

Commercial/Industrial Floodplain Development Permit

Doddridge County, WV Floodplain Management

This permit has been issued to **CNX Gas Company, LLC**, and is for the approved commercial and/or industrial development project associated with this permit that impacts the FEMA-designated floodplain and/or floodway of Doddridge County, WV, pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance. This permit must be posted at the site of work as to be clearly visible, and must remain posted during entirety of development.

Permit: #14-309 ~ CNX Gas Company, LLC ~ OXFD15HS Well Site

Date Approved: 10/23/2014 Expires: N/A

Issued to: CNX Gas Company, LLC POC: Kelly Eddy 304-884-2131

Company Address: One Energy Drive, PO Box 1248

Jane Lew, WV 26378

Project Address: Southwest District Lat/Long: 39.164345N/80.748306W

Purpose of development: Well pad construction. Project does not impact floodplain.

Issued by: Edwin L. "Bo" Wriston, Doddridge County FPM (or designee)

Date: 10/23/2014



Blue Mountain Inc. 11023 Mason Dixon Hwy Burton WV, 26562

Ed Race, EIT

Project Engineer

Ph: 304-662-6486 Fax: 304-662-6501 bmi@bluemtninc.com www.bluemtninc.com

GIS • DESIGN • SURVEYING • ENGINEERING • AERIAL MAPPING • ENVIRONMENTAL SCIENCE

#14-309



2014 OCT 23 AM 9: 21

BETH ALROGERS COUNTY CLERK DODDRIDGE COUNTY, WV

October 20, 2014

Mr. Bo Wriston Doddridge County Floodplain Office 118 East Court Street West Union, WV 26456

RE: OXFD15HS Well Site

Mr. Wriston:

On behalf of CNX Gas Company LLC, we are requesting a permit to construct a 275'x400' Natural Gas Well Pad on CR40, also known as Cain Run. This project does not propose any impact to any floodplain.

Should you have any questions or comments, please feel free to contact me at (304) 662-6486.

Sincerely,

Ed Race, EIT, SIT Project Manager Blue Mountain Inc.

Enclosures



Commercial/Industrial Floodplain Development Permit Application Doddridge County, WV Floodplain Management

This document is to be used for commercial and/or industrial development projects that impact/potentially impact the FEMA-designated floodplain and/or floodway of Doddridge County, WV pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance.

Permit Application #:	(To be completed by Floodplain Manager or designee
Date Submitted:	_
90 Day Window Date:	

Permit	#

Applicant Information:

Please provide all pertinent data.

Applicant Information							
Responsible Company Name: CNX Gas Company LLC							
Corporate Mailing Address: One Energy Drive, PO Box 1248							
ity: Jane Lew State: WV Zip: 26378							
Corporate Point of Contact (POC): Kelly Eddy							
Corporate POC Title: Permitting Supervisor							
Corporate POC Primary Phone: (304) 884-2	131						
Corporate POC Primary Email: Kelly Eddy@	consolenergy	.com					
Corporate FEIN: 20-3170639	Corporate DUN	IS:					
Corporate Website: www.consolenergy.co	om						
Local Mailing Address: Same as above							
City:	State:	Zip:					
Local Project Manager (PM): John Sampson							
Local PM Primary Phone: 304-777-7811							
Local PM Secondary Phone:		-					
Local PM Primary Email: JohnSampson@cor	nsolenergy.com						
Person Filing Application: Ed Race, Blue Mountain Inc.							
Applicant Title: Project Engineer							
Applicant Primary Phone: (304) 662-6486							
Applicant Secondary Phone:							
Applicant Primary Email: BMI@bluemtning	com.						

Permit	#	

Project Narrative:

Describe in detail the proposed development including project name/title, type of development, estimated start and completion timeline, and its potential impact on the floodplain. Use additional copies of this page as needed.

Project Narrative:
This project, known as the 'OXFD15 Well Site', consists of a 365'x372' natural gas well
pad and a 3,390 ft access road. This project is not anticipated to impact any floodplain.
Construction will begin around February 2015 and will be compelted around August 2015

Permit	#

Proposed Development:

Please check all elements of the proposed project that apply.

Project Description: (Check all that apply)					
New Construction					
Commercial Structure					
Industrial Structure					
Pipeline					
Drill Pad					
Storage Yard/Facility					
Roadway Construction					
Bridge/Culver (Please circle)					
Utility placement					
Utility displacement					
Grade/Excavation/Fill					
Watercourse Alteration					
Above ground chemical or HAZMAT storage tanks					
Above ground storage thanks (other)					
Below ground storage tanks (any)					
Well/Septic System					
Other					
If other, please describe:					

Permit	#	

Development Site/Property Information:

Property Designation: 1 of 2

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from sources such as Google Earth, WV Flood Tool, etc. showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Cita/Duananty Information				
Site/Property Information	! :			
Legal Description: See at	tached site plan.	· ·	·	
Physical Address/911 Add	ress:			
Decimal Latitude/Longitude	de: N39.164345° W	80.748306° (NA	AD83)	
DMS Latitude/Longitude:	N39°09'51.64" W80)°44'53.90" (NA	.D83)	
District: Southwest (07)	Map: 10	•	Parcel:	2
Land Book Description:				
Deed Book Reference:	3K/PG: 230/307			
Tax Map Reference:				
100000000000000000000000000000000000000	W. 47			**************************************
Existing Buildings/Use of I	Property: 1 existing d	welling with 5 s	sheds/ba	rns, and 3 existing
gas wells, residential use.				
Floodplain Location Data:	T ****	loodplain Manag	er or de	
Community:	Number:	Panel:		Suffix:
Location (Lat/Long):		Approximate I	Elevation	:
		Estimated BFE	· .	
Is the development in the f	loodway?	Is the develop		he floodplain?
$\square_{\mathrm{Yes}} \ \square_{\mathrm{No}}$	·	□ Yes	$\overline{\cup}_{No}$	Zone:
Notes:				
<u> </u>				····-
· · · · · · · · · · · · · · · · · · ·				

Per	mil	- #		

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from sources such as Google Earth, WV Flood Tool, etc. showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: _2	of_	2_				
Site/Property Information) • ·					
Legal Description: See at	-	ad sita plan			· · · · · · · · · · · · · · · · · · ·	
	tacne	d site plan.				
Physical Address/911 Add	ress:					
Decimal Latitude/Longitue	de: 1	N39.160962° W	80.746728° (NA	AD83)		
DMS Latitude/Longitude:	N39	°09'39.46" W80	°44'48.22" (NA	D83)		
District: New Milton (6))	Map: 18		Parcel:	8	
Land Book Description:						
Deed Book Reference:	3K/P	G: WB16/370				
Tax Map Reference:						
Existing Buildings/Use of F	Prope	erty:No existing	dwellings, woo	ded pro	perty	
Floodplain Location Data:	i –			er or des		
Community:	Nun	nber:	Panel:		Suffix:	
Location (Lat/Long):	.		Approximate E	levation	:	
Is the development in the f	Estimated BFE: Is the development in the floodway? Is the development in the floodplain?					
=	1000	way:		.—.	_	
U Yes U No			Yes	U No	Zone:	
Notes:		·····				

Permit	#		

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: _1_ of _2			
Property Owner Data:			
Name of Primary Owner (PO): Ike M	lorris		
PO Address: PO Box 397			
City: Glenville	State: WV	Zip: 26351	
PO Primary Phone:			
PO Secondary Phone:			
PO Primary Email:			
Surface Rights Owner Data:			
Name of Primary Owner (PO):	· · · · · · · · · · · · · · · · · · ·		
PO Address:	· · · · · · · · · · · · · · · · · · ·		
City:	State:	Zip:	
PO Primary Phone:			
PO Secondary Phone:			
PO Primary Email:			
Mineral Rights Owner Data: (As Applic	ahla)		
Name of Primary Owner (PO):	шиеј		
PO Address:	 		
City:	State:	Zip:	
PO Primary Phone:			
PO Secondary Phone:			
PO Primary Email:			

Permit	#	

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: _2_ of 2_			
Property Owner Data:			
Name of Primary Owner (PO): Dolores	Hinterer		
PO Address: 12459 WV RT 18 S			
City: New Milton	State: WV	Zip: 26411	
PO Primary Phone:	· ·		
PO Secondary Phone:			
PO Primary Email:			
Surface Rights Owner Data:			
Name of Primary Owner (PO):			
PO Address:			
City:	State:	Zip:	
PO Primary Phone:		•	
PO Secondary Phone:			
PO Primary Email:			
		-	
Mineral Rights Owner Data: (As Applicabl	le)		
Name of Primary Owner (PO):			
PO Address:			
City:	State:	Zip:	
PO Primary Phone:			
PO Secondary Phone:			
PO Primary Email:			

Permit	#	

Contractor Data:

Property Designation: ____ of <u>ALL</u>

Please provide all pertinent data for contractors and sub-contractors that may be participating in this project. Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Contractor/Sub-Contractor (C/SC) I	nformation:		
C/SC Company Name			
Project will	be bid out in the futu	ire.	
C/SC WV License Number:			
C/SC FEIN:	C/SC DUN	S:	
Local C/SC Point of Contact (POC):			
Local C/SC POC Title:			
C/SC Mailing Address:			·
City:	State:	Zip-Code:	
Local C/SC Office Phone:			·
Local C/SC POC Phone:			
Local C/SC POC E-Mail:			
Contractor/Sub-Contractor (C/SC) I	nformation.		
C/SC Company Name:	mormation.		
C/SC WV License Number:			
C/SC FEIN:	C/SC DUN	S:	
Local C/SC Point of Contact (POC):			
Local C/SC POC Title:			
C/SC Mailing Address:		-	
City:	State:	Zip-Code:	
Local C/SC Office Phone:		1	
Local C/SC POC Phone:			
Local C/SC POC E-Mail:			

Permit	#	

Engineering Firm Data:

Property Designation: _

Please provide all pertinent data for engineering firm(s) that may be participating in this project. Use additional copies of this page as needed. Designate each page in relation to each property listed above.

of ALL

		
Engineer Firm Information:		
Engineer Firm Name: Blue Mountain Inc.		
Engineer WV License Number: 4449		
Engineer Firm FEIN: 550704426	Engineer Firm	DUNS: 805979713
Engineer Firm Primary Point of Contact (POC):	Ed Race	
Engineer Firm Primary POC Title: Project Engineer	gineer	
Engineer Firm Mailing Address: 11023 Maso	n Dixon HWY	
City: Burton	State: WV	Zip-Code: 26562
Engineer Firm Office Phone: (304) 662-6486	3	
Engineer Firm Primary POC Phone:		
Engineer Firm Primary POC E-Mail: BMI@blu	uemtninc.com	
Engineer Firm Information:		
Engineer Firm Name:		
Engineer WV License Number:		
Engineer Firm FEIN:	Engineer Firm	DUNS:
Engineer Firm Primary Point of Contact (POC):	<u>.</u>	
Engineer Firm Primary POC Title:		
Engineer Firm Mailing Address:		
City:	State:	Zip-Code:
Engineer Firm Office Phone:		
Engineer Firm Primary POC Phone:	_	
Engineer Firm Primary POC E-Mail:		

Permit	#	

Adjacent and/or Affected Landowners Data

Please provide data for all adjacent and/or affected surface owners (both up and down stream) whose property may be impacted by proposed development as demonstrated by a floodplain study or survey. Use additional copies of this page as needed.

Adjacent Property Owner Data: Name of Primary Owner (PO): N/A			
PO Address:	<u> </u>		
City:	State:	Zip:	
PO Primary Phone:	otate.		
PO Secondary Phone:			
PO Primary Email:			
1011 mary Linair.			
Adjacent Property Owner Data:			
Name of Primary Owner (PO):			
PO Address:			
City:	State:	Zip:	
PO Primary Phone:		L	
PO Secondary Phone:			
PO Primary Email:			
Adjacent Property Owner Data:			
Name of Primary Owner (PO):			
PO Address:			
City:	State:	Zip:	
PO Primary Phone:			
PO Secondary Phone:			
PO Primary Email:			
Adjacent Property Owner Data:			
Name of Primary Owner (PO):			
PO Address:			
City:	State:	Zip:	
PO Primary Phone:			
PO Secondary Phone:	· · · · ·		
PO Primary Email:			

Permit	#

Site Plan

A Site Plan is an accurate and detailed map of the proposed development for this project. It shows the size, shape, location and special features of the project property, and the size and location of any development planned to the property, especially as that development will impact the floodplain and/or floodway. Site plans show what currently exists on the project property, and any changes or improvements you are proposing to make. Two complete sets of plans and specifications are required when applying for a Floodplain Permit. The Floodplain Manager will retain one set, and one set will be dated and returned to the applicant when the permit is issued. A certified and licensed engineering firm should complete site plans.

A SITE PLAN MUST CONTAIN THE FOLLOWING INFORMATION: See Attachment 1

- 1. Legal description of the parcel, north arrow and scale
- 2. All property lines and their dimensions
- 3. Names of adjacent roads, location of driveways
- 4. Location of sloughs, tributaries, streams, rivers, wetlands, ponds, and lakes, with setbacks indicated, and including FEMA floodplain data based on most updated FIRM.
- 5. Location, size, shape of all buildings, existing and proposed, with elevation of lowest floor indicated.
- 6. Location and dimensions of existing or proposed on-site sewage systems.
- 7. Location of all propane tanks, fuel tanks or other liquid storage tanks whether above ground or below ground level.
- 8. Location and dimensions of any proposed pipeline placement(s) into floodplain/floodway.
- 9. Location and dimensions of any roadway development into floodplain/floodway. (Includes initial development access roads)
- 10. Location and dimensions of any bridge and/or culvert development into floodplain/floodway.
- 11. Location and dimensions of any storage yard or facility into the floodplain/floodway.
- 12. Location of any existing utilities and/or proposed utility placement and/or displacement.
- 13. Location, dimensions and depth of any existing or proposed fill on site.
- 14. A survey showing the **existing ground elevations** of at least location on the building site. **ELEVATION NOTE**: All vertical datum will reference either NGVD 29 or NAVD 88. Assumed datum will not be acceptable unless the property is located in an area where vertical datum has not been published. For those areas where vertical datum has not been established, a site plan with contours, elevations using assumed datum, high water marks and existing water levels of sloughs, rivers, lakes or streams and proposed lowest floor elevations is required.

Perm	it i	#	

Applicable Permits:

- 1. U.S. Army Corps of Engineers Nationwide Permit #39
- 2. WV Division of Highways MM109 (#04-2014-1150)
- 3. Office of Land and Streams Permit
- 4. WV DEP H6A Permit

Permi	t#	

Applicant

Please initial beside each bullet point, print name, sign and date.

- I certify that I am authorized to submit this application for the primary project developer.
- I certify that the information included in this application is to the best of my knowledge true and complete.
- I certify that all required Federal, State, and local permits required by law and/or ordinance for the above described development of this project have been properly attained, are current and valid, and must be presented with this application before a Doddridge County Floodplain Permit may be issued.
- I understand that if in the course of the development project additional permits become
 required that were not needed during the initial proposal, the primary developer must notify the
 Doddridge County Floodplain Manager within 48 hours of such need, and that a "Stop Work"
 order may be issued for all project work directly impacting the floodplain or floodway, until such
 time the required additional permits are acquired.
- I understand that once the floodplain permit is submitted, the application will be entered into official public record at the next regularly scheduled Doddridge County Commission meeting after the date of submittal.
- I understand that from the date of submittal of the fully completed permit application, the
 Doddridge County Floodplain Manager has ninety (90) days to make a determination to either
 grant or deny said permit application. During this approval period, the Doddridge County
 Floodplain Manager may, at his or her discretion, conduct a review and/or additional study of
 provided documentation by means of an independent engineering firm. All costs associated with
 said review and/or study must be reimbursed to the County before issuance of approved permit.
- I understand that during the approval period, the Doddridge County Floodplain Manager of
 designee may at his or her discretion conduct site visits and document conditions of proposed
 development pursuant to the permit application.
- I understand that once the Floodplain Permit is granted, the permit will be entered into official public record at the next scheduled Doddridge County Commission meeting after the date of issuance. Appeals to the permit may be made no later than twenty (20) days after said issuance. If a valid appeal is submitted, as determined by the Doddridge County Floodplain Manager, a "Stop Work" order will be issued for all project development directly involving the floodplain or floodway. A public hearing by the Doddridge County Appeals Board will be scheduled no less than ten (10) days after the next regularly scheduled Doddridge County Commission meeting.
- I understand that all decisions of the Doddridge County Appeals Board shall be final.
- I understand issuance of a Floodplain Permit authorizes me to proceed with construction as proposed. A Certificate of Compliance is required upon substantial completion of the project.
- In signing this application, the primary developer hereby grants the Doddridge County Floodplain Manager or designee the right to enter onto the above-described location to inspect the development work proposed, in progress, and/or completed.
- I understand that if I do not follow exactly the site-plan submitted and approved by this permit that a "Stop Work" order may be issued by the Wirt County Floodplain Manager and that I must stop all construction immediately until discrepancies of actual work vs. proposed work is resolved.

