

COUGAR HIGHWALL

SITE NO.	CONTRACT NO.
1813	DEL1915208422/E008-283

SULLIVAN COUNTY



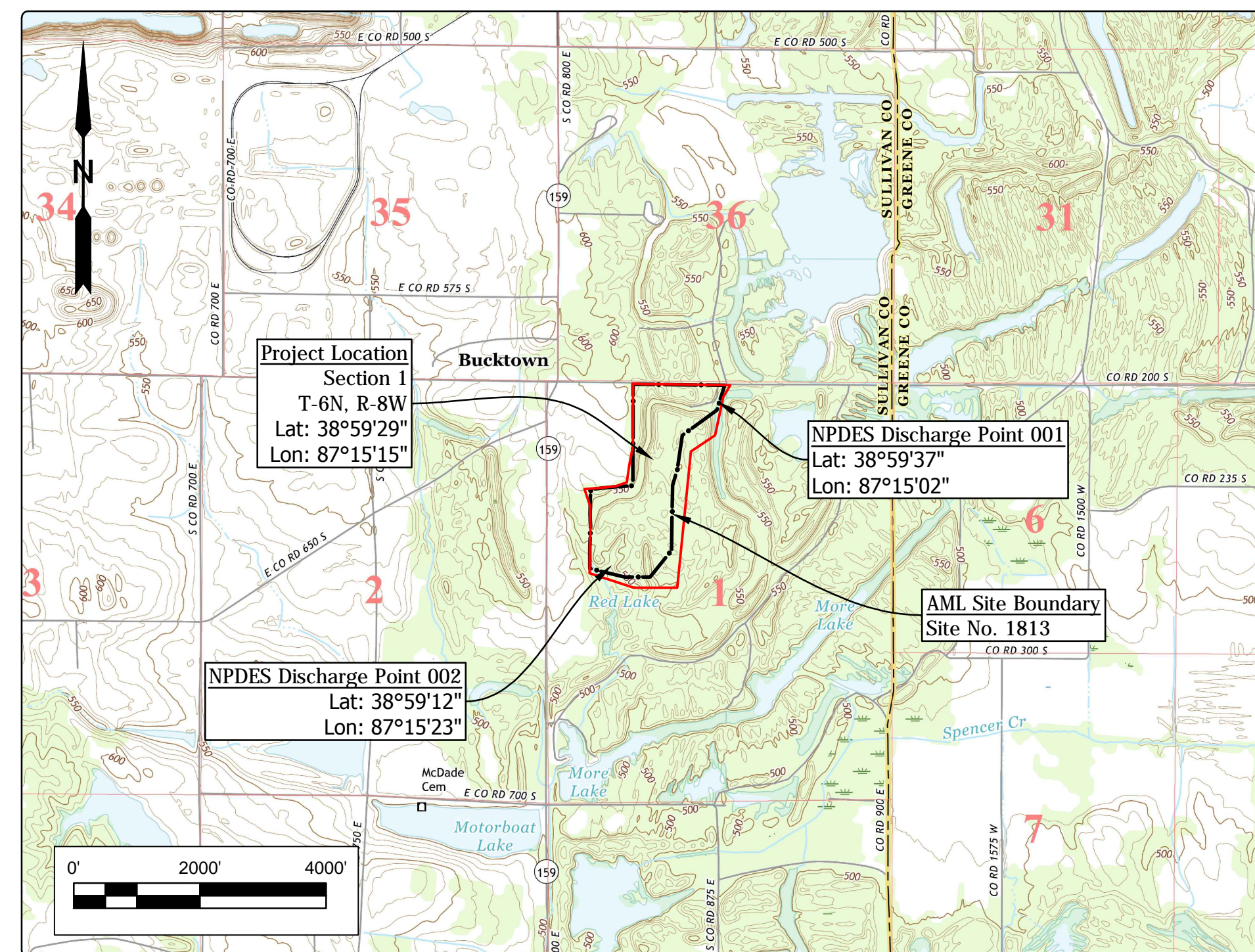
STATE OF INDIANA
INDIANA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION



ABANDONED COAL MINE
RESTORATION

COUGAR HIGHWALL
SITE 1813
CONTRACT DEL1915208422/E008-283
SULLIVAN COUNTY

Clear and grub, backfill highwall and vertical opening, construct wetlands, improve drainage, and revegetate site to enhance wildlife habitat and recreation opportunities.



Project Location Map
BUCKTOWN & SANDBORN US TOPOs (USGS, 2016)

GENERAL NOTES

2010 AML Standard Specifications to be used with these plans.
An NPDES discharge permit is required for this project.
Plans developed from an aerial topographic mapping survey by Williams Aerial & Mapping, Inc. in NAD 83, Indiana State Plane West, Feet

INDEX

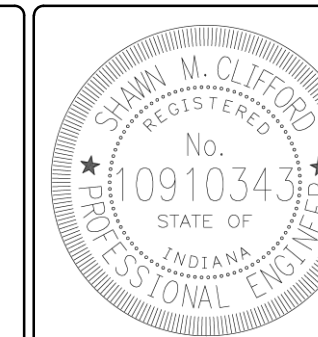
SHEET NO.	SHEET TITLE
1	TITLE, INDEX, & LOCATION MAP
2	SITE MAP
3-5	SITE PLANS
6	SECTIONS
7	REVEGETATION PLAN & DETAILS

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.

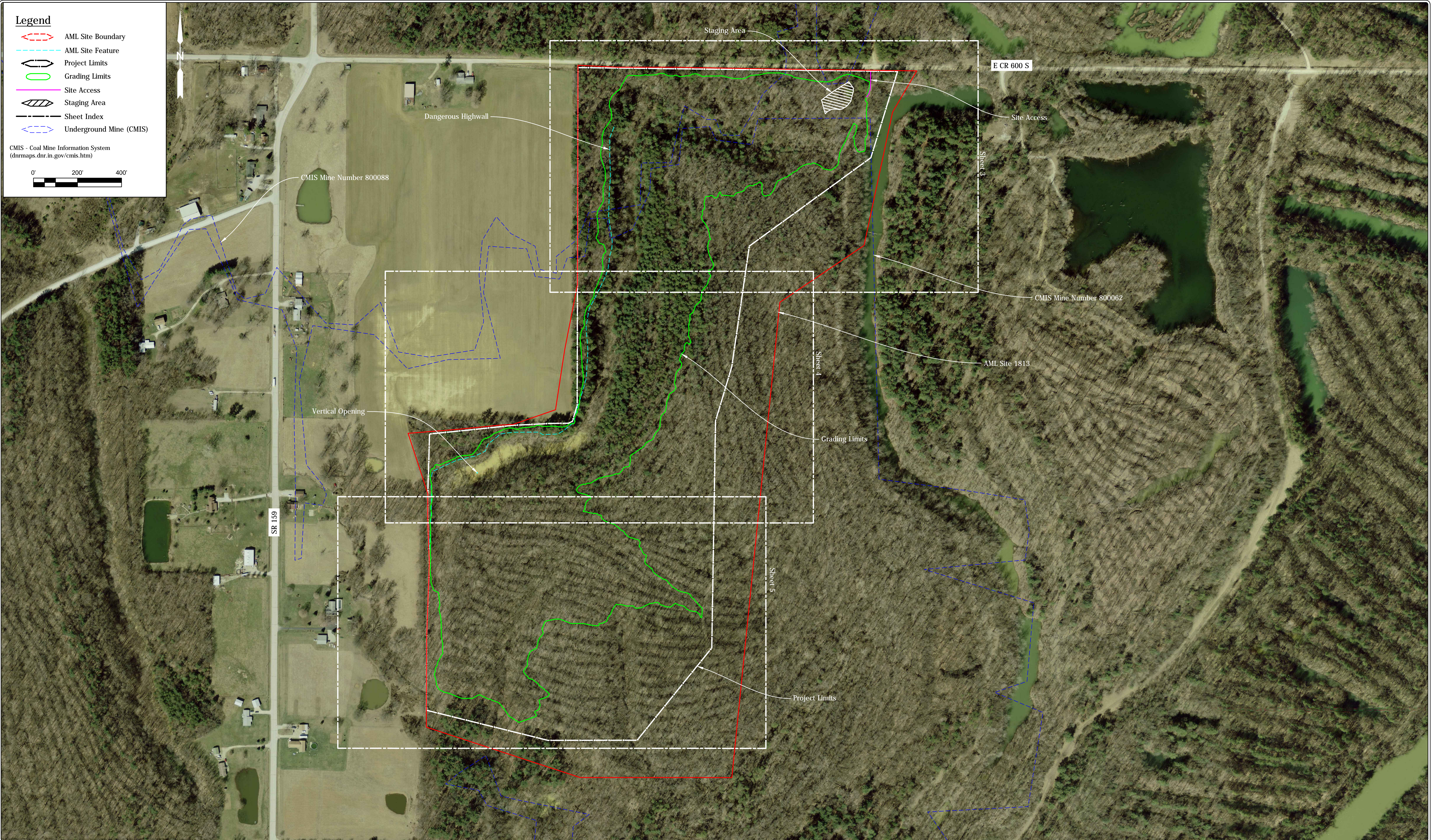
ELECTRIC: Duke Energy 390 N. Main Street Martinsville, IN 46151 (765) 349-4012	WATER/SANITARY: Pleasantville Water Co. Inc. 6416 East CR 750 S. Carlisle, IN 47838 (812) 659-2060
TELECOM: Smithville Telephone Co., Inc. 1600 W. Temperance Street Celestial, IN 47429 (812) 876-9103	Linton Municipal Utilities 86 South Main Street Linton, IN 47441 (812) 847-4971


