline (CL).*
6. *Crown and construct per NRCS Technical Guide Standard – Access Road Code 560.*
7. *Geotextile requirements as per IL-ENG-81 shall allow Puncture (lb) for ASTM D4833 or D6241 ≥ 80*

COARSE AGGREGATE GRADATIONS – IDOT Standard Specs for Road and Bridge Construction Jan. 1, 2007
Page 716 Sieve Size Percent Passing (by weight)

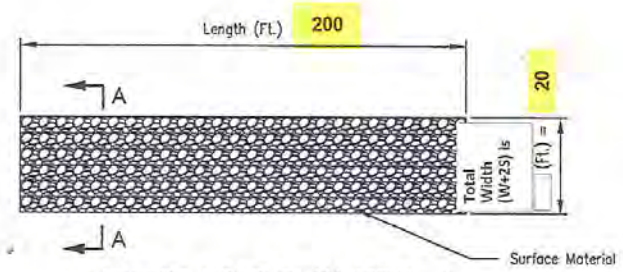
Grad No.	3 in.	2 ½ in.	2 in.	1 ½ in.	1 in.	¾ in.	½ in.	3/8 in.	No. 4	No. 16	No. 50	No. 200
CA 1	100	95±5	60±15	15±15	3±3							8±4
CA 2		100	95±5		75±15		50±15		30±10	20±15		
CA 3		100	93±7	55±20	8±8		3±3					
CA 4			100	95±5	85±10		60±15		40±10	20±15		8±4
CA 5				97±3	40±25		5±5		3±3			
CA 6				100	95±5		75±15		43±13	25±15		8±4
CA 7				100	95±5		45±15		5±5			
CA 8				100	97±3	85±10	55±10		10±5	3±3		
CA 9				100	97±3		60±15		30±15	10±10		6±6
CA 10					100	95±5	80±15		50±10	30±15		9±4
CA 11					100	92±8	45±15		6±6	3±3		

Sheet ____ **of** ____

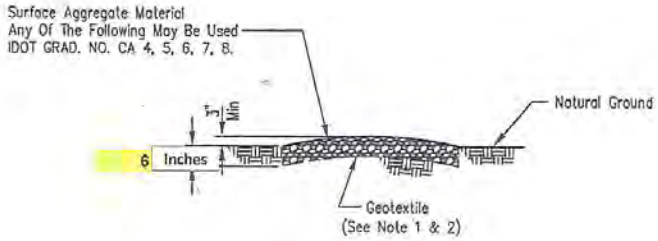
Designed by		Date	4/20/2015
Checked by		Date	4/15
Approved by		Date	4/15

#6

(16)



ACCESS ROAD PLAN VIEW



SECTION A–A

BILL OF MATERIAL		
Length	Feet	200
Width,Total	Feet	20
Surface Material	Tons	152
Geotextile	Sq.Yd.	500
Depth	Inches	6

NOTES:

1. Geotextile (non–woven) minimum criteria:
   - Weight of Geotextile (oz/sq.yd.) ____ 6
   - Tensile strength (lb) ASTM D 4632 ____ 180
   - Elongation at failure (%) ASTM D 4632 ____ ≥ 50
   - Puncture (lb) ASTM D 4833 or D6241 ____ 80
   - Ultraviolet light (% residual tensile strength) ASTM D 4355 ____ min 70
   - Apparent opening size (AOS) ASTM D 4751 ____ max 40 sieve
   - Permittivity sec^{-1} ASTM D 4491 ____ min 0.70
2. Any geotextile splices shall overlap a minimum of 18 inches, with upstream or upslope geotextile overlapping the abutting downslope geotextile.
3. Crown the surface aggregate 3" to 6" above natural ground to prevent water from ponding on the surface.
4. The top shall be or compacted with the track or tire of the equipment used for construction over the entire surface and shall not leave any large depressions or irregularities that would not drain.

IDOT = Illinois Department Of Transportation

MODIFIED IL-ENG-81

Date 02/2012
Designed S. Hobson
Drawn
Checked
Approved

ACCESS ROAD DETAIL

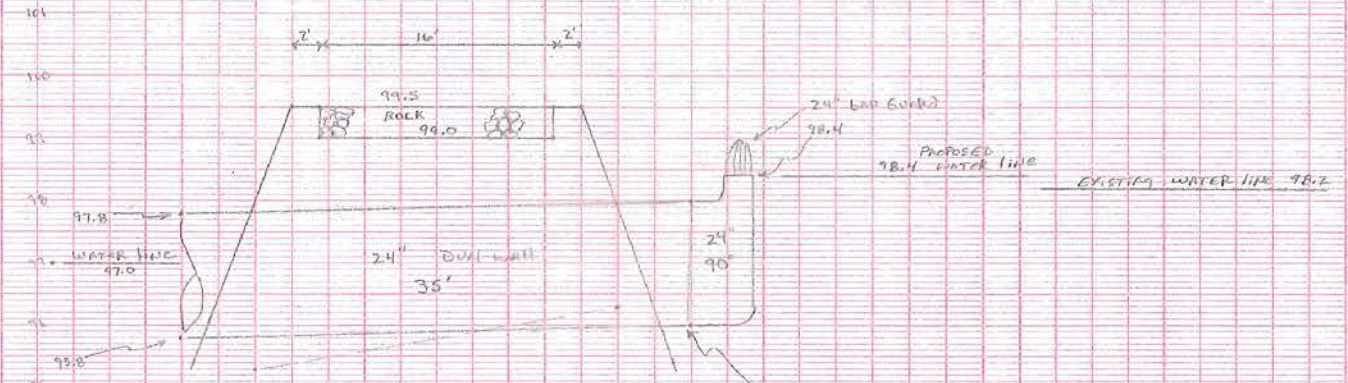
NRCS
Natural Resources Conservation Service
United States Department of Agriculture

Drawing No.