Applicant Signature: Kelly Eddy Permitting Date: 10	2-16-14
U Supervisor	
Applicant Printed Name: Kelly Eddy permitting supervisor	_

Permit	#	

Floodplain Manager Certification

I hereby certify that the applicant above has been notified of applicable compliance with the Doddridge County Floodplain Ordinance of May 21, 2013, and has provided a complete and accurate Permit Application including the following items:

	Site Plan prepared by a certified and licensed engineering firm showing the nature, location, dimensions, and elevation of the property located within the floodplain, existing or proposed structures, location of proposed fill, location of storage of materials including fuel, location of drainage facilities, and location of utilities.				
	Written description, if applicable, describing the extent which the watercourse will be altered or relocated as a result of the proposed development.				
	No-rise certification prepared by a certified and licensed engineering firm for all projects located in the floodway.				
	E911 Addressing data, if applicable, for proper addressing of proposed development.				
	Copies of all applicable Federal, State and local permits required for development before issuance of the Doddridge County Floodplain Permit.				
	Permit fee received: Check #: Amount: \$				
Flood	lplain Manager or Designee				
Signa	ture: Date:				
Notes	:				

Permi	t#	

Permit Issuance

- o I certify that I am authorized to accept this granted Doddridge County Floodplain Permit for the primary project developer.
- I certify that all required Federal, State, and local permits required by law and/or ordinance for the approved development of this project have been properly attained, and are current and valid.
- o I understand that if in the course of the development project additional permits become required that were not needed during the initial proposal, the primary developer must notify the Doddridge County Floodplain Manager within 48 hours of such need, and that a "Stop Work" order may be issued for all project work directly impacting the floodplain or floodway, until such time the required additional permits are acquired.
- o I understand that once the Floodplain Permit is granted, the permit will be entered into official public record at the next scheduled Doddridge County Commission meeting after the date of issuance. Appeals to the permit may be made no later than twenty (20) days after said issuance. If a valid appeal is submitted, as determined by the Doddridge County Floodplain Manager, a "Stop Work" order will be issued for all project development directly involving the floodplain or floodway. A public hearing by the Doddridge County Appeals Board will be scheduled no less than ten (10) days after the next regularly scheduled Doddridge County Commission meeting.
- o I understand that all decisions of the Doddridge County Appeals Board shall be final.
- I understand issuance of a Floodplain Permit authorizes me to proceed with construction as proposed. A Certificate of Compliance is required upon substantial completion of the project.
- o I understand that the granted Doddridge County Floodplain Permit must be visibly displayed at the development site at or near floodplain or floodway activity. (Doddridge County Floodplain Manager will provide one (1) laminated permit for display. Additional copies are available upon request.)
- o In signing this application, the primary developer grants the Doddridge County Floodplain Manager or designee the right to enter onto the above-described location to inspect the development work proposed, in progress, and/or completed.
- I understand that if I do not follow exactly the site-plan submitted and approved by this permit that a "Stop Work" order may be issued by the Wirt County Floodplain Manager and that I must stop all construction immediately until discrepancies of actual work vs. proposed work is resolved.

Primary Developer Permit Recipient

Signature:		
Printed Name:		
Title:		
Floodplain Manager or Designee		
Signature:	Date:	

Permit	#	

Floodplain Manager Checklist:

Date submitted, Date required for completion, date of public notice of permit application at commission meeting, date of paper notification, date of paper publication, permit payment received, payment data, payment cleared bank, date submitted to engineer, date report received from engineer, date permit issued/rejected, date of site visit and documentation

Last date for appeal
Appeal received
Appeal valid/invalid
Stop work order issued
Commission meeting
Last date for FPM decision appeal
FPM decision appeal received
Commission meeting
Board of Appeals public hearing
Final BOA decision

Date of work completion
Date of closeout

LEGAL ADVERTISEMENT:
Doddridge County
Floodplain Permit Application
Pleasetake notice that on the 21rd day, of October, 2014
CNX Gas Company, LLC filed an application for a
Floodplain Permit to develop land-located at or about
Southwest District 39,164345N/807/48306W Permit #14309 OXFDISHS Well Site: (Note: This project is not
within the floodplain). The Application is on file with the
Clerk of the County Court and may be inspected or
copied, during regular business hours. As this project, is
outside the FEMA identified floodplain of Doddridge
County Doddridge County Floodplain of Doddridge
County Doddridge County Floodplain Management has
no regulatory authority. Any interested persons who
desire to comment shall present the same in writing by
November 27, 2014.

Clerk of the County Court. 1 1878
Beth A. Rogers, Doddridge County Flood Plain
Manager.

11-11-2xb

STATE OF WEST VIRGINIA, COUNTY OF DODDRIDGE, TO WIT

I, Virginia Nicholson, Editor of THE
HERALD RECORD, a weekly newspaper published regularly, in Doddridge County,
West Virginia, Do Hereby Certify
That the Accompanying Legal Notice
Entitled: Floodylain Permit X 14-309
Ox FD15HS Well Site
was published in said paper for
successive weeks beginning with the issue
of Movember 1/the 2014 and
ending with the issue of
November 18th 2014 and
that said notice contains 89
WORD SPACE at
amounts to the sum of \$. 21,7.4
FOR FIRST PUBLICATION, SECOND PUBLICATION IS 75% OF THE FIRST PUBLICATION
\$
S.38.05 TOTAL
Muginia Michalson)
CONTROL AND CURSODIED
BEFORE ME THIS THE DAY
OF Movember 2014
NOTARY PUBLIC
\mathcal{O}





LOCATION MAP

PROJECT INFORMATION

SURFACE OWNER:

TAX MAP/PARCEL 07-10-2 TOTAL PROPERTY AREA: 6,600.75 Ac.

DELORES HINTERER TAX MAP/PARCEL 06-18-08 TOTAL PROPERTY AREA: 204.4 AC.

SITE LOCATION:

THE OXFDI5HS SITE IS LOCATED EAST OF COUNTY ROUTE 40 (CAIN RUN ROAD) APPROXIMATELY 1.2 MILES SOUTH OF ITS INTERSECTION WITH COUNTY ROUTE 54/1.

ENTRANCE PERMIT

CNX GAS COMPANY WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

MISS UTILITY

MISS UTILITY OF WEST VIRGINIA WAS NOTIFIED FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT DESIGN (TICKET No. 1417139860). IN ADDITION, MISS UTILITY WILL BE CONTACTED PRIOR TO THE START OF THE

FLOODPLAIN NOTE

THE PROPOSED LIMITS OF DISTURBANCE FOR THIS PROJECT ARE NOT LOCATED IN A FLOOD ZONE, PER THE FLOOD INSURANCE RATE MAP (FIRM) NUMBERS 54017C0250C.

NOTE: DRAWING WAS CREATED ON 22x34 PAPER. IIXI7 DRAWINGS ARE HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.

S	HEET INDEX
DRAWING NUMBER	DRAWING NAME
	COVER SHEET
2	GENERAL NOTES
3	GENERAL NOTES
4	1/2 MILE BOUNDARY OVERVIEW
5	EXISTING CONDITIONS
6	OVERALL SITE PLAN
7	OVERALL SITE PLAN W/ ORTHO
8	DETAILED SITE PLAN (I OF 4)
9	DETAILED SITE PLAN (2 OF 4)
10	DETAILED SITE PLAN (3 OF 4)
II	DETAILED SITE PLAN (4 OF 4)

SHEET INDEX	
DRAWING NUMBER	DRAWING NAME
12	PROFILES & SECTIONS
13	RECLAMATION PLAN (I OF 4)
14	RECLAMATION PLAN (2 OF 4)
15	RECLAMATION PLAN (3 OF 4)
16	RECLAMATION PLAN (4 OF 4)
17	CONSTRUCTION DETAILS
18	CONSTRUCTION DETAILS
19	CONSTRUCTION DETAILS
20	MATERIAL QUANTITIES

CN:GAS

CNX GAS COMPANY LLC ONE ENERGY DRIVE JANE LEW, WV 26378

OXFD15HS WELL SITE

PAD CENTER LOCATION

NAD 83 - LAT: N 39° 09' 26.92": LONG: W 80° 44' 34.50" NAD 27 - LAT: N 39° 09' 26.61"; LONG: W 80° 44' 35.13" UTM, NAD 83 - N: 4334283.859; E: 522211.902

ENTRANCE LOCATION

NAD 83 - LAT: N 39° 09' 55.34": LONG: W 80° 44' 46.72" NAD 27 - LAT: N 39° 09' 55.03"; LONG: W 80° 44' 47.35" UTM, NAD83 - N: 4335159.088; E: 521916.153

> NEW MILTON DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA DATE: OCTOBER 01, 2014



Engineers and Land Surveyors

11023 Mason Dixon Hwy. Burton, WV 26562-9656 (304) 662-6486





LOCATION MAP OXFORD 7.5M USGS QUADRANGLE

ENVIRONMENTAL NOTES

A WETLAND DELINEATION WAS PERFORMED ON JUNE 19 - 23, 2014 BY BLUE MOUNTAIN INC. TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION. THE OCTOBER 01, 2014 REPORT FOR OXFDI5HS, WHICH WAS PREPARED BY BLUE MOUNTAIN INC. SUMMARIZES THE RESULTS OF THE FIELD DELINEATION. THE REPORT DOES NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR WVDEP. IT IS STRONGLY RECOMMENDED THAT THE AFOREMENTIONED AGENCIES BE CONSULTED IN AN EFFORT TO GAIN CONFIRMATION OF THE DELINEATION DESCRIBED BY THE REPORT PRIOR TO ENGAGING CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM CROSSINGS.

GEOTECHNICAL NOTES

THEREFORE, BLUE MOUNTAIN INC. SHALL ASSUME NO RESPONSIBILITY FOR ANY UNFORESEEN SITE CONDITIONS DURING OR AFTER CONSTRUCTION, INCLUDING ANY POTENTIAL SLOPE OR EMBANKMENT FAILURES DUE TO A SURCHARGE LOAD OR OTHER CAUSES.

RESTRICTIONS

- 1. THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300' OF
- 2. THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000' OF THE PAD AND LOD. 3. THERE ARE NO EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN
- 250' OF THE WELLS BEING DRILLED 4. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625' OF THE
- CENTER OF THE PAD 5. THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE
- FEET WITHIN 625' OF THE CENTER OF THE PAD.

1 DO HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF. THAT THE EROSION AND SEDIMENT CONTROL PLAN AND SITE RESTORATION PLAN AND POST CONSTRUCTION BMPs ARE TRUE AND CORRECT, REPRESENT ACTUAL FIELD CONDITIONS AND ARE IN ACCORDANCE WITH THE WEST VIRGINIA CODE AND THE DEPARTMENT'S RULES AND REGULATIONS. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

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General Notes

- 1. This design was preformed without a geotechnical investigation; Therefore, Blue Mountain Inc. shall assume no responsibility for any unforeseen site conditions during or after construction, including any potential slope or embankment failures due to a surcharge load or other causes.
- The contractor shall be solely responsible for complying with all Federal, State and Local safety requirements including the occupational safety and health
 act of 1970. The contractor shall always exercise precaution for the protection of persons including employees and property. It shall also be the sole
 responsibility of the contractor to initiate, maintain and supervise all safety requirements, precautions and programs in connection with the work, including
 the requirements for confined spaces per CFR 1910.146.
- 3. The contractor shall restrict construction activity to the areas shown on the plans unless otherwise authorized by CNX Gas Company LLC.
- 4. The contractor shall carefully preserve benchmarks, property corners, reference points, stakes and other survey reference monuments or markers. In cases of willful or careless destruction, the contractor shall be responsible for restorations. Resetting of markers shall be performed by an professional surveyor as approved by CNX Gas Company LLC.
- All structures, landscaping, signs if any or other appurtenances disturbed or damaged during construction shall be replaced or repaired to the satisfaction of CNX Gas. The cost of this work shall be the responsibility of the contractor.
- 6. All trees within the construction area will be preserved except the trees that are to be removed as shown in the plans.
- 7. Contractor shall maintain adequate clearance from all electric lines, if any, in accordance with the national electrical safety code
- 8. All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S plan. A copy of the approved drawings (stamped, signed and dated by the reviewing agency) must be available at the project site at all times. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.
- 9. Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots and other objectionable material.
- 10. The contractor shall minimize all clearing and disturbance to the environment to the maximum extent possible. Clearing, grubbing, and topsoil stripping shall be limited to those areas described in each stage of the construction sequence.
- Perimeter sediment barriers shall be implemented as the first step of grading within seven (7) days from the start of clearing and grubbing, and shall
 continue to function until the slope development area is restabilized.
- 12. All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated. Seeded areas within 50 feet of a surface water, or as otherwise shown on the plan drawings, shall be blanketed according to the standards of this plan.
- 13. Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.
- 14. No solid (other than sediment) or liquid waste, including building materials, shall be discharged in storm water runoff. All non-sediment pollutants must be disposed of in accordance with the Department's Solid Waste Management Regulations. Rubbish, trash, garbage, litter, or other such materials shall be disposed into sealed containers. Materials shall be prevented from leaving the site through the action of wind or storm water discharge into drainage ditches or waters of the state.
- 15. If the action of vehicles traveling over the stabilized construction exit does not sufficiently remove most of the dirt and mud, then the tires must be washed before vehicles enter a public road. Tracking or spilling mud, dirt or debris upon streets or drives is prohibited. Any such occurrence shall be cleaned up immediately by the contractor at no additional cost to CNX Gas Company LLC. If the contractor fails to remove said mud, dirt, debris, or spillage, any fines levied against CNX Gas Company LLC by local and state regulators will be charged to contractor.
- 16. Dust control using approved materials must be performed at all times. The use of motor oils and other petroleum based or toxic liquids for dust suppression is prohibited. On-site and off-site stockpile and borrow areas shall be protected from erosion and sedimentation by the use of best management practices. These areas must be shown in the site map and permitted in accordance with general permit requirements. At a minimum compost filter socks are to be placed at perimeter of stockpile area to prevent soil from leaving the stockpile area. All materials spilled, dropped, washed, or tracked onto the roadways or into the storm sewers must be removed immediately.
- 17. All construction shall be stabilized at the end of each day; this includes backfilling of trenches for utility construction and placement of gravel or asphalt for road construction. The last layer of soil, including top soil should be compacted to 80% 85% of the maximum standard proctor density, in areas that will receive vegetation. This is particularly important in cut slope and embankment areas. The contractor shall maintain traffic on local county roads to the public at all times during construction. All traffic lanes shall be open to traffic at all times. The contractor shall use caution & proper traffic control devices (i.e drums, signs, flaggers, etc) when working in the vicinity of the project site.
- 18. The contractor shall add additional controls if conditions warrant.
- 19. The contractor shall be solely responsible for ensuring safety of monitoring and pedestrian traffic during performance of the work.
- 20. There shall be no discharge from the well pad sumps during drilling operations. Sumps are to be removed and berms are to be breached during reclamation of the site.