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

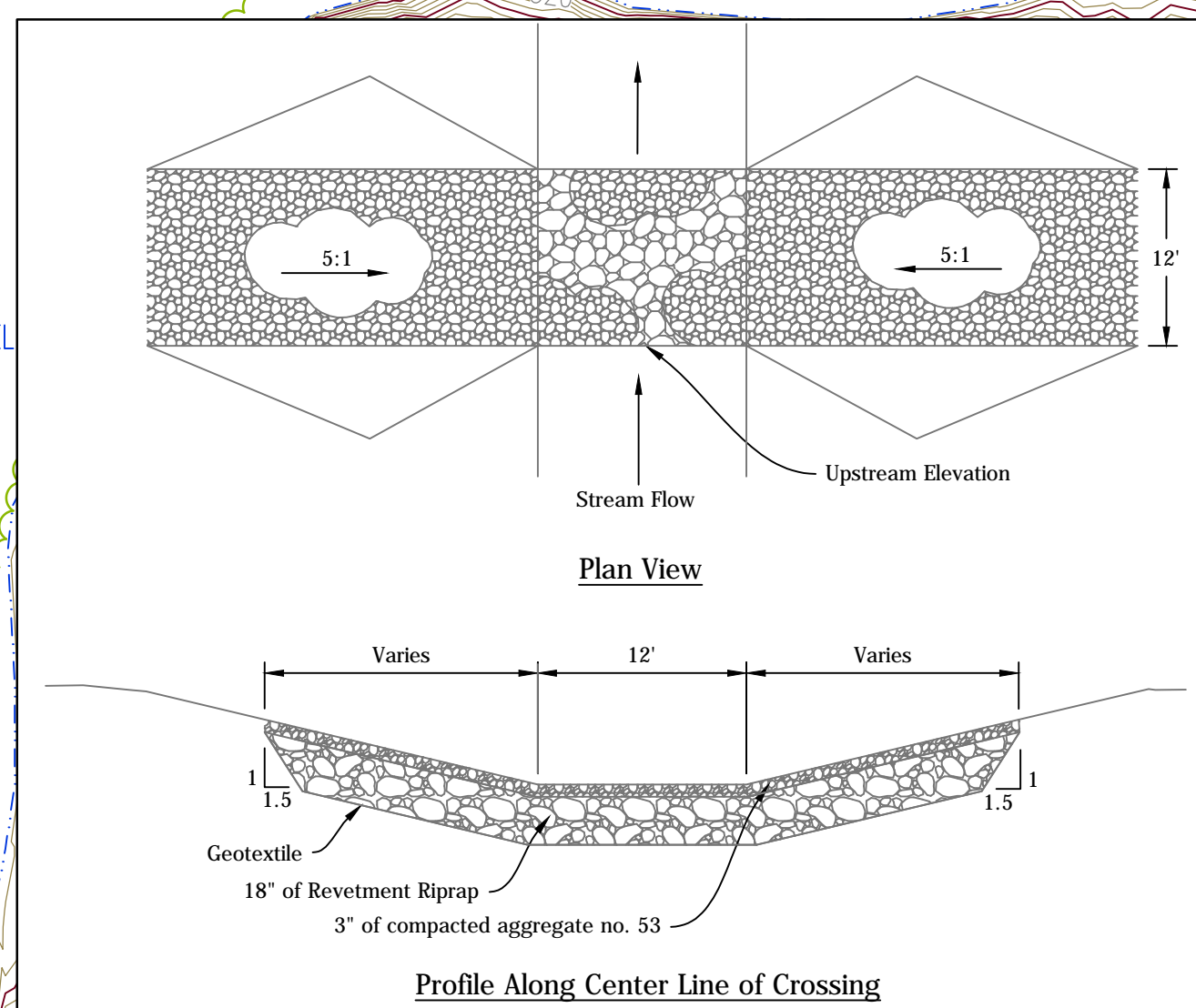
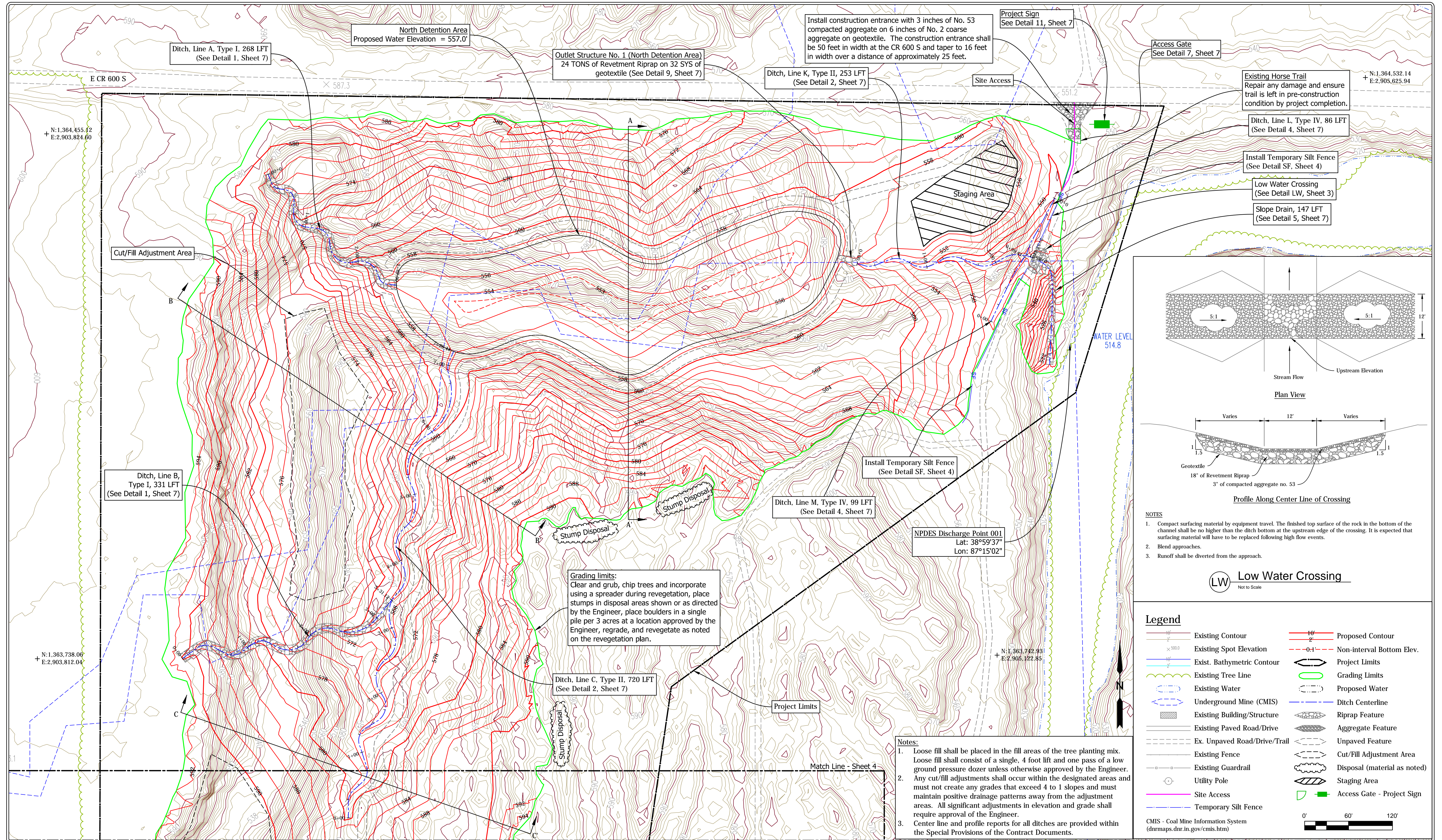


PLANS
PREPARED BY: INDIANA DEPARTMENT OF NATURAL RESOURCES (812) 665-2207
DIVISION OF RECLAMATION PHONE NUMBER
CERTIFIED BY: *Shawn M. Clifford* 10/08/2019
DATE
APPROVED FOR LETTING: *M. D. Egan* 10/08/2019
DATE
DIVISION OF RECLAMATION

SCALE AS NOTED	SHEET 1 OF 7
PROJECT E008-283	SITE 1813



	RECOMMENDED FOR APPROVAL: <i>Sh M Clifford</i> 10/08/2019 DATE	DATE MADE 10/01/2018	SITE MAP		SCALE 1" = 200'	SHEET 2 OF 7
	DESIGNED BY S.M.C.	DRAWN BY S.M.C.	DATE REVISED 10/8/2019 12:46:20 PM	STATE OF INDIANA DEPARTMENT OF NATURAL RESOURCES DIVISION OF RECLAMATION		PROJECT E008-283



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.

LW Low Water Crossing
Not to Scale

Legend

Existing Contour	Proposed Contour
Existing Spot Elevation	Non-Interval Bottom Elev.
Exist. Bathymetric Contour	Project Limits
Existing Tree Line	Grading Limits
Existing Water	Proposed Water
Underground Mine (CMIS)	Ditch Centerline
Existing Building/Structure	Riprap Feature
Existing Paved Road/Drive	Aggregate Feature
Ex. Unpaved Road/Drive/Trail	Unpaved Feature
Existing Fence	Cut/Fill Adjustment Area
Existing Guardrail	Existing Guardrail
Utility Pole	Disposal (material as noted)
Site Access	Staging Area
Temporary Silt Fence	Access Gate - Project Sign

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

0' 60' 120'

Notes:

1. Loose fill shall be placed in the fill areas of the tree planting mix. Loose fill shall consist of a single, 4 foot lift and one pass of a low ground pressure dozer unless otherwise approved by the Engineer.
2. Any cut/fill adjustments shall occur within the designated areas and must not create any grades that exceed 4 to 1 slopes and must maintain positive drainage patterns away from the adjustment areas. All significant adjustments in elevation and grade shall require approval of the Engineer.
3. Center line and profile reports for all ditches are provided within the Special Provisions of the Contract Documents.

Grading limits:
Clear and grub, chip trees and incorporate using a spreader during revegetation, place stumps in disposal areas shown or as directed by the Engineer, place boulders in a single pile per 3 acres at a location approved by the Engineer, regrade, and revegetate as noted on the revegetation plan.



RECOMMENDED FOR APPROVAL: *Shawn M. Clifford* 10/08/2019 DATE

DESIGNED BY: S.M.C. DRAWN BY: S.M.C. DATE REVISED: 10/8/2019 12:46:20 PM

DATE MADE: 10/01/2018

SITE PLAN - NORTH

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

SCALE: 1" = 60'

SHEET: 3 OF 7

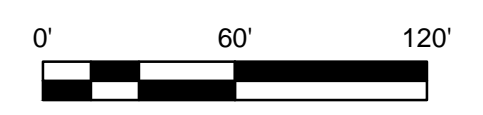
PROJECT: E008-283

SITE: 1813

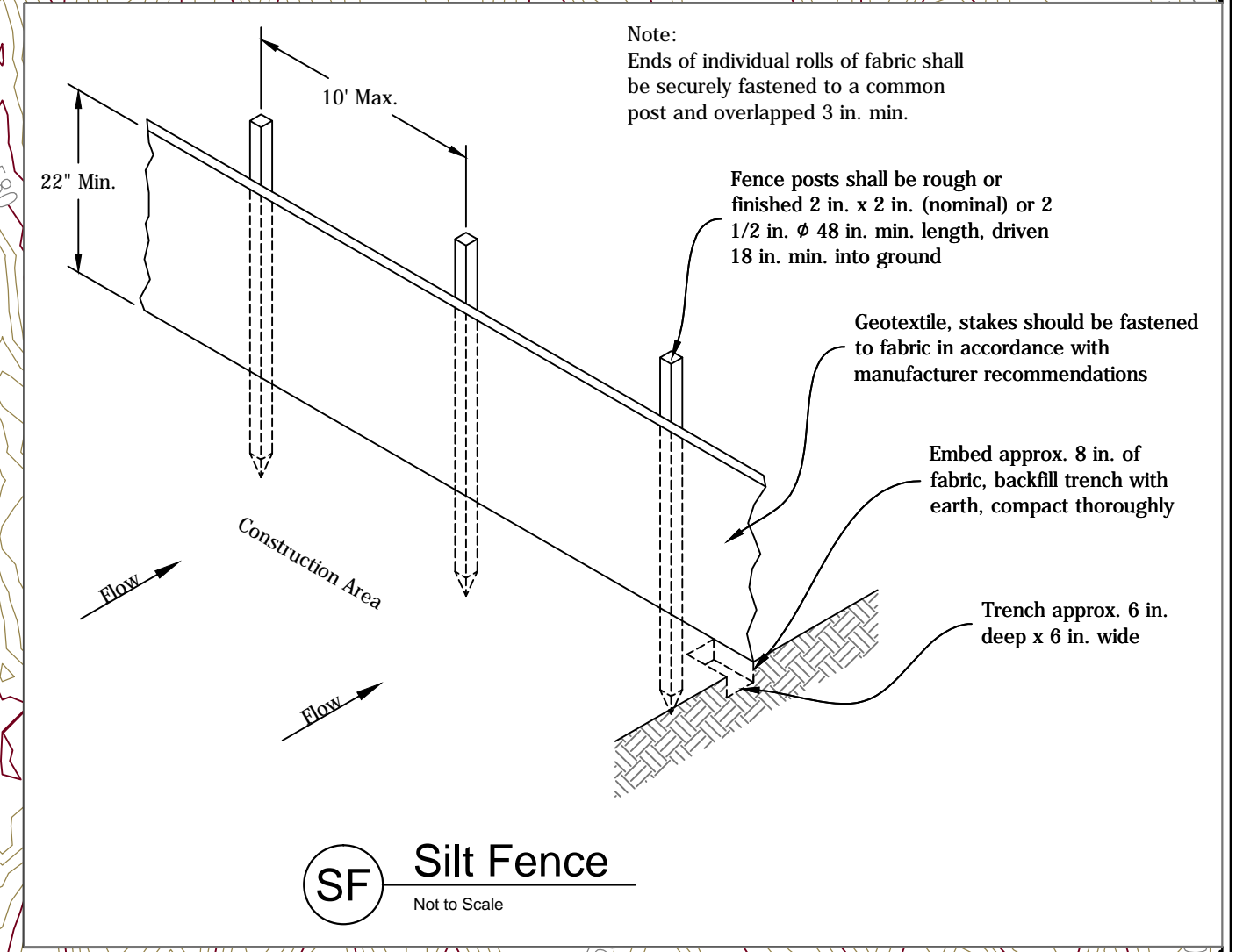
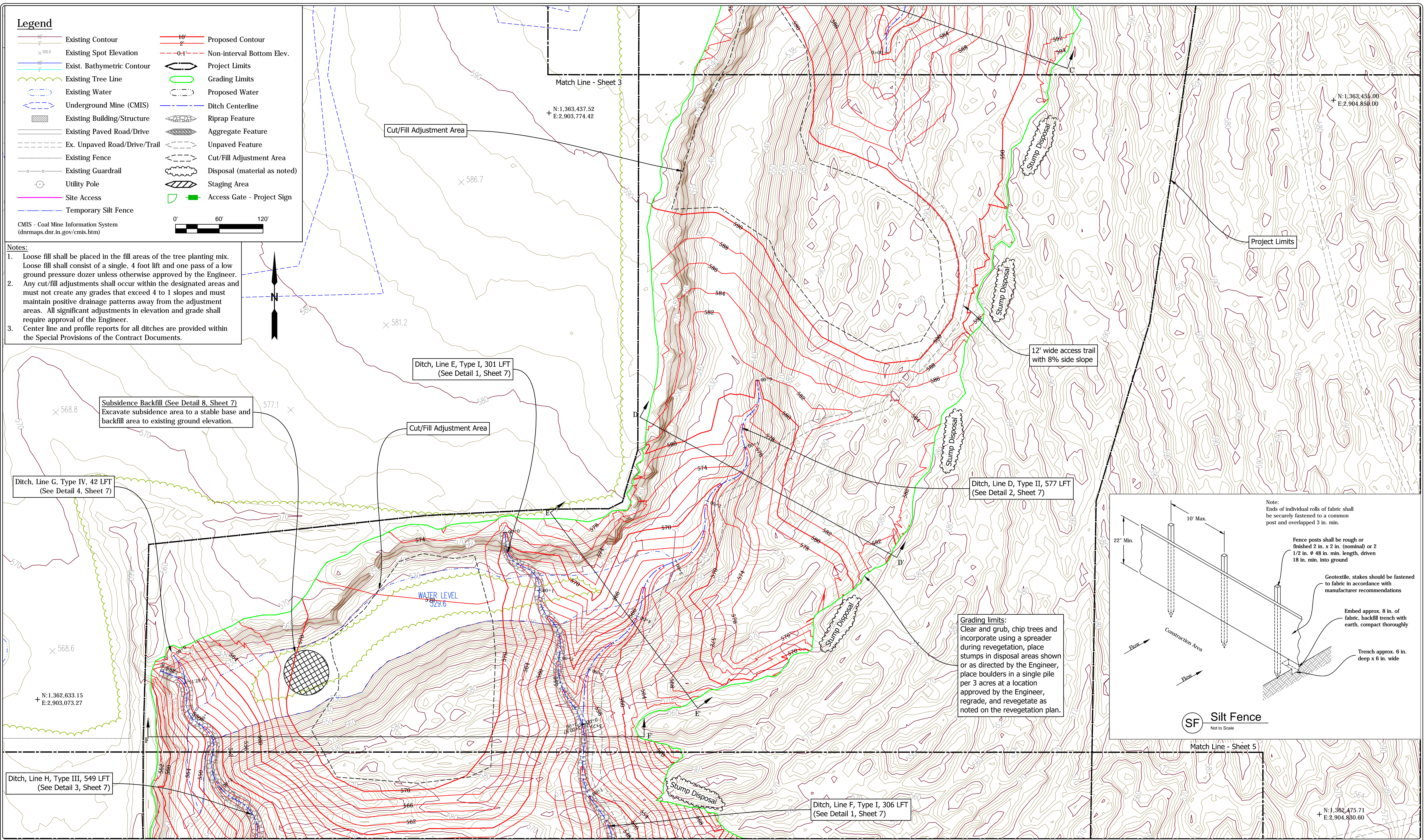
Legend