Sheet 1 of 1

#6

CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Whiteside
CITY-TOWNSHIP EPIE
SEC. & ¼ SEC. No.# SEC 10 SW¼
48 Hours Before You Dig.
(TWO WORKING DAYS)



COOPERATOR BIG BEAR SEC. 10 T. 19N R. 4E
COOPERATING WITH OBES
COUNTY Whiteside STATE IL
SURVEYED TKey DATE 4/16/15

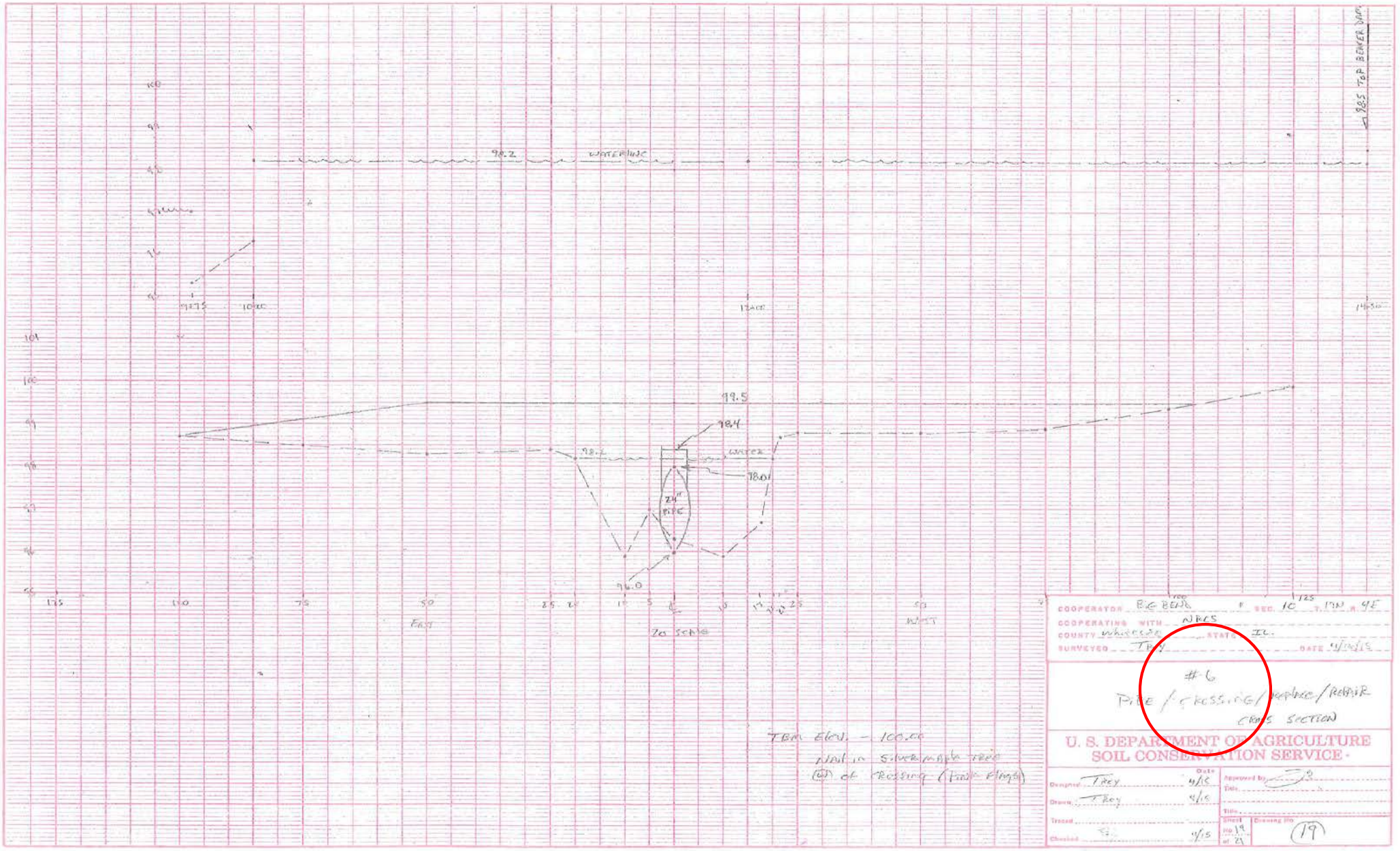
#6
PIPE / CROSSING / Replace / Repair
Profile

