

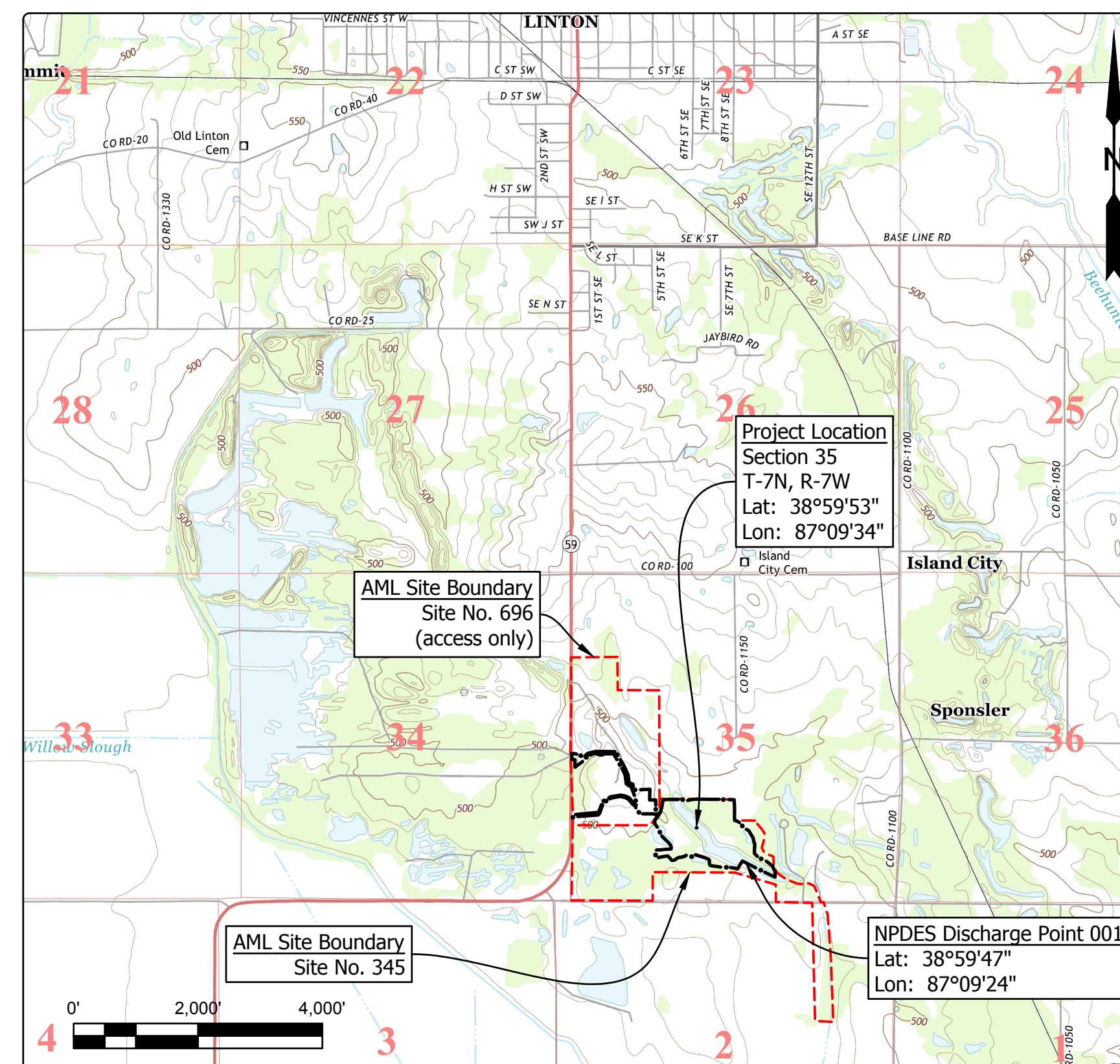
STATE OF INDIANA  
INDIANA DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF RECLAMATION



ABANDONED COAL MINE  
RESTORATION

LINTON NO. 1  
SITE 345  
CONTRACT DEL1915208023/E008-185  
GREENE COUNTY

Clear and grub, construct wetlands, and revegetate all disturbed areas.



Project Location Map  
Linton & Sandborn US TOPO (USGS, 2013)

**GENERAL NOTES**

2010 AML Standard Specifications to be used with these plans.

Plans developed from LiDAR topographic mapping survey flown in 2011 by Williams Aerial & Mapping, Inc. in NAD 83, Indiana State Plane West, Feet.

An NPDES discharge permit is required for this project. Additional NPDES discharge points can be added to facilitate construction sequencing.

The Contractor shall not work Fridays after 4:00 PM, Saturdays, or Sundays unless otherwise approved by the Engineer.

**INDEX**

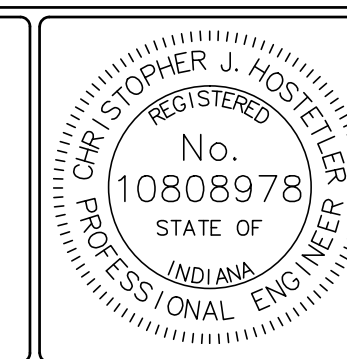
SHEET NO.	SHEET TITLE
1	TITLE, INDEX, & LOCATION MAP
2	SITE MAP
3-4	SITE PLANS
5	SECTIONS
6	REVEGETATION PLAN
7-8	DETAILS

**UTILITIES**

The facilities of the following utilities exist near the project site but are not expected to be affected by the proposed construction. If questions arise, the utility may be contacted using the information below.

- |  |  |
|--|--|
| <p><b>ELECTRIC:</b></p> <p>Utilities District of Western Indiana R.E.M.C.<br/>PO Box 427/Hwy. 54 West<br/>Bloomfield, IN 47424<br/>(812) 384-5053</p> <p>Linton Municipal Utilities<br/>86 South Main Street<br/>Linton, IN 47441<br/>(812) 847-4971</p> <p><b>TELECOM:</b></p> <p>AT&amp;T - Distribution<br/>240 N. Meridian St., Rm 1791<br/>Indianapolis, IN 46204<br/>(317) 265-3050</p> <p>Smithville Telephone Company, Inc.<br/>1600 W. Temperance St.<br/>Ellettsville, IN 47429<br/>(812) 935-2423</p> | <p><b>NATURAL GAS:</b></p> <p>Linton Municipal Utilities<br/>86 South Main Street<br/>Linton, IN 47441<br/>(812) 847-4971</p> <p><b>WATER/SANITARY:</b></p> <p>Ellis Water<br/>PO Box 291<br/>Linton, IN 47441<br/>(812) 847-9898</p> <p>Linton Municipal Utilities<br/>86 South Main Street<br/>Linton, IN 47441<br/>(812) 847-4971</p> |
|--|--|

Call Before You Dig. Indiana Underground Plant Protection Service (IUPPS) 1-800-382-5544 or 811 from your mobile phone.



PLANS PREPARED BY: INDIANA DEPARTMENT OF NATURAL RESOURCES (812) 665-2207 DIVISION OF RECLAMATION

CERTIFIED BY: *Christopher J. Hostetler* PHONE NUMBER 9/28/18 DATE

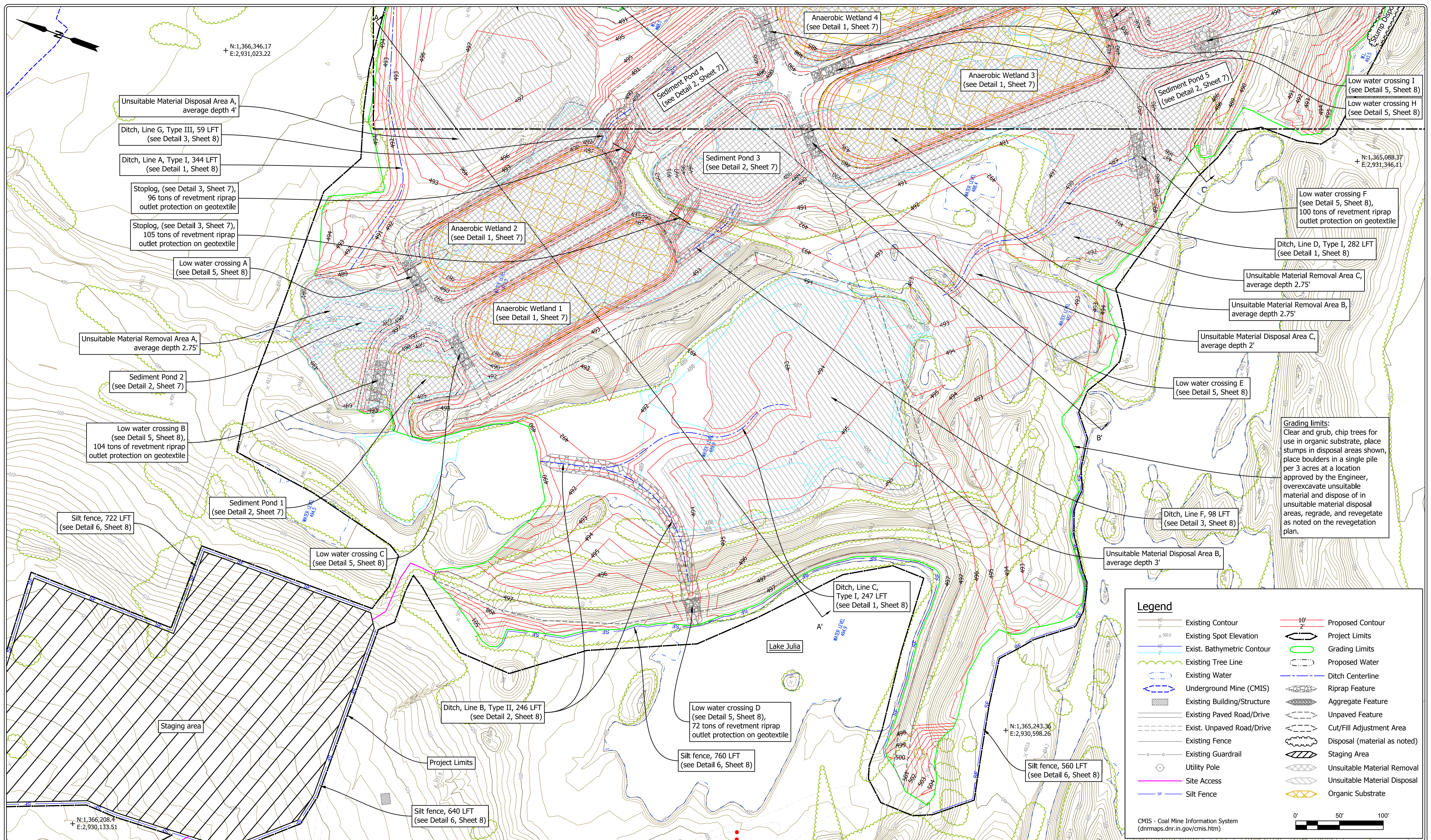
APPROVED FOR LETTING: *M. D. ELL* 9/28/18 DATE