- Existing Contour
- Proposed Contour
- Existing Spot Elevation
- Exist. Bathymetric Contour
- Existing Tree Line
- Existing Water
- Underground Mine (CMIS)
- Existing Building/Structure
- Existing Paved Road/Drive
- Ex. Unpaved Road/Drive/Trail
- Existing Fence
- Existing Guardrail
- Utility Pole
- Site Access
- Temporary Silt Fence
- 10' Non-interval Bottom Elev.
- Project Limits
- Grading Limits
- Proposed Water
- Ditch Centerline
- Riprap Feature
- Aggregate Feature
- Unpaved Feature
- Cut/Fill Adjustment Area
- Disposal (material as noted)
- Staging Area
- Access Gate - Project Sign

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

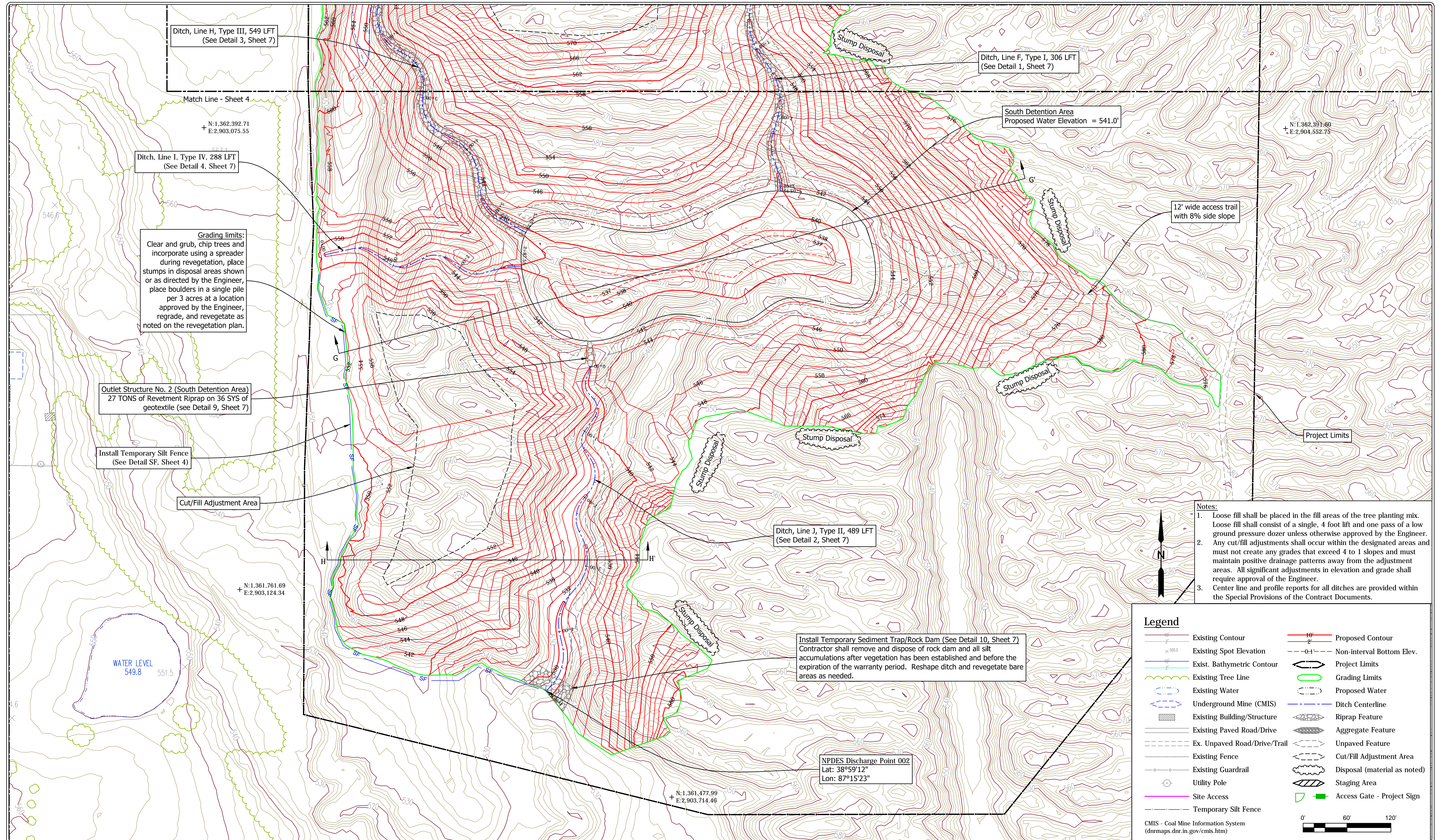


- Notes:**
- Loose fill shall be placed in the fill areas of the tree planting mix. Loose fill shall consist of a single, 4 foot lift and one pass of a low ground pressure dozer unless otherwise approved by the Engineer.
 - Any cut/fill adjustments shall occur within the designated areas and must not create any grades that exceed 4 to 1 slopes and must maintain positive drainage patterns away from the adjustment areas. All significant adjustments in elevation and grade shall require approval of the Engineer.
 - Center line and profile reports for all ditches are provided within the Special Provisions of the Contract Documents.



Grading limits:
 Clear and grub, chip trees and incorporate using a spreader during revegetation, place stumps in disposal areas shown or as directed by the Engineer, place boulders in a single pile per 3 acres at a location approved by the Engineer, regrade, and revegetate as noted on the revegetation plan.

	RECOMMENDED FOR APPROVAL: <i>Sh M Clifford</i>	DATE: 10/08/2019	DATE MADE: 10/01/2018	SITE PLAN	SCALE: 1" = 60'	SHEET: 4 OF 7
	DESIGNED BY: S.M.C.	DRAWN BY: S.M.C.	DATE REVISED: 10/8/2019 12:46:20 PM	STATE OF INDIANA DEPARTMENT OF NATURAL RESOURCES DIVISION OF RECLAMATION		PROJECT: E008-283



Ditch, Line H, Type III, 549 LFT
(See Detail 3, Sheet 7)

Ditch, Line F, Type I, 306 LFT
(See Detail 1, Sheet 7)

Ditch, Line I, Type IV, 288 LFT
(See Detail 4, Sheet 7)

South Detention Area
Proposed Water Elevation = 541.0'

Grading limits:
Clear and grub, chip trees and incorporate using a spreader during revegetation, place stumps in disposal areas shown or as directed by the Engineer, place boulders in a single pile per 3 acres at a location approved by the Engineer, regrade, and revegetate as noted on the revegetation plan.

Outlet Structure No. 2 (South Detention Area)
27 TONS of Revetment Riprap on 36 SYS of geotextile (see Detail 9, Sheet 7)

Install Temporary Silt Fence
(See Detail SF, Sheet 4)

Cut/Fill Adjustment Area

Ditch, Line J, Type II, 489 LFT
(See Detail 2, Sheet 7)

Install Temporary Sediment Trap/Rock Dam (See Detail 10, Sheet 7)
Contractor shall remove and dispose of rock dam and all silt accumulations after vegetation has been established and before the expiration of the warranty period. Reshape ditch and revegetate bare areas as needed.