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

		Date		
Designed	TKey	4/15	Approved by	
Drawn	TKey	4/15	Title	
Traced			Title	
Checked	SSL	4/15	Sheet No. 18 of 21	Drawing No. 18

GPO: 1989-645-818

ORDER THIS BLANK DATA SHEET BY DRAWING NUMBER 5-M-45060-D


98.5 TOP BEAVER DAM
98.2
WATERLINE
99.5
98.4
98.2
WATER
98.01
24" PIPE
96.0
EAST
WEST
20 SCALE
TBM ELEV. - 100.00
Nail in Silver Maple Tree
(W) of Crossing (Pink Flags)
COOPERATOR BIG BEND
SEC. 10 T. 17N R. 4E
COOPERATING WITH NRCS
COUNTY Whiteside
STATE IL.
SURVEYED Trey
DATE 4/16/15
#6
PIPE / CROSSING / REPLACE / REPAIR
CROSS SECTION
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Designed Trey 4/15
Drawn Trey 4/15
Traced
Checked 4/15
Approved by
Title
Sheet No. 19 of 21
Drawing No. 19
GPO: 1989-645-818
ORDER THIS BLANK DATA SHEET BY DRAWING NUMBER 2-H-42030-D

9
10

COMPUTATION SHEET
NRCS-ENG-522 Rev. 10-97

U. S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

STATE ILLINOIS		PROJECT Rock Notch on Levee / Repair	
BY Troy	DATE 3/19/15	CHECKED BY	DATE	JOB NO.
SUBJECT #9			SHEET ____ OF ____

(Actual Notch 200' x 70')

265' x 60' x 2.0'

31800 cuft x 160 lbs per cuft ÷ 2000 = 2544 TONS

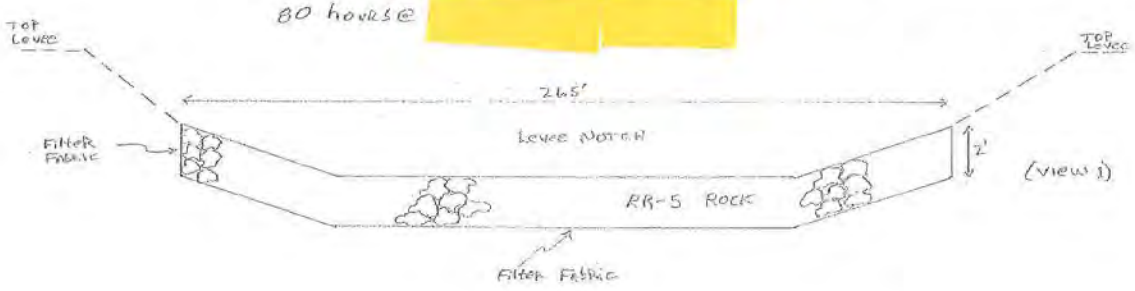
2544 tons (RR-5) @ [redacted]

6 Rolls of Fabric @ [redacted]

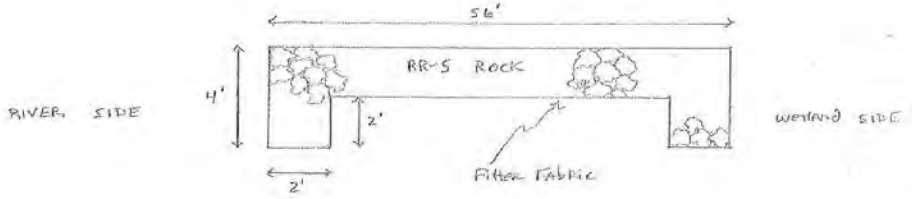
Labor:

2 Pieces of Equip. @ 4 Days @ 10 hr Days x 2 = 80 hours

80 hours @ [redacted]



(View 1)



(View 2)

[redacted]

9
10

Computation Shee

NRCS–ENG-523A Rev. 6-2002

U.S. Department of Agriculture
Natural Resources Conservation Service

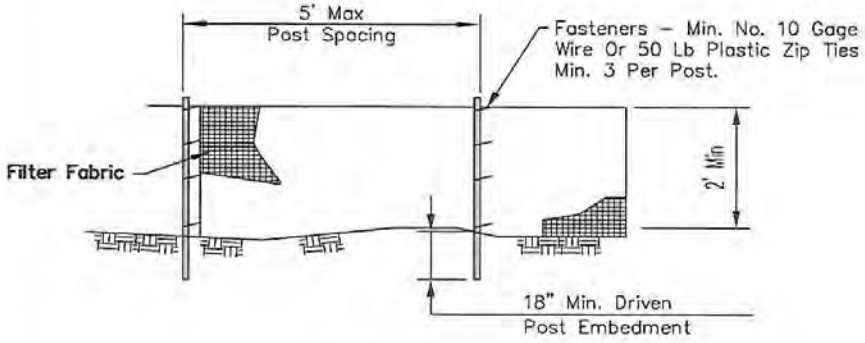
State	Project		
ILLINOIS	#10 MAINTENANCE		
By / Date	Checked by	Date	Job No.
TROY / 3/19/15			✓
Subject			Sheet ____ of ____
#10			