DIVISION OF RECLAMATION

SCALE AS NOTED	SHEET 1 OF 8
PROJECT E008-185	SITE 345



	RECOMMENDED FOR APPROVAL: <i>Christopher J. Hostetler</i> 9/28/18 <small>DATE</small>		DATE MADE 01/09/2018		SITE MAP		SCALE 1" = 200'		SHEET 2 OF 8	
	DESIGNED BY C.J.H.	DRAWN BY C.J.H.	DATE REVISED 9/7/2018 10:37:23 AM		STATE OF INDIANA DEPARTMENT OF NATURAL RESOURCES <small>DIVISION OF RECLAMATION</small>		PROJECT E008-185		SITE 345	



N:1,366,346.17  
E:2,931,023.22

N:1,365,088.37  
E:2,931,346.11

N:1,366,208.4  
E:2,930,133.51

N:1,365,243.36  
E:2,930,598.26

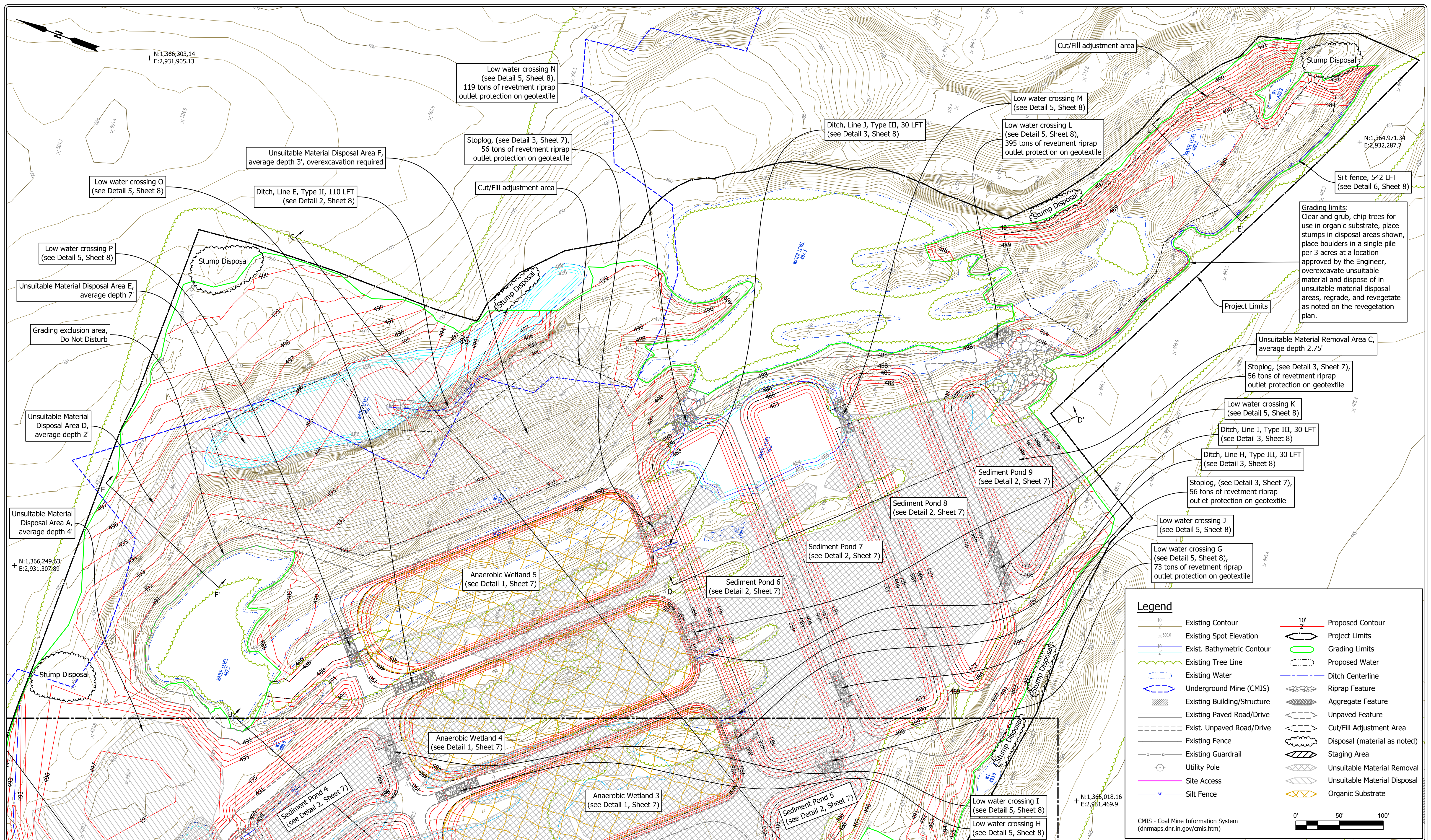
**Legend**

Existing Contour	Proposed Contour
Existing Spot Elevation	Project Limits
Exist. Bathymetric Contour	Grading Limits
Existing Tree Line	Proposed Water
Existing Water	Ditch Centerline
Underground Mine (CMIS)	Riprap Feature
Existing Building/Structure	Aggregate Feature
Existing Paved Road/Drive	Unpaved Feature
Exist. Unpaved Road/Drive	Cut/Fill Adjustment Area
Existing Fence	Disposal (material as noted)
Existing Guardrail	Staging Area
Utility Pole	Unsuitable Material Removal
Site Access	Unsuitable Material Disposal
Silt Fence	Organic Substrate

CMIS - Coal Mine Information System  
(dnrmrps.dnr.in.gov/cmisis.htm)

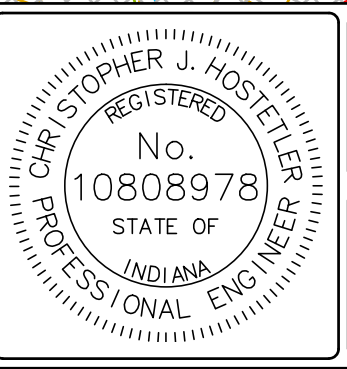
0' 50' 100'

	RECOMMENDED FOR APPROVAL: <i>Christopher J. Hostetler</i> 9/28/18 DATE	DATE MADE 01/09/2018	SITE PLAN - WEST  STATE OF INDIANA DEPARTMENT OF NATURAL RESOURCES DIVISION OF RECLAMATION	SCALE 1" = 50'	SHEET 3 OF 8
	DESIGNED BY C.J.H.	DRAWN BY C.J.H.		DATE REVISED 9/7/2018 10:37:23 AM	PROJECT E008-185



**Grading limits:**  
 Clear and grub, chip trees for use in organic substrate, place stumps in disposal areas shown, place boulders in a single pile per 3 acres at a location approved by the Engineer, overexcavate unsuitable material and dispose of in unsuitable material disposal areas, regrade, and revegetate as noted on the revegetation plan.

