

# 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: #14-246 Morris Centralized Freshwater Impoundment**

**Date Approved: 07/17/2014**

**Expires: 7/17/2015**

**Issued to: CNX Gas Company, LLC**

**POC: Kelly Eddy  
304-884-2131**

**Company Address: One Energy Drive  
Jane Lew, WV 26378**

**Project Address: Southwest District**

**Lat/Long: 39.19736N/80.77874W**

**Purpose of development: Freshwater Impoundment Construction. Project does not impact floodplain.**

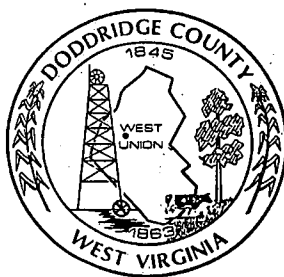
**Issued by: Edwin L. "Bo" Wriston, Doddridge County FPM (*or designee*)**

**Date: 07/17/2014**

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For additional information regarding this permit, please contact  
Doddridge County Floodplain Manager at 304.873.2631, or via email at  
doddridgecountyfpm@gmail.com  
118 East Court Street; West Union, WV 26456

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## Doddridge County, WV Floodplain Management

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118 East Court Street; West Union, WV 26456

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Legal Advertisement:  
Doddridge County  
Floodplain Permit Application

Please take notice that on the 11<sup>th</sup> day of July, 2014

**CNX Gas Company LLC**

filed an application for a Floodplain Permit to develop land located at or about:

**Southwest District 39.19736N / 80.77874W**

**Permit #14-246 Morris Centralized Freshwater Impoundment**

(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 Management has no regulatory authority.

Any interested persons who desire to comment shall present the same in writing by **August 27, 2014**, delivered to:

Clerk of the County Court

118 E. Court Street, West Union, WV 26456

Beth A Rogers, Doddridge County Clerk

Edwin L. "Bo" Wriston, Doddridge County Flood Plain Manager



# LETTER OF TRANSMITTAL

P.O. BOX 150, GLENVILLE, WV 26351  
 (304) 462-5634 • FAX (304) 462-5656

**FILED**

2014 JUL 11 AM 10:01

BETH A. ROBERTS  
 COUNTY CLERK  
 DODDRIDGE COUNTY, WV

DATE 7/9/14	JOB NO. 8057
ATTENTION Dp. Wiston	
RE: CNX Gas Company's Morris Cent. Freshwater Imp. Site	

TO: Floodplain Manager - Doddridge Co. Commission  
 118 East Court Street  
 West Union, WV 26456

> WE ARE SENDING YOU  Attached  Under separate cover via \_\_\_\_\_ the following items:

- Shop drawings   
  Prints   
  Plans   
  Samples   
  Specifications  
 Copy of letter   
 Change order   
 \_\_\_\_\_

COPIES	DATE	NO.	DESCRIPTION
1			Cover letter regarding CNX Gas Company's Morris Centralized Freshwater Impoundment Site
1			Floodplain Permit Application
1			Site Plans
1			FEMA Map
1			Vicinity Map
1			WV Flood Tool Map

THESE ARE TRANSMITTED as checked below:

- For approval   
  Approved as submitted   
  Resubmit \_\_\_\_\_ copies for approval  
 For your use   
  Approved as noted   
  Submit \_\_\_\_\_ copies for distribution  
 As requested   
  Returned for corrections   
  Return \_\_\_\_\_ corrected prints  
 For review and comment   
 \_\_\_\_\_  
 FOR BIDS DUE \_\_\_\_\_ 20 \_\_\_\_\_   
 PRINTS RETURNED AFTER LOAN TO US

REMARKS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

COPY TO SLS Files; CNX Gas Company, LLC

SIGNED: Deanna McVicker

If enclosures are not as noted, kindly notify us at once.

#14-246



PROFESSIONAL ENERGY CONSULTANTS

A DIVISION OF SMITH LAND SURVEYING, INC.

July 9, 2014

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

RE: CNX Gas Company, LLC  
Morris Centralized Freshwater Impoundment

Mr. Wriston,

On behalf of CNX, Smith Land Surveying, Inc. is asking for your concurrence that a Doddridge County floodplain/building permit is not required for this project. CNX has proposed a centralized freshwater impoundment and an access road to aid in the development of multiple Marcellus Shale gas wells. The site is located approximately 0.8 miles northeast of the junction of WV County Route 19/11 and WV County Route 23/3. The existing access road starts approximately 200' to the east of the intersection of County Route 19/11 and the Waters of Camp Run and is approximately 1.8 miles to the west of Porto Rico. The coordinates of the access road at County Route 19/11 are Latitude 39.18827, Longitude - 80.78870 (NAD 83). The center of the impoundment is located at Latitude 39.19736, Longitude - 80.77874 (NAD 83). Total disturbance area of the site is approximately 32.1 acres.

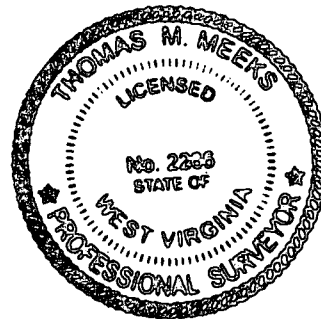
This site does not impact a floodplain. Please see the attached project location map, site plans, FEMA firmette, and WV Floodtool Map with the beginning of the access road marked.

On behalf of CNX, SLS is requesting your concurrence to begin construction on the Morris Centralized Impoundment Project once all of the other regulatory permitting is received. Please feel to contact Thomas Meeks with SLS at 304-462-5634 or [tmeeks@slssurveys.com](mailto:tmeeks@slssurveys.com), or Kelly Eddy with CNX at 304-884-2131 or [KellyEddy@consolenergy.com](mailto:KellyEddy@consolenergy.com) should you have any questions or comments. Please send the permit and any other correspondence to Thomas Meeks or Leslie Pierce ([lpierce@slssurveys.com](mailto:lpierce@slssurveys.com)) at Smith Land Surveying.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "T. M. Meeks", is written over a light blue horizontal line.