- CLEAN OUT upper and lower end of culvert

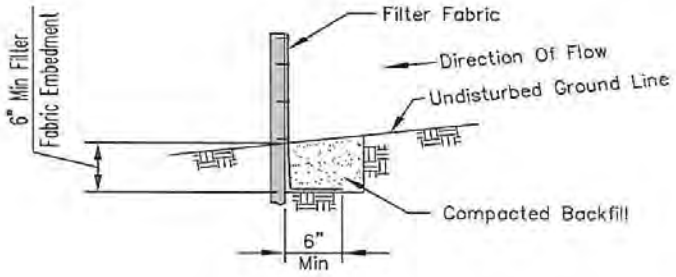
60' x 10' x 2' upper 45 cuyds

60' x 10' x 2' lower 45 cuyds

90 cuyds total



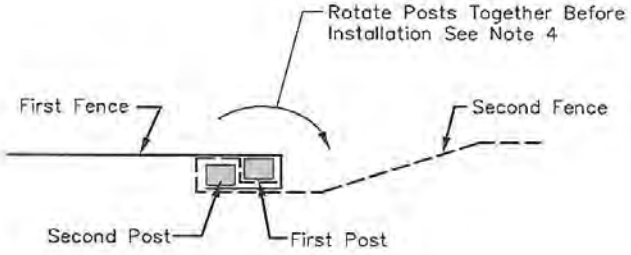
ELEVATION



FABRIC ANCHOR DETAIL

NOTES:

1. Temporary silt fence shall be installed prior to any grading work in the area to be protected. Fence shall be maintained throughout the construction period and removed in conjunction with the final grading and site stabilization.
2. Filter fabric shall meet the requirements of material specification 592 Geotextile Table 1 or 2, Class I with equivalent opening size of at least 30 for nonwoven and 50 for woven.
3. Fence posts shall be either wood post with a minimum cross-sectional area of 1.5" X 1.5" or a standard steel post.
4. When splices are necessary make splice at post according to splice detail. Place the end post of the second fence inside the end post of the first fence. Rotate both posts together at least 180 degrees to create a tight seal with the fabric material. Cut the fabric near the bottom of the posts to accommodate the 6 inch flap. Then drive both posts and bury the flap. Compact backfill well.



SPLICE DETAIL—PLAN VIEW

* SEE ATTACHED Photo FOR LOCATION

Designed TRY 5/15
Drawn M. QUINONES 6/1/14
Checked 5/15
Approved 5/15

SILT FENCE

BIG BEND SFWA

USDA United States Department of Agriculture
Natural Resources Conservation Service

File No. IL-ENG-49
Drawing No.
Page 1 of 1
Sheet of

D
C
3
Silt fence around parimeter
B
Spoil Area
5

Big Bend 2015 Statement of Work

1 The duration of the project shall be no more than 2 weeks/14 days once the bid has been awarded and mobilization approval by the IDNR and the Whiteside County Soil and Water Conservation District.

2 Contractor mobilization to site shall be within 7 days of IDNR and Whiteside County Soil and Water Conservation District approval.

3 Stabilization of spoil material (per NRCS specifications) shall be in place before deposition in the designated areas (see enclosed map).

4 Erosion and sediment control measures shall consist of the following as called for by NRCS specifications: silt fence around the spoil area and critical seeding on all rebuild berms.

5 Stockpiling of rock shall be in an area near site number nine. Pile will be done in such a manner as to not damage existing trees and will be for no more than 7 days from the beginning work on site number 9. All remaining rock must removed within 7 days after site 9 is complete.

6 All ingress and egress shall be on existing roads and trails. Any damage to roads or trails is the responsibility of the bid awardee (contractor) to repair.

7 All state, local, and federal labor/wage laws must be adhered to including prevailing wage laws. A prevailing wage certification must be signed by the bid awardee (contractor).

8 Once all site projects are certified as built according to NRCS specifications and the Whiteside County Soil and Water Conservation District and IDNR approve, a single payment will be issued. No partial payments will be issued.

9 As much as is practical all existing practices including roads, trails, native grass, wetlands, and trees/shrubs shall be protected.

10 Contacts for the project are IDNR and the Whiteside County Soil and Water Conservation District.

11 IDNR and the Whiteside County Soil and Water Conservation District reserve the right to reject any and all bids.

X Date: 9/24/15

9/24/15

Additional tasks completed for the subject restoration project:

Site #9.