Legend			
	Existing Contour		Proposed Contour
	Existing Spot Elevation		Project Limits
	Exist. Bathymetric Contour		Grading Limits
	Existing Tree Line		Proposed Water
	Existing Water		Ditch Centerline
	Underground Mine (CMIS)		Riprap Feature
	Existing Building/Structure		Aggregate Feature
	Existing Paved Road/Drive		Unpaved Feature
	Exist. Unpaved Road/Drive		Cut/Fill Adjustment Area
	Existing Fence		Disposal (material as noted)
	Existing Guardrail		Staging Area
	Utility Pole		Unsuitable Material Removal
	Site Access		Unsuitable Material Disposal
	Silt Fence		Organic Substrate



RECOMMENDED FOR APPROVAL: *Christopher J. Hostetler* 9/28/18 DATE

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SITE PLAN - EAST

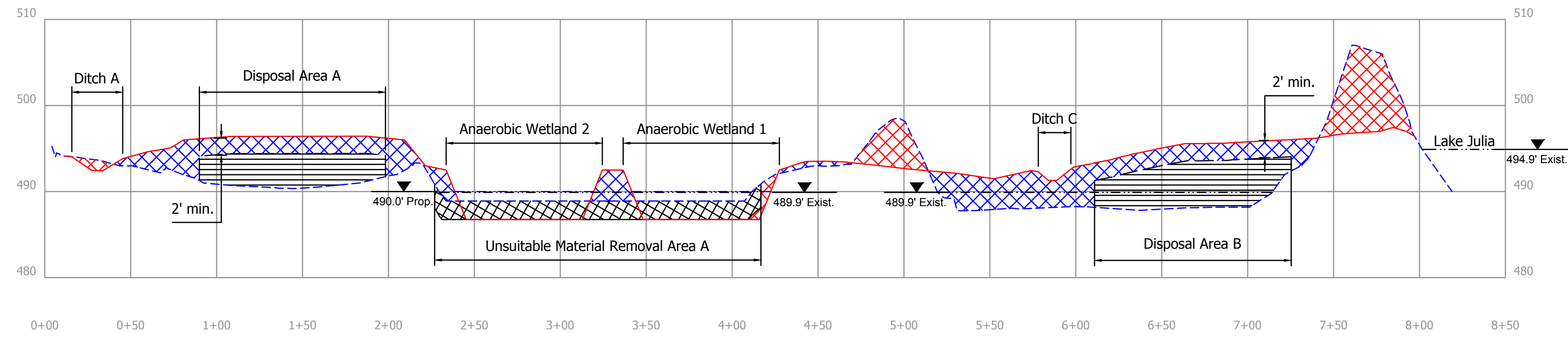
STATE OF INDIANA  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF RECLAMATION

SCALE: 1" = 50'