*NOTE-This design was performed without a geotechnical investigation; Therefore, Blue Mountain

Inc. shall assume no responsibility for any unforeseen site conditions during or after construction,

including any potential slope or embankment failures due to a surcharge load or other causes.

General Utility Notes

- At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, Miss Utility shall be notified by dialing 811 for the location of existing underground utilities.
- 2. The identity and locations of existing underground utilities in the construction area have been shown on the plans as accurately as provided by the owner of the underground utility. Blue Mountain Inc. & CNX Gas Company LLC assumes no responsibility for the accuracy of depths, and locations of underground facilities shown on the approved construction drawings. If damage is caused, the contractor shall be responsible for repair of the same and for any resulting contingent damage.
- Location, support, protection and restoration of all existing utilities and appurtenances, whether shown or not shown on the approved construction drawings, shall be the responsibility of the contractor.
- When unknown or incorrectly located underground utilities are encountered during construction, the contractor shall immediately notify CNX Gas Company LLC.
- 5. When making excavations, the contractor shall do the following:
- Maintain reasonable clearance between any underground facility and the cutting edge or point of powered
 equipment.
- B. Protect and preserve the markings of approximate locations of underground utility facilities until those markings are no longer required for proper and safe excavations.
- C. When approaching underground utility facilities while excavating with powered equipment, require an individual other than the equipment operator, to look for any sign of underground utility facility.
- D. Conduct the excavation in the vicinity of the underground utility facility in a careful and prudent manner, excavating by hand, if necessary, to determine the precise location of the facility and to prevent damage.
- E. As soon as any damage is discovered, including gouges, dents, or breaks to coatings, cable sheathes, and cathodic protection anodes or wiring, report the type and location of the damage to the utility and permit the utility a reasonable amount of time to make necessary repairs.
- F. Immediately report to the utility and, if necessary, to the appropriate law enforcement agencies and fire departments, and damage to an underground utility facility that results in escaping flammable, corrosive, explosive, or toxic liquids or gas, and take reasonable appropriate actions needed to protect persons or property and to minimize safety hazards until those agencies and departments and the utility arrive at the scene.
- Contractor shall comply with all provisions of the national electric safety code, especially when working near live
 electric lines.

Construction Sequence

- Field-mark limits of disturbance and environmentally sensitive areas (including steep slopes, riparian buffers, wetlands, springs, and floodways).
- Construct rock construction entrance.
- 3. Install BMP's associated with the access road.
- 4. Clear and grub entire site.
- 5. Remove and stockpile topsoil as shown on the plans.
- 6 Stabilize tonsoil stocknile(s)
- 7. Construct access road and associated ditches and culverts
- 8. As soon as road reaches final grade, install geotextile, base and finishing stone. Temporary and/or permanent seeding and mulching shall follow earthmoving activity as closely as possible and should be stabilized within 24 hours of any cessation of earthmoving activities.
- 9. Install remaining BMP's associated with the construction of the pad.
- 10. Remove and stockpile topsoil as shown on the plans.
- 11. Stabilize topsoil stockpile(s).
- 12. Begin pad grading utilizing cut material to be compacted up to pad grade.
- 13. As soon as Pad reaches final grade, slopes and other disturbed areas will be stabilized with permanent seeding and mulching and pad will be covered with geotextile, base and finishing stone. Temporary and/or permanent seeding and mulching shall follow earthmoving activity as closely as possible and should be stabilized within 24 hours of any cessation of earthmoving activities.
- 14. Once final grading is complete and the site has reached a minimum vegetation of 70%, and upon DEP inspection, Site E&S controls may be removed.
- 15. Following completion of the wells, the gravel surface of the well pad will be restored to the minimum area necessary to maintain the wells. Due to the large amount of earthwork, this will only included placing topsoil, seeding and mulching.

Grading & Compaction Notes

- Perform test pits in the presence of the engineer prior to initiating mass grading in areas directed by the field engineer and during construction when directed by the engineer.
- Clearing, grubbing, stripping of organic surface soils and the removal of unsuitable/unstable soils and existing uncontrolled fill shall be performed in all structural areas.
- 3. After stripping has been completed, the resulting subgrade should be proof rolled with a fully loaded tandem axle dump truck prior to structural fill placement. Subgrade soils identified as being unsuitable or unstable, including unstable colluvial soils, shall be undercut to a stable soil stratum and backfilled with controlled, compacted soil fill or rock fill, where indicated on the Plans. All unsuitable soil containing excessive organics or debris shall be wasted.
- 4. Provide drainage measures for springs or perched water that are encountered during construction. The treatment, which will be determined in the field depending on the conditions, may include placement of drain tile, mattress drains, interceptor trenches, and/or sumps to collect the water. All water shall be outletted by gravity outside of the limits of the pad slopes.
- 5. The excavation contractor shall be solely responsible for evaluating the excavation effort required for the highly weathered to competent rock strata and to size material that complies with WVDOH Construction Manual 2002, Section 207.7 Rock Embankment, and has a maximum particle size and lift thickness of 18 inches. Provide on-site crushing and blending as necessary to meet acceptable gradations for excavated rock. Where embankment soil fill or native soils are located against rock fill, create a suitable rock fill gradation to prevent soil migration by blending the rock fill with soil or choking the rockfill with imported aggregate.
- 6. On-site soils meeting USCS designations of CL, ML, or more granular with a maximum particle size of six inches shall be used as soil fill. If available, rock or soil fill consisting of on-site granular soils meeting the USCS classification of SC, SM, GC, and GM or more granular should be utilized in the toe benches. Unsuitable materials with unacceptable fractions of organics or debris are not permitted for use as fill. If coal or carbonaceous material is encountered during excavation, immediately contact the client and engineer.
- 7. Place all fill on a stable, nearly level subgrade. Compaction equipment shall consist of large (20 ton minimum) vibratory, self-propelled sheepsfoot rollers for cohesive soils and smooth-drum rollers for granular soils. Smooth-drum rollers are not permitted for the initial compaction of cohesive soils.
- 8. Compact structural fill to the following minimum specifications:
- Soil fill below the upper two feet of pad subgrade -- maximum nine inch loose lifts compacted to 95% of max dry
 density and within three percentage points of the optimum moisture content as determined by ASTM D-698.
- Soil fill within the upper two feet of pad subgrade -- maximum nine inch loose lifts compacted to 98% of max dry density and within two percentage points of the optimum moisture content as determined by ASTM D-698.
- Rock fill -- maximum 18 inch loose lifts compacted to non-movement under compaction equipment.
- It is not recommended to use soil fill that is more than three percentage points above the optimum moisture content or soils that classify as fat clay (CH) or elastic silt (MH). If the client decides to use these soils the following measures shall be provided to enhance stability.
- Compaction shall be controlled by determining the maximum achievable compaction from a control strip.
- These soils shall not be placed in embankment slopes, within the upper three feet of the pad surface, or under areas of the pad that will support rig loads. Consult the field engineer for areas of fill placement.
- Ensure the maximum recommended lift thickness is maintained to allow for maximum achievable compaction.
- Dry soils by mixing with drier soil and/or rock.
- Sequence construction to allow for some moisture reduction by natural drying or aerating
- Static compaction methods may be specified to reduce instability.
- Provide mass grading observation and testing to make sure that the contractor is controlling material placement and compaction in the most effective manner.
- 9. Fill slopes constructed in a manner to ensure adequate compaction to the edge of the fill, which may require constructing the slope wider than necessary and then cutting back to the required grade. Upon completion of the final grading, the slopes shall be tracked down with tracked equipment prior to placing topsoil.
- 10. Toe benches are required for each fill slope in accordance with the Benching and Transition Detail. Different bench dimensions and configurations may be necessary as dictated by subsurface conditions, such as wet or unstable colluvial soils, high plasticity clays, or clay seams located within the bedrock. These occurrences may be revealed during grading, or during test pit excavation performed during toe bench construction. The field engineer is responsible for proof rolling and performing test pits in the toe benches to assess the presence of these materials. Drainage measures shall be provided as indicated in the Benching and Transition Detail. Additional drainage measures shall be installed as directed by the field engineer. Bench drains shall connect to drainage mains, which are outletted via gravity laterals where indicated. Excavations for toe benches and bonding benches in coal and/or carbonaceous shale may encounter perched groundwater. Plans to control, drain and treat if necessary are recommended.
- 11. Construct bonding benches to the crest of embankment where slopes are placed over existing slopes 5H:1V or steeper. Bonding benches shall be in accordance with the Benching and Transition Detail.
- 12. The sides of temporary excavations shall be adequately sloped or shored/braced to provide stable sides and safe working conditions for operators, laborers and engineering inspectors to proof roll the subgrade and perform test pits. All applicable Occupational Safety and Health Administration (OSHA) safety standards shall be followed by the contractor.
- 13. Proof roll the final pad/road surface with a loaded triaxle dump truck to identify any areas of unstable soils. Unstable soils shall be removed by over-excavation and replacement with controlled compacted soil or rock fill. Provide a cut/fill transition zone and place subsurface drains ar the transition zone as directed by the engineer.
- 14. The subgrade shall be sealed on a daily basis to minimize disturbance and moisture intrusion.
- 15. Earthwork operations shall be observed and tested on a full-time basis by a soils technician under the supervision of a geotechnical engineer. The observation and testing shall include observation of stability of toe and bonding benches, including presence of unstable colluvial soils; installation of drainage measures, lift thickness of material, compactive effort, type and moisture of soil, gradation of the rockfill and, moisture and density of compaction. All compactive effort shall be verified by in-place density testing on each lift at a maximum 100-foot grid pattern.

Blue Mountain Inc

CNX GAS COMPANY LLC ONE ENERGY DRIVE JANE LEW, WV 26378

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General Erosion And Sediment Control Methods / Procedures

- Erosion and sediment control facilities shall be constructed, stabilized, and functional before any site disturbance begins within the tributary areas of those facilities.
- 2. In all cases, the smallest practical area of stable land surface will be disturbed.
- 3. At no time will sediment laden runoff be allowed to leave the site and enter State waters without first passing through a sediment filtering device. Should site conditions, construction procedures, etc. alter the approved plan to the point where sediment and sediment laden runoff is not being controlled and filtered before it leaves the site, additional erosion control facilities are to be implemented.
- 4. Although the staging of earthmoving activities has been described within certain areas, the work may occur over the entire project area simultaneously. Measures shall be implemented as necessary to continue the integrity of the erosion and sedimentation control plan.
- 5. Earth disturbance activities, including movement of construction vehicles, shall be avoided / minimized below the location of the perimeter erosion control facilities. Should earth disturbance occur below the perimeter erosion control facilities, permanent stabilization shall be immediately applied to those disturbed areas.
- 6. Waste and excess materials shall be stockpiled or disposed of in a lawful manner on site or at an approved facility.
- All offsite borrow areas, waste disposal areas, and/or storage areas shall have an approved erosion and sediment
 pollution control plan prior to the start of any earthmoving activities in these offsite areas.
- 8. Topsoil and excess material stockpiles shall be seeded and mulched if they are to remain for more than 4 days. Stockpiles are to be placed in a location where they will not interfere with construction activities and are not to be located within the flow path of a natural or constructed waterway. Stockpile areas are to have side slopes of 2H:IV or flatter.
- 9. Permanent stabilization is required as soon as a disturbed area is brought to grade or final earth moving has been completed. Where it is not possible to permanently stabilize a disturbed area immediately after the final earthmoving has been completed or where the activity ceases for more than 4 days, temporary stabilization measures shall be implemented promptly.
- 10. Areas which are to be topsoiled shall be scarified to a minimum depth of 3 to 5 inches 6 to 12 inches on compacted soils prior to placement of topsoil. Areas to be vegetated shall have a minimum 4 inches of topsoil in place prior to seeding and mulching. Fill outslopes shall have a minimum of 2 inches of topsoil.
- 11. Any erosion and sedimentation control facility required or necessary to protect areas from erosion during the stabilization period shall be maintained until permanent stabilization of the contributing drainage area is completed. Upon completion of permanent stabilization, all unnecessary or unstable control measures and facilities shall be removed. The disturbed areas created by this activity shall be brought to final grade and the soils shall be immediately stabilized.
- 12. Schedule construction so that grading operations can begin and end as quickly as possible.
- 13. Clearly mark areas that are not to be disturbed by flags, signs, etc.

General Maintenance / Contractor Responsibilities

- The maintenance for the project shall be in accordance with the approved erosion and sedimentation control plan
 The contractor shall be responsible for the continuous maintenance of all erosion and sediment measures and
 devices for the duration of the project and until which time the area is stabilized with a minimum uniform 70%
 perential segretariae cover.
- 2. All facilities shall be inspected and repaired, if necessary, after each measurable rainfall event and a period not to exceed one week. All preventative maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching, and anchoring of the mulch shall be performed immediately. Sediment collected from the erosion control structures shall be placed upstream of those controls and immediately stabilized with seed and an anchored mulch or hauled off site to a disposal area with an approved erosion and sediment pollution control plan.
- At no time will sediment laden runoff be allowed to leave the site and enter State waters without first passing
 through a sediment filtering device. If erosion control facilities fail to perform as expected, alternative facilities or
 modifications of those facilities installed will be required.
- 4. All permanently seeded areas that become eroded shall have the topsoil replaced, the erosion control matting replaced (if applicable), the grass resown and mulch reapplied and anchored. If erosion persists, the area shall be either lined with sod or stabilized with rock ripran.
- A copy of the approved erosion and sediment control plan shall be kept available for inspection on the construction site at all times throughout the term of the project.
- 6. The intent of this plan / narrative is to indicate general means of compliance with the requirements of the rules and regulations of The West Virginia Department of Environmental Protection. It shall be the responsibility of the contractor to implement these methods, plus additional methods, as may be necessary because of conditions created by localized site conditions and/or construction procedures in order to assure compliance with applicable law. It will further be the responsibility of the contractor to maintain all erosion and sediment control facilities so that they perform as required by amplicable law.
- Fines and related costs resulting from the contractor's failure to provide adequate protection against soil erosion and for any violations of the rules and regulations promulgated thereunder shall be borne by the contractor.

Recycling And Disposal Methods

Remove waste materials including trash and debris and legally dispose of them off the site to a WVDEP approved dump site. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Material to be removed shall be removed daily and shall not be allowed to accumulate at the site.

Temporary Control Measures and Facilities

- 1. General see plans and details for proposed locations and construction details for BMP's
- Temporary vegetation a vegetative cover, annual or perennial, but typically rapid growing annual grasses, small
 grains or legumes. Used to provide erosion protection to a disturbed area until active earthmoving resumes or
 permanent protection is provided.
- Compost filter socks Compost filter socks shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment.
- 4. Rock filter Rock filters may be used to control runoff within constructed channels at the downstream end of the channel during construction until the protective lining is installed or during a temporary disturbance within the channel. They may also be used below construction work within an existing stream channel while flow is being diverted past the work area. In such cases, the filter should be located between the work area and the discharge from the bypass system. Rock filters may not be used instead of an adequate protective lining in sediment basin emergency spillways. This can reduce the effective discharge capacity of the spillway and, in so doing, increase the possibility of embankment failure.
- Rock construction entrance Shall be installed prior to exiting the site to avoid excessive tracking of mud onto a highway. Access to the site should be limited to the stabilized entrance(s).
- 6. Compost Sock Sediment Traps Shall be constructed in the location shown on the erosion and sediment control plan in accordance with the erosion and sediment control plan details. Consideration should be given to how the location of any proposed trap will be accessed. If a proposed location is not easily accessible, special attention should be given to any access roads roads that will need to be constructed.