- Extension on 3’ water control structure
- 4 trash panels

Site A. Rock and Fabric for 100’ crossing

Site #15. Rock and Fabric for 850’ crossing

Site E. Construction of 1.4 acre shallow water area

#9
E
#15
A

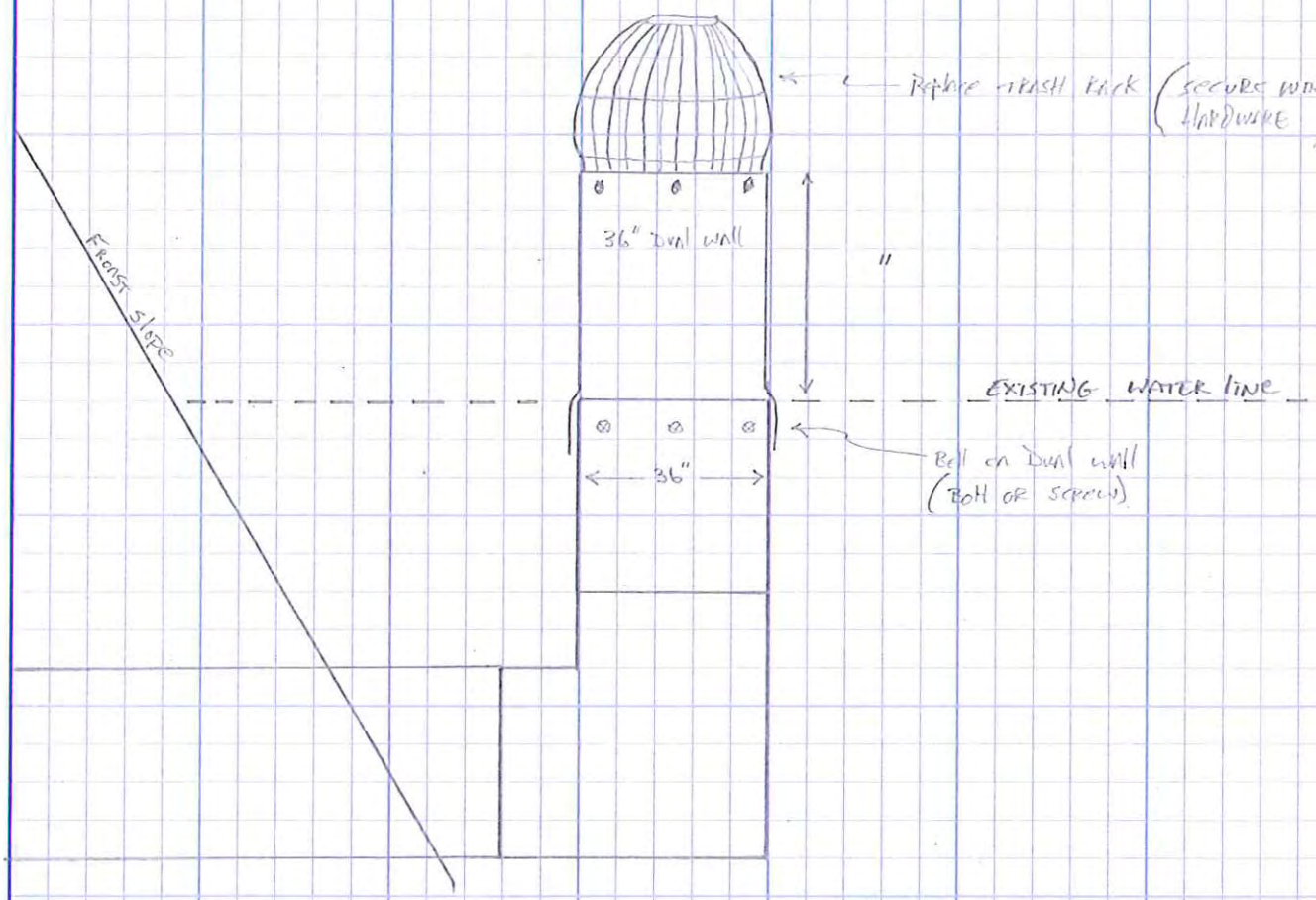
Computation Sheet

SITE #9

NRCS-ENG-523A Rev. 6-2002

U.S. Department of Agriculture
Natural Resources Conservation Service

State	Project			
ILLINOIS	SITE 9			
By: Troy	Date: 9/23/15	Checked by: JJ	Date: 9/15	Job No.
Subject: SITE #9 DRAWING				Sheet ____ of ____



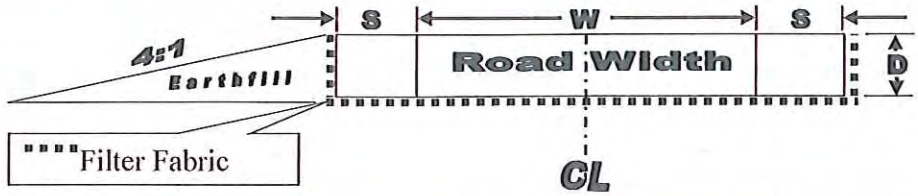
* NOTES: - ADD " or 36" Dual wall pipe

- Secure 36" pipe to existing pipe with appropriate HARDWARE.
- Replace any TRASH RACK and secure with appropriate HARDWARE.
- Replace Hog panels around Rack. (4 panels) using Existing Posts

ACCESS ROAD – ONE-WAY TRAFFIC Ver 1.09 updated 02-01-12 S.Hobson/M. Johnson

TYPICAL CROSS SECTION

Landowner: Big bend Site A **Date** 9/23/15



Choose Gravel Conversion Factor	2.05	Tons/CY

ESTIMATED QUANTITIES:

L = Length of Road (Feet)	D = Depth of Gravel (Inches) *Min. 6-In	W = Width of Road (Feet) *Min. 10-ft	S = Shoulder Width (Feet each side)	Total Width of Road + Shoulders (Feet) *Min 14-ft	Total Tons of Gravel (Tons)	*Fabric Sq. Yd. (L x (W+2D)) Includes 18 inch overlap if W>10 OR D > 6
100	12	10	2	14	107	195