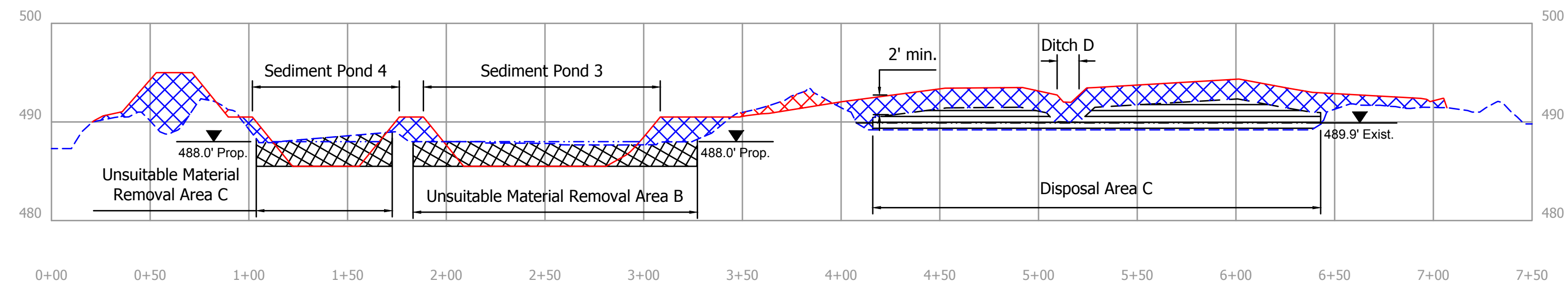
PROJECT: E008-185

SHEET: 4 OF 8

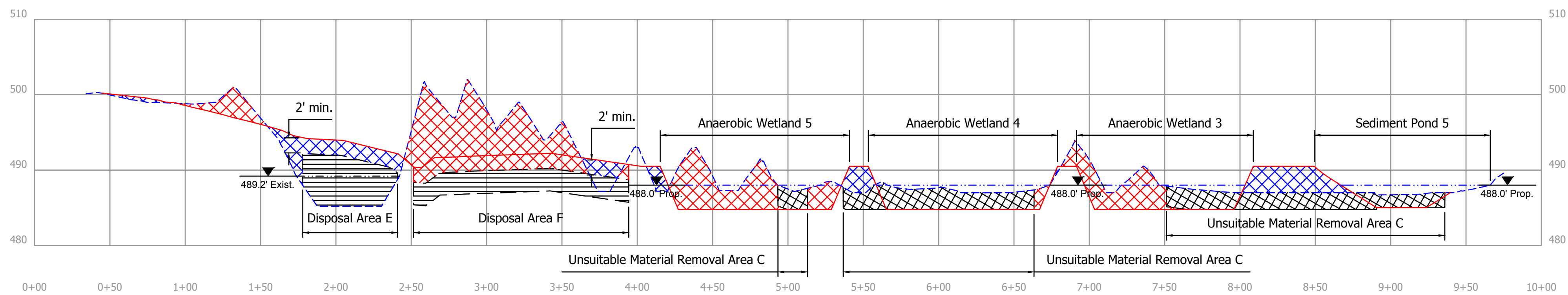
SITE: 345



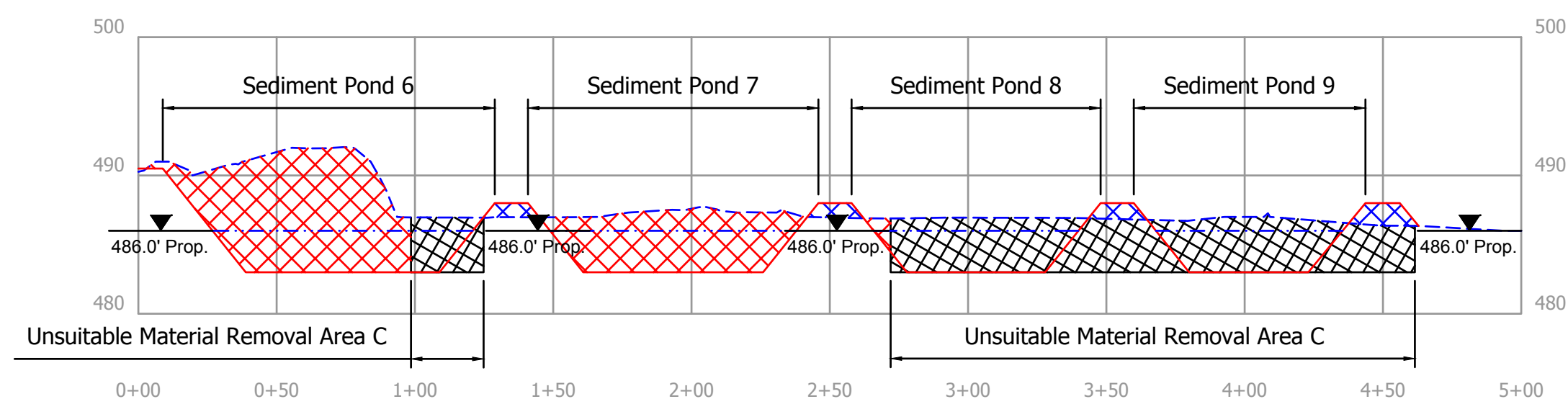
**A Section A-A'**  
1" = 50' H, 10' V



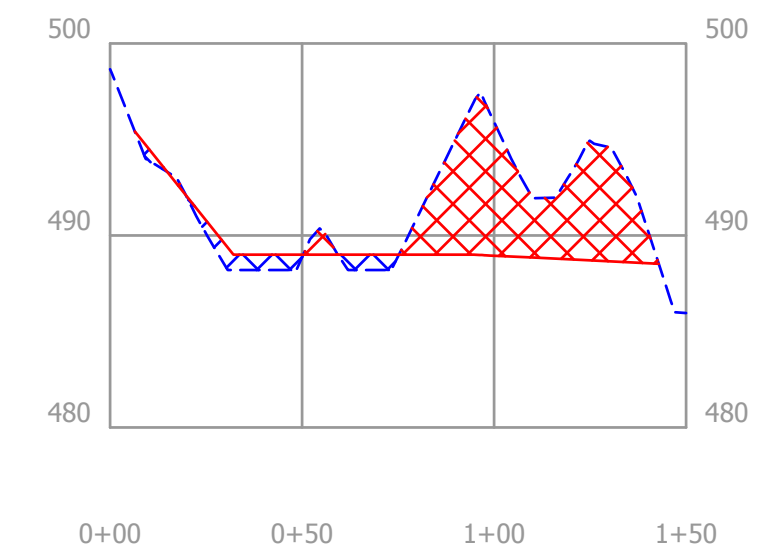
**B Section B-B'**  
1" = 50' H, 10' V



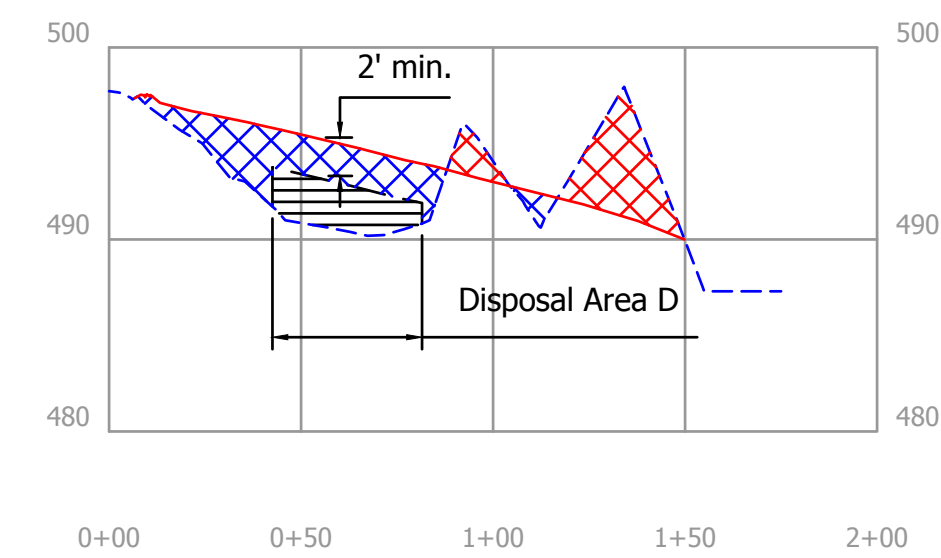
**C Section C-C'**  
1" = 50' H, 10' V



**D Section D-D'**  
1" = 50' H, 10' V

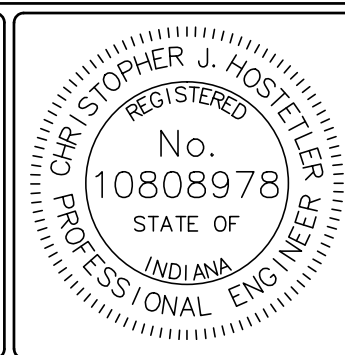


**E Section E-E'**  
1" = 50' H, 10' V



**F Section F-F'**  
1" = 50' H, 10' V

Legend	
	Existing Grade
	Design Grade
	Water Elevation
	Cut
	Fill
	Unsuitable Material Removal
	Unsuitable Material Disposal



RECOMMENDED FOR APPROVAL: *Christopher J. Hostetler* 9/28/18 DATE  
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SECTIONS  
 STATE OF INDIANA  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF RECLAMATION

SCALE: AS NOTED  
 PROJECT: E008-185

SHEET: 5 OF 8  
 SITE: 345

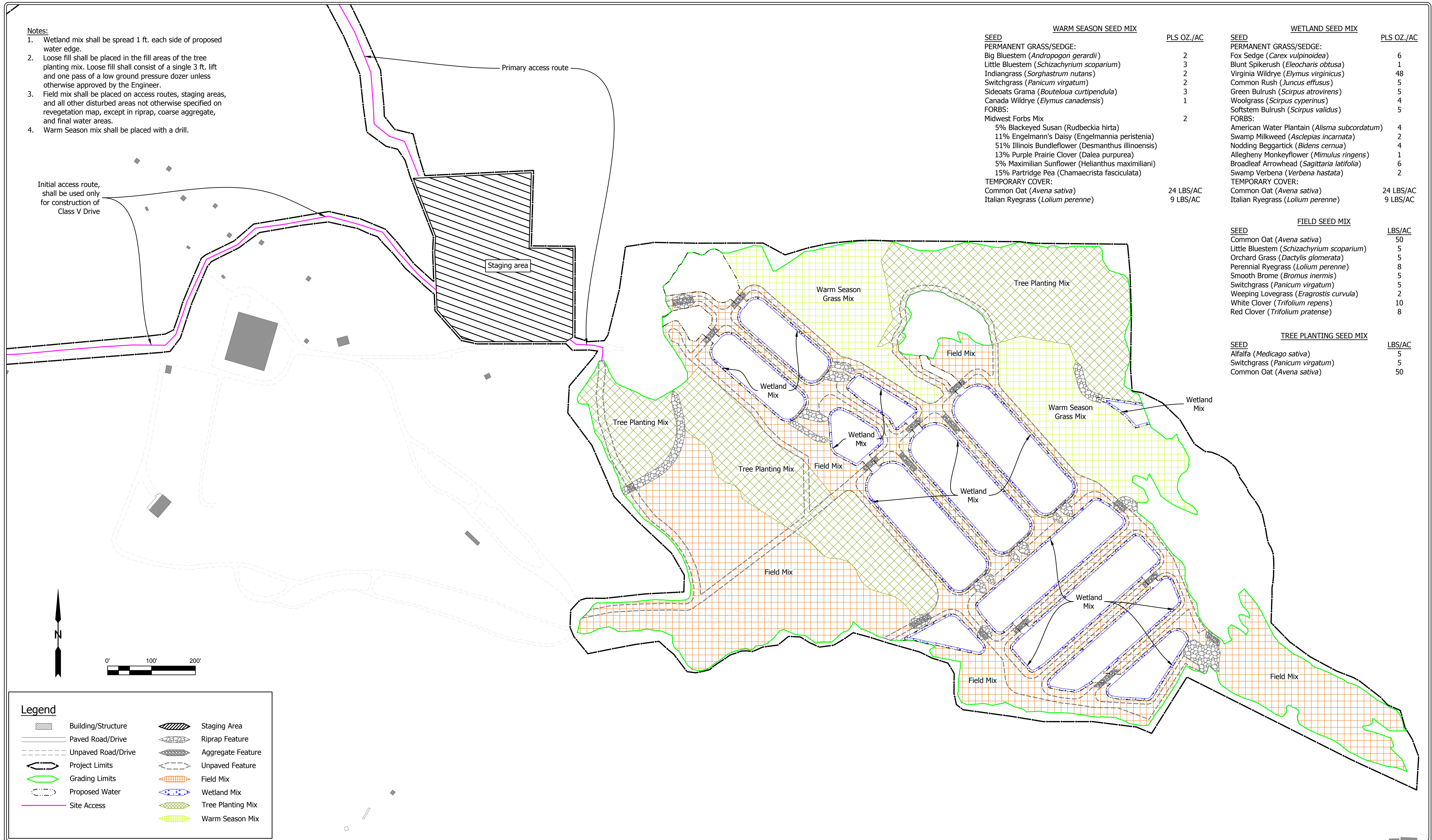
- Notes:**
1. Wetland mix shall be spread 1 ft. each side of proposed water edge.
  2. Loose fill shall be placed in the fill areas of the tree planting mix. Loose fill shall consist of a single 3 ft. lift and one pass of a low ground pressure dozer unless otherwise approved by the Engineer.
  3. Field mix shall be placed on access routes, staging areas, and all other disturbed areas not otherwise specified on revegetation map, except in riprap, coarse aggregate, and final water areas.
  4. Warm Season mix shall be placed with a drill.

Initial access route, shall be used only for construction of Class V Drive

WARM SEASON SEED MIX		WETLAND SEED MIX	
SEED	PLS OZ./AC	SEED	PLS OZ./AC
<b>PERMANENT GRASS/SEDGE:</b>			
Big Bluestem ( <i>Andropogon gerardii</i> )	2	Fox Sedge ( <i>Carex vulpinoidea</i> )	6
Little Bluestem ( <i>Schizachyrium scoparium</i> )	3	Blunt Spikerush ( <i>Eleocharis obtusa</i> )	1
Indiangrass ( <i>Sorghastrum nutans</i> )	2	Virginia Wildrye ( <i>Elymus virginicus</i> )	48
Switchgrass ( <i>Panicum virgatum</i> )	2	Common Rush ( <i>Juncus effusus</i> )	5
Sideoats Grama ( <i>Bouteloua curtipendula</i> )	3	Green Bulrush ( <i>Scirpus atrovirens</i> )	5
Canada Wildrye ( <i>Elymus canadensis</i> )	1	Woolgrass ( <i>Scirpus cyperinus</i> )	4
<b>FORBS:</b>			
Midwest Forbs Mix	2	Softstem Bulrush ( <i>Scirpus validus</i> )	5
<b>FORBS:</b>			
5% Blackeyed Susan ( <i>Rudbeckia hirta</i> )		American Water Plantain ( <i>Alisma subcordatum</i> )	4
11% Engelmann's Daisy ( <i>Engelmannia peristenia</i> )		Swamp Milkweed ( <i>Asclepias incarnata</i> )	2
51% Illinois Bundleflower ( <i>Desmanthus illinoensis</i> )		Nodding Beggartick ( <i>Bidens cernua</i> )	4
13% Purple Prairie Clover ( <i>Dalea purpurea</i> )		Allegheny Monkeyflower ( <i>Mimulus ringens</i> )	1
5% Maximilian Sunflower ( <i>Helianthus maximiliani</i> )		Broadleaf Arrowhead ( <i>Sagittaria latifolia</i> )	6
15% Partridge Pea ( <i>Chamaecrista fasciculata</i> )		Swamp Verbena ( <i>Verbena hastata</i> )	2
<b>TEMPORARY COVER:</b>			
Common Oat ( <i>Avena sativa</i> )	24 LBS/AC	Common Oat ( <i>Avena sativa</i> )	24 LBS/AC
Italian Ryegrass ( <i>Lolium perenne</i> )	9 LBS/AC	Italian Ryegrass ( <i>Lolium perenne</i> )	9 LBS/AC