Thomas M. Meeks, P.S.  
Project Coordinator



cc: Amanda Wright/CNX Gas Company LLC

P.O. Box 150, 12 Vanhorn Drive, Glenville, WV 26351  
T: (304)-462-5634 F: (304)-462-5656

56065 Dilles Bottom Road, Shadyside, OH 43947  
T: (740)-671-9911

**DODDRIDGE COUNTY  
FLOODPLAIN DEVELOPMENT PERMIT APPLICATION**

**SECTION 1: GENERAL PROVISIONS (APPLICANT TO READ AND SIGN)**

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. Development shall not be used or occupied until a Certificate of Compliance is issued.
5. The permit will expire if no work is commenced within six months of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state, and federal requirements.
7. Applicant hereby gives consent to the Floodplain Administrator/Manager or his/her representative to make inspections to verify compliance.
8. **I, THE APPLICANT CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.**

APPLICANT'S SIGNATURE Kelly Eddy, permitting supervisor

DATE 7-7-14

**SECTION 2: PROPOSE DEVELOPMENT (TO BE COMPLETED BY APPLICANT).**

**IF THE APPLICANT IS NOT A NATURAL PERSON, THE NAME, ADDRESS, AND TELEPHONE NUMBER OF A NATURAL PERSON WHO SHALL BE APPOINTED BY THE APPLICANT TO RECEIVE NOTICE PURSUANT TO ANY PROVISION OF THE CURRENT DODDRIDGE COUNTY FLOODPLAIN ORDINANCE.**

APPLICANT'S NAME: CNX Gas Company, LLC

ADDRESS: One Energy Drive Jane Lew, WV 26378

TELEPHONE NUMBER: 304-884-2027

**BUILDER'S NAME:** CNX Gas Company, LLC

**ADDRESS:** One Energy Drive Jane Lew, WV 26378

**TELEPHONE NUMBER:** 304-884-2027

**ENGINEER'S NAME:** Smith Land Surveying

**ADDRESS:** P.O. Box 150, 12 Vanhorn Drive, Glenville, WV 26351

**TELEPHONE NUMBER:** 304-462-5634

**PROJECT LOCATION:** This site is located approximately 1.1 miles northwest of the junction of WV County Route 19/11 and WV County Route 40. The existing access road starts approximately 200' to the east of the intersection of County Route 19/11 and the Waters of Camp Run and is approximately 1.5 miles to the west of Porto Rico.

**NAME OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT)** I.L Morris

**ADDRESS OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT)** \_\_\_\_\_

I.L Morris PO Box 397 Glenville, WV 26351

**DISTRICT:** Southwest District

**DATE/FROM WHOM PROPERTY**

**PURCHASED** \_\_\_\_\_

**LAND BOOK DESCRIPTION:** South Fork 6603.75 AC

**DEED BOOK REFERENCE:** Deed Book 230 Page 307

**TAX MAP REFERENCE:** Doddridge County Southwest District Tax Map 10 Parcel 2

**EXISTING BUILDINGS/USES OF PROPERTY:** \_\_\_\_\_

**NAME OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY** \_\_\_\_\_

**ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY** \_\_\_\_\_

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To avoid delay in processing the application, please provide enough information to easily identify the project location.

**DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)**

**A. STRUCTURAL DEVELOPMENT**

<u>ACTIVITY</u>	<u>STRUCTURAL TYPE</u>
<input type="checkbox"/> New Structure	<input type="checkbox"/> Residential (1 – 4 Family)
<input type="checkbox"/> Addition	<input type="checkbox"/> Residential (more than 4 Family)
<input type="checkbox"/> Alteration	<input type="checkbox"/> Non-residential (floodproofing)
<input type="checkbox"/> Relocation	<input type="checkbox"/> Combined Use (res. & com.)
<input type="checkbox"/> Demolition	<input type="checkbox"/> Replacement
<input type="checkbox"/> Manufactured/Mobil Home	

**B. OTHER DEVELOPMENT ACTIVITIES:**

- Fill                     Mining                     Drilling                     Pipelining
  - Grading
  - Excavation (except for STRUCTURAL DEVELOPMENT checked above)
  - Watercourse Altercation (including dredging and channel modification)
  - Drainage Improvements (including culvert work)
  - Road, Street, or Bridge Construction
  - Subdivision (including new expansion)
  - Individual Water or Sewer System
  - Other (please specify)
- 

**C. STANDARD SITE PLAN OR SKETCH**

1. **SUBMIT ALL STANDARD SITE PLANS, IF ANY HAVE BEEN PREPARED.**
2. **IF STANDARD SITE PLANS HAVE NOT BEEN PREPARED:**  
SKETCH ON A SEPARATE 8 ½ X 11 INCH SHEET OF PAPER THE SHAPE AND LOCATION OF THE LOT. SHOW THE LOCATION OF THE INTENDED CONSTRUCTION OR LAND USE INDICATING BUILDING SETBACKS, SIZE & HEIGHT. IDENTIFY EXISTING BUILDINGS, STRUCTURES OR LAND USES ON THE PROPERTY.
3. **SIGN AND DATE THE SKETCH.**



**ACTUAL TOTAL CONSTRUCTION COSTS OF THE COMPLETE DEVELOPMENT IRRESPECTIVE OF WHETHER ALL OR ANY PART OF THE SUBJECT PROPOSED CONSTRUCTION PROJECT IS WITHIN THE FLOODPLAIN \$ \_\_\_\_\_**

**D. ADJACENT AND/OR AFFECTED LANDOWNERS:**

- 1. NAME AND ADDRESS OF ALL OWNERS OF SURFACE TRACTS ADJACENT TO THE AREA OF THE SURFACE TRACT (UP & DOWN STREAM) UPON WHICH THE PROPOSED ACTIVITY WILL OCCUR AND ALL OTHER SURFACE OWNERS UP & DOWN STREAM) WHO OWN PROPERTY THAT MAY BE AFFECTED BY FLOODING AS IS DEMONSTRATED BY A FLOODPLAIN STUDY OR SURVEY (IF ONE HAS BEEN COMPLETED).**

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

- 1. NAME AND ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON ANY ADJACENT PROPERTY AT THE TIME THE FLOODPLAIN PERMIT APPLICATION IS FILED AND THE NAME AND ADDRESS OF AT LEAST ONE ADULT RESIDING IN ANY HOME ON ANY PROPERTY THAT MAY BE AFFECTED BY FLOODING AS IS DEMONSTRATED BY A FLOODPLAIN STUDY OR SURVEY.**