* no overlap calculated for length lap usually every 300-ft

Construction Notes:

1. Filter fabric shall be installed as recommended by manufacturer's instructions. Overlaps minimum 18 inches.
2. Filter Fabric shall be as specified in IL-ENG-81 Standard Drawing - ACCESS ROAD DETAIL
3. Rock size shall be as specified in IL-ENG-81 Standard Drawing - ACCESS ROAD DETAIL
4. **Either** - excavate typical road cross-section or add earthfill adjacent to both shoulders.
5. *Typical Road Cross-Section is symmetrical along the centerline (CL).*
6. *Crown and construct per NRCS Technical Guide Standard – Access Road Code 560.*
7. *Geotextile requirements as per IL-ENG-81 shall allow Puncture (lb) for ASTM D4833 or D6241 ≥ 80*

COARSE AGGREGATE GRADATIONS – IDOT Standard Specs for Road and Bridge Construction Jan. 1, 2007

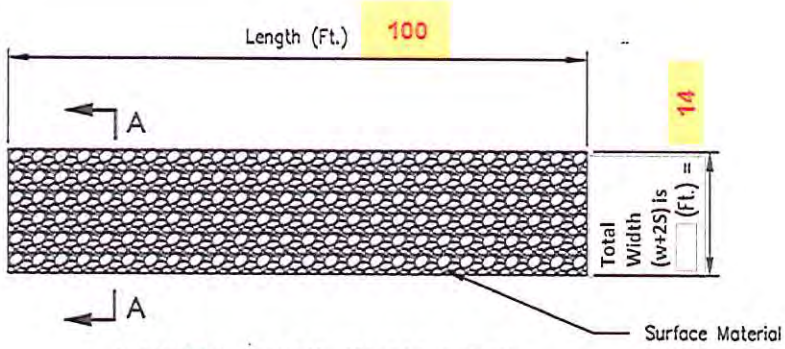
Page 716 Sieve Size Percent Passing (by weight)

Grad No.	3 in.	2 ½ in.	2 in.	1 ½ in.	1 in.	¾ in.	½ in.	3/8 in.	No. 4	No. 16	No. 50	No. 200
CA 1	100	95±5	60±15	15±15	3±3							
CA 2		100	95±5		75±15		50±15		30±10	20±15		8±4
CA 3		100	93±7	55±20	8±8		3±3					
CA 4			100	95±5	85±10		60±15		40±10	20±15		8±4
CA 5				97±3	40±25		5±5		3±3			
CA 6				100	95±5		75±15		43±13	25±15		8±4
CA 7				100	95±5		45±15		5±5			
CA 8				100	97±3	85±10	55±10		10±5	3±3		
CA 9				100	97±3		60±15		30±15	10±10		6±6
CA 10					100	95±5	80±15		50±10	30±15		9±4
CA 11					100	92±8	45±15		6±6	3±3		

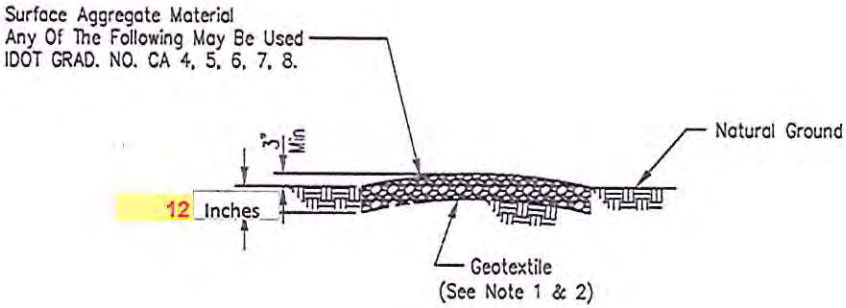
Sheet 1 **of** 2

Designed by	Troy	Date	9/23/2015
Checked by	[illegible]	Date	9/15
Approved by	[illegible]	Date	9/15

SITE "A"



ACCESS ROAD PLAN VIEW



SECTION A–A

BILL OF MATERIAL		
Length	Feet	100
Width,Total	Feet	14
Surface Material	Tons	107
Geotextile	Sq.Yd.	195
Depth	Inches	12

NOTES:

1. Geotextile (non–woven) minimum criteria:
   Weight of Geotextile (oz/sq.yd.)_____6
   Tensile strength (lb) ASTM D 4632_____180
   Elongation at failure (%) ASTM D 4632_____≥ 50
   Puncture (lb) ASTM D 4833__ or D6241 _____80
   Ultraviolet light (% residual tensile strength)
   ASTM D 4355_____min 70
   Apparent opening size (AOS) ASTM D 4751__max 40 sieve
   Permittivity sec^{-1} ASTM D 4491_____min 0.70
2. Any geotextile splices shall overlap a minimum of 18 inches, with upstream or upslope geotextile overlapping the abutting downslope geotextile.
3. Crown the surface aggregate 3" to 6" above natural ground to prevent water from ponding on the surface.
4. The top shall be or compacted with the track or tire of the equipment used for construction over the entire surface and shall not leave any large depressions or irregularities that would not drain.