Erosion & Sediment Control Structure Maintenance Procedures

Rock Construction Entrance

The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately. Wheels on all vehicles shall be cleaned to remove sediment prior to entrance onto public rights-of-way. If washing is required, it shall be done on an area stabilized with stone and which drains into approved sediment trapping device. If the street is washed precautions must be taken to prevent muddy water from running into waterways or storm sewers.

Compost Filter Sock

Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to manufacturer's specifications or replaced within 24 hours of inspection. Accumulated sediment shall be removed when it reaches half the aboveground height of the sock and disposed in the manner described elsewhere in the plan. Polypropylene socks shall be replaced according to manufacturer's recommendations. Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.

Compost Sock Sediment Trap

All sediment traps shall be inspected at least weekly and after each runoff event. Access for sediment removal and other required maintenance activities shall be provided. Dispose of materials removed from the trap in the manner described in the E&S plan. Check embankments, spillways, and outlets for erosion, piping and settlement. Clogged or damaged spillways and/or embankments shall be immediately restored to the design specifications.

Erosion Control Blanket

Blanketed areas shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 70% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 4 calendar days.

Riprap Apron

All aprons shall be inspected at least weekly and after each runoff event. Displaced riprap within the apron shall be replaced immediately.

Permanent Control Measures and Facilities

- 1. Vegetative cover The permanent seeding rates are listed on the standard construction detail sheet #19.
- 2. Provide liming rates as recommended by the soil test result. Fertilizer shall be applied per details in Detail Sheet 19. Work soil supplements into soil or apply with hydroseeding. Mulch area with straw or hay mulch at 3 tons per acre. Inspect seeded areas after each measurable event. Eroded areas shall have topsoil replaced, seed resown and mulch reamblied and anchored. If erosion persists, the area will be either lined with sod or stabilized with rock riprap.
- 3. Mulch or straw or hay Mulch shall be applied over seeded areas no later than 48 hours after seeding. Spread mulch uniformly, in a continuous blanket at a minimum rate of 3 tons per acre. Mulch may be spread by hand or with an acceptable mechanical blower. Machines which cut mulch into short pieces will not be permitted. Mulch shall be anchored by use of crimping, netting, asphaltic or a nonasphaltic emulsion mulch binder immediately following mulch spreading. If any asphaltic or nonasphaltic emulsion mulch binder is used, the number of passes over the mulch as needed to secure it firmly shall not exceed three passes with maximum applied binder not exceeding 10 gallons per 1,000 Sq. Ft.
- 4. Erosion control blankets Erosion control blankets should be used on all slopes that are 3H:1V or steeper and where potential exists for sediment pollution to receiving surface waters. Cut slopes in competent bedrock and rock fill slopes need not be blanketed. Erosion control blankets should be used for all seeded areas within 50 feet of a surface water 100 feet of a special protection water regardless of slope.
- 4. Insloped Roadway Cut and fill slopes shall be stabilized immediately upon completion or roadway grading. These areas shall be blanketed where ever they are located within 50 feet of a surface water. A top dressing composed of hard, durable stone shall be provided for soils having low strengths. Roadside ditches shall be provided with adequate protective lining where ever runoff can not sheet flow away from the roadway. Adequately sized culverts or other suitable cross drains shall be provided at all seeps, springs, and drainage courses. Ditch relief culverts or turnouts shall be provided at the intervals indicated on the plan drawings. Riprap outlet protection has been sized according to anticipated discharge velocity.
- Roadside ditches Sizing and spacing of ditch relief culverts should be according to plan drawings. Rock filters are not required where roadway surface is stabilized, ditches are provided with protective liners, and cut banks are stabilized. Suitable outlet protection should be provided at each culvert outfall.
- Riprap Apron Riprap aprons may be used to prevent scour at pipe or channel outfalls where anticipated discharge velocities do not exceed 17.0 feet per second, there is sufficient room to construct the apron, and where the aprons can be installed on a level grade. In cases where discharge velocities exceed 17.0 feet per second, a suitable means of velocity reduction (e.g. drop structure) should be used prior to discharging significant flows onto riprap apron.





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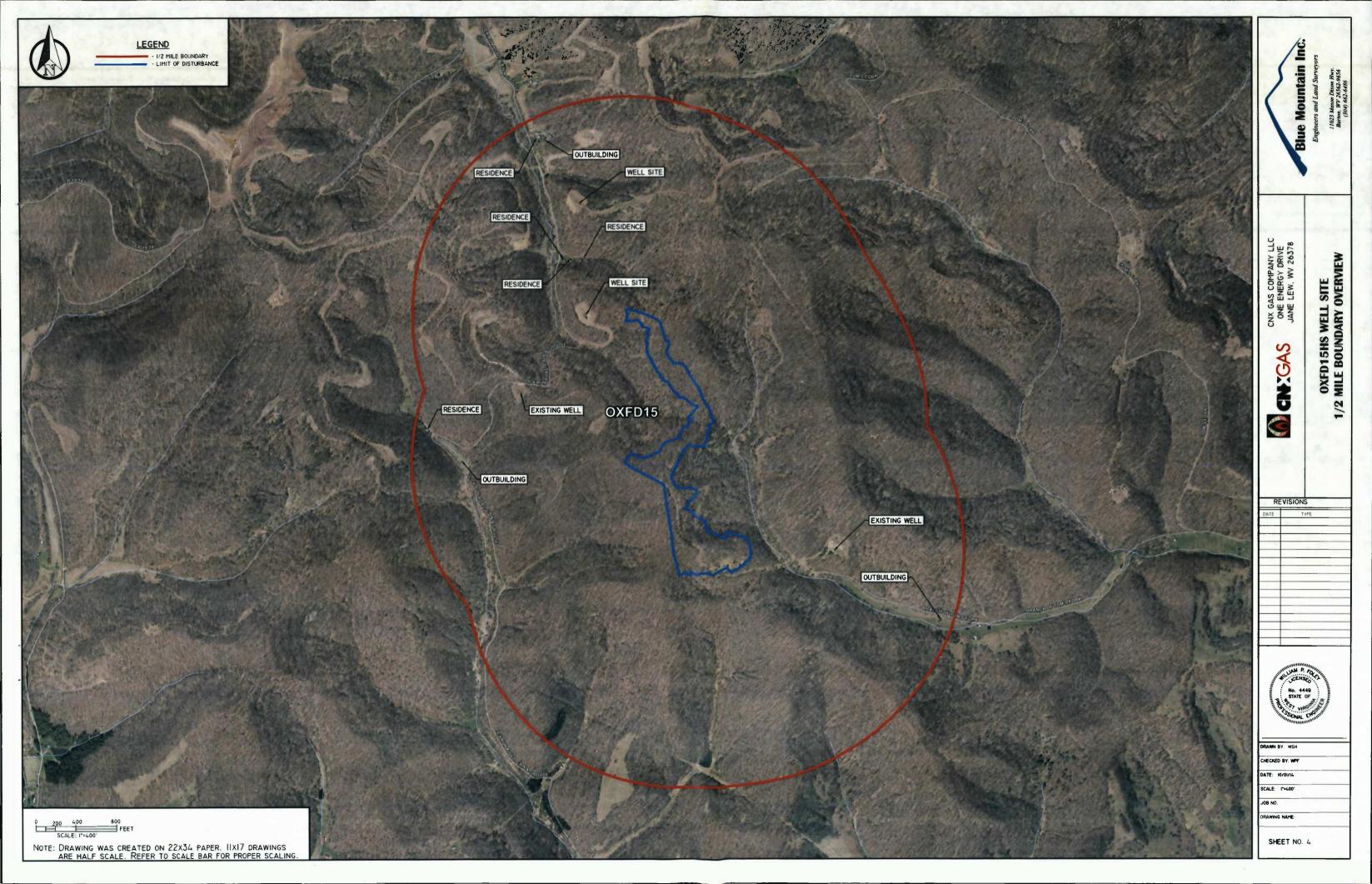


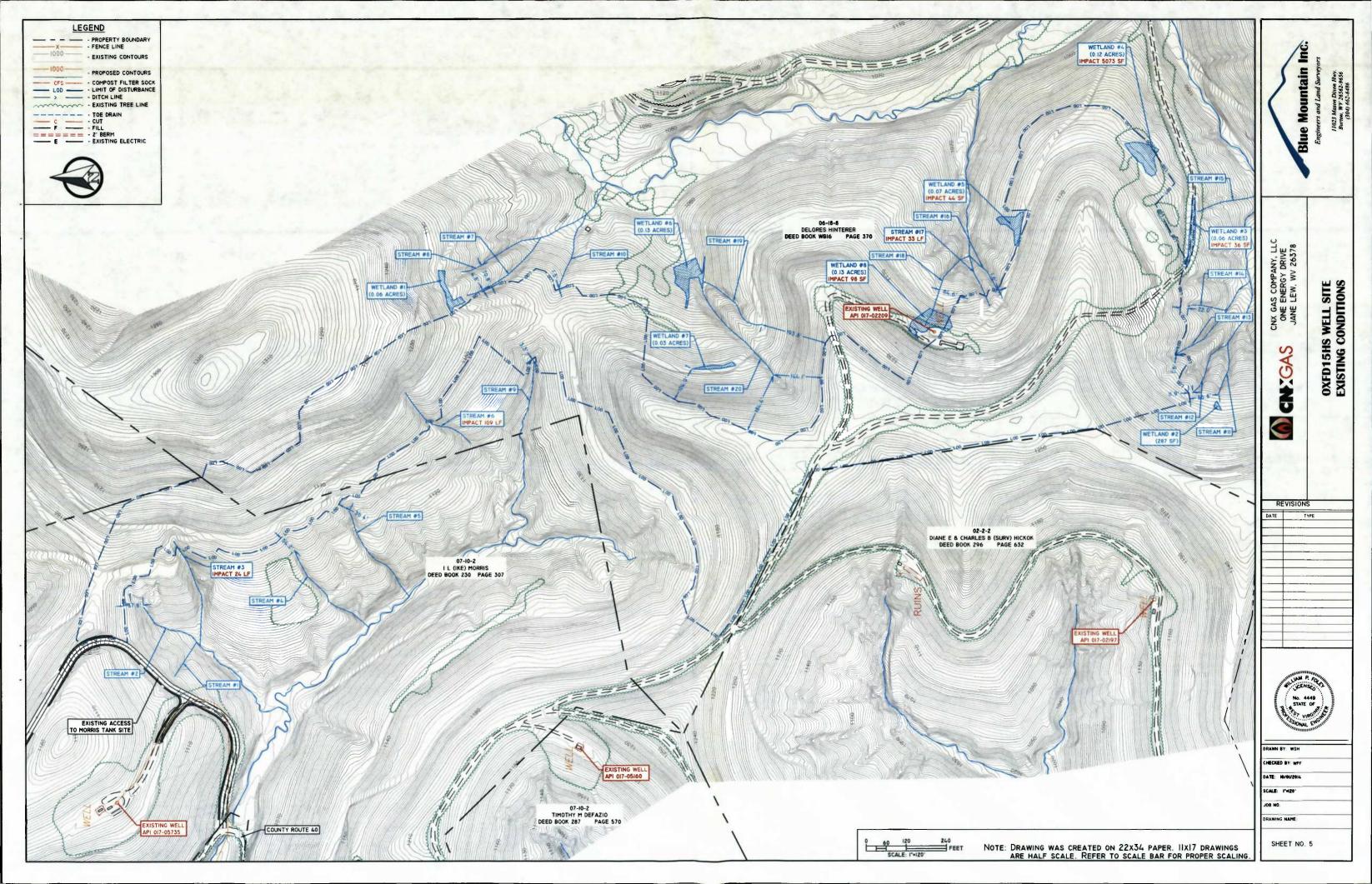
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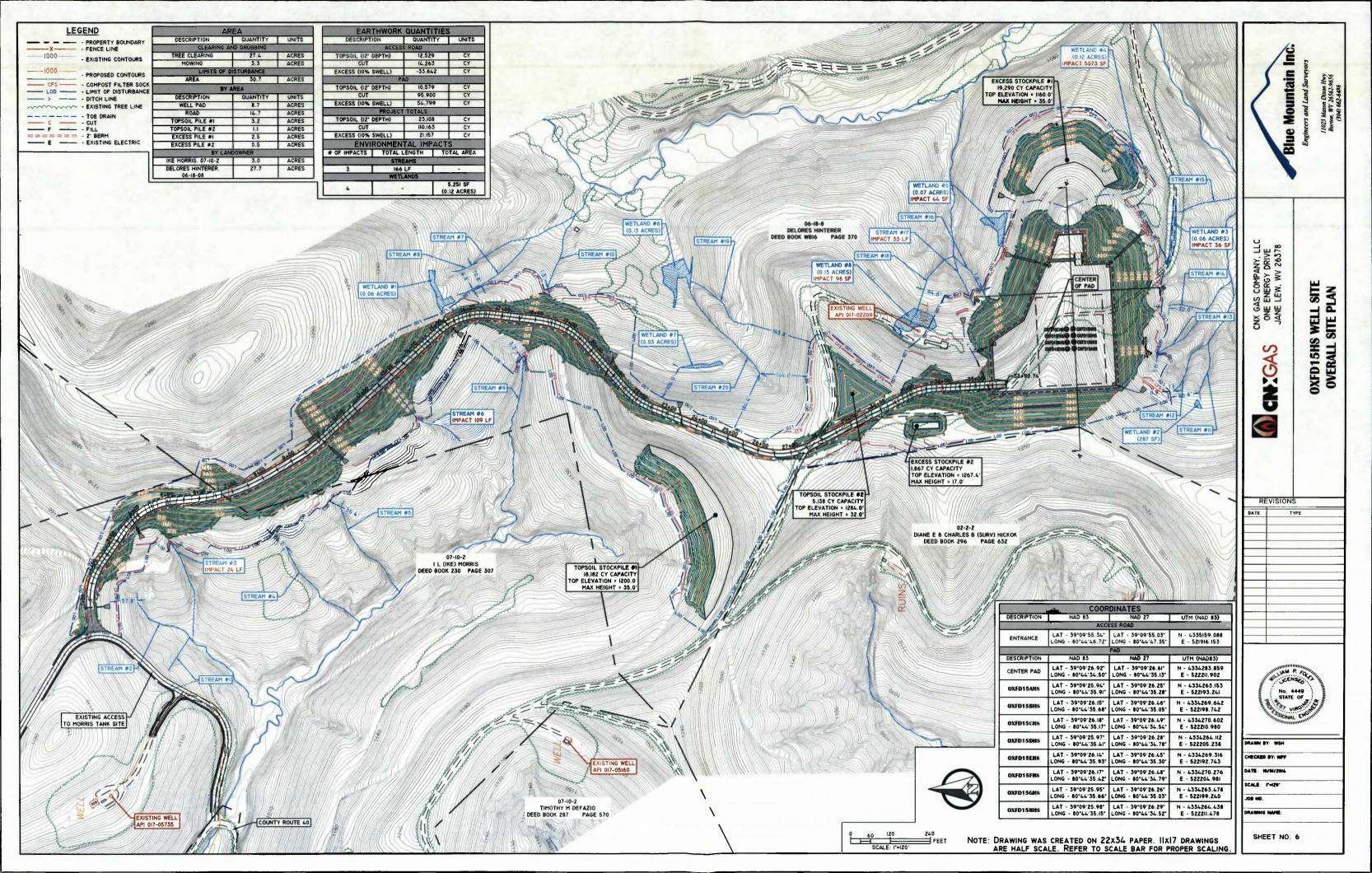
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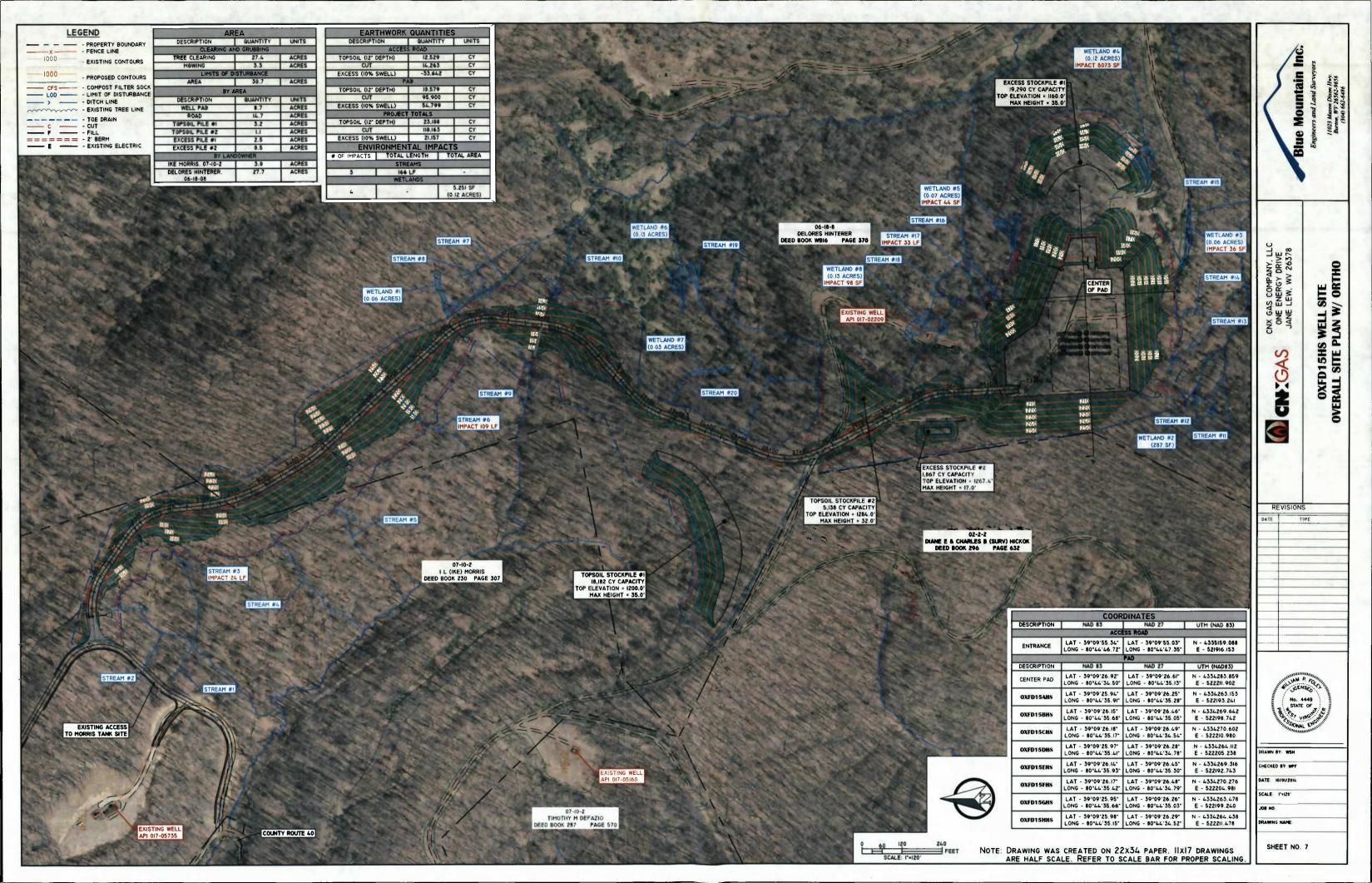
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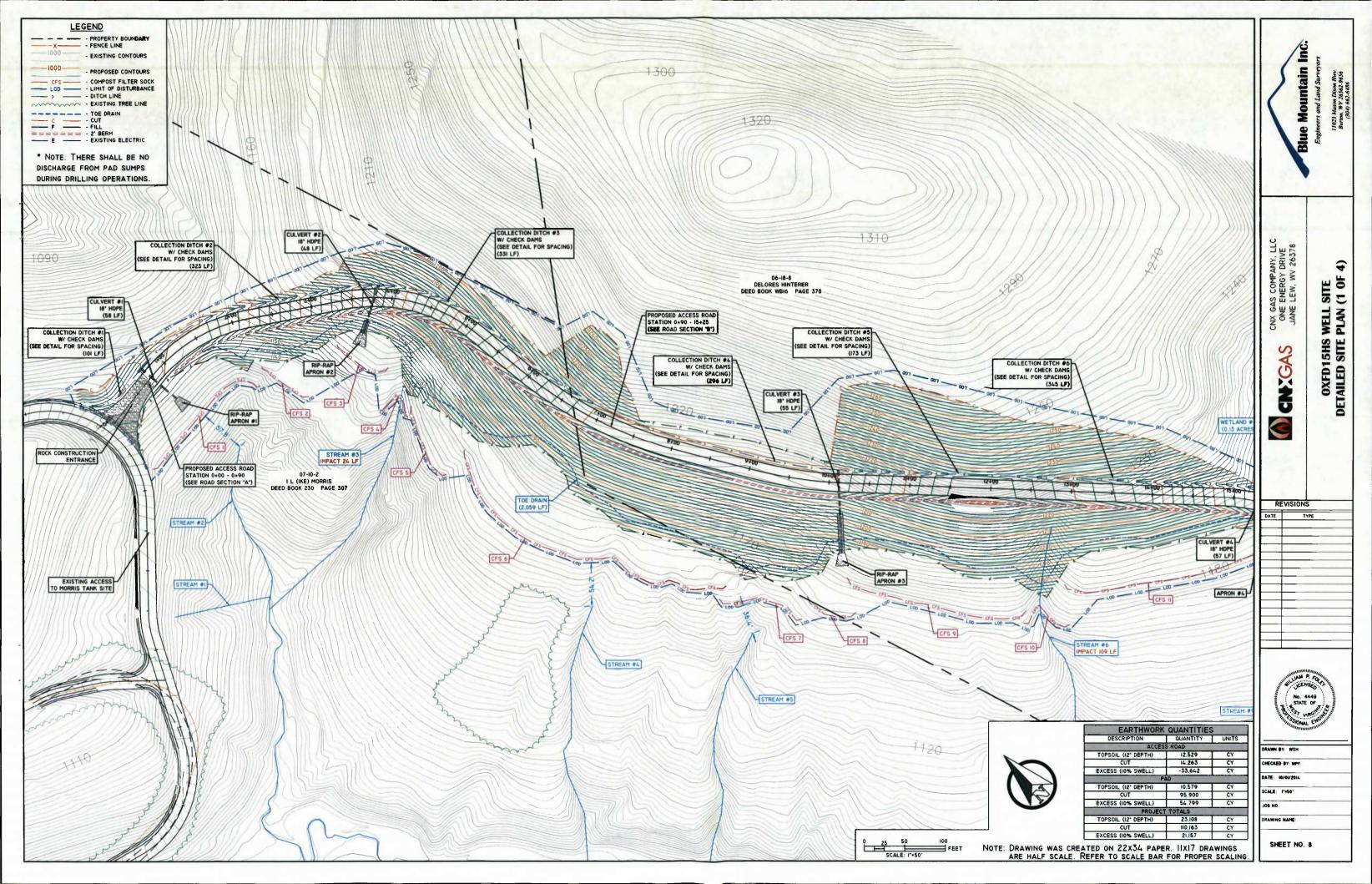
SHEET NO. 3