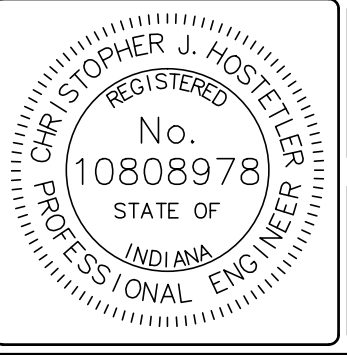
FIELD SEED MIX	
SEED	LBS/AC
Common Oat ( <i>Avena sativa</i> )	50
Little Bluestem ( <i>Schizachyrium scoparium</i> )	5
Orchard Grass ( <i>Dactylis glomerata</i> )	5
Perennial Ryegrass ( <i>Lolium perenne</i> )	8
Smooth Brome ( <i>Bromus inermis</i> )	5
Switchgrass ( <i>Panicum virgatum</i> )	5
Weeping Lovegrass ( <i>Eragrostis curvula</i> )	2
White Clover ( <i>Trifolium repens</i> )	10
Red Clover ( <i>Trifolium pratense</i> )	8

TREE PLANTING SEED MIX	
SEED	LBS/AC
Alfalfa ( <i>Medicago sativa</i> )	5
Switchgrass ( <i>Panicum virgatum</i> )	5
Common Oat ( <i>Avena sativa</i> )	50



**Legend**

	Building/Structure		Staging Area
	Paved Road/Drive		Riprap Feature
	Unpaved Road/Drive		Aggregate Feature
	Project Limits		Unpaved Feature
	Grading Limits		Field Mix
	Proposed Water		Wetland Mix
	Site Access		Tree Planting Mix
			Warm Season Mix



RECOMMENDED FOR APPROVAL: *Christopher J. Hostetler* 9/28/18 DATE

DESIGNED BY: C.J.H. DRAWN BY: C.J.H. DATE REVISED: 9/7/2018 10:37:23 AM

DATE MADE: 01/09/2018

REVEGETATION PLAN

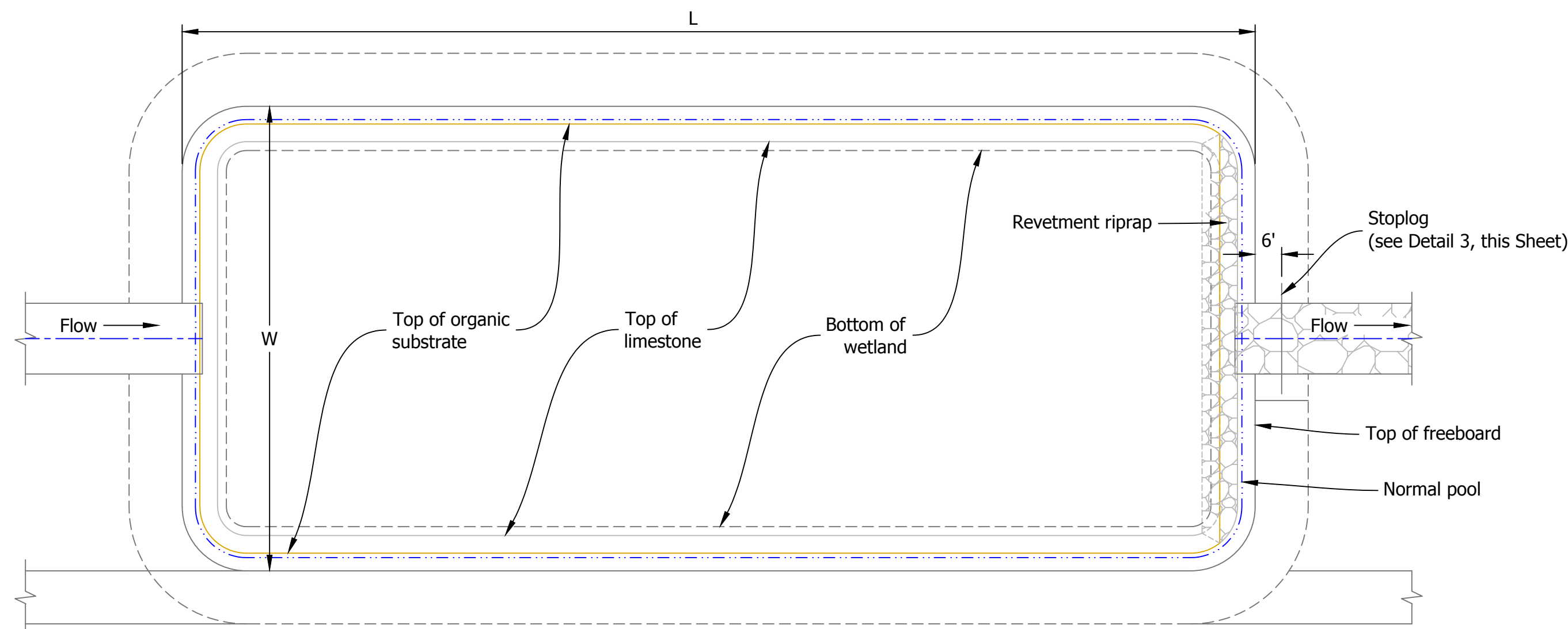
STATE OF INDIANA  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF RECLAMATION

SCALE: 1" = 100'