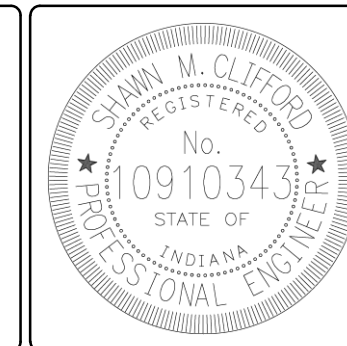
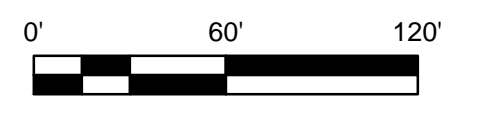
NPDES Discharge Point 002
Lat: 38°59'12"
Lon: 87°15'23"

12' wide access trail
with 8% side slope

- Notes:**
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Legend			
	Existing Contour		Proposed Contour
	Existing Spot Elevation		Non-Interval Bottom Elev.
	Exist. Bathymetric Contour		Project Limits
	Existing Tree Line		Grading Limits
	Existing Water		Proposed Water
	Underground Mine (CMIS)		Ditch Centerline
	Existing Building/Structure		Riprap Feature
	Existing Paved Road/Drive		Aggregate Feature
	Ex. Unpaved Road/Drive/Trail		Unpaved Feature
	Existing Fence		Cut/Fill Adjustment Area
	Existing Guardrail		Disposal (material as noted)
	Utility Pole		Staging Area
	Site Access		Access Gate - Project Sign
	Temporary Silt Fence		

CMIS - Coal Mine Information System
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SITE PLAN - SOUTH