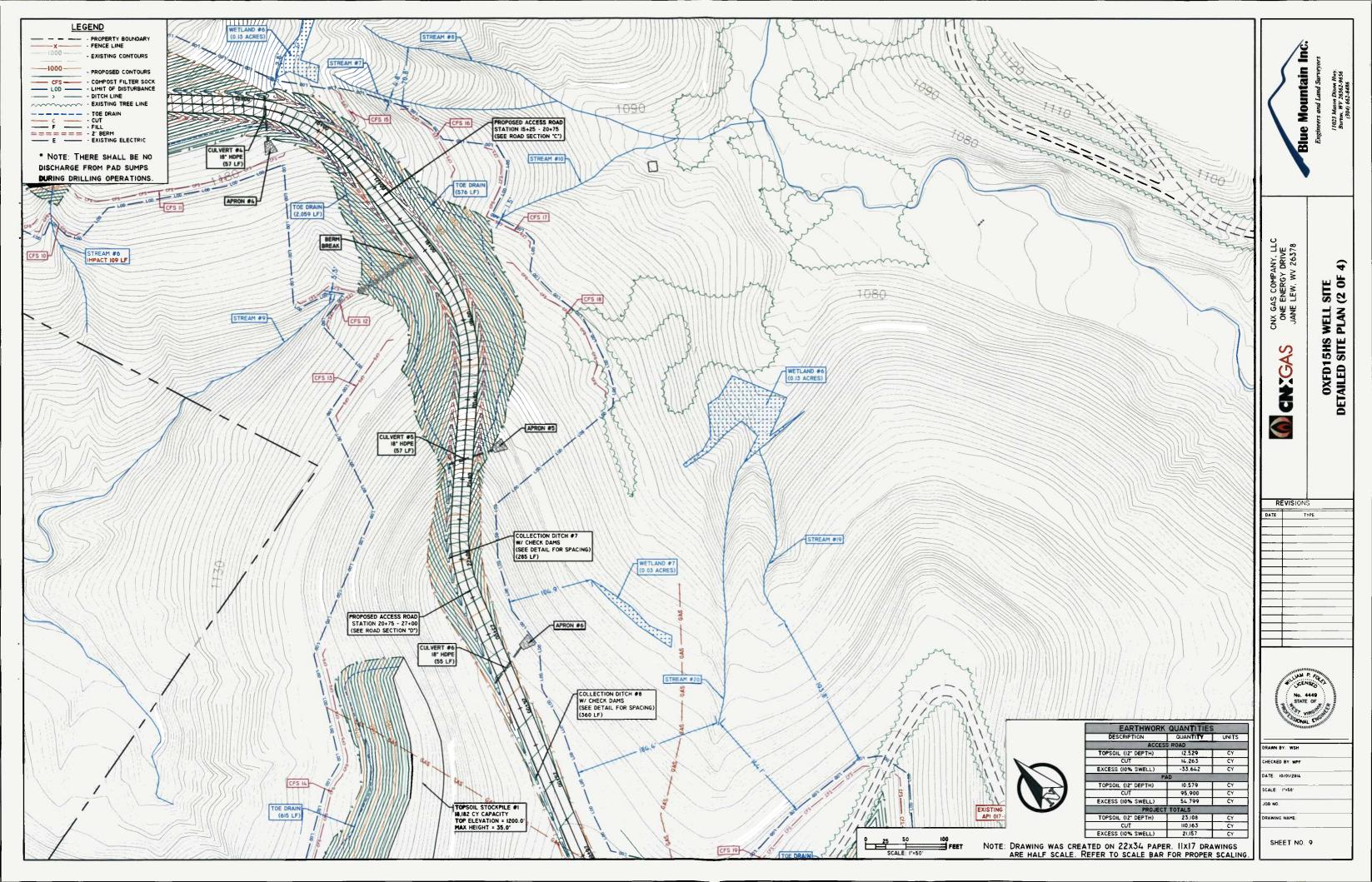


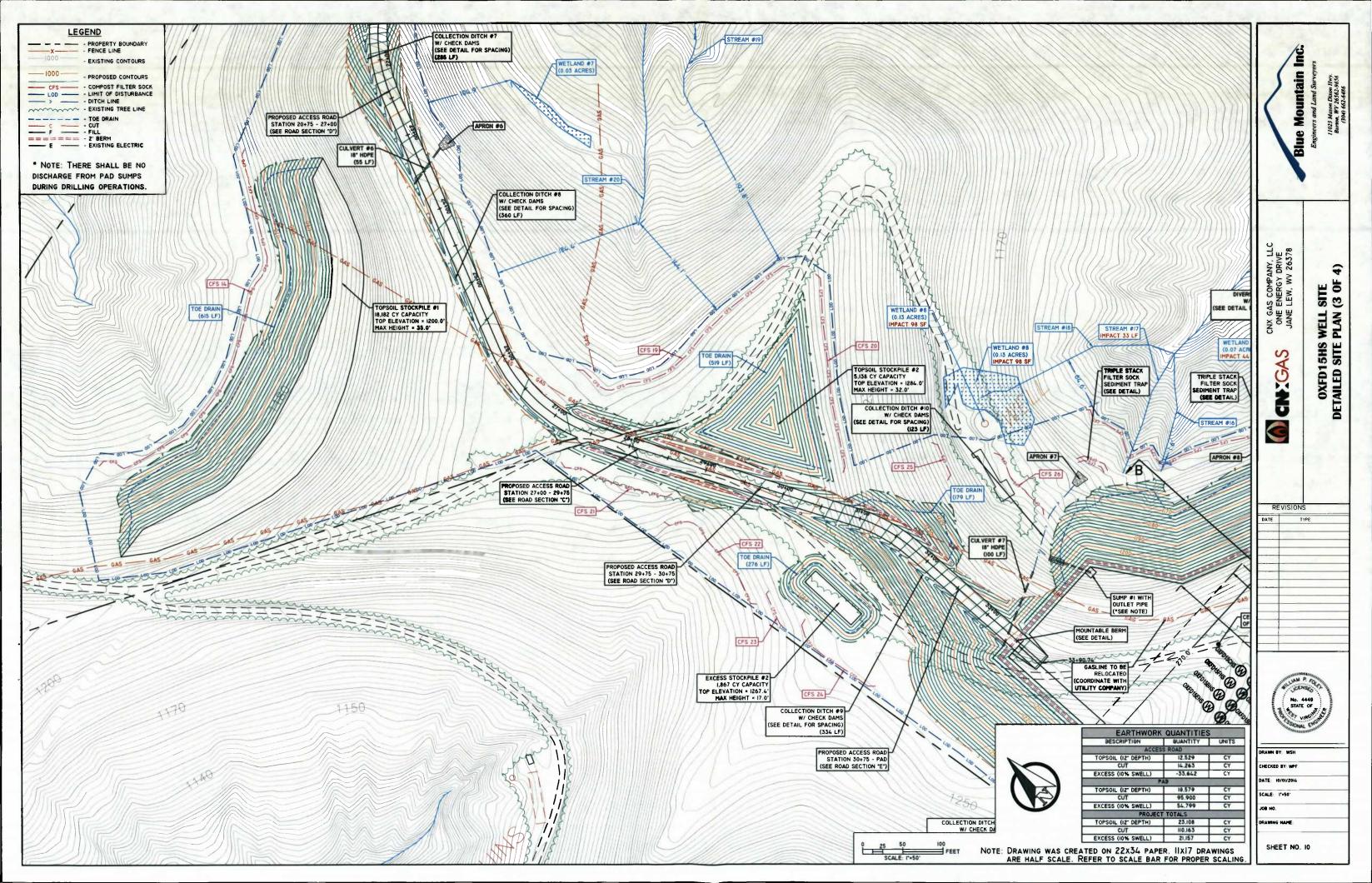


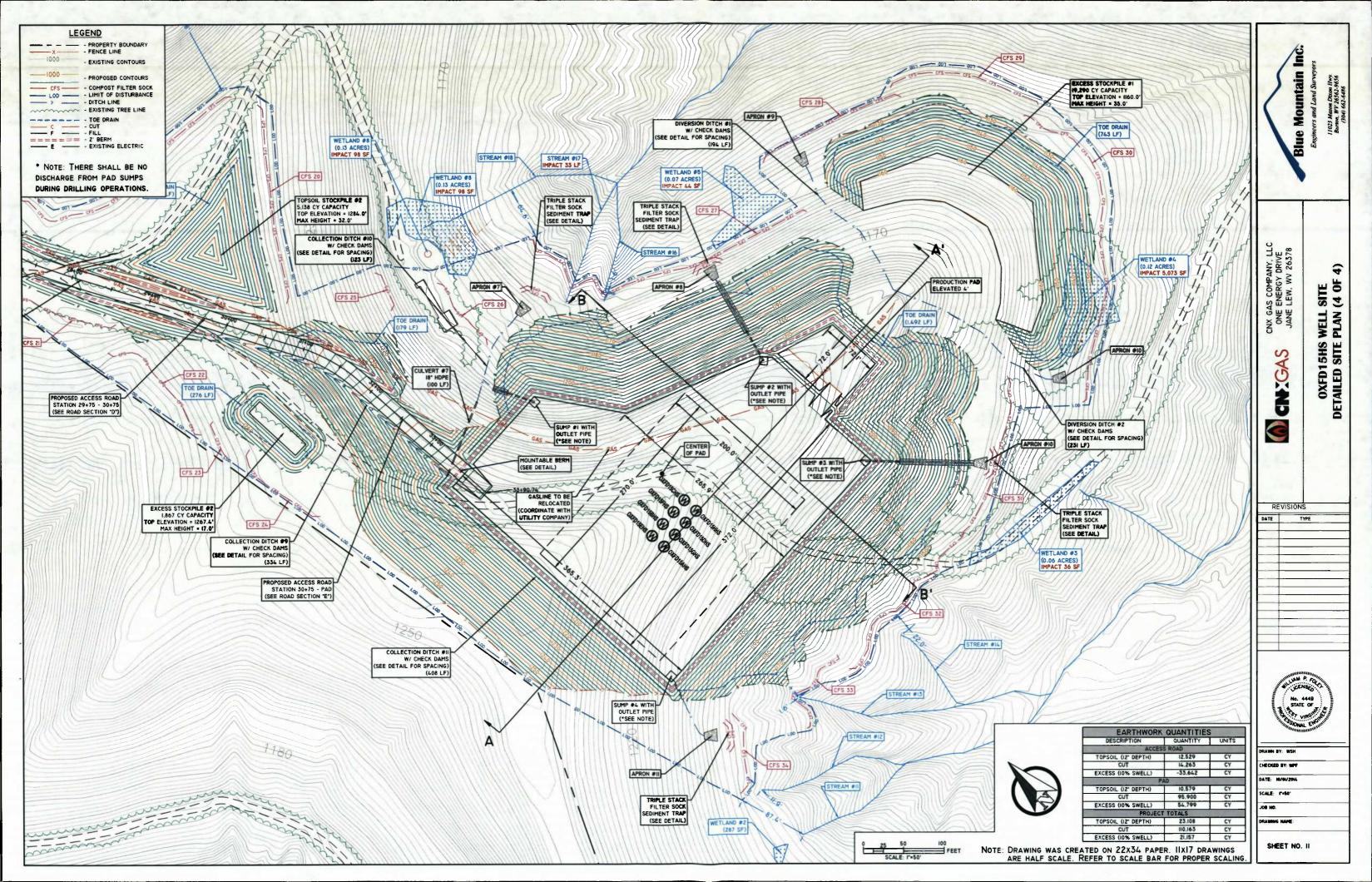


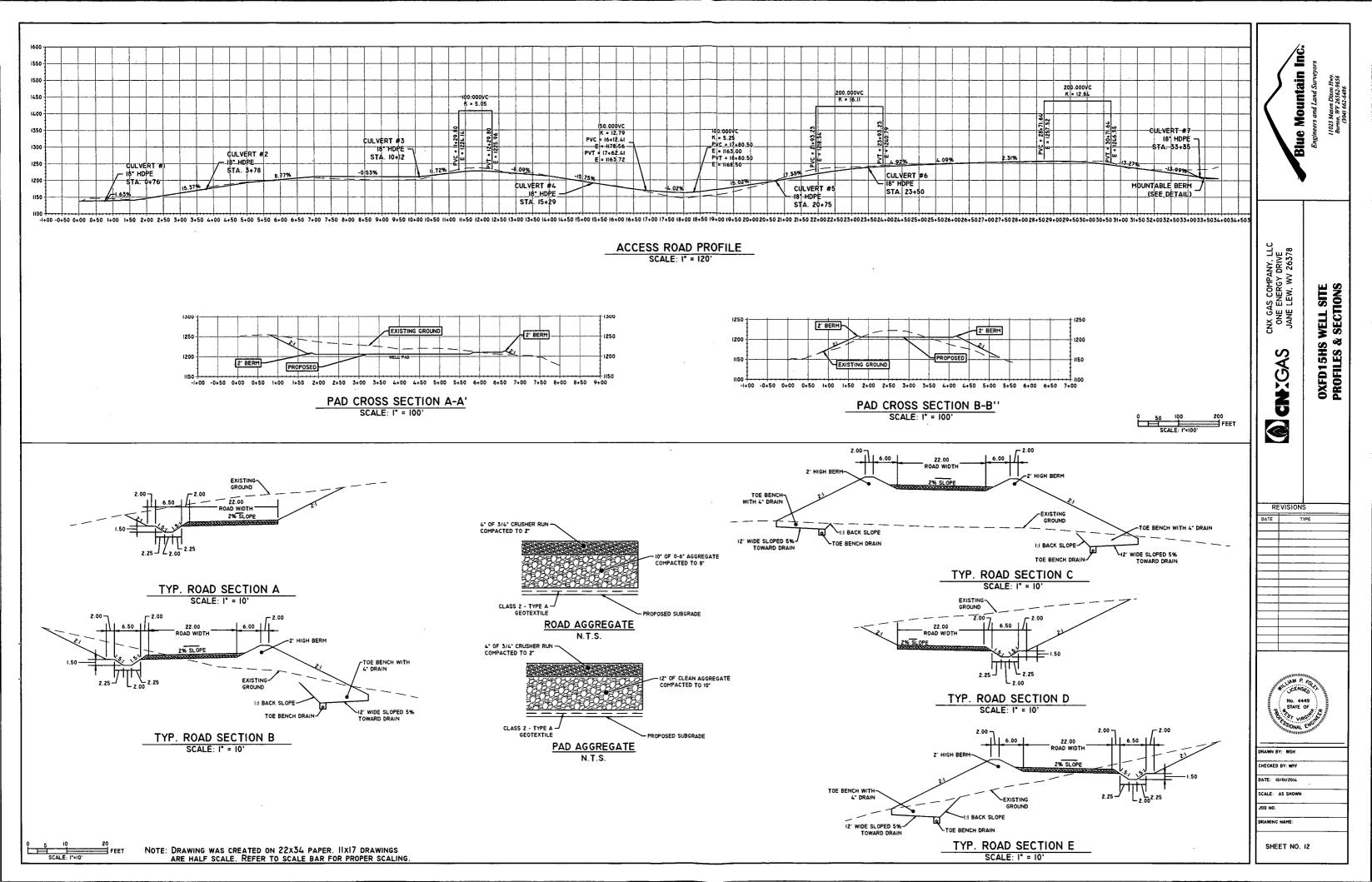


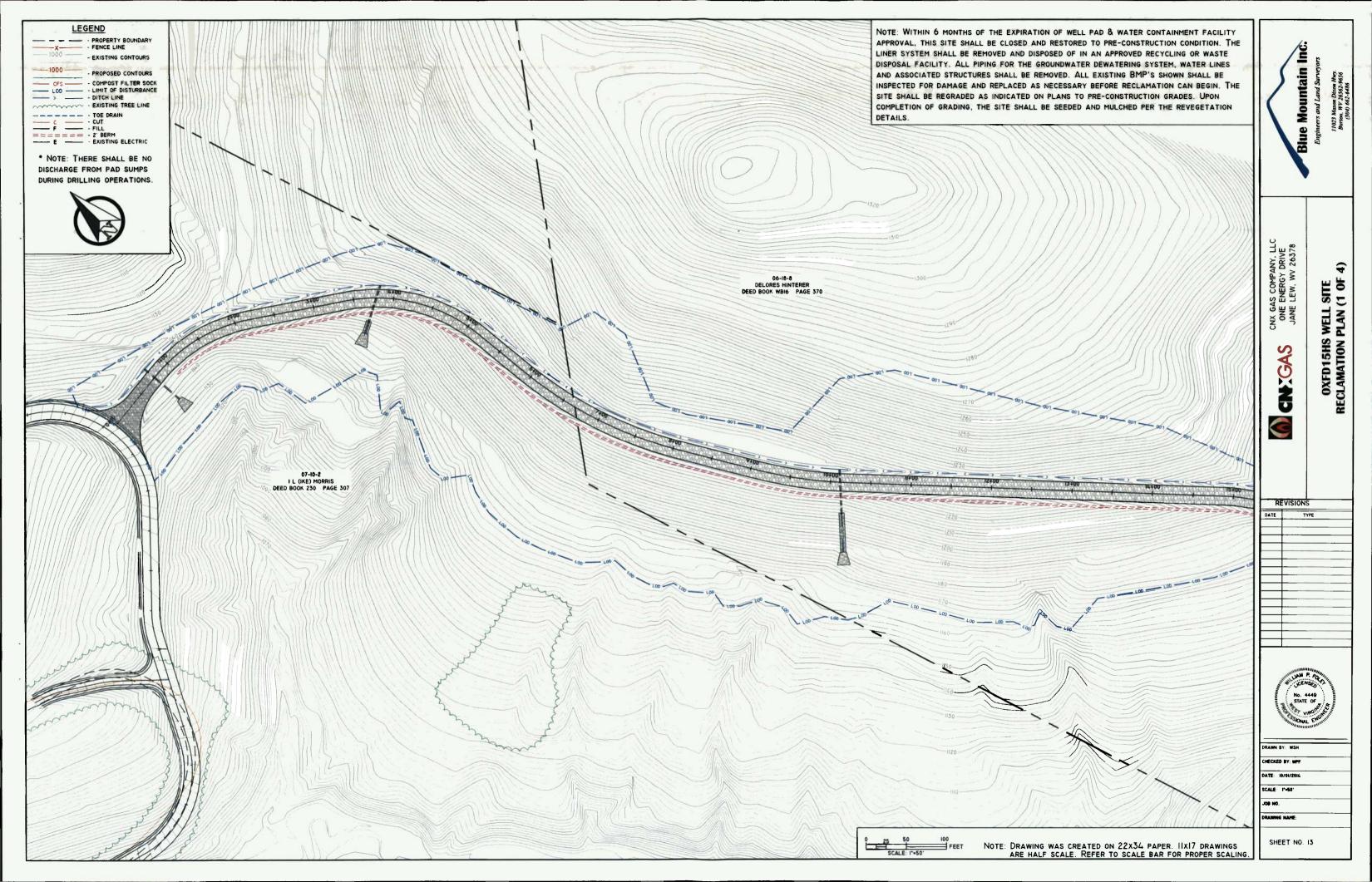


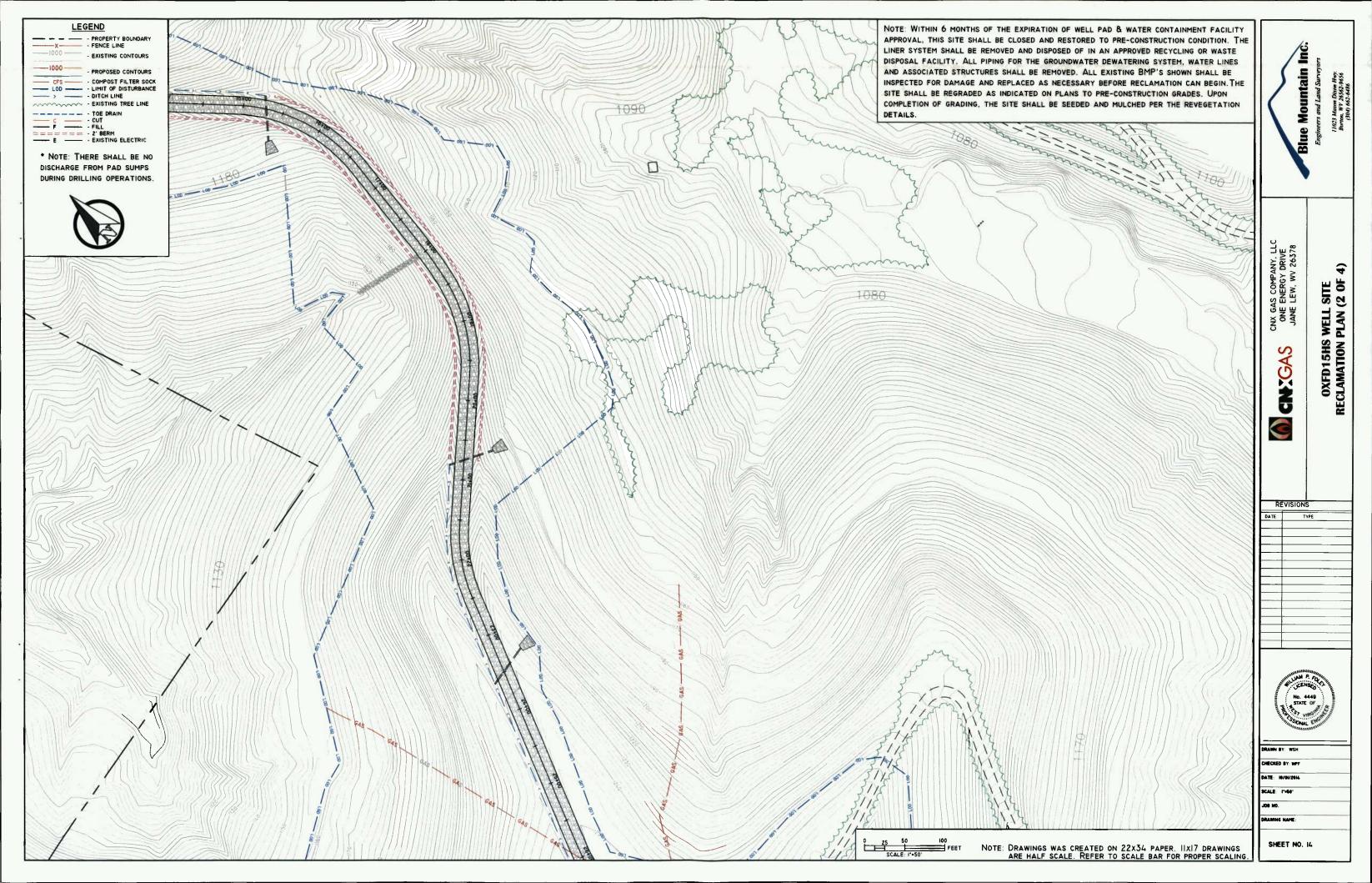


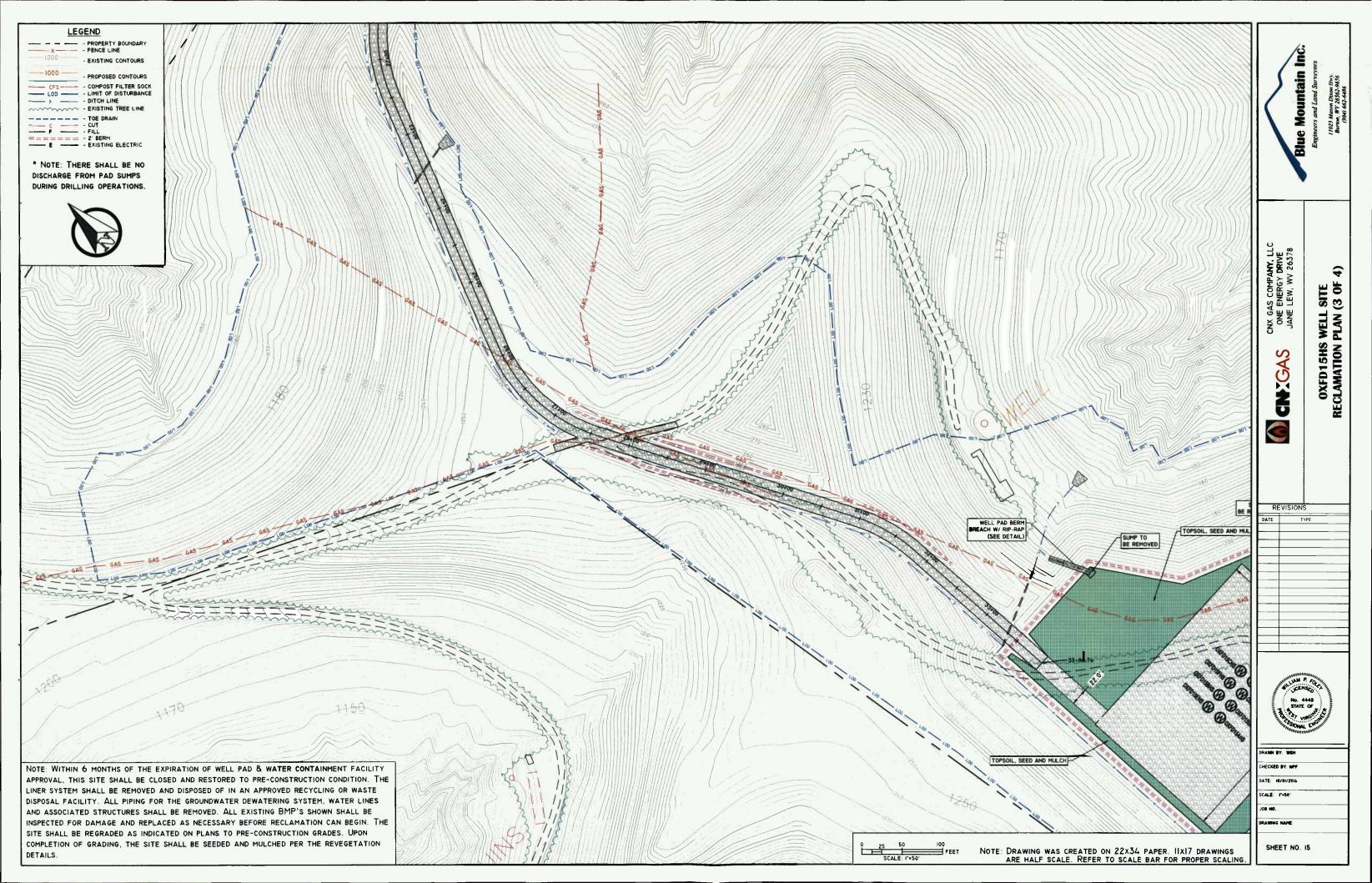


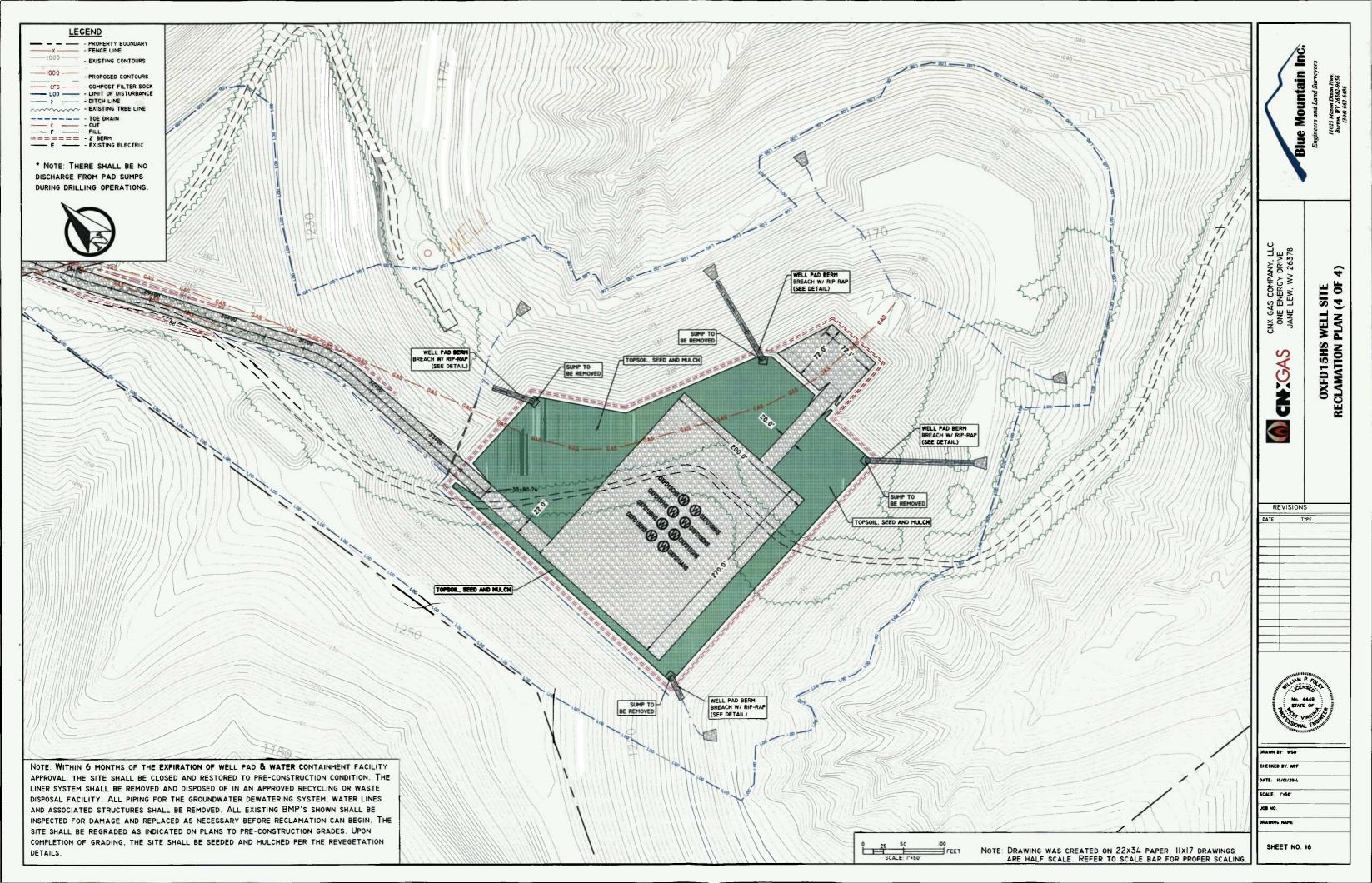


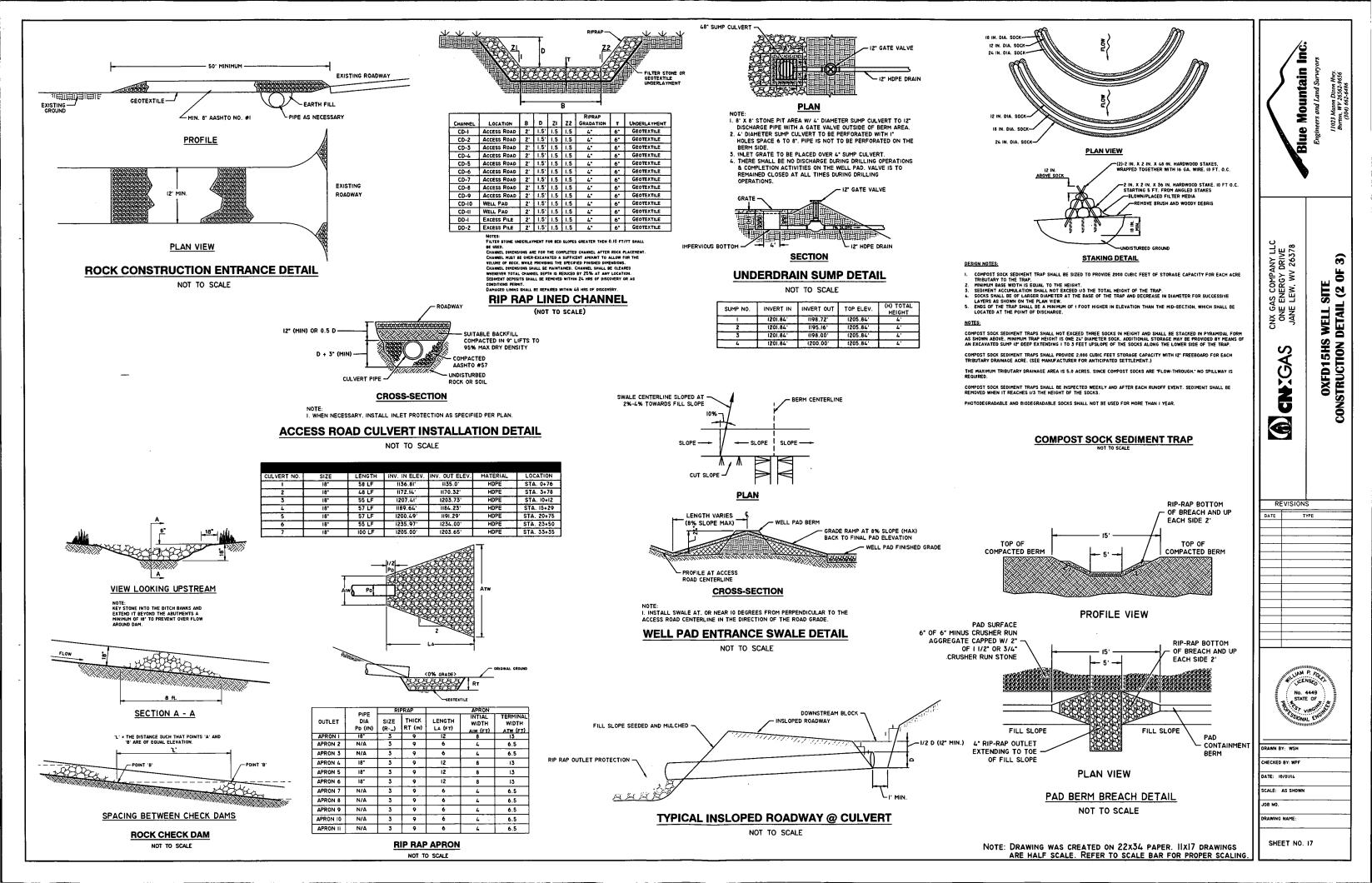


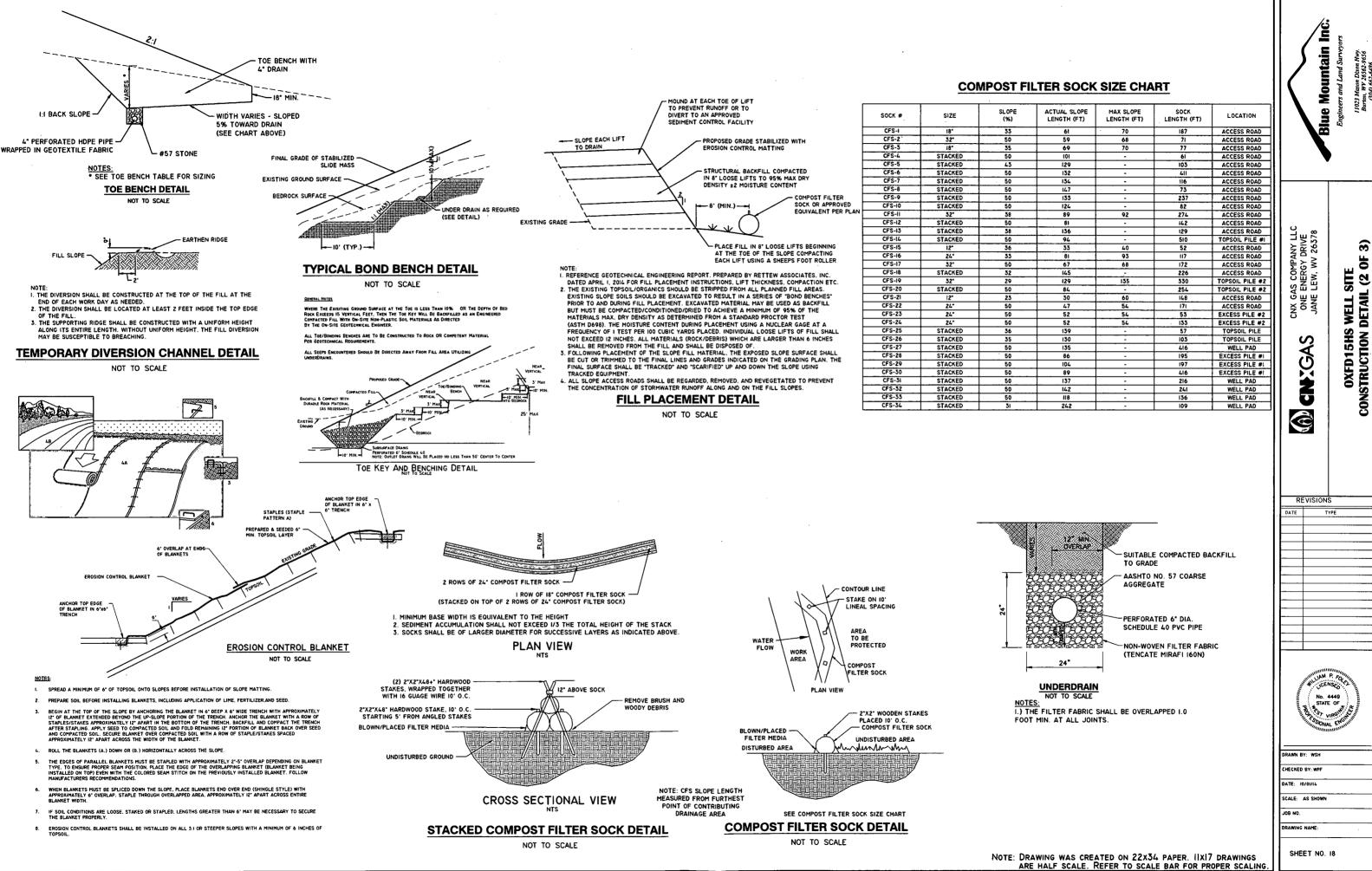












Taken from the West Virginia Erosion and Sediment Control Field Manual West Virginia Division of Environmental Protection Office of Oil and Gas Charleston, W.Va. Section IV

Temporary Seeding

a. General Conditions Where Practice Applies

Where exposed soil surfaces are not to be fine-graded or worked for periods longer than 21 days. Temporary vegetative cover with sediment controls must be established where runoff will go directly into a stream. Immediately upon construction of the site (site includes road and location), vegetation must be established on road bank and location slopes. A permanent vegetative cover shall be applied to areas that will be left un-worked for a period of more than six months.