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**E. CONFIRMATION FORM**

THE APPLICANT ACKNOWLEDGES, AGREES, AND CONFIRMS THAT HE/IT WILL PAY WITHIN 30 DAYS OF RECEIPT OF INVOICE BY THE COUNTY FOR ALL EXPENSES RELATIVE TO THE PERMIT APPLICATION PROCESS GREATER THAN THE REQUIRED DEPOSIT FOR EXPENSES INCLUDING:

- (A) PERSONAL SERVICE OF PROCESS BY THE DODDRIDGE COUNTY SHERIFF AT THE RATES PERMITTED BY LAW FOR SUCH SERVICE.
- (B) SERVICE BY CERTIFIED MAIL RETURN RECEIPT REQUESTED.
- (C) PUBLICATION.
- (D) COURT REPORTING SERVICES AT ANY HEARINGS REQUESTED BY THE APPLICANT.
- (E) CONSULTANTS AND/OR HEARING EXPERTS UTILIZED BY DODDRIDGE COUNTY FLOODPLAIN ADMINISTRATOR/MANAGER OR FLOODPLAIN APPEALS BOARD FOR REVIEW OF MATERIALS AND/OR TESTIMONY REGARDING THE EFFICACY OF GRANTING OR DENYING THE APPLICANT'S FLOODPLAIN PERMIT.

NAME (PRINT): Kelly Eddy, permitting supervisor

SIGNATURE: Kelly Eddy DATE: 7-7-14

After completing SECTION 2, APPLICANT should submit form to Floodplain Administrator/Manager or his/her representative for review.

**SECTION 3: FLOODPLAIN DETERMINATION (to be completed by Floodplain Administrator/Manager or his/her representative)**

**THE PROPOSED DEVELOPMENT:**

THE PROPOSED DEVELOPMENT IS LOCATED ON:

FIRM Panel: \_\_\_\_\_

Dated: \_\_\_\_\_

Is **NOT** located in a Specific Flood Hazard Area (Notify applicant that the application review is complete and **NO FLOODPLAIN DEVELOPMENT PERMIT IS REQUIRED**).

Is located in Special Flood Hazard Area.

FIRM zone designation \_\_\_\_\_

100-Year flood elevation is: \_\_\_\_\_ NGVD (MSL)

- Unavailable
  - The proposed development is located in a floodway.  
 FBFM Panel No. \_\_\_\_\_ Dated \_\_\_\_\_
  - See section 4 for additional instructions.
- SIGNED** \_\_\_\_\_ **DATE** \_\_\_\_\_

**SECTION 4: ADDITIONAL INFORMATION REQUIRED (To be completed by Floodplain Administrator/Manager or his/her representative)**

The applicant must submit the documents checked below before the application can be processed.

- A plan showing the location of all existing structures, water bodies, adjacent roads, lot dimensions and proposed development.
- Development plans, drawn to scale, and specifications, including where applicable: details for anchoring structures, storage tanks, proposed elevation of lowest floor, (including basement or crawl space), types of water resistant materials used below the first floor, details of flood proofing of utilities located below the first floor and details of enclosures below the first floor. Also \_\_\_\_\_  
 \_\_\_\_\_
- Subdivision or other development plans (If the subdivision or development exceeds 50 lots or 5 acres, whichever is the lesser, the applicant must provide 100-year flood elevations if they are not otherwise available).
- Plans showing the extent of watercourse relocation and/or landform alterations.
- Top of new fill elevation \_\_\_\_\_ Ft. NGVD (MSL).  
 For floodproofing structures applicant must attach certification from registered engineer or architect.

Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in any increase in the height of the 100-year flood. A copy of all data and calculations supporting this finding must also be submitted.

Manufactured homes located in a floodplain area must have a West Virginia Contractor's License and a Manufactured Home Installation License as required by the Federal Emergency Management Agency (FEMA).

Other:

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**SECTION 5: PERMIT DETERMINATION (To be completed by Floodplain Administrator/Manager or his/her representative)**

I have determined that the proposed activity **(type is or is not)** in conformance with provisions of the Floodplain Ordinance adopted by the County Commission of Doddridge County on May 21, 2013. The permit is issued subject to the conditions attached to and made part of this permit.

SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

If the Floodplain Administrator/Manager found that the above was not in conformance with the provisions of the Doddridge County Floodplain Ordinance and/or denied that application, the applicant may complete an appealing process below.

APPEALS:   Appealed to the County Commission of Doddridge County?  Yes   {} No  
Hearing Date: \_\_\_\_\_  
County Commission Decision - Approved    Yes    No

CONDITIONS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SECTION 6: AS-BUILT ELEVATIONS (To be submitted by APPLICANT before Certificate of Compliance is issued).**

The following information must be provided for project structures. This section must be completed by a registered professional engineer or a licensed land surveyor (or attach a certification to this application).

COMPLETE 1 OR 2 BELOW:

- 1 Actual (As-Built) Elevation of the top of the lowest floor (including basement or crawl space is \_\_\_\_\_ FT. NGVD (MSL)
- 2 Actual (As Built) elevation of floodproofing is \_\_\_\_\_ FT. NGVD (MSL)

**Note: Any work performed prior to submittal of the above information is at risk of the applicant.**

**SECTION 7: COMPLIANCE ACTION (To be completed by the Floodplain Administrator/Manager or his/her representative).**

The Floodplain Administrator/Manager or his/her representative will complete this section as applicable based on inspection of the project to ensure compliance with the Doddridge County Floodplain Ordinance.

**INSPECTIONS:**

DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
DEFICIENCIES ?      Y/N

COMMENTS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SECTION 8: CERTIFICATE OF COMPLIANCE (To be completed by Floodplain Administrator/Manager or his/her representative).**

Certificate of Compliance issued: DATE: \_\_\_\_\_ BY: \_\_\_\_\_

**CERTIFICATE OF COMPLIANCE  
FOR DEVELOPMENT IN SPECIAL FLOOD HAZARD AREA  
(OWNER MUST RETAIN)**

**PERMIT NUMBER:** \_\_\_\_\_

**PERMIT DATE:** \_\_\_\_\_

**PURPOSE –**

**CONSTRUCTION LOCATION:** \_\_\_\_\_

**OWNER'S ADDRESS:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**THE FOLLOWING MUST BE COMPLETED BY THE FLOODPLAIN  
ADMINISTRATOR/MANAGER OR HIS/HER AGENT.**

**COMPLIANCE IS HEREBY CERTIFIED WITH THE REQUIREMENT OF THE  
FLOODPLAIN ORDINANCE ADOPTED BY THE COUNTY COMMISSION OF  
DODDRIDGE COUNTY ON MAY 21, 2013.**


**SIGNED \_\_\_\_\_ DATE \_\_\_\_\_**

# MORRIS CENTRALIZED IMPOUNDMENT



This map is not the official regulatory FIRM or DFIRM. Its purpose is to assist with determining potential flood risk for the selected location.