STATE OF INDIANA
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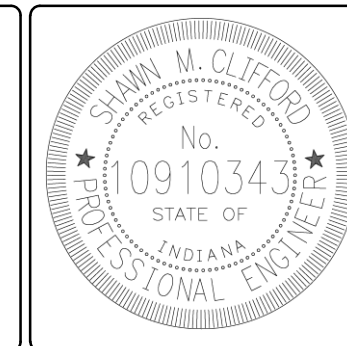
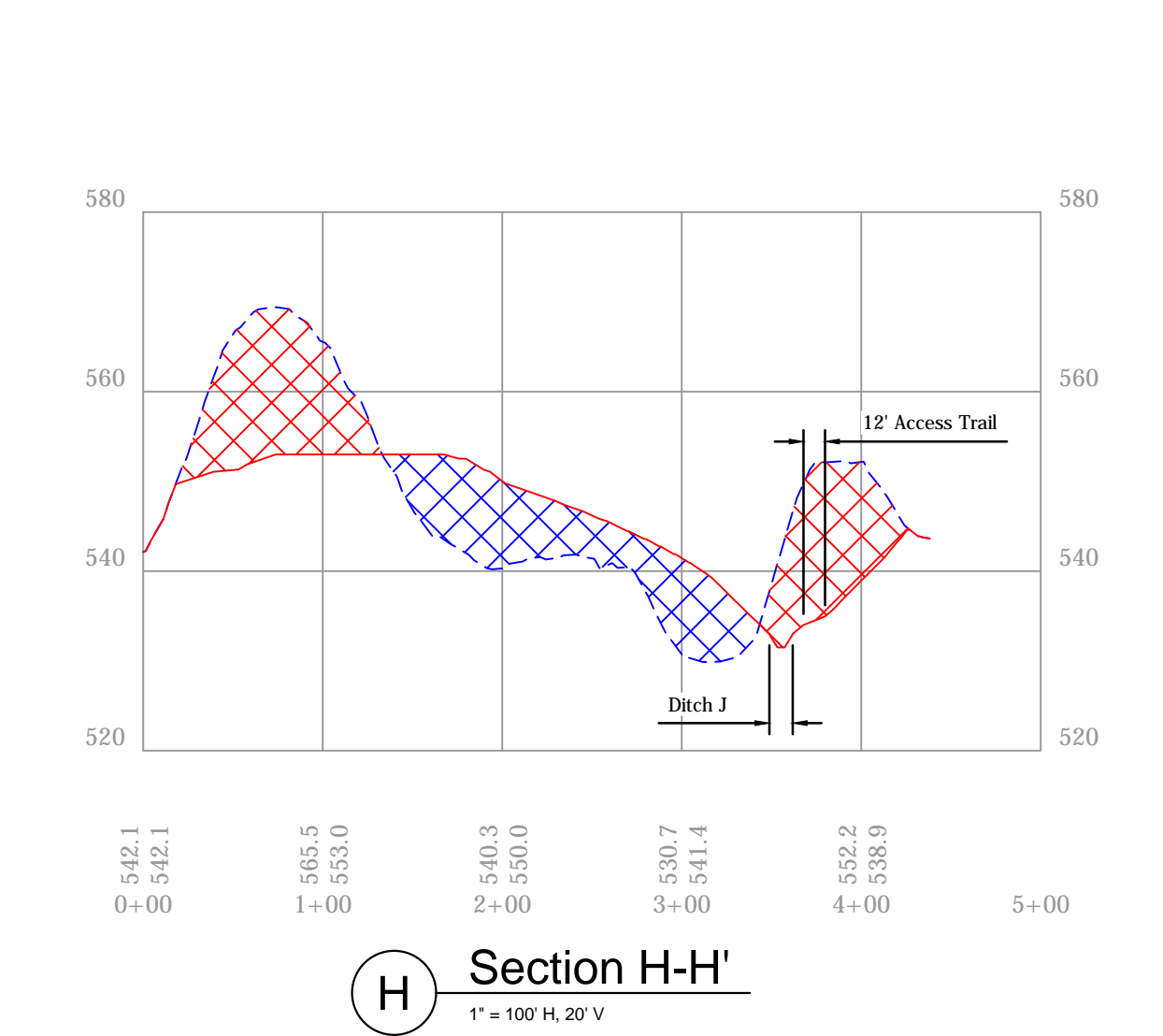
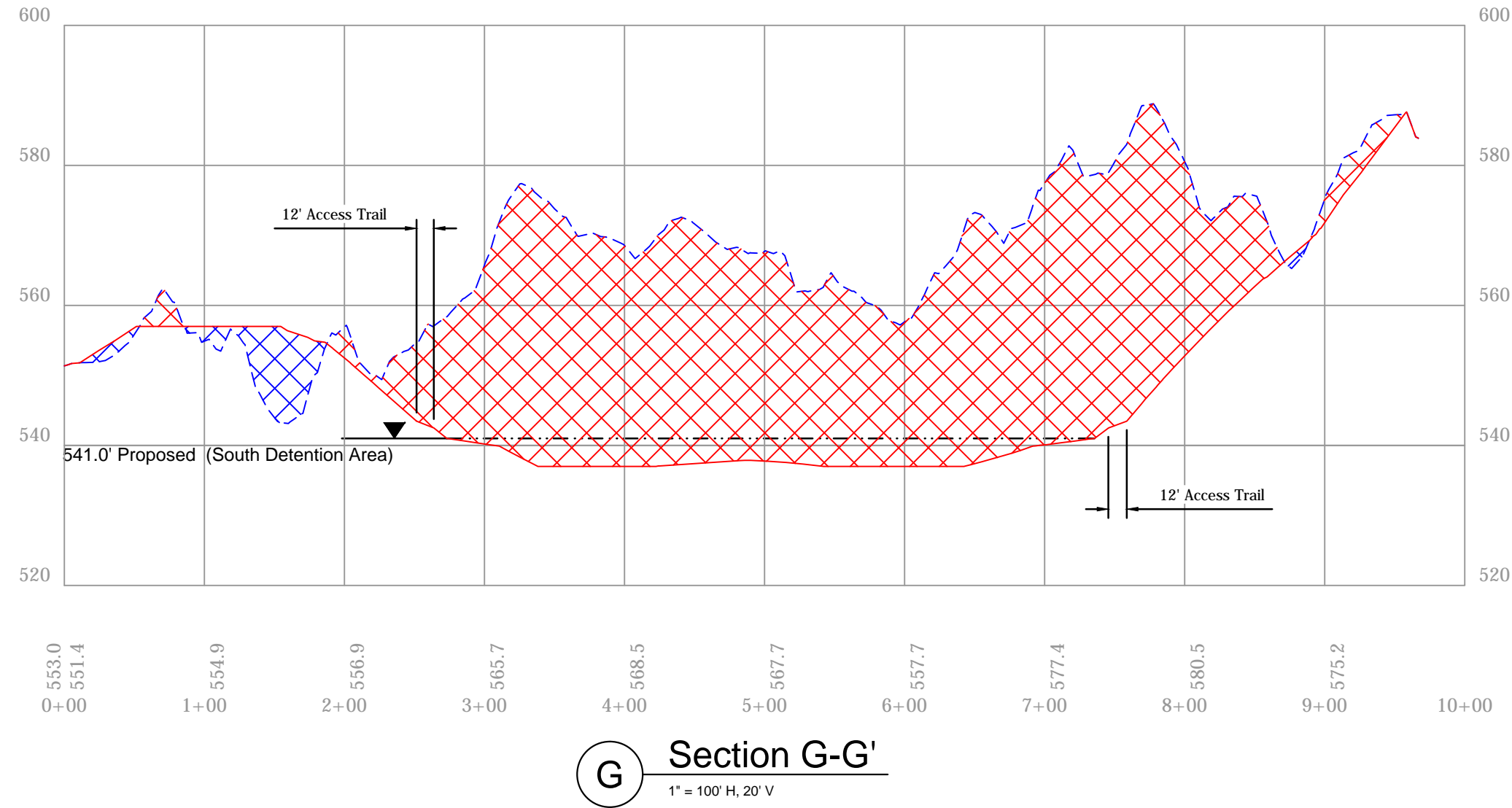
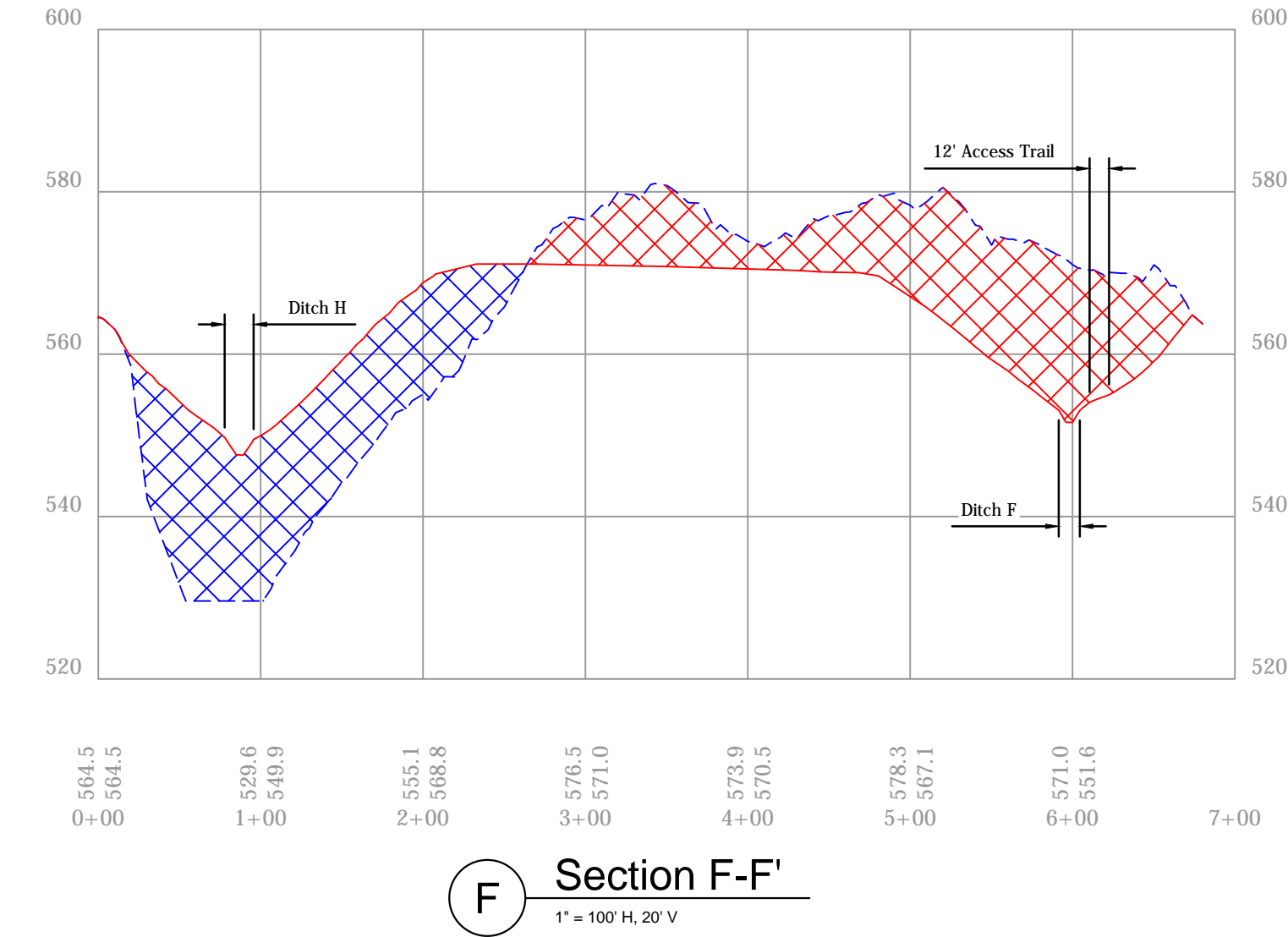