b. Seed Mixtures and Planting Dates

Refer to Tables 2 through 4 for recommended dates to establish vegetative cover and the approved lists of temporary and permanent plant species, and planting rates. Table 3 gives recommended types of temporary vegetation, rates of application, and optimum seeding dates. In situations where another cover is desired, contact the local soil conservation district for seeding recommendations.

c. Seed Application

Apply seed by broadcasting, drilling, or by hydroseed according to the rates indicated in Table IV-3. Perform all planting operations at right angles to the slope. Necessary site preparation and roughening of the soil surface should be done just prior to seeding. Seedbed preparation may not be required on newly disturbed areas.

Permanent Seeding

a. General

Permanent vegetative cover will be established where no further soil disturbance is anticipated or needed. Soil fertility and pH level should be tested and adjusted according to the seed species planted. Planting of permanent vegetative covers must be performed on all disturbed areas after completion of the drilling process. Any site that contains significant amounts of topsoil shall have the topsoil removed and stockpiled when feasible. Topsoil should not be added to slopes steeper than 2:1 unless a good bonding to the sub-layer can be achieved. After proper grading and seedbed preparation, the vegetation will reestablish ground cover for the control of surface water runoff erosion.

All required seedbed preparation and loosening of soil by disking or dozer tracking should be performed just prior to seeding. If seedbed preparation is not feasible, 50% more seed shall be added to the recommended rates shown in Tables IV-3 and IV-4.

When hydroseeding, seedbed preparation may not be necessary if adequate site preparation was performed. Incorporate the appropriate amount of lime and/or fertilizer in the slurry mix when hydroseeding.