Map Created on 6/30/2014

 Location of the mouse click

 **Flood Hazard Zone**  
(1% annual chance floodplain)

#### User Notes:

8057

#### Disclaimer:

The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. To obtain more detailed information in areas where Base Flood Elevations have been determined, users are encouraged to consult the latest Flood Profile data contained in the official flood insurance study. These studies are available online at [www.msc.fema.gov](http://www.msc.fema.gov).

WV Flood Tool is supported by FEMA, WV NFIP Office, and WV GIS Technical Center  
(<http://www.MapWV.gov/flood>)

#### Flood Hazard Area:

Elevation: About 896 feet

Location (long, lat): 80.788706 W, 39.188271 N

Location (UTM 17N): (518248, 4337691)

FEMA Issued Flood Map: 54017C0225C

Contacts: Doddridge County

CRS Information: N/A

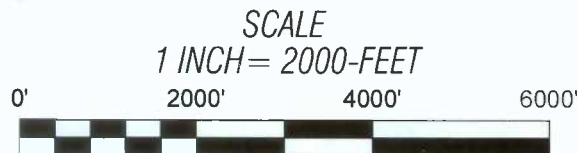
Parcel Number:



# MORRIS CENTRALIZED IMPOUNDMENT FEMA MAP



**NOTES**  
 DODDRIDGE COUNTY  
 540024 0225C



JOB #: 8057  
 DRAWN BY: CMH  
 DATE: 06-17-14  
 SCALE: 1" = 2000'

**MORRIS CENTRALIZED  
 IMPOUNDMENT**

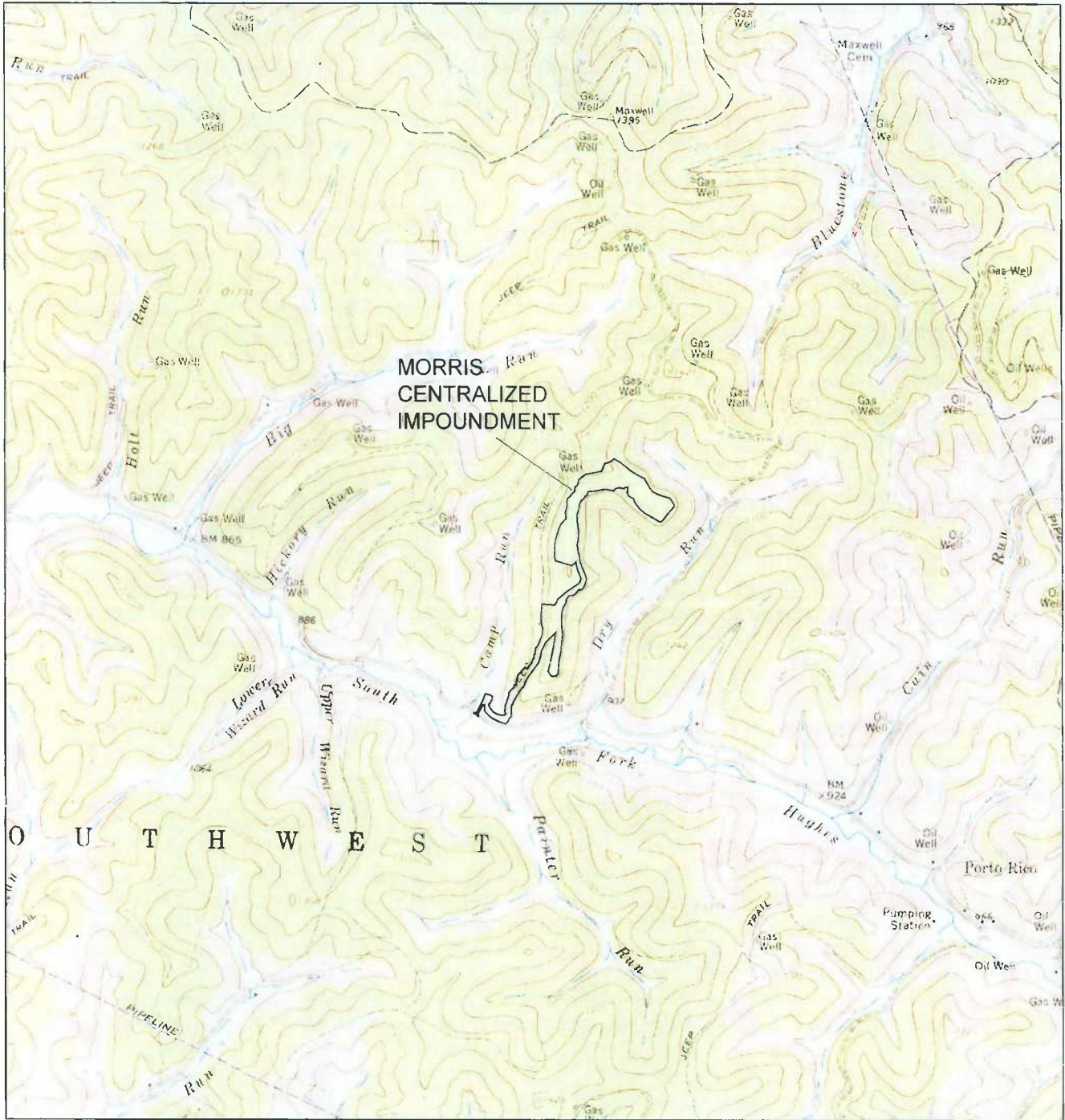
THIS DOCUMENT WAS PREPARED BY:  
 SMITH LAND SURVEYING, INC.  
 FOR: CNX

**Professional Energy Consultants**  
 A DIVISION OF SMITH LAND SURVEYING, INC.

SURVEYORS  
 ENGINEERS  
 ENVIRONMENTAL  
 PROJECT MGMT.  
 (304) 462-5634  
 WWW.SLSSURVEYS.COM



# MORRIS CENTRALIZED IMPOUNDMENT TOPO MAP



**NOTES**  
 OXFORD TOPO  
 QUADRANGLE

**SCALE**  
 1 INCH = 2000-FEET



JOB #: 8057  
 DRAWN BY: CMH  
 DATE: 06-17-14  
 SCALE: 1" = 2000'