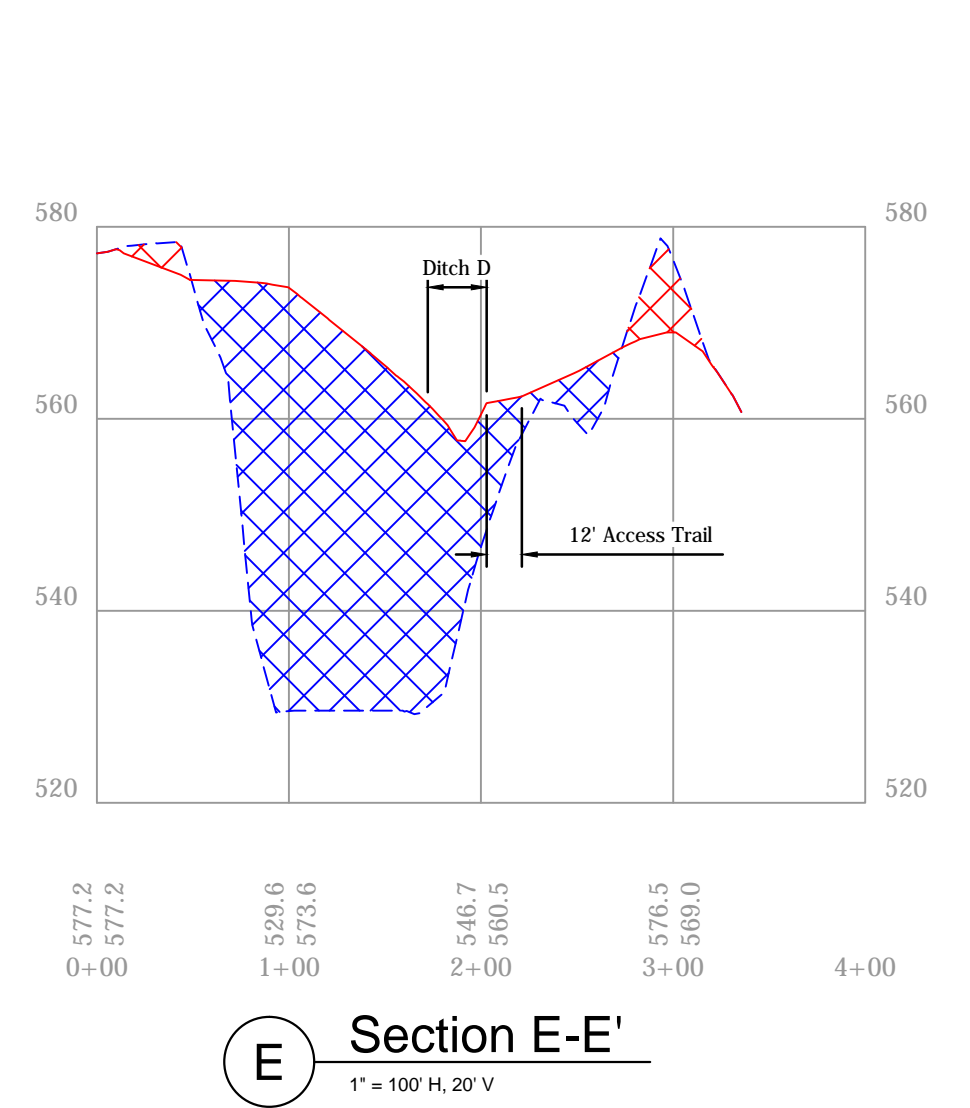
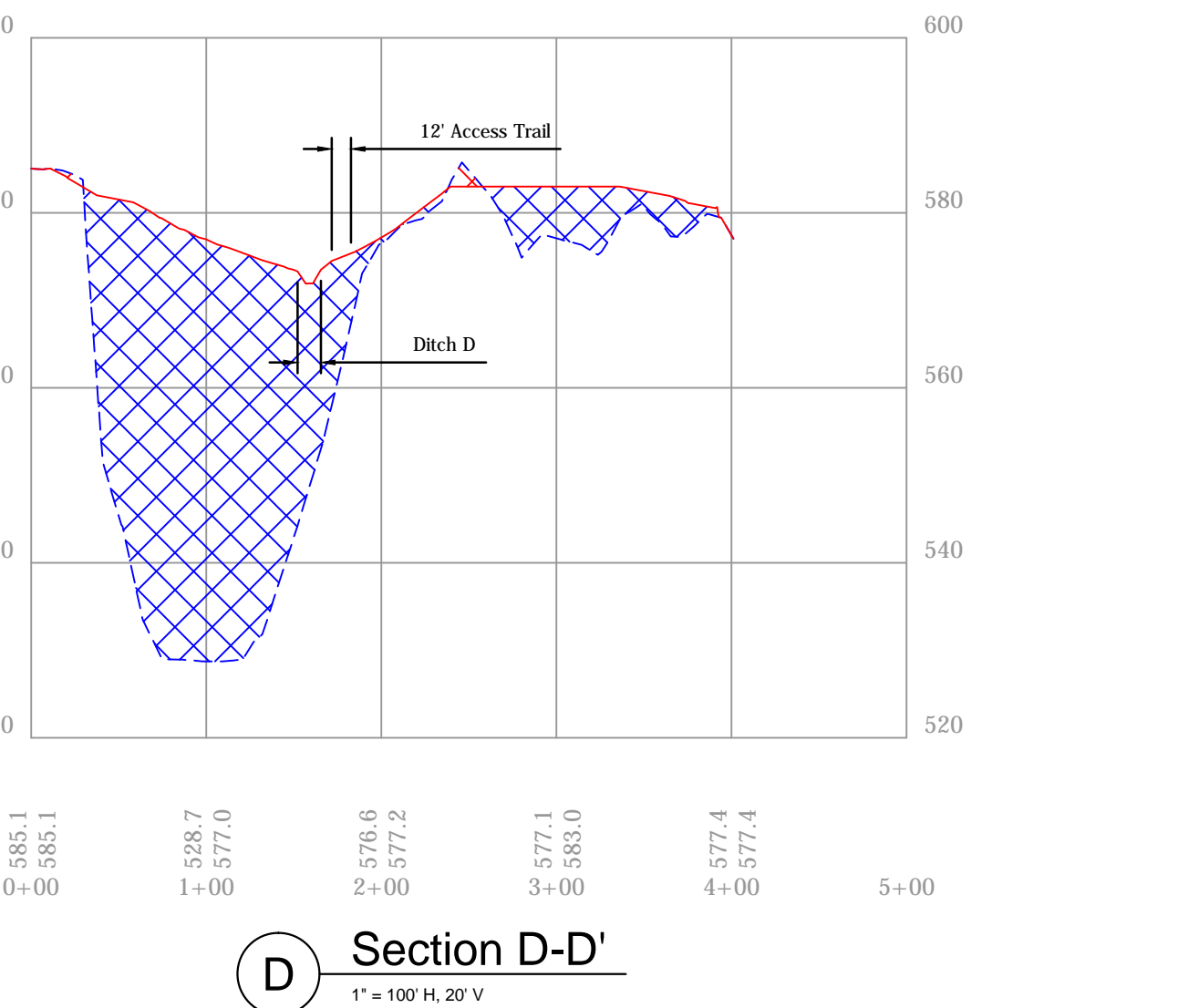
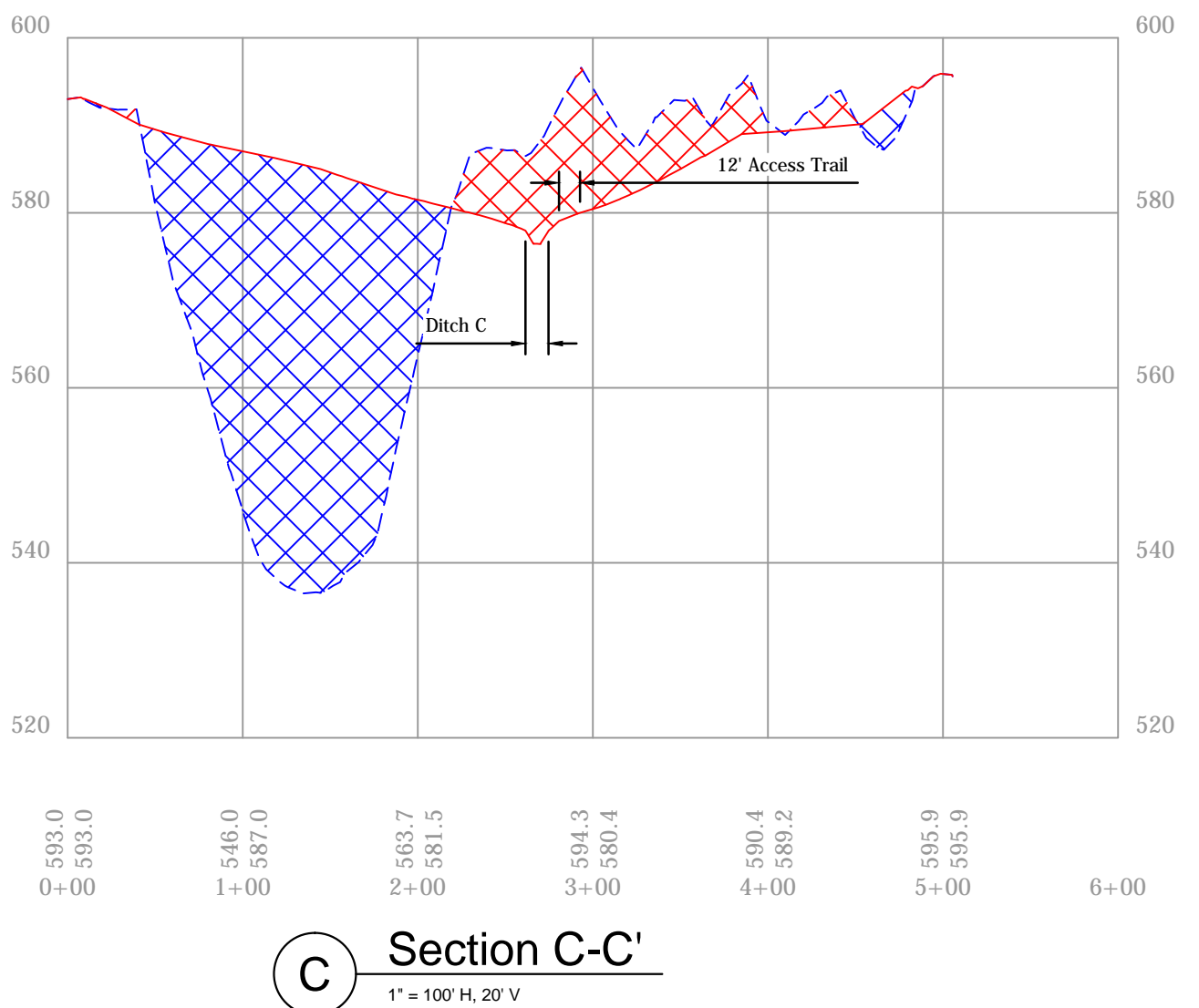
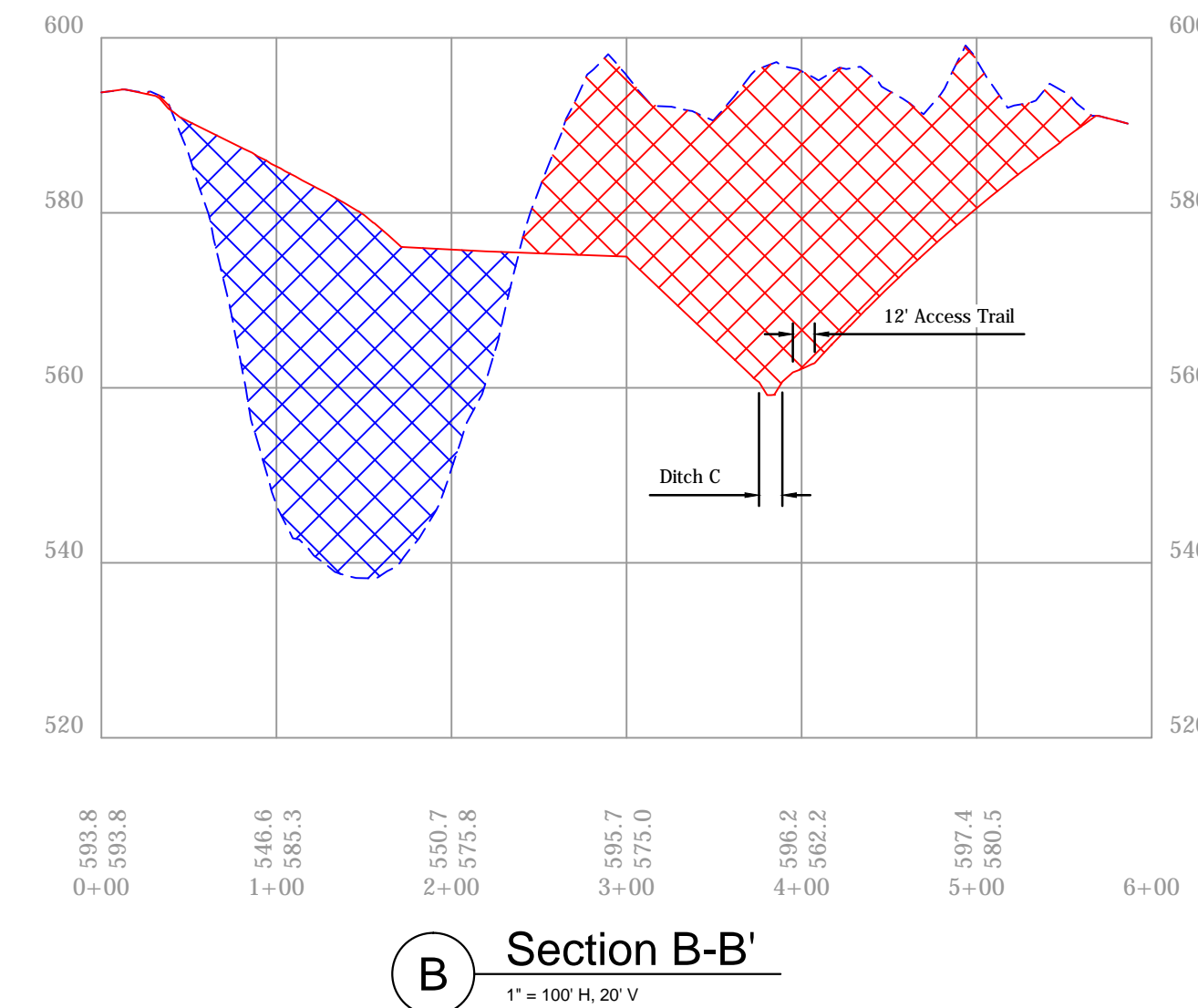
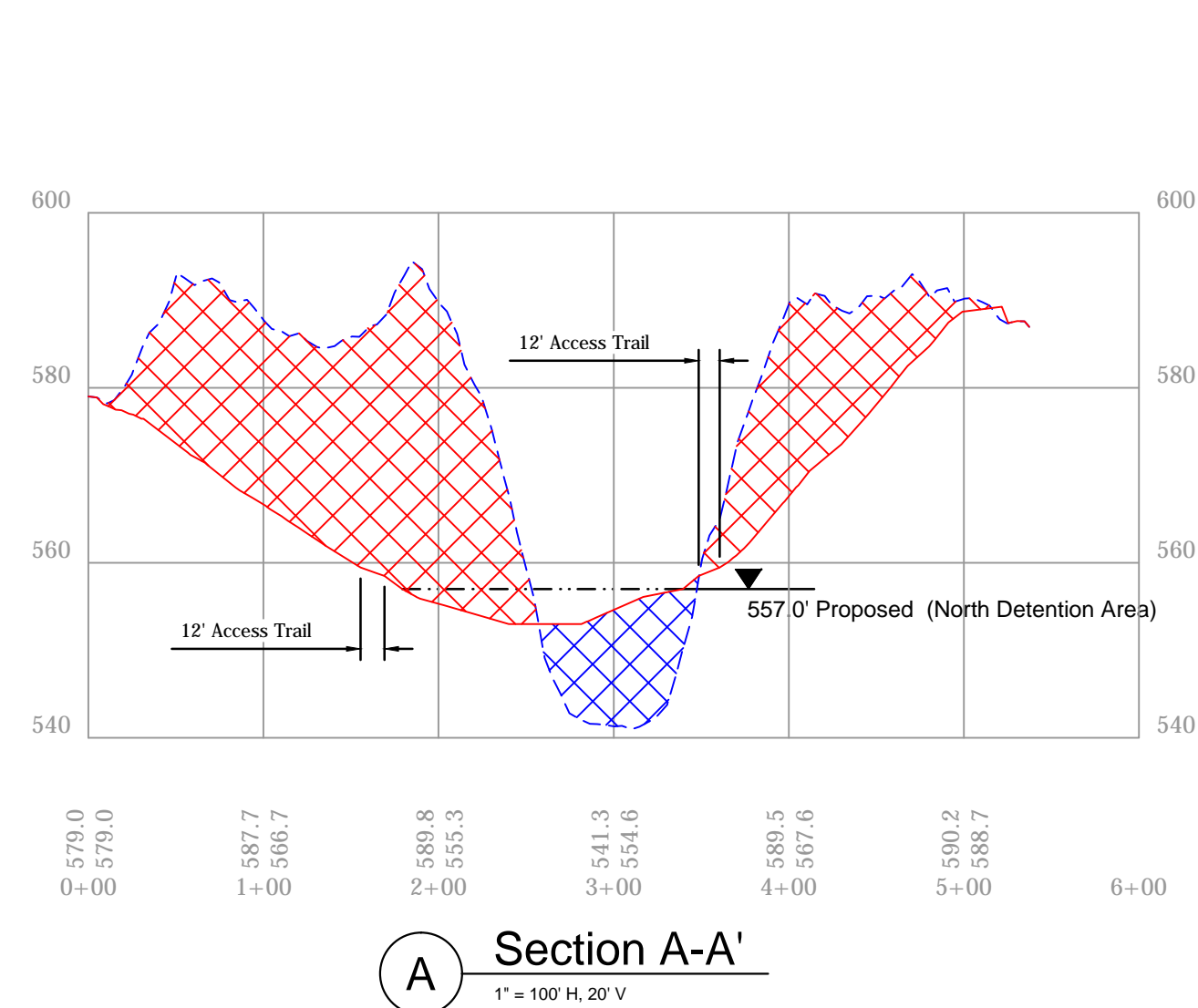
SCALE: 1" = 60'