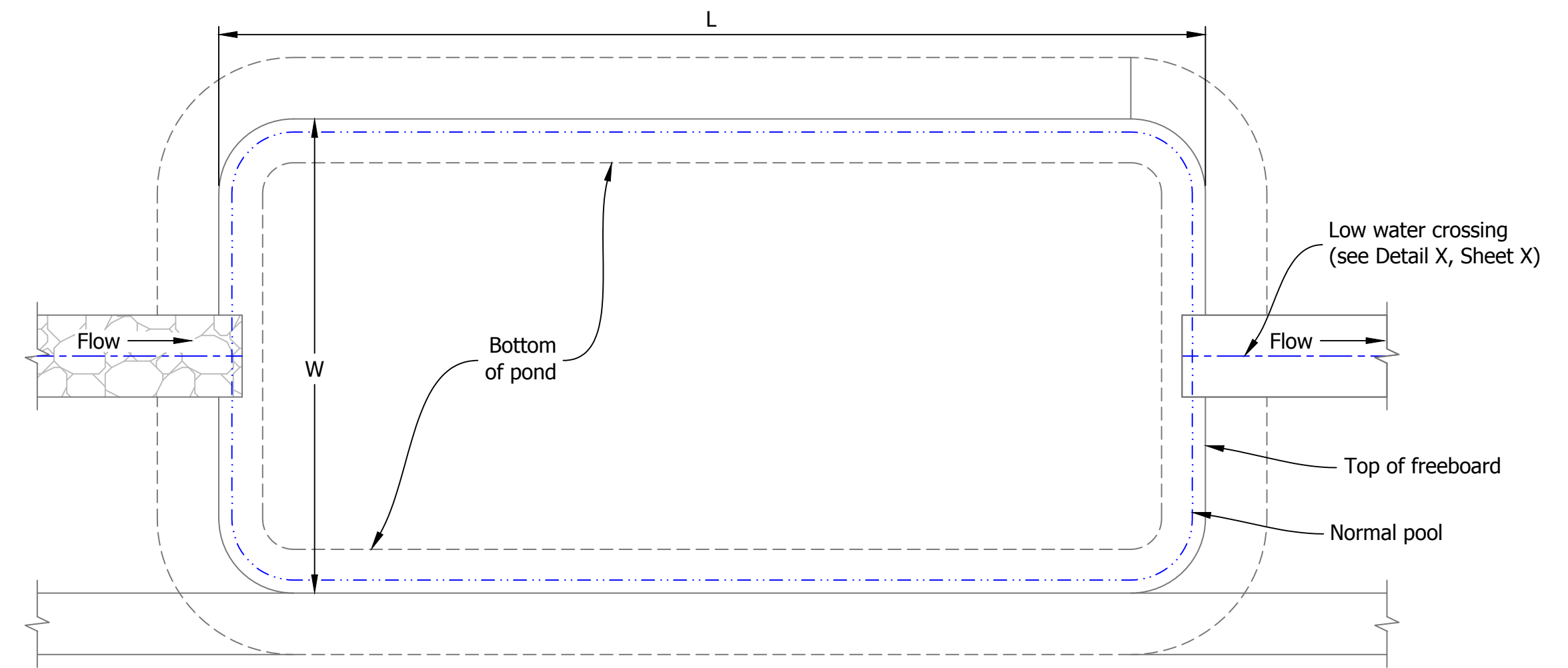
PROJECT: E008-185

SHEET: 6 OF 8

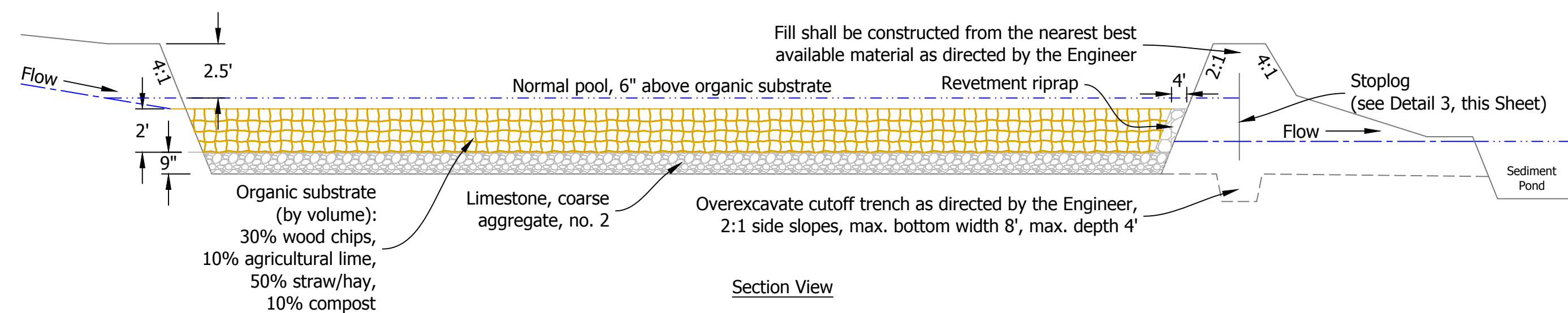
SITE: 345



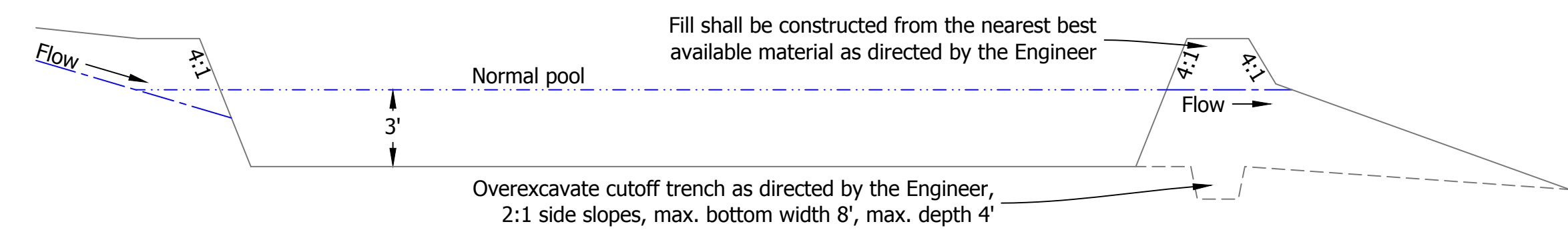
Plan View



Plan View



Section View



Section View

1 Anaerobic Wetland  
Not to Scale

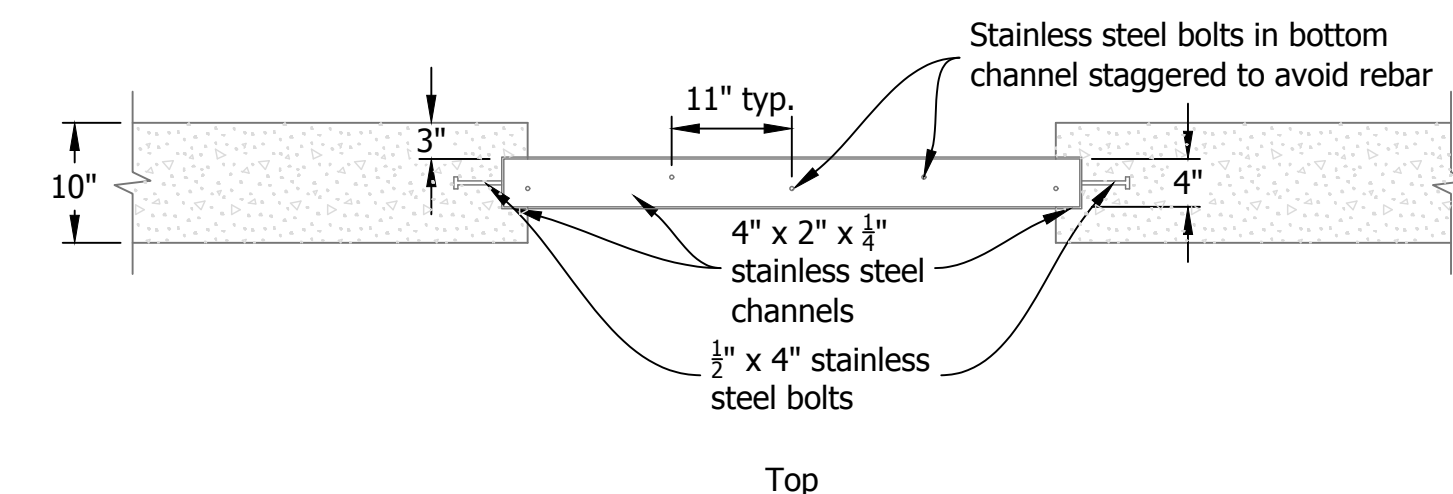
2 Sediment Pond  
Not to Scale

Anaerobic Wetland Information							
Wetland	Dimensions, L x W	Freeboard Elev.	Normal Pool Elev.	Top of Organic Substrate Elev.	Top of Limestone Elev.	Bottom of Wetland Elev.	Stoplog Elev. at Base of Footer
1	270' x 90'	492.5'	490.0'	489.5'	487.5'	486.75'	487.0'
2	260' x 90'	492.5'	490.0'	489.5'	487.5'	486.75'	487.0'
3	360' x 120'	490.5'	488.0'	487.5'	485.5'	484.75'	485.0'
4	360' x 120'	490.5'	488.0'	487.5'	485.5'	484.75'	485.0'
5	360' x 120'	490.5'	488.0'	487.5'	485.5'	484.75'	485.0'

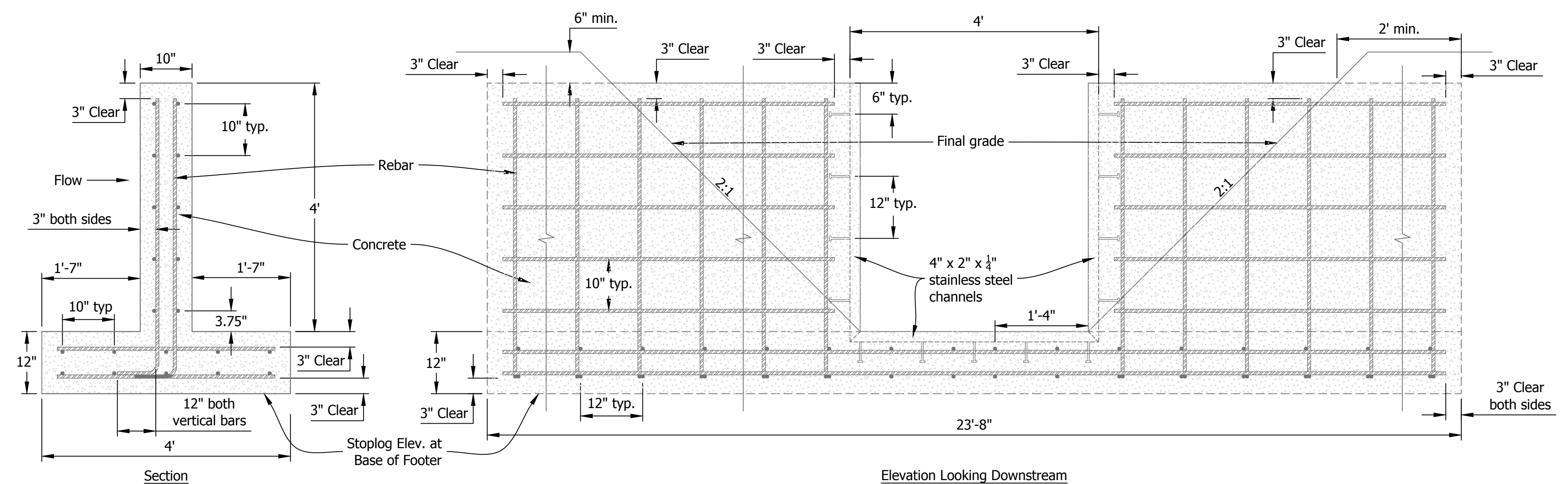
Sediment Pond Information				
Pond	Dimensions, L x W	Freeboard Elev.	Normal Pool Elev.	Bottom of Pond Elev.
1	Varies	492.5'	490.0'	487.0'
2	Varies	492.5'	490.0'	487.0'
3	Varies	490.5'	488.0'	485.0'
4	Varies	490.5'	488.0'	485.0'
5	Varies	490.0'	488.0'	485.0'
6	Varies	488.0'	486.0'	483.0'
7	Varies	488.0'	486.0'	483.0'
8	Varies	488.0'	486.0'	483.0'
9	Varies	488.0'	486.0'	483.0'

Stoplog Notes:

- All rebar shall be Size #5 and Grade 60 and rebar bends shall be 3" in diameter.
- Pressure treated lumber shall be provided as stoplogs and installed in two stacks in the stainless steel channels for each structure up to the normal pool elevation.
- Stoplogs shall be 2" x 12" x 4', except for the first log on the downstream side which shall be 2" x 6" x 4' so the stacks are staggered.
- The top stoplog in each stack shall be cut to the normal pool elevation.
- Stainless Steel shall be Grade 304.