**MORRIS CENTRALIZED  
 IMPOUNDMENT**

THIS DOCUMENT WAS PREPARED BY:  
 SMITH LAND SURVEYING, INC.  
 FOR: CNX

**Professional Energy Consultants**  
 A DIVISION OF SMITH LAND SURVEYING, INC.



SURVEYORS  
 ENGINEERS  
 ENVIRONMENTAL  
 PROJECT MGMT.  
 (304) 462-5634  
 WWW.SLSSURVEYS.COM



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:

*Floodplain Permit  
Morris Centralized Freshwater  
Impoundment # 14-246*

was published in said paper for ... 2 ...

successive weeks beginning with the issue

of *August 5<sup>th</sup>* 2014 and

ending with the issue of

*August 12<sup>th</sup>* 2014 and

that said notice contains ... *189* ...

WORD SPACE at ... *115* ... cents a word

amounts to the sum of \$ *21.74* ...

FOR FIRST PUBLICATION, SECOND  
PUBLICATION IS 75% OF THE FIRST  
PUBLICATION

\$ *16.31* ...

and each publication thereafter

\$ *38.05* ... TOTAL

EDITOR,

*Virginia Nicholson*

SWORN TO AND SUBSCRIBED

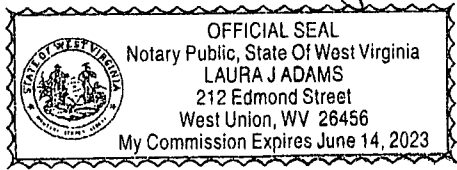
BEFORE ME THIS THE *14<sup>th</sup>* DAY

OF *August* 2014

NOTARY PUBLIC

*Laura Adams*

LEGAL ADVERTISEMENT  
Doddridge County  
Floodplain Permit Application  
Please take notice that on the 11th day of July, 2014  
CNX Gas Company, L.L.C. filed an application for a  
Floodplain Permit to develop land located at or about:  
Southwest District 39, 19736 N 80, 77874 W Permit # 14-246  
Morris Centralized Freshwater Impoundment (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 Management has no regulatory  
authority. Any interested persons who desire to comment  
shall present the same in writing by August 27, 2014.  
Delivered to the  
Clerk of the County Court  
118 E. Court Street, West Union, WV 26456  
Beth A. Rogers, Doddridge County Clerk  
Edwin L. "Bo" Winston, Doddridge County Floodplain  
Manager



7/6/2014 10:00 AM  
 C:\Users\jlewis\Documents\1372\GIS\1372\1372.mxd  
 D:\GIS\1372\1372.mxd

7/6/2014 10:00 AM  
 C:\Users\jlewis\Documents\1372\GIS\1372.mxd  
 D:\GIS\1372\1372.mxd

**PROJECT INFORMATION**

**PROJECT NAME:** MORRIS CENTRALIZED IMPOUNDMENT  
**TAX PARCEL:**  
 SOUTHWEST DISTRICT  
 MAP 10 PARCEL 2 (TOTAL PROPERTY AREA = 6603.75 ACRES)  
**SURFACE OWNER:**  
 OWNER: I L MORRIS  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV  
 TOTAL PROPERTY AREA: 6603.75 ACRES  
 TOTAL DISTURBANCE AREA: 32.1 +/- ACRES  
**SITE LOCATION:**  
 THE MORRIS CENTRALIZED IMPOUNDMENT SITE IS  
 LOCATED 1.1 MI +/- NORTHWEST OF THE JUNCTION OF WV  
 CR 19/11 AND WV CR 40.  
**LOCATION COORDINATES**  
 MORRIS CENTRALIZED IMPOUNDMENT CENTER  
 LATITUDE: 39.19736, LONGITUDE: -80.77874 (NAD 83)  
 MORRIS CENTRALIZED IMPOUNDMENT ACCESS ROAD AT WV CR 19/11  
 LATITUDE: 39.18827, LONGITUDE: -80.78870 (NAD 83)

**GENERAL DESCRIPTION**

THE CENTRALIZED IMPOUNDMENT SITE AND ACCESS ROAD ARE BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

**SITE DISTURBANCE COMPUTATIONS**

TOTAL SITE DISTURBANCE AREA = 32.1 +/- ACRES

**ENTRANCE PERMIT**

CNX GAS COMPANY, LLC 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 STATEMENT**

MISS UTILITY OF WEST VIRGINIA WAS NOTED FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT DESIGN; TICKET # 1317143915. IN ADDITION, MISS UTILITY WILL BE CONTACTED PRIOR TO START OF THE PROJECT.

**FLOODPLAIN NOTE**

THE PROPOSED LIMITS OF DISTURBANCE FOR THIS PROJECT ARE LOCATED IN FEMA FLOOD ZONE X PER THE FLOOD INSURANCE RATE MAP (FIRM) NUMBER 54017C0225C, DATED 10/04/2011.

**ENVIRONMENTAL NOTES**

A WETLAND INVESTIGATION WAS PERFORMED ON MARCH 7, 2014 BY ALLSTAR ECOLOGY TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE MARCH 12, 2014 REPORT FOR THE MORRIS IMPOUNDMENT SITE PREPARED BY ALLSTAR ECOLOGY, 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 THE WVDEP. IT IS STRONGLY RECOMMENDED THAT THE AFOREMENTIONED AGENCIES BE CONSULTED IN AN EFFORT TO GAIN WRITTEN CONFIRMATION OF THE DELINEATION DESCRIBED BY THIS 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**

A SUBSURFACE INVESTIGATION OF THE PROPOSED SITE WAS PERFORMED BY TRIAD ENGINEERING, INC. ON AUGUST 19, 2013 THROUGH SEPTEMBER 4, 2013. RECOMMENDATIONS FOR SITE PREPARATION, EMBANKMENT CONSTRUCTION, ROADWAY CONSTRUCTION, SLOPE STABILITY AND CONSTRUCTION OF THE PROPOSED IMPOUNDMENT CAN BE FOUND IN THE GEOTECHNICAL REPORT DATED OCTOBER 4, 2013 PREPARED BY TRIAD ENGINEERING, INC. ALL SLOPES, BENCHES, TOE KEY, SUBSURFACE DRAINAGE OR OTHER GRADING PRACTICES MUST FOLLOW THE RECOMMENDATIONS AS OUTLINED IN THIS REPORT IN CONJUNCTION WITH THE FOLLOWING PLAN TO CONSTRUCT THE PROPOSED SITE.