PROJECT: E008-283

SHEET: 5 OF 7

SITE: 1813

Legend	
	Existing Grade
	Design Grade
	Water Elevation
	Cut
	Fill



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SECTIONS

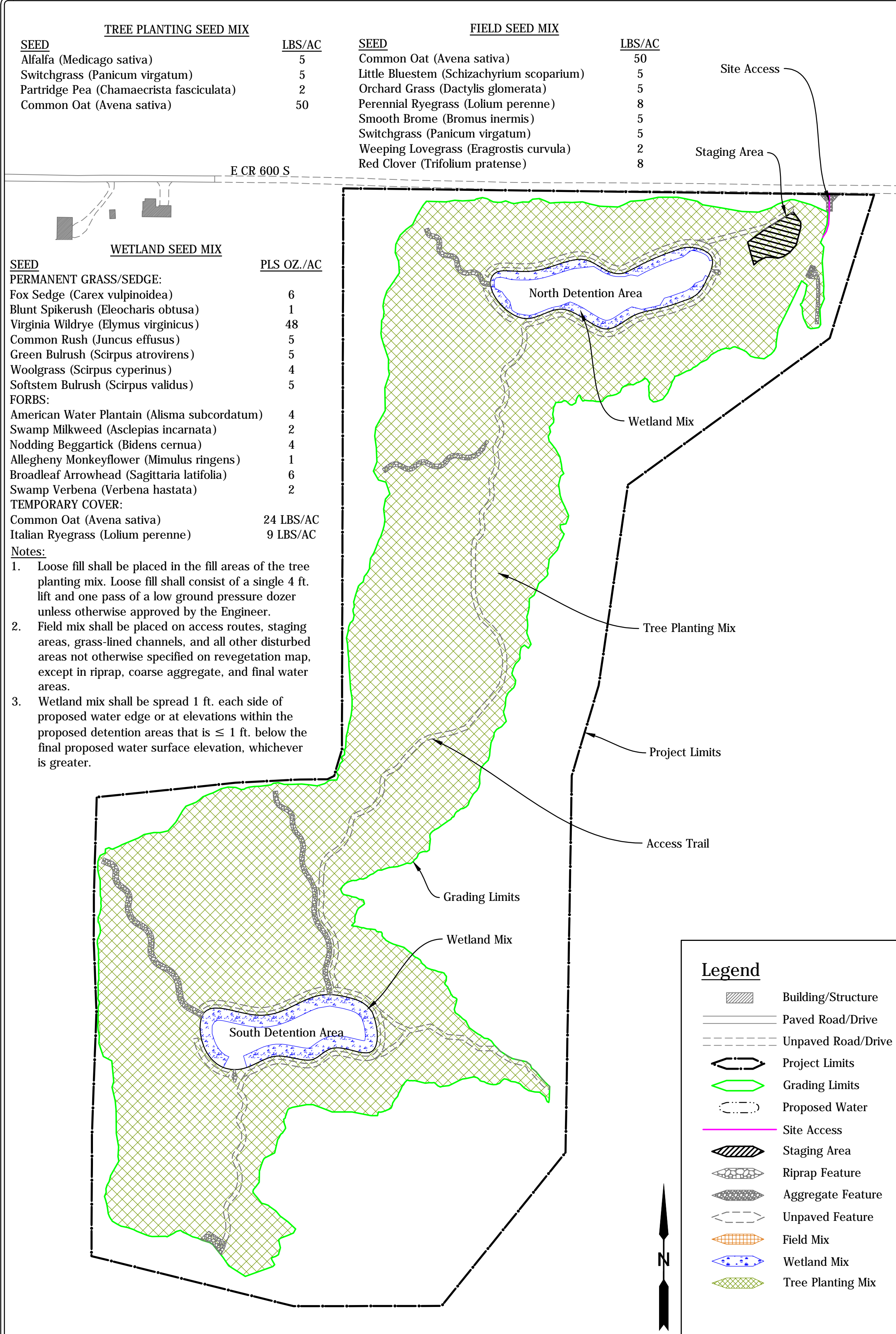
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SCALE AS NOTED

PROJECT E008-283

SHEET 6 OF 7

SITE 1813



TREE PLANTING SEED MIX	
SEED	LBS/AC
Alfalfa (<i>Medicago sativa</i>)	5
Switchgrass (<i>Panicum virgatum</i>)	5
Partridge Pea (<i>Chamaecrista fasciculata</i>)	2
Common Oat (<i>Avena sativa</i>)	50

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
Red Clover (<i>Trifolium pratense</i>)	8