IDOT = Illinois Department Of Transportation

MODIFIED IL-ENG-81

Date 2/12
Designed
Drawn S. Hobson 02/2012
Checked
Approved

ACCESS ROAD DETAIL

SITE A

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

Drawing No.

Sheet 2 of 2

SITE E

Name BIG BEND Program # _____ Contract # _____

Date 9/22/15 Tract _____ Farm _____

Cost Estimate For Wetland

By: Jim Doeden 1/18/00

Typical Wetland Sizes

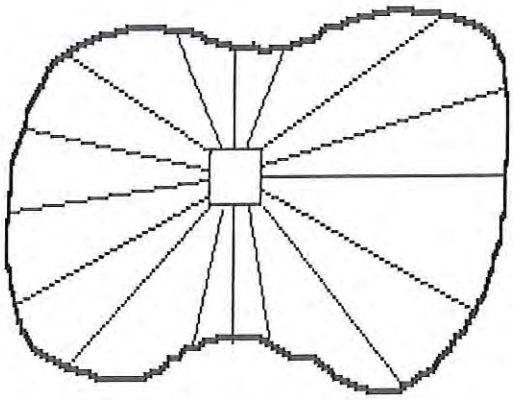
200' X 300'

1111 Cu. Yds. 1.4/ac

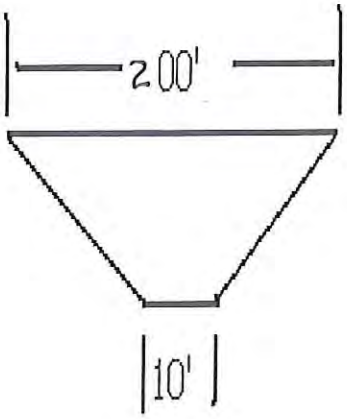
Minimum side slopes

8:1

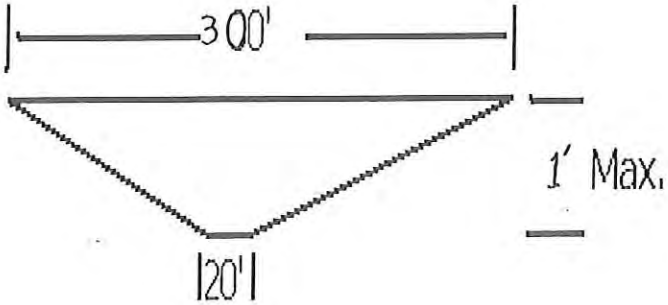
Top View



End View



Side View

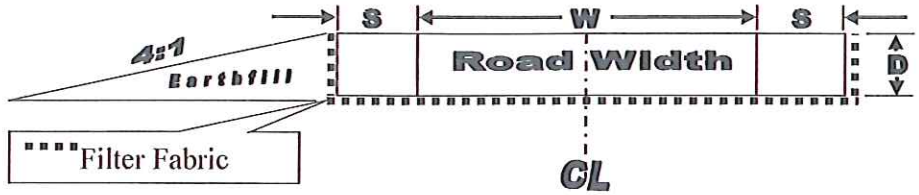


CALL JULIE 1-800-892-0123
WITH THE FOLLOWING:
COUNTY Whiteside
CITY-TOWNSHIP ERIE TWP
SEC. & ¼ SEC. No.# Sec 9 SE¼
48 Hours Before You Dig.
(TWO WORKING DAYS)

ACCESS ROAD – ONE-WAY TRAFFIC Ver 1.09 updated 02-01-12 S.Hobson/M. Johnson

TYPICAL CROSS SECTION

Landowner: Site 15 **Date** 9/23/15



Choose Gravel Conversion Factor	2.05	Tons/CY

ESTIMATED QUANTITIES:

L = Length of Road (Feet)	D = Depth of Gravel (Inches) *Min. 6-In	W = Width of Road (Feet) *Min. 10-ft	S = Shoulder Width (Feet each side)	Total Width of Road + Shoulders (Feet) *Min 14-ft	Total Tons of Gravel (Tons)	*Fabric Sq. Yd. (L x (W+2D)) Includes 18 inch overlap if W>10 OR D > 6
850	6	10	2	14	452	1417

* no overlap calculated for length lap usually every 300-ft

Construction Notes:

1. Filter fabric shall be installed as recommended by manufacturer's instructions. Overlaps minimum 18 inches.
2. Filter Fabric shall be as specified in IL-ENG-81 Standard Drawing - ACCESS ROAD DETAIL
3. Rock size shall be as specified in IL-ENG-81 Standard Drawing - ACCESS ROAD DETAIL
4. **Either** - excavate typical road cross-section or add earthfill adjacent to both shoulders.
5. *Typical Road Cross-Section is symmetrical along the centerline (CL).*
6. *Crown and construct per NRCS Technical Guide Standard – Access Road Code 560.*
7. *Geotextile requirements as per IL-ENG-81 shall allow Puncture (lb) for ASTM D4833 or D6241 ≥ 80*