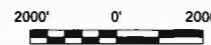
# MORRIS CENTRALIZED IMPOUNDMENT CNX GAS COMPANY, LLC

*SITUATE ON THE WATERS OF DRY RUN & CAMP RUN, TRIBUTARIES TO SOUTH FORK OF HUGHES RIVER IN SOUTHWEST DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA*

GRID NORTH AND ELEVATIONS  
 SHOWN HEREON WERE  
 ESTABLISHED BY SURVEY  
 GRADE GPS



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			X-SECTION EXISTING GRADE	---	



THIS DOCUMENT WAS PREPARED BY: STANTEC FOR: CNX GAS COMPANY, LLC.

TITLE SHEET  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

**OPERATOR**  
 CNX GAS COMPANY, LLC  
 OPERATOR ID: 494458046  
 P.O. BOX 1248  
 JANE LEW, WV 26378  
 PHONE: (304) 889-2009

**ENGINEER**  
 STANTEC CONSULTING SERVICES, INC.  
 111 ELKINS STREET  
 FAIRMONT, WV 26554  
 PHONE: (304) 367-9401

**SURVEYOR**  
 SMITH LAND SURVEYING, INC.  
 PO BOX 150  
 GLENVILLE, WV 26351  
 PHONE: (304) 462-5634

DATE: 07/01/2014
SCALE: AS SHOWN
DESIGNED BY: JMR/RJH
FILE NO.: SLS-8057
SHEET 1 OF 32
REV:

Energy, Energy Consultants, Inc. 111 E. BANK STREET, FARMINGTON, WV 26034, PHONE 304-991-9401  
Professional Energy Consultants, A DIVISION OF ENERGY SURVEYORS, INC. SURVEYORS ENVIRONMENTAL PROJECT MGMT. WWW.ESURVEYORS.COM  
RICHARD L. CALLES REGISTERED PROFESSIONAL ENGINEER 17220 STATE OF WEST VIRGINIA  
THIS DOCUMENT WAS PREPARED BY: STANTEC FOR: CNX GAS COMPANY, LLC.  
GENERAL NOTES MORRIS CENTRALIZED IMPOUNDMENT SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV  
DATE: 07/01/2014 SCALE: AS SHOWN DESIGNED BY: JMR/RJH FILE NO.: SLS-8057 SHEET 2 OF 32 REV:

**CONSTRUCTION NOTES**

1. THE CONTRACTOR IS TO VERIFY FIELD CONDITIONS PRIOR TO AND DURING CONSTRUCTION AND WILL NOTIFY STANTEC AT (304) 367-9401 OR SMITH LAND SURVEYING AT (304) 462-5634 IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE APPROVED PLAN. ANY WORK PERFORMED BY THE CONTRACTOR AFTER THE FINDING OF SUCH DISCREPANCIES, SHALL BE DONE AT THE CONTRACTOR'S RISK.
2. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS HEREIN SHALL CONFORM TO THE CURRENT COUNTY CONSTRUCTION STANDARDS AND SPECIFICATIONS AND/OR CURRENT WVDEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL STANDARDS AND SPECIFICATIONS. SHOULD A CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS, AND PLANS OCCUR, THE MOST STRINGENT REQUIREMENT WILL APPLY. THE APPROVAL OF THESE PLANS IN NO WAY RELIEVES THE DEVELOPER OR HIS AGENT OF THE RESPONSIBILITIES CONTAINED IN THE WVDEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.
3. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE. ALSO, A REPRESENTATIVE OF THE DEVELOPER MUST BE AVAILABLE AT ALL TIMES.
4. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING MUD FROM TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING PUBLIC STREETS, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS, ALLAY DUST, AND TO TAKE WHATEVER MEASURES ARE NECESSARY TO ENSURE THAT THE STREETS ARE MAINTAINED IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES.
5. THE LOCATION OF EXISTING UTILITIES SHOWN IN THESE PLANS ARE FROM FIELD LOCATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES AS NEEDED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ENGINEER OF ANY CONFLICTS ARISING FROM HIS EXISTING UTILITY VERIFICATION AND THE PROPOSED CONSTRUCTION.
6. THE CONTRACTOR SHALL PROVIDE NOTIFICATION TO THE APPROPRIATE UTILITY COMPANY PRIOR TO CONSTRUCTION OF WATER AND/OR GAS PIPE LINES. INFORMATION SHOULD ALSO BE OBTAINED FROM THE APPROPRIATE AUTHORITY CONCERNING PERMITS, CUT SHEETS, AND CONNECTIONS TO EXISTING LINES.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGES TO THE EXISTING STREETS AND UTILITIES WHICH OCCURS AS A RESULT OF THIS CONSTRUCTION PROJECT WITHIN OR CONTIGUOUS TO THE EXISTING RIGHT-OF-WAY.
8. WHEN GRADING IS PROPOSED WITHIN EASEMENTS OF UTILITIES, LETTERS OF PERMISSION FROM ALL INVOLVED COMPANIES MUST BE OBTAINED PRIOR TO GRADING AND/OR SITE DEVELOPMENT.
9. THE DEVELOPER WILL BE RESPONSIBLE FOR THE RELOCATION OF ANY UTILITIES WHICH IS REQUIRED AS A RESULT OF HIS PROJECT. THE RELOCATION SHOULD BE DONE PRIOR TO CONSTRUCTION.
10. THESE PLANS IDENTIFY THE LOCATION OF ALL KNOWN GRAVE SITES. GRAVE SITES SHOWN ON THIS PLAN WILL BE PROTECTED IN ACCORDANCE WITH STATE LAW. IN THE EVENT GRAVE SITES ARE DISCOVERED DURING CONSTRUCTION, THE OWNER AND ENGINEER MUST BE NOTIFIED IMMEDIATELY.
11. THE CONTRACTOR(S) SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATING OR BASTING AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATING OR DEMOLITION.
12. CONTRACTOR TO CONTACT OPERATOR AND ENGINEER IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION. THE ENGINEER OR SURVEYOR IS NOT RESPONSIBLE FOR ANY BURIED WATER WELLS, SPRINGS OR ANY OTHER FEATURES UNCOVERED DURING CONSTRUCTION.
13. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR, TWO DAYS PRIOR TO THE START OF CONSTRUCTION.
14. THE CONTRACTOR IS RESPONSIBLE FOR ALL FILL MATERIAL TESTING REQUIRED DURING THE CONSTRUCTION OF THIS PROJECT. ALL MATERIAL TESTS SHALL BE CONDUCTED BY A CERTIFIED MATERIALS TESTING LABORATORY AND A CERTIFICATION OF THE MATERIALS TESTED SHALL BE PROVIDED BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY. ALL TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER CERTIFYING THE CONSTRUCTED FACILITY. FAILURE TO CONDUCT THE DENSITY TEST SHALL BE CAUSE FOR NON-ACCEPTANCE OF THE CONSTRUCTED FACILITY.
15. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SITE IN ACCORDANCE WITH THE DESIGN PLANS AND CONSTRUCTION DOCUMENTS AND THE SCOPE OF WORK SHALL CONFORM WITH THE GRADES, BERMS, DEPTHS, DIMENSIONS, ETC. SHOWN HEREON.
16. THE CONTRACTOR SHALL BE REQUIRED TO COMPLETE AND SUBMIT A GROUNDWATER PROTECTION PLAN FOR THE CONSTRUCTION SITE. CONTACT THE WVDEP TO RECEIVE AN APPLICATION AND INFORMATION REGARDING SUBMITTAL.