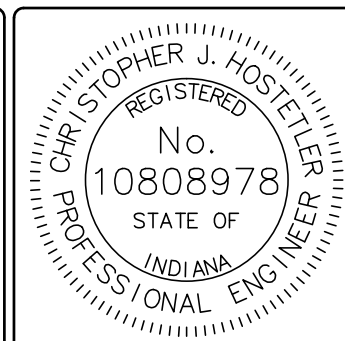
Top



Section

Elevation Looking Downstream

3 Stoplog Structure  
Not to Scale



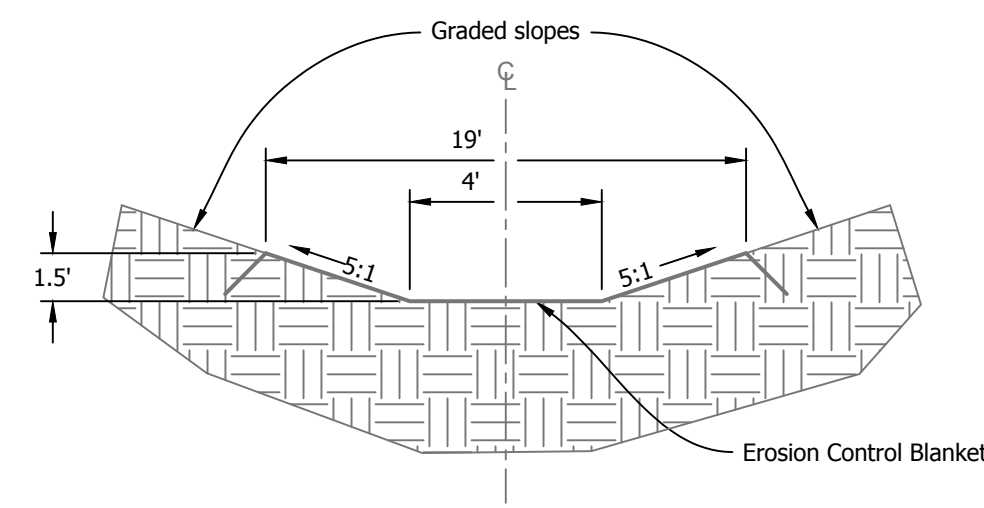
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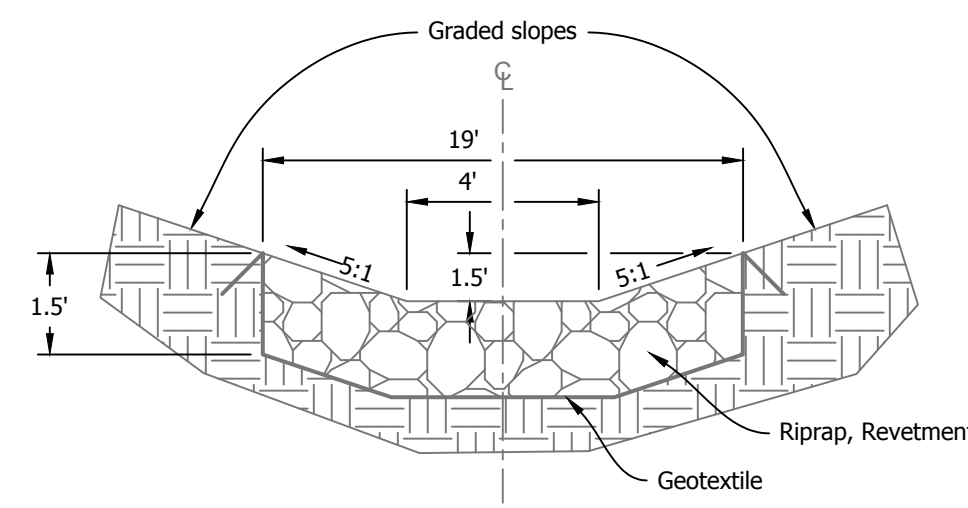
DETAILS  
 STATE OF INDIANA  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF RECLAMATION

SCALE: AS NOTED  
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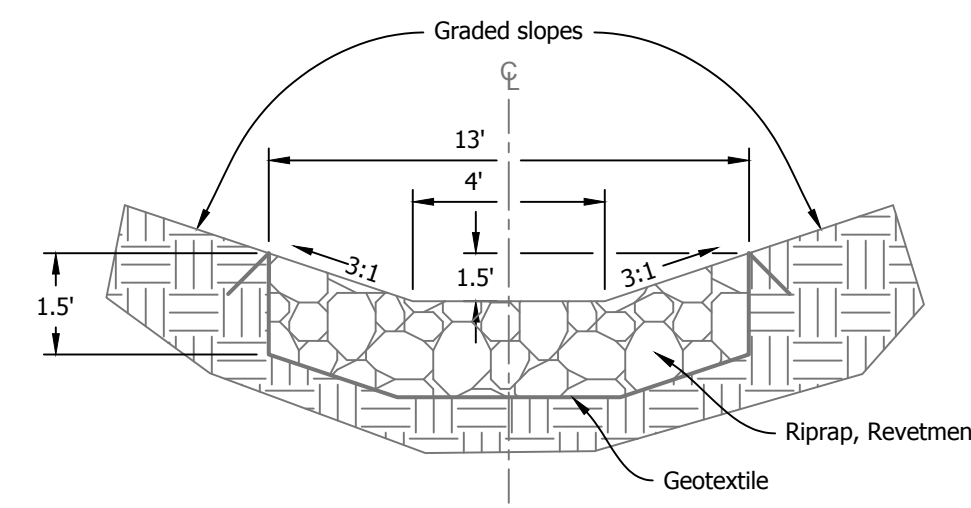
SHEET: 7 OF 8  
 SITE: 345



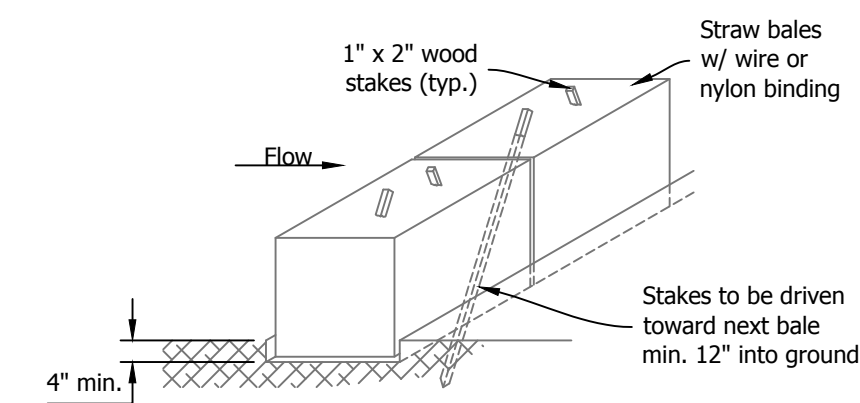
1 Ditch Lines A, C, & D, Type I  
Not to Scale



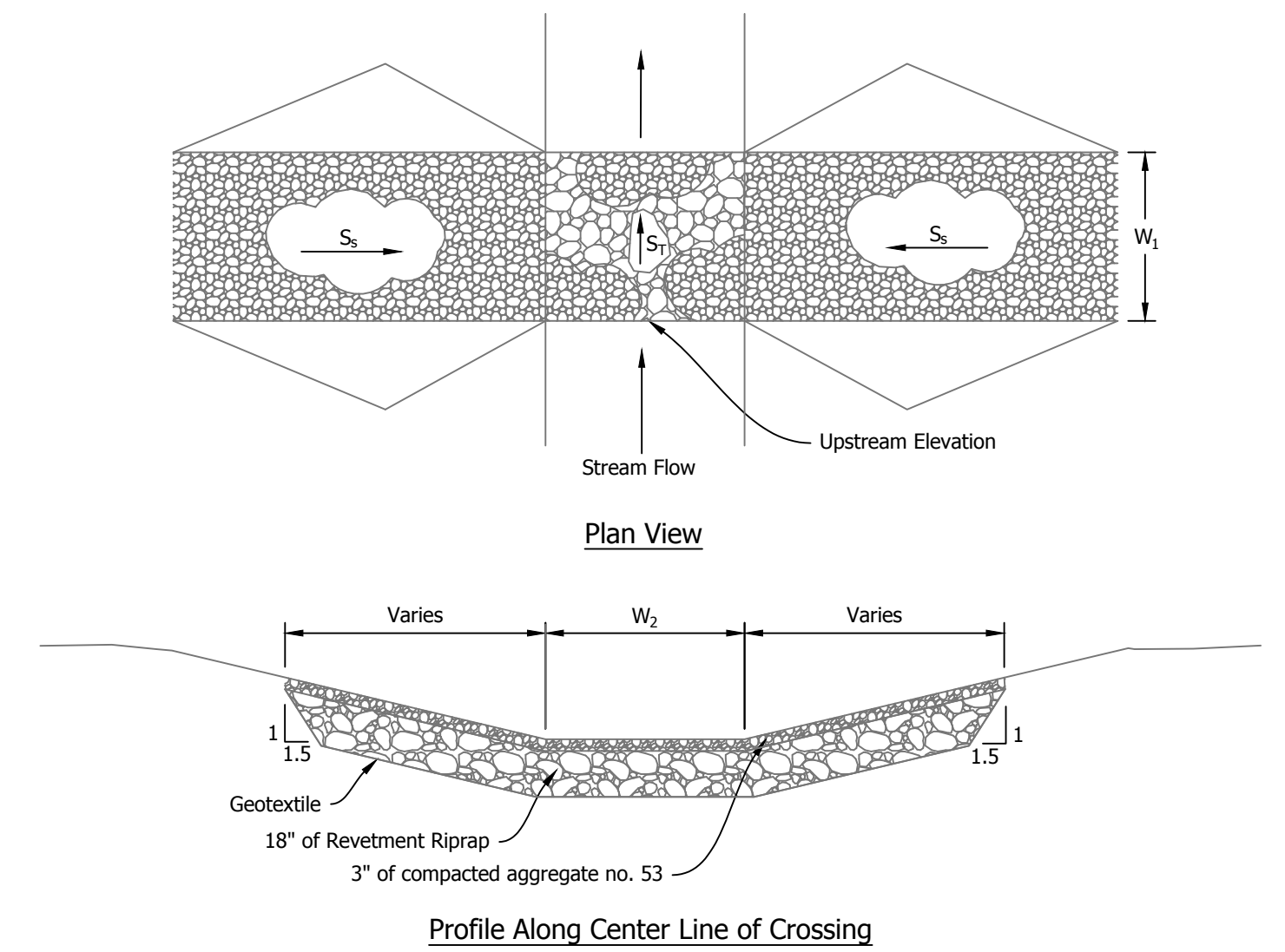
2 Ditch Lines B & E, Type II  
Not to Scale