When hydroseeding, first mix the lime, fertilizer, and hydro-mulch in the recommended amount of water. Mix the seed and inoculants together within one hour prior to planting, and add to the slurry just before seeding. Apply the slurry uniformly over the prepared site. Assure that agitation is continuous throughout the seeding operation and the mix is applied within one hour of initial mixing.

b. Lime and Fertilizer

Lime Shall be applied to all permanent seedings. The pH of the soil is to be determined and lime applied accordingly. Once the pH is known, select the amount of lime to be applied from Table IV-5.

Fertilizer shall be applied in all permanent seedings. Apply the equivalent for 500 lbs. minimum 10-20-20 fertilizer per acre or use the amount of fertilizer and lime recommended by a certified soil test.

 Application: For best results and maximum benefits, the lime and fertilizer are to be applied at the same time as seedbed preparation.

c. Permanent Seed Mixtur

Planners should take into consideration the species makeup of the existing pasture and the landowner's future pasture management plans when recommending seed mixtures. Selection: From Tables IV 4a and b, Permanent Seeding Mixtures Suitable for Establishment in West Virginia.

Notes

All legumes must be planted with the proper inoculants prior to seeding.
 Lathco' Flatpea is potentially poisonous to some livestock.

Lathco' Flatpea is potentially poisonous to some livestock.
 Only endophyte free varieties of Tall Fescue should be used. Tall Fescue

and Crownvetch are also very invasive species, non-native to WV.

4. For unprepared seedbeds or seeding outside the optimum timeframes, add

50% more seed to the specified rate. Mixtures in Table 4b are more
wildlife and farm friendly; those listed in bold are suitable for use in shaded
woodland settings. Mixtures in italic are suitable for use in filter strips.

d. Seeding for Wildlife Habitat

Consider the use of native plants or locally adapted plants when selecting cover types and species for wildlife habitat. Wildlife friendly species or mixes that have multiple values should be considered. See wildlife friendly species/mixtures in Table IV-4b. Consider selecting no or low maintenance long-lived plants adaptable to sites which may be difficult to maintain with equipment.

Mulching

a. General Organic Mulches

The application if straw, hay, or other suitable materials to the soil surface to prevent erosion. Straw made from wheat or oats is the preferred mulch, the use of hay is permissible, but not encouraged due to the risk of spreading invasive species. Mulch must be applied to all temporary and permanent seeding on all disturbed areas. Depending on site conditions, in critical areas such as waterways or steep slopes, additional or substitute soil protective measures may be used if deemed necessary. Examples include jute mesh and soil stabilization blankets or erosion control matting.

Areas that have been temporarily or permanently seeded should be mulched to provide some protection to the soil surface. An organic mulch, straw, or hay should be used and the area then seeded as soon as weather or seasonal conditions permit. Do not use fiber mulch (cellulose-hydroseed) alone for this practice; at normal application rates it will not give the soil protection of other types of mulch.

Wood cellulose fiber mulch is used in hydrosceding operations and applied as part of the slurry. It creates the best seed-soil contact when applied over the top of (as a separate operation) newly seeded areas. Fiber mulch does not alone provide sufficient protection on highly erodible soils, or during less than favorable growing conditions. Fiber mulch should not be used alone during the dry summer months or when used for late fall mulch cover. Use straw mulch during these periods and fiber mulch may be used to tack (anchor) the straw mulch. Fiber mulch is well suited for steep slopes, critical areas, and areas susceptible to wind.

b. Chemical Mulches, Soil Binders, and Tackifiers

A wide range of synthetic spray on materials are marketed to stabilize and protect the soil surface. These are mixed with water and sprayed over the mulch and to the soil. They may be used alone in some cases as temporary stabilizers, or in conjunction with fiber mulch, straw, or hay.

When used alone alone most chemical mulches do not have the capability to insulate the soil or retain soil moisture that organic mulches have.

c. Specifications

From Table IV-6 select the type of mulch and rate of application that will best suit the conditions at the site.

d. Anchorine

Depending on the field situation, mulch may not stay in place because of wind action or rapid water runoff. In such cases, mulch is to be anchored mechanically or with mulch netting.

Apply mulch and pull mulch anchoring tool over the mulch. When a disk is used, set the disk straight and pull across slope. Mulch material should be tucked into the soil about three inches.

2. Mulch Netting

Follow manufacturer's recommendation when positioning and stapling the mulch netting in the soil.

Tab	te IV-1
Recommende	d Seeding Dates
Planting Dates	Suitability
March 1 - April 15 and August 1 - October 1	Best Seeding Periods
April 15 - August 1	HIGH RISK - moisture stress less likely
October 1 - December 1	HIGH RISK - freeze damage to young seedlings
December 1 - March 1	Good seeding period. Dormant seeding

	Table IV-5		
Lime and Fertilizer Application Table			
pH of Soil	Lime in Tons Per Acre	Fertilizer, Lbs., per Acre 10-20-20 or Equivalent	
Above 6.0	2	500	
5.0 to 6.0	3	500	
Below 5.0	4	500	

lime per acre are applied it must be incorporated into the soll by disking, backblading, or tracking up and down the slope.

	Tab	le IV-6		
Mulch Materials Rates and Uses				
Material	Minimum Rates Per Acre	Coverage	Remarks	
Hay or Straw	2 to 3 Tons	Cover 75% to	Subject to Wind blowing	
	100 to 150 Bales	90% of Surface	or washing unless tied down	
Wood Fiber	1000 to 1500 lbs	Cover all	For Hydroseeding	
Pulp Fiber		Disturbed Areas	1	
Wood-Cellulose				
Recirculated Paper				

	Table 2		
Accep	otable Fertilization R	lecommendation	
Species	N (lbs/ac)	P2O5 (lbs/ac)	Example Rec. (per acre)
Cool Season Grass	40	80	400 lbs 10-20-20
CS Grass & Legume	30	60	300 lbs 10-20-20
Temporary Cover	40	40	200 lbs 19-19-19

		ble 3 rary Cover		
Species	Seeding Rate (lbs/acre)	Optimum Seeding Dates	Drainage	pH Range
Annual Ryegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Poorty	5.5 - 7.5
Field Bromegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Mod. Well	6.0 - 7.0
Spring Oats	96	3/1 - 6/15	Well - Poorty	5.5 - 7.0
Sudangrass	40	5/15 - 8/15	Well - Poorly	5.5 - 7.5
Winter Rye	168	8/15 - 10/15	Well - Poorty	5.5 - 7.5
Winter Wheat	180	8/15 - 10/15	Well - Mod. Well	5.5 - 7.0
Japanese Millet	30	6/15 - 8/15	Well	4.5 - 7.0
Redtop	S	3/1 - 6/15	Well	4.0 - 7.5
Annual Ryegrass	26	3/1 - 6/15	Well - Poorly	5.5 - 7.5
Spring Oats	64	3/1 - 6/15	Well - Poorly	5.5 - 7.5

Species Mixture Seeding Rate (lbs/acre)	Well - Mod. Well Well - Mod. Well Well - Mod. Well Well - Mod. Well Well - Mod. Well	pH Range 5.0 - 7.5 5.0 - 7.5 4.0 - 8.0 4.5 - 7.5
Crownvetch/ 10 - 15 Tall Fescue 30 Crownvetch/ 10 - 15 Perennial Ryegrass 20 Flatpea or Perennial Pea/ 20 Tall Fescue 15 Ladino Clover/ 30 Serecia Lespedeza/ 25 Tall Fescue 2 Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well Well - Mod. Well Well - Mod. Well Well - Mod. Well	5.0 - 7.5 5.0 - 7.5 4.0 - 8.0
Tall Fescue 30 Crownvetch/ 10 - 15 Perennial Ryegrass 20 Flatpea or Perennial Pea/ 20 Tall Fescue 15 Ladino Clover/ 30 Serecia Lespedeza/ 25 Tall Fescue 2 Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well Well - Mod. Well Well - Mod. Well	5.0 - 7.5 4.0 - 8.0
Crownvetch/ 10-15 Perennial Ryegrass 20 Flatpea or Perennial Pea/ 20 Tall Fescue 15 Ladino Clover/ 30 Serecia Lespedeza/ 25 Tall Fescue 2 Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well Well - Mod. Well	4.0 - 8.0
Perennial Ryegrass 20 Flatpea or Perennial Pea/ 20 Tall Fescue 15 Ladino Clover/ 30 Serecia Lespedeza/ 25 Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3 Redtop 3 Tall Fescue/ 30 Redtop 3 Redtop 3 Redtop 3 Tall Fescue/ 30 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well Well - Mod. Well	4.0 - 8.0
Flatpea or Perennial Pea/ 20 Tall Fescue 15 Ladino Clover/ 30 Serecia Lespedeza/ 25 Tall Fescue 2 Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well	
Tall Fescue 15 Ladino Clover/ 30 Serecia Lespedeza/ 25 Tall Fescue 2 Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well	
Ladino Clover/ 30 Serecia Lespedeza/ 25 Tall Fescue 2 Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3		4.5 - 7.5
Serecia Lespedeza/ 25 Tall Fescue 2 Tall Fescue/ 40 Lodino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3		4.5 - 7.5
Tall Fescue 2 Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3		4.5 - 7.5
Tall Fescue/ 40 Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well	•
Ladino Clover/ 3 Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well	
Redtop 3 Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well	
Crownvetch/ 10 Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3		5.0 - 7.5
Tall Fescue/ 20 Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3		
Redtop 3 Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3		
Tall Fescue/ 40 Birdsfoot Trefoil/ 10 Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well	5.0 - 7.5
Birdsfoot Trefoil/		
Redtop 3 Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3		
Serecia Lespedeza/ 25 Tall Fescue/ 30 Redtop 3	Well - Mod. Well	5.0 - 7.5
Tall Fescue/ 30 Redtop 3		
Redtop 3		
	Well - Mod. Well	4.5 - 7.5
Pedton/		
1 30		
Tall Fescue/ 3	Well - Mod. Well	5.0 - 7.5
Creeping Red 50		
Tall Fescue 50	Well - Poorty	4.5 - 7.5
Perennial Ryegrass/ 10		
Tall Fescue/ 15	Well - Poorly	5.0 - 8.0
Lathco Flatpea* 20		

<u> </u>	Table 4b Wildlife and Farm Friendly	Seed Mixtures	
Species/Mixture	Seeding Rate (Ibs/acre)	Soil Drainage Preference	pH Range
KY Bluegrass/	20		
Redtop/	3	Well - Mod. Well	5.5 - 7.5
Ladino Clover or Birdsfoot Trefoil	2/10		
Timothy/	5	Well - Mod. Well	6.5 - 8.0
Alfalfa	12		
Timothy/	S	Well - Poorly	5.5 - 7.5
Birdsfoot Trefoil	8		
Orchardgrass/	10		· · · · · · · · · · · · · · · · · · ·
Ladino Clover/	2	Well - Mod. Well	5.5 - 7.5
Redtop	3		
Orchardgrass/	10	Well - Mod. Well	5.5 - 7.5
Ladino Clover	2		
Orchardgrass/	20	Well - Mod. Well	5.5 - 7.5
Perennial Ryegrass	10		
Creeping Red Fescue/	30	Well - Mod. Well	5.5 - 7.5
Perennial Ryegrass	10		
Orchardgrass or Kentucky Bluegrass	20	Well - Mod. Well	6.0 - 7.5
Birdsfoot Trefoil/	10		· · · · · ·
Redtop/	5	Well - Mod. Well	5.5 - 7.5
Orchardgrass	20		
Lathco Flat Pea/	30	Well - Mod. Well	5.5 - 7.5
Perennial Ryegrass	20		
Lathco Flat Pea/	30	Well - Mod. Well	5.5 - 7.5
Orchardgrass	20		

For unprepared seedbeds or seeding outside the optimum timeframes, add 50% more seed to the specified rate.

For unarepared seedbeds or seeding outside the optimum timeframes, add 50% more seed to the specified rate

NOTE: DRAWING WAS CREATED ON 22x34 PAPER. IIXI7 DRAWINGS ARE HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.

Blue Mountain Inc.
Engineers and Land Surveyors

CNX GAS COMPANY LLC ONE ENERGY DRIVE JANE LEW, WV 26378

0F

OXFD15HS WELL SITE CONSTRUCTION DETAIL (3 0

CNTGAS

REVISIONS
TYPE



DRAWN BY: WSH
CHECKED BY: WPF
DATE: 10/01/14
SCALE: AS SHOWN
JOB NO.

SHEET NO. 19

DRAWING NAME:

QUANTITY SUMMARY		·
DESCRIPTION	UNITS	QUANTITY
.) CLEARING AND GRUBBING		
IA.) TREE CLEARING	ACRES	27.4
IB.) MOWING	ACRES	3.3
2.) COMPOST FILTER SOCK		
2A.) 12"	LF	200
28.) 18"	LF	264
2c.) 24"	LF	474
20.) 32"	LF	847
2E.) STACKED"	LF	4,430
S.) COMPOST FILTER SOCK SEDIMENT TRAPS		
3A.) 12" COMPOST FILTER SOCK	LF	336
3B.) 18" COMPOST FILTER SOCK	LF	672
3c.) 24" COMPOST FILTER SOCK	LF	1,008
4.) AGGREGATE SURFACING		
4a.) PADS 3" CLEAN AGGREGATE (12" COMPACTED TO 10")	TONS	4,140
4B.) PADS (FLAT DRILL AREA) 3" CLEAN AGG. (10" COMPACTED TO 8")	TONS	2,917
4c.) PADS 3/4" CRUSHER RUN (4" COMPACTED TO 2")	TONS	2,547
4b.) ACCESS ROADS 0"-6" AGGREGATE (10" COMPACTED TO 8")	TONS	4,164
4E.) ACCESS ROADS 3/4" CRUSHER RUN (4" COMPACTED TO 2")	TONS	1,666
4f.) GEOTEXTILE	SY	21,664
5.) SLOPE MATTING		
5A.) SLOPE MATTING	SY	72,985
6.) SEED & MULCH		
6A.) SEED & MULCH	AC	15.1
7.) DITCH LINING		
7a.) 4" RIPRAP (6" DEEP)	TONS	838
B.) EXCAVATION		<u> </u>
8A.) CUT-ACCESS ROAD (10% SWELL)	CY	14,263
8B.) CUT-WELL PAD (10% SWELL)	CY	95,900
TOTAL CUT FOR PROJECT (NO SWELL)	CY	110,163
8c.) TOPSOIL-ACCESS ROAD (I2" DEPTH)	CY ,	12,529
8D.) TOPSOIL-WELL PAD (12" DEPTH)	CY	10,579
TOTAL TOPSOIL FOR PROJECT (ASSUME 12")	CY	23,108
9.) DITCHES		
9A.) COLLECTION DITCH LENGTH W/ ROCK CHECK DAMS	LF	3,504
0.) RIP RAP APRON & ROCK LEVEL SPREADERS		
IOA.) RIP RAP APRON	EA	
I.) KEYWAY EXCAVATION		
IIA.) KEYWAY EXCAVATION (TOE LENGTH X WIDTH X DEPTH)(SEE DETAIL FOR SIZING)	CY	14,206
2.) CULVERTS	 -	
I2A.) I2" HDPE CULVERT	LF	0
I2A.) I8" HDPE CULVERT	LF	430
I2B.) 24" HDPE CULVERT	LF	0
	,	
3.) TOE DRAIN		
3.) TOE DRAIN 13a.) TOE DRAIN	LF	6,459

Blue Mountain Inc.
Engineers and Land Surveyors
11023 Mason Dison lives
Burnen, 197 25555, 9655

CNX GAS COMPANY LLC ONE ENERGY DRIVE JANE LEW, WV 26378

(A) CNYGAS

OXFD15HS WELL SITE MATERIAL QUANTITIES

REVISIONS
DATE TYPE

DATE TYPE



DRAWN BY: WSH	
CHECKED BY: WPF	
DATE: 10/01/14	
SCALE: AS SHOWN	
JOB NO.	

SHEET NO. 20