**CONSTRUCTION SEQUENCE**

THE DEVELOPMENT OF THE SITE SHALL BE CONSISTENT WITH THE FOLLOWING GENERAL SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL IMPLEMENT, MAINTAIN, AND OPERATE ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES TO EFFECTIVELY MITIGATE THE HAZARD OF ACCELERATED EROSION AND SEDIMENTATION TO ACCEPTABLE LEVELS. MINOR DEVIATIONS FROM THIS SEQUENCE SHALL BE EXECUTED BY THE PROJECT'S SUPERINTENDENT AS NEEDED TO ELIMINATE ANY POTENTIAL EROSION CONDITION THAT MAY ARISE FOR THE DURATION OF THE PROJECT. THE WVDEP OFFICE OF OIL AND GAS AND WVDEP DIVISION OF WATER AND WASTE MANAGEMENT SHALL BE NOTIFIED OF ANY AND ALL SUCH DEVIATIONS FROM THE APPROVED PLANS.

1. HOLD A PRE-CONSTRUCTION CONFERENCE WITH THE CONTRACTOR AND THE APPROPRIATE EROSION AND SEDIMENT CONTROL INSPECTOR 48 HOURS PRIOR TO BEGINNING WORK TO REVIEW THE CONSTRUCTION DRAWING AND PROVIDE ANY REQUESTED GUIDANCE.
2. STAKE THE LIMITS OF CONSTRUCTION.
3. INSTALL THE STONE CONSTRUCTION ENTRANCE AS SHOWN ON THE PLANS.