3 Ditch Lines F-J, Type III  
Not to Scale

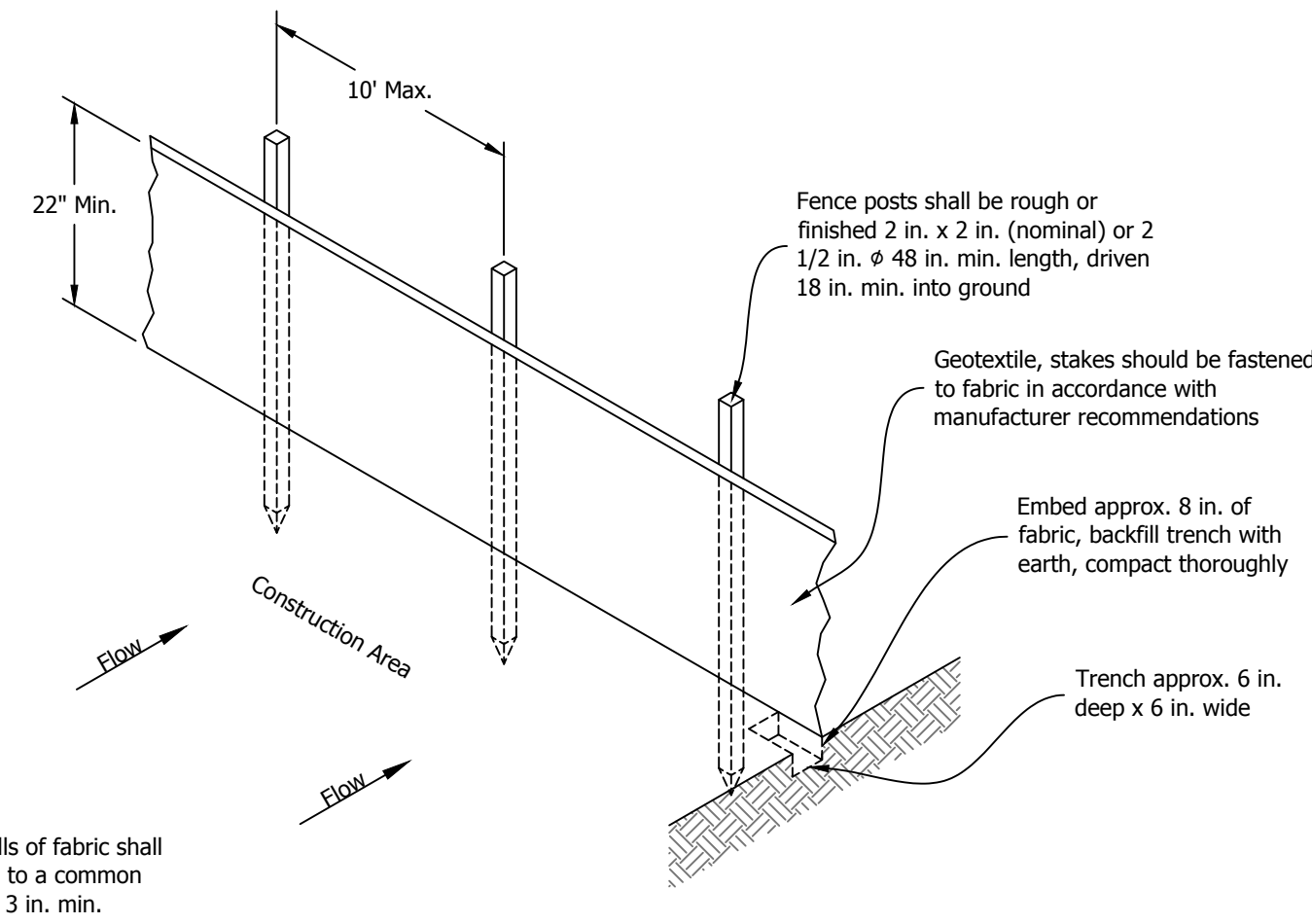


4 Temporary Check Dam, Straw Bale  
Not to Scale

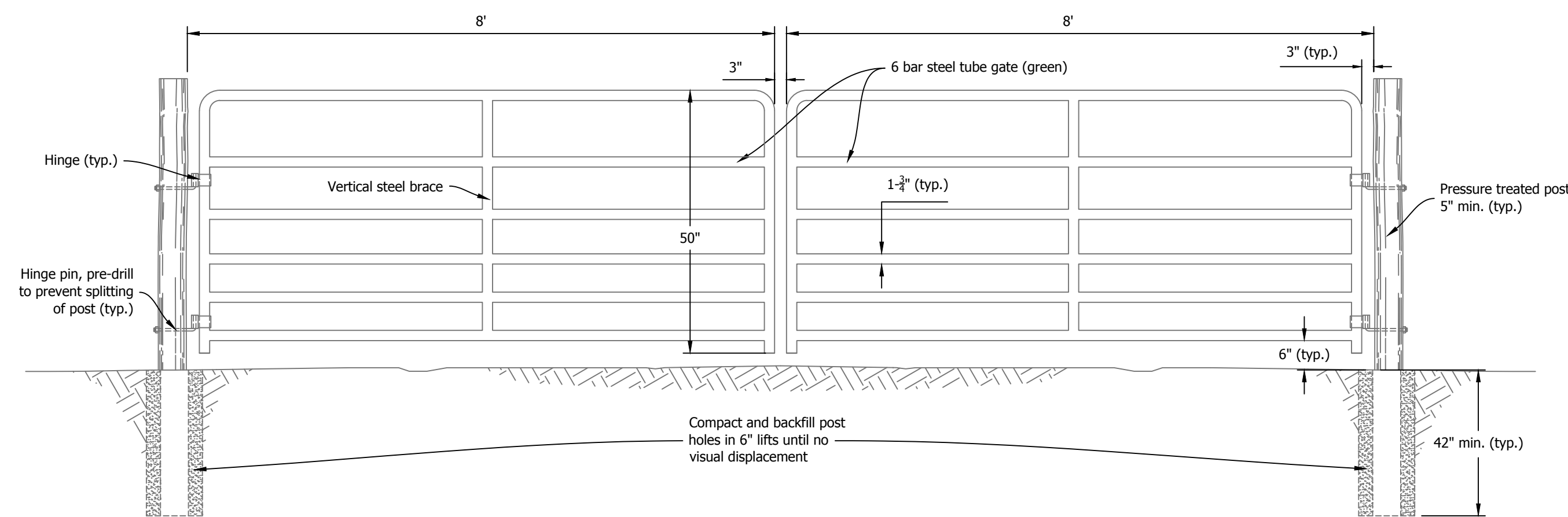


- NOTES
1. Compact surfacing material by equipment travel. The finished top surface of the rock in the bottom of the channel shall be no higher than the ditch bottom at the upstream edge of the crossing. It is expected that surfacing material will have to be replaced following high flow events.
  2. Blend approaches.
  3. Runoff shall be diverted from the approach.
  4.  $S_2$  and  $W_2$  are perpendicular to flow,  $W_1$  is parallel to flow.

5 Low Water Crossing  
Not to Scale



6 Silt Fence  
Not to Scale



7 Access Gate  
Not to Scale

Low Water Crossing Information					
ID	Width, $W_1$	Base Width, $W_2$	Side Slope, $S_s$	Transverse Slope, $S_t$	Upstream Elev.
A	12'	10'	5:1	0%	489.0'
B	12'	12'	10:1	-1.57%	490.4'
C	12'	10'	5:1	0%	489.0'
D	15'	4'	10:1	-3.0%	494.6'
E	12'	10'	5:1	0%	487.0'
F	12'	12'	10:1	-0.90%	488.2'
G	12'	10'	5:1	-5.55%	487.6'
H	12'	20'	10:1	0%	488.5'
I	12'	10'	5:1	0%	487.0'
J	12'	12'	5:1	0%	485.0'
K	12'	12'	5:1	0%	485.0'
L	12'	12'	10:1	0%	487.5'
M	12'	12'	5:1	0%	485.0'
N	12'	12'	5:1	-2.23%	486.4'
O	12'	20'	10:1	0%	488.5'
P	12'	10'	5:1	0%	487.0'

RECOMMENDED FOR APPROVAL: \_\_\_\_\_ DATE

DATE MADE  
01/09/2018

DETAILS

SCALE  
AS NOTED

SHEET  
8 OF 8

DESIGNED BY  
C.J.H.

DRAWN BY  
C.J.H.

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SITE  
345