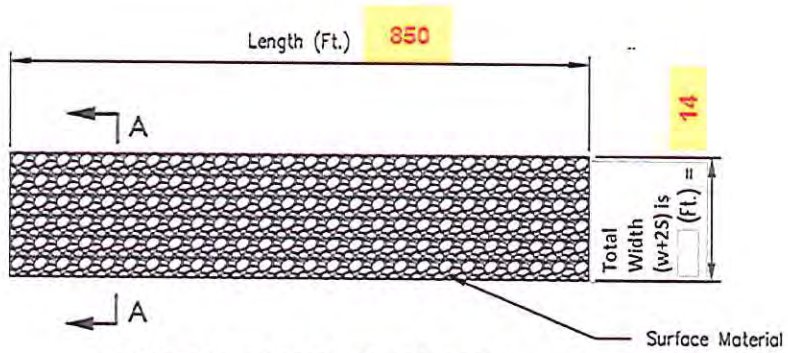
COARSE AGGREGATE GRADATIONS – IDOT Standard Specs for Road and Bridge Construction Jan. 1, 2007
Page 716 Sieve Size Percent Passing (by weight)

Grad No.	3 in.	2 ½ in.	2 in.	1 ½ in.	1 in.	¾ in.	½ in.	3/8 in.	No. 4	No. 16	No. 50	No. 200
CA 1	100	95±5	60±15	15±15	3±3							
CA 2		100	95±5		75±15		50±15		30±10	20±15		8±4
CA 3		100	93±7	55±20	8±8		3±3					
CA 4			100	95±5	85±10		60±15		40±10	20±15		8±4
CA 5				97±3	40±25		5±5		3±3			
CA 6				100	95±5		75±15		43±13	25±15		8±4
CA 7				100	95±5		45±15		5±5			
CA 8				100	97±3	85±10	55±10		10±5	3±3		
CA 9				100	97±3		60±15		30±15	10±10		6±6
CA 10					100	95±5	80±15		50±10	30±15		9±4
CA 11					100	92±8	45±15		6±6	3±3		

Sheet 1 **of** 2

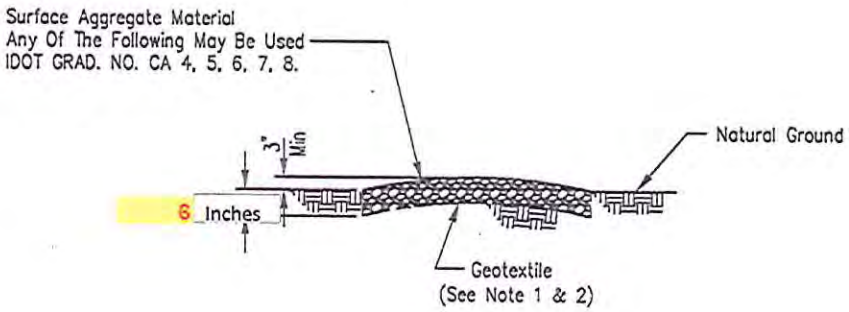
Designed by	TKey	Date	9/23/2015
Checked by	[illegible]	Date	9/15
Approved by	[illegible]	Date	9/15

SITE "#15"



ACCESS ROAD PLAN VIEW

BILL OF MATERIAL		
Length	Feet	850
Width,Total	Feet	14
Surface Material	Tons	452
Geotextile	Sq.Yd.	1417
Depth	Inches	6



SECTION A–A

NOTES:

1. Geotextile (non-woven) minimum criteria:
   - Weight of Geotextile (oz/sq.yd.) ____ 6
   - Tensile strength (lb) ASTM D 4632 ____ 180
   - Elongation at failure (%) ASTM D 4632 ____ ≥ 50
   - Puncture (lb) ASTM D 4833 or D6241 ____ 80
   - Ultraviolet light (% residual tensile strength) ASTM D 4355 ____ min 70
   - Apparent opening size (AOS) ASTM D 4751 ____ max 40 sieve
   - Permittivity sec^{-1} ASTM D 4491 ____ min 0.70
2. Any geotextile splices shall overlap a minimum of 18 inches, with upstream or upslope geotextile overlapping the abutting downslope geotextile.
3. Crown the surface aggregate 3" to 6" above natural ground to prevent water from ponding on the surface.
4. The top shall be or compacted with the track or tire of the equipment used for construction over the entire surface and shall not leave any large depressions or irregularities that would not drain.

IDOT = Illinois Department Of Transportation

MODIFIED IL-ENG-81

Date
Designed TRY
Drawn S. Hobson 02/2012
Checked
Approved

ACCESS ROAD DETAIL

SITE #15

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

Drawing No.

Sheet 7 of 7

Whiteside County
Soil and Water Conservation District

USDA BLDG., RR #1, 16255 Liberty Street - MORRISON, ILLINOIS 61270
PHONE (815) 772-3811

November 23, 2015

Dear Beth Whetsell,

Per our phone conversation, here are the documents you requested pertaining to the Big Bend Project. The projects performed at Big Bend SWFA have been completed and do meet NRCS specifications.

Any questions, comments or concerns please feel free to call us at 815-772-2124 ext 3.

Sincerely,

Patricia Paxson, Administrative Coordinator
Whiteside County SWCD