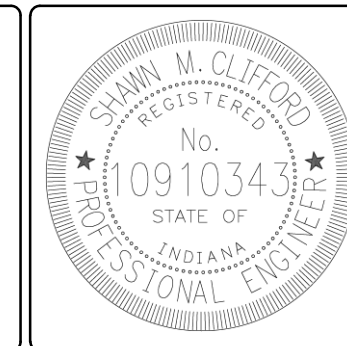
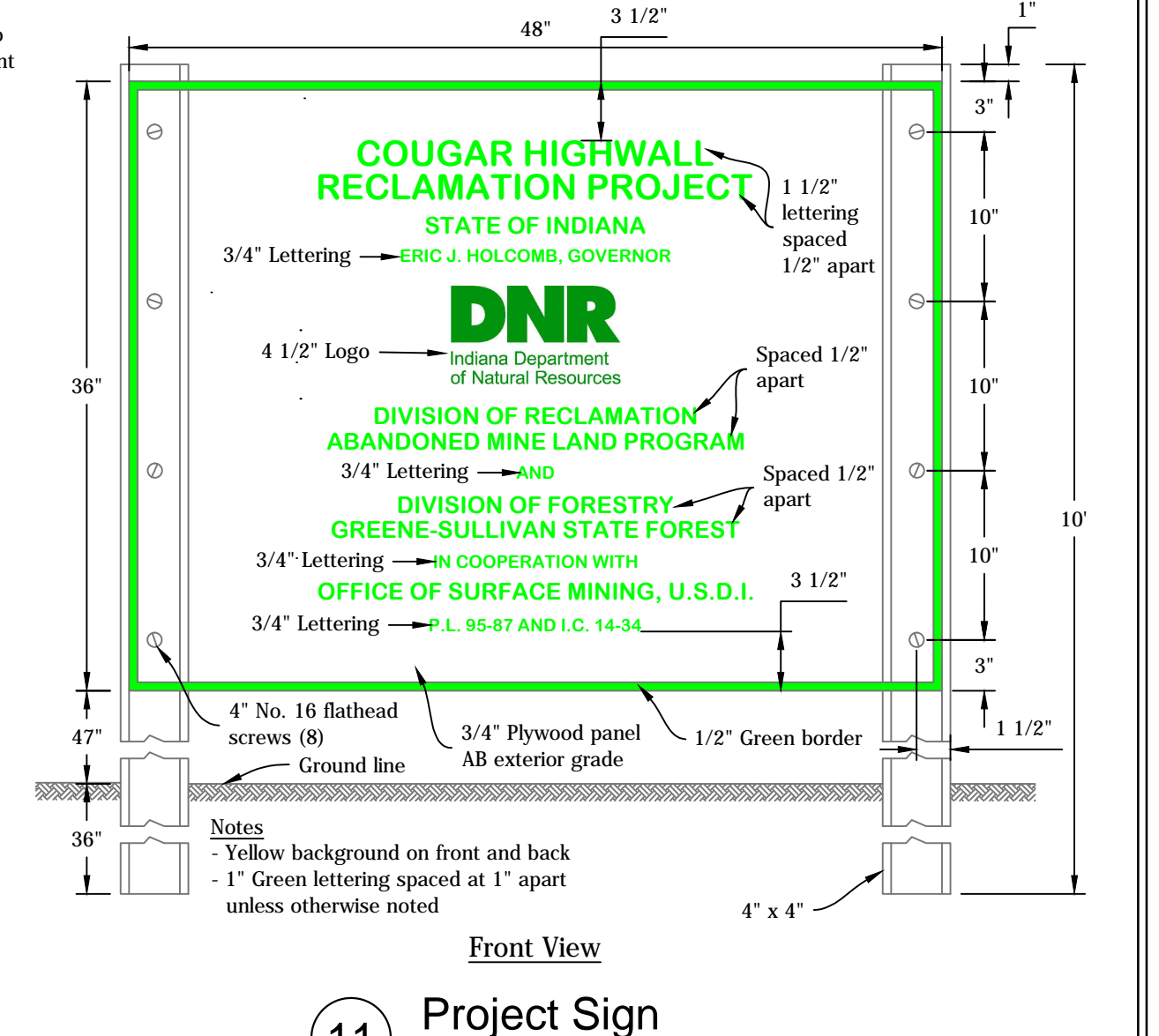
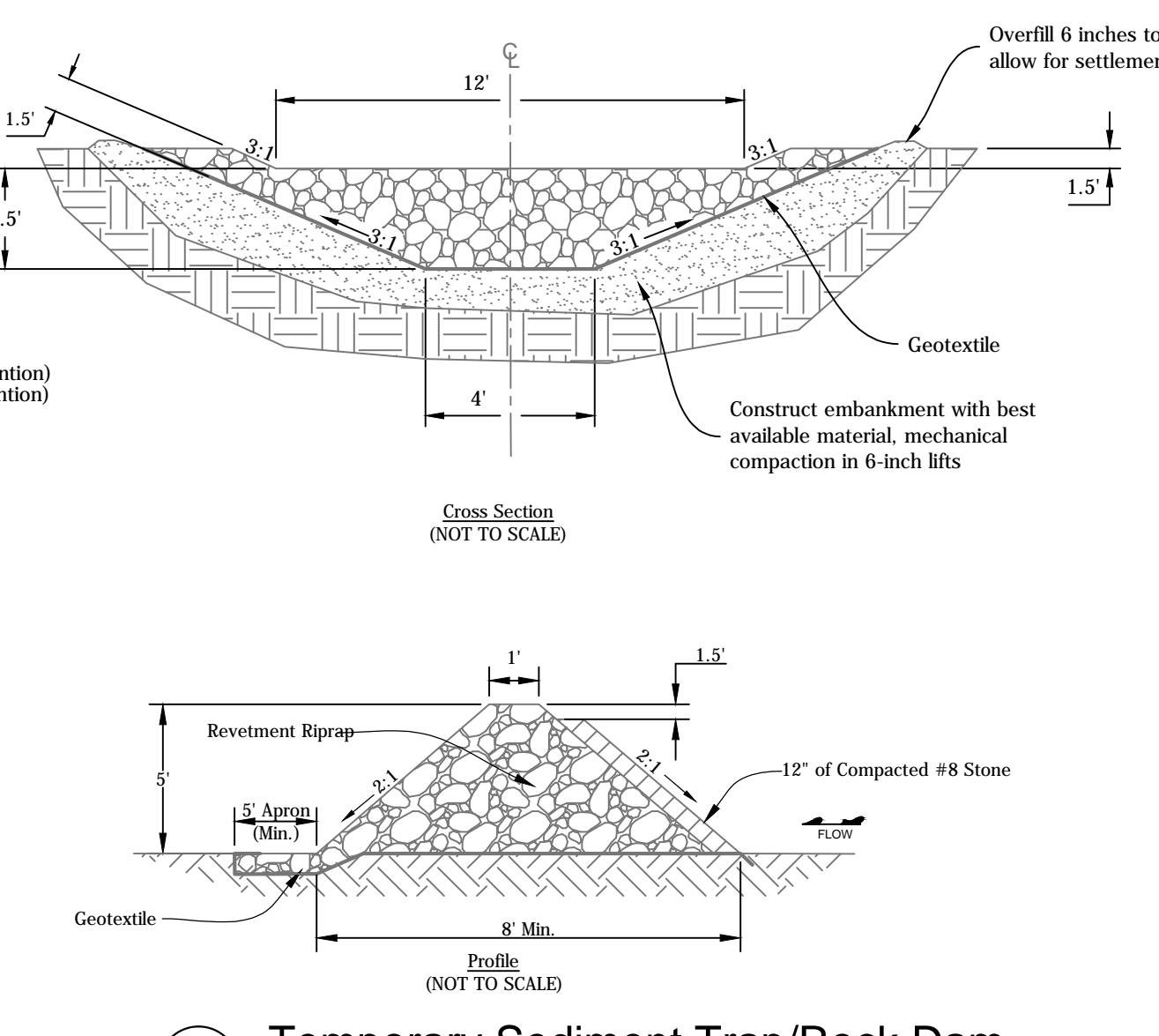
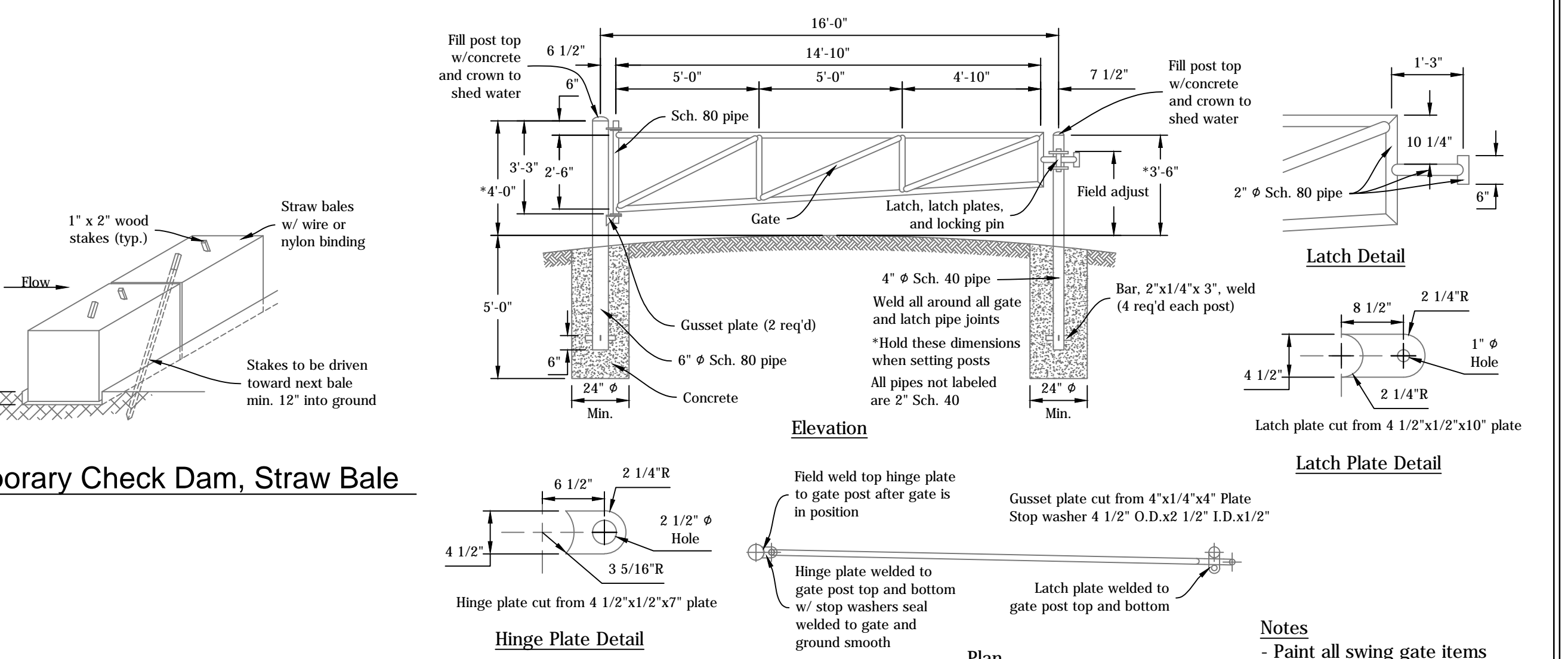
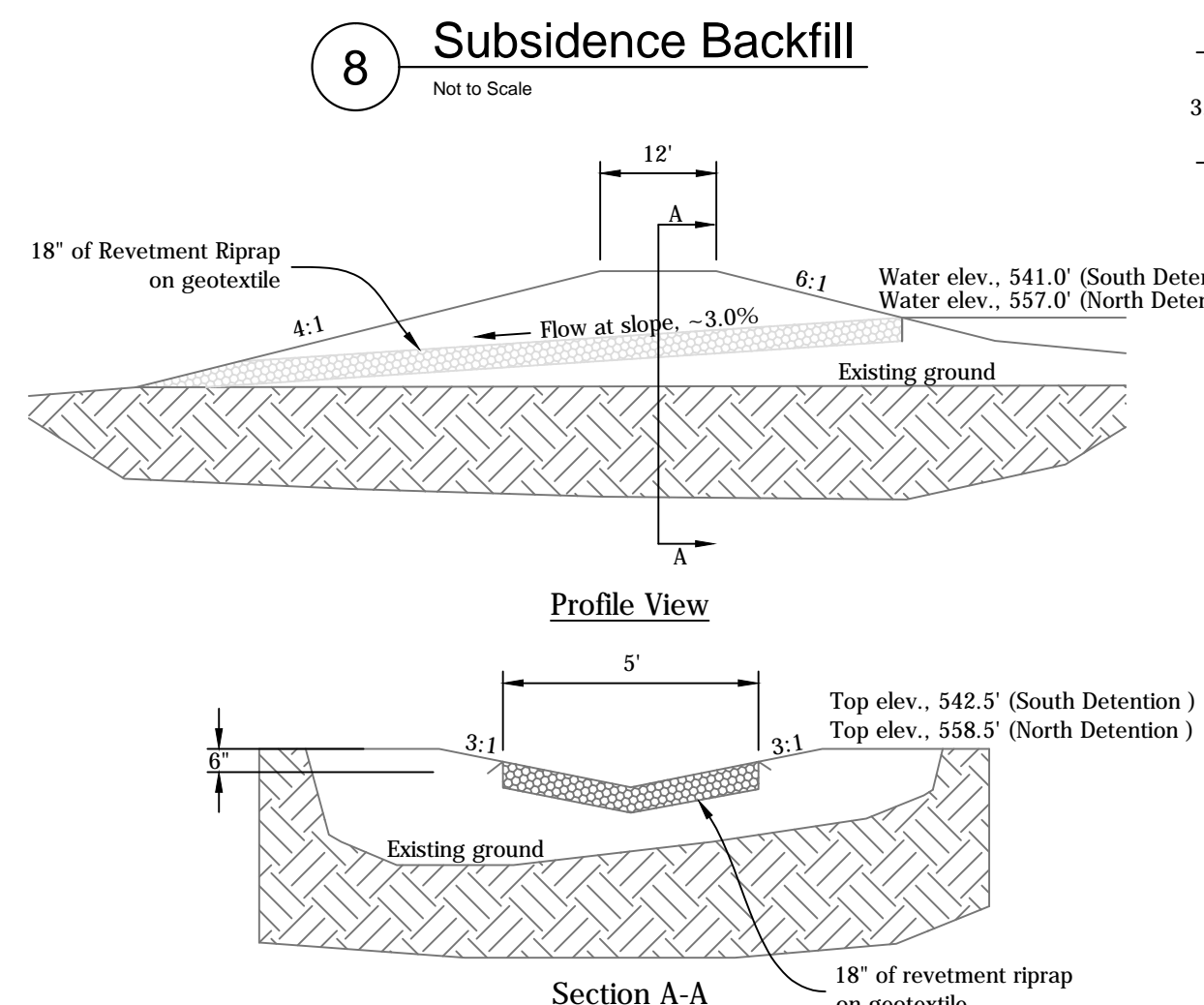
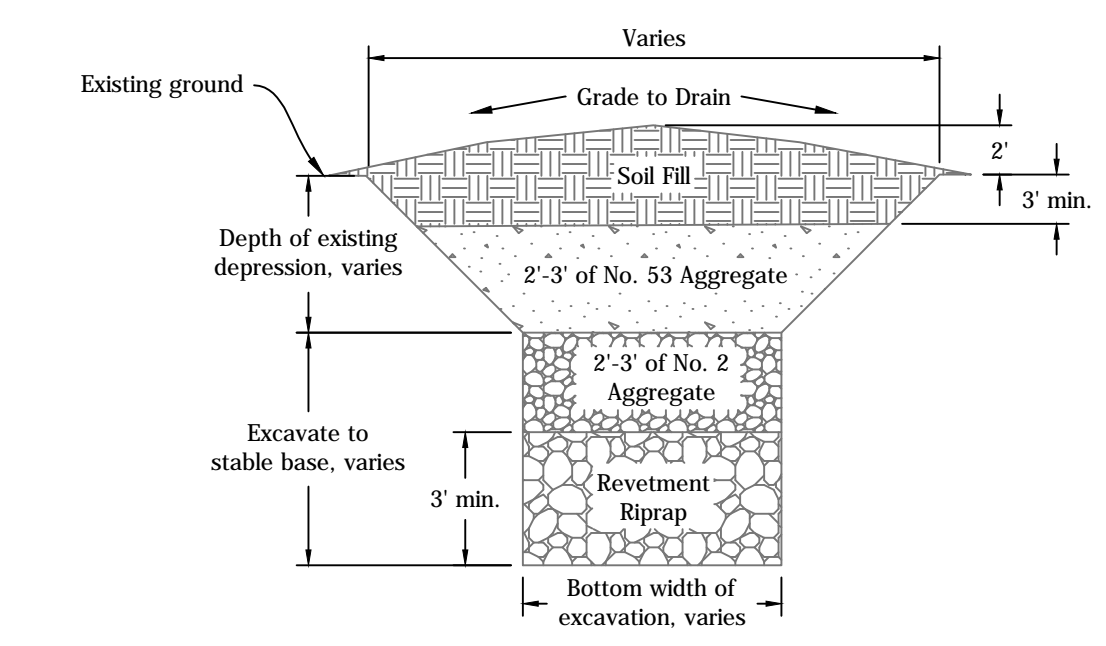
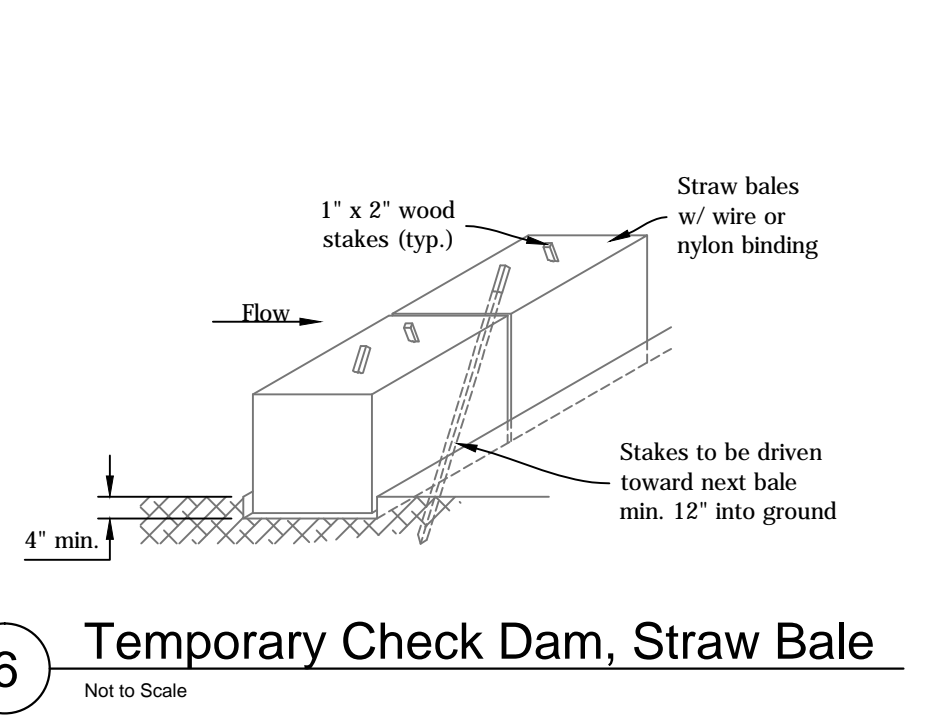
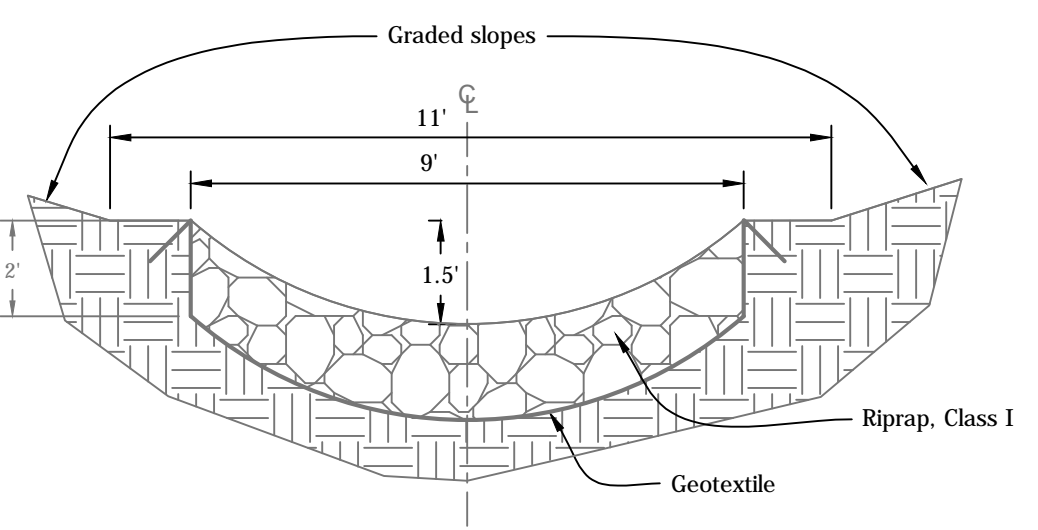
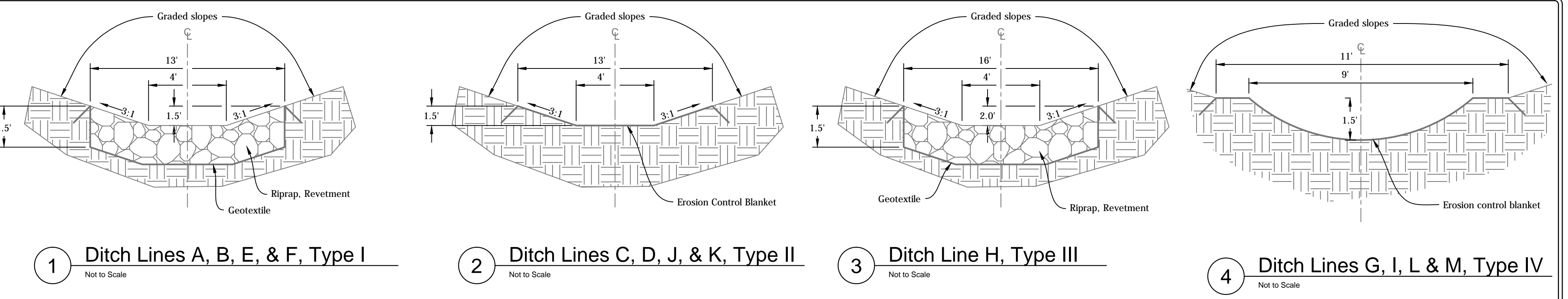
WETLAND SEED MIX	
SEED	PLS OZ./AC
PERMANENT GRASS/SEDGE:	
Fox Sedge (<i>Carex vulpinoidea</i>)	6
Blunt Spikerush (<i>Eleocharis obtusa</i>)	1
Virginia Wildrye (<i>Elymus virginicus</i>)	48
Common Rush (<i>Juncus effusus</i>)	5
Green Bulrush (<i>Scirpus atrovirens</i>)	5
Woolgrass (<i>Scirpus cyperinus</i>)	4
Softstem Bulrush (<i>Scirpus validus</i>)	5
FORBS:	
American Water Plantain (<i>Alisma subcordatum</i>)	4
Swamp Milkweed (<i>Asclepias incarnata</i>)	2
Nodding Beggartick (<i>Bidens cernua</i>)	4
Allegheny Monkeyflower (<i>Mimulus ringens</i>)	1
Broadleaf Arrowhead (<i>Sagittaria latifolia</i>)	6
Swamp Verbena (<i>Verbena hastata</i>)	2
TEMPORARY COVER:	
Common Oat (<i>Avena sativa</i>)	24 LBS/AC
Italian Ryegrass (<i>Lolium perenne</i>)	9 LBS/AC

- Notes:**
- Loose fill shall be placed in the fill areas of the tree planting mix. Loose fill shall consist of a single 4 ft. lift and one pass of a low ground pressure dozer unless otherwise approved by the Engineer.
 - Field mix shall be placed on access routes, staging areas, grass-lined channels, and all other disturbed areas not otherwise specified on revegetation map, except in riprap, coarse aggregate, and final water areas.
 - Wetland mix shall be spread 1 ft. each side of proposed water edge or at elevations within the proposed detention areas that is ≤ 1 ft. below the final proposed water surface elevation, whichever is greater.

RP Revegetation Plan
1" = 200'

Legend

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



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REVEGETATION PLAN & DETAILS

STATE OF INDIANA
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SCALE: AS NOTED

PROJECT: E008-283

SHEET: 7 OF 7

SITE: 1813