**CONSTRUCTION SEQUENCE CONTINUED**

4. INSTALL ALL PERIMETER CONTROL BMPS (COMPOST FILTER SOCK) AS SHOWN ON THE PLAN AND DETAILS. PLACE ROCK CHECK DAM AT STA 2+35 TO PREVENT SEDIMENT FROM ENTERING PIPE.
5. CLEAR AND GRUB THE ACCESS ROAD AND IMPOUNDMENT AREA AS NEEDED. ALL WOODY MATERIAL, BRUSH, TREES, STUMPS, LARGE ROOTS, BOULDERS, AND DEBRIS SHALL BE CLEARED FROM THE SITE AREA AND KEPT TO THE MINIMUM NECESSARY FOR PROPER CONSTRUCTION, INCLUDING THE INSTALLATION OF ANY NECESSARY SEDIMENT CONTROLS. TREES SIX INCHES IN DIAMETER AND LARGER SHALL BE CUT AND LOGS STACKED. SMALLER TREES, BRUSH, AND STUMPS SHALL BE CUT AND/OR GRUBBED AND WINDROWED IN APPROPRIATE AREAS FOR USE AS SEDIMENT BARRIERS AT WATER DRAINAGE OUTLETS, WINDROWED BELOW THE WELL SITE, USED FOR WILDLIFE HABITAT, BURNED (AS PER WV FOREST FIRE LAWS), REMOVED FROM THE SITE, OR DISPOSED OF BY OTHER METHODS APPROVED BY DEP.
6. CONSTRUCT THE ACCESS ROAD AND PROPOSED CROSS CULVERTS, GRADE CHANNELS AS ACCESS ROAD CONSTRUCTION PROGRESSES AND STABILIZE IMMEDIATELY WITH ROCK LINING AS SHOWN ON THE PLAN. INSTALL DITCH RELIEF CULVERTS AT A MINIMUM SLOPE OF 1% AND APPROXIMATELY 30 DEGREES DOWNGRADE TO THE CENTERLINE OF THE DITCH. INSTALL OUTLET PROTECTION AS SHOWN ON PLANS. STABILIZE THE ROAD WITH GEOTEXTILE FABRIC & STONE AND SIDE SLOPES AS SPECIFIED WITH PERMANENT SEEDING. STOCKPILE AND STABILIZE EXCESS MATERIAL ALONG THE ACCESS ROAD, AS NEEDED.
7. STRIP THE TOPSOIL FROM THE IMPOUNDMENT AREA. ALL STRIPPED TOPSOIL SHALL BE STOCKPILED ON AREAS SHOWN IN THE PLANS AND IMMEDIATELY STABILIZED. ADDITIONAL BMP MEASURES SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES, IF NECESSARY.
8. ALL DITCH LINES SHALL BE CLEARED PRIOR TO INSTALLATION OF LINED PROTECTION. ALL DITCHES MUST BE STABILIZED AS SHOWN ON THE PLAN. INSTALL OUTLET PROTECTION ONCE CROSS CULVERTS ARE INSTALLED, AS SHOWN ON THIS PLAN.
9. GRADE THE IMPOUNDMENT AREA AS SHOWN ON THE PLANS. IMMEDIATELY STABILIZE THE OUTER AREAS OF THE IMPOUNDMENT. STABILIZE SIDE SLOPES WITH ROLLED EROSION CONTROL LINING ON ALL SLOPES. APPLY SEED AND MULCH TO ALL DISTURBED AREAS. THIS SHALL BE INCLUDED IN ALL AREAS THAT WILL NOT BE SUBJECT TO REGULAR TRAFFIC ACTIVITY (TO BE STABILIZED WITH STONE), OR ANY DISTURBED AREA THAT WILL NOT BE RE-DISTURBED BEFORE SITE RECLAMATION BEGINS.
10. PRIOR TO THE INSTALLATION OF THE IMPOUNDMENT LINER SYSTEM, THE CONTRACTOR SHALL CONTACT THE ENGINEER/SURVEYOR TO COMPLETE AN AS-BUILT SURVEY OF THE CONSTRUCTED CENTRALIZED IMPOUNDMENT TO ENSURE CONFORMANCE WITH THE DESIGN DRAWINGS. THE AS-BUILT WILL BE REVIEWED BY THE ENGINEER AND THE CONTRACTOR IS RESPONSIBLE FOR ANY CORRECTIVE ACTION DEEMED NECESSARY BY THE ENGINEER FOR ANY DEVIATION(S) FROM THE DESIGN DRAWINGS.
11. INSTALL THE UNDERDRAIN AND LINER SYSTEM.
12. PREVIOUSLY DISTURBED AREAS AND IMMEDIATE DOWN SLOPE AREAS SHALL BE INSPECTED AFTER EACH RAINFALL STORM EVENT AND MONITORED WEEKLY FOR SIGNS OF ACCELERATED EROSION. IMPLEMENT ADDITIONAL BMPS AS DEEMED NECESSARY. THESE INSPECTIONS SHALL CONTINUE DURING THE DURATION OF THE PROJECT AND SUBSEQUENT SITE RECLAMATION.
13. ONCE THE LINER SYSTEM HAS BEEN COMPLETED, SUBMIT THE AS-BUILT CERTIFICATION AND FACILITY COMPLETION AND FINAL CERTIFICATION REPORT FOR THE IMPOUNDMENT FACILITY TO THE WVDEP OFFICE OF OIL AND GAS, PRIOR TO PLACING FLUIDS IN THE STRUCTURE.
14. ONCE DISTURBED AREAS HAVE BEEN RE-VEGETATED AND STABILIZED FOLLOWING RECLAMATION, THE TEMPORARY BMPS IN THOSE AREAS MAY BE REMOVED. CONTINUE TO MONITOR THESE AREAS TO ENSURE A UNIFORM RATE OF 70% VEGETATIVE COVERAGE IS MAINTAINED. ANY AREAS FOUND TO BE DEFICIENT SHALL BE RE-SEEDDED AND MULCHED.

**SITE CLEANUP & RECYCLE PROGRAM**

1. GARBAGE, FUELS OR ANY SUBSTANCE HARMFUL TO HUMAN, AQUATIC OR FISH LIFE, WILL BE PREVENTED FROM ENTERING SPRINGS, STREAMS, PONDS, LAKES, WETLANDS OR ANY WATER COURSE OR WATER BODY.
2. OILS, FUELS, LUBRICANTS AND COOLANTS WILL BE PLACED IN SUITABLE CONTAINERS AND DISPOSED PROPERLY.
3. ALL TRASH AND GARBAGE WILL BE COLLECTED AND DISPOSED PROPERLY.
4. ALL SEDIMENT REMOVED FROM SEDIMENT CAPTURING DEVICES SHALL BE PLACED ON THE TOPSOIL STOCKPILE, THEN SEEDDED AND MULCHED, AS NECESSARY. ALTERNATIVELY, THE REMOVED SEDIMENT CAN BE TRANSPORTED TO A SITE WITH AN APPROVED PERMIT.
5. THE PLACEMENT OF ALL FILL MATERIAL SHALL BE FREE OF WOOD, STUMPS AND ROOTS, LARGE ROCKS AND BOULDERS, AND ANY OTHER NONCOMPACTABLE SOIL MATERIAL. THE EMBANKMENT SHALL BE COMPACTED TO A MINIMUM OF VISIBLE NON-MOVEMENT, HOWEVER, THE COMPACTION EFFORT SHALL NOT EXCEED THE OPTIMUM MOISTURE LIMITS.
6. THE MINIMUM CUT AND FILL SIDESLOPES SHALL BE 2H:1V, UNLESS OTHERWISE SPECIFIED.
7. ALL EXPOSED EMBANKMENT SLOPES, NOT COVERED BY COMPACTED ROCKFILL OR RIPRAP SHALL BE LIMED, FERTILIZED, SEEDDED AND MULCHED. PERMANENT VEGETATIVE GROUND COVER IN COMPLIANCE WITH THE WVDEP EROSION AND SEDIMENT CONTROL FIELD MANUAL MUST BE ESTABLISHED UPON THE COMPLETION OF THE PAD CONSTRUCTION. EMBANKMENTS SHALL BE MAINTAINED WITH A GRASSY VEGETATIVE COVER AND FREE OF BRUSH AND/OR TREES.
8. ALL EMBANKMENT CONSTRUCTION AND COMPACTION TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

**MAINTENANCE PROGRAM**

1. ALL CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE EACH WEEK AND WITHIN 24 HOURS FOLLOWING ANY STORM EVENT OF 0.5 INCHES OR GREATER.
2. A MAINTENANCE INSPECTION REPORT WILL BE COMPLETED DURING EACH INSPECTION. THE REPORT WILL BE SIGNED BY THE QUALIFIED INSPECTOR AND DELIVERED TO THE OWNER. THE OWNER SHALL SIGN THE REPORT AND THE REPORT SHALL BE RETURNED TO AND MAINTAINED WITH THE SWPPP WITH A COPY ALSO SENT TO THE ENGINEER OF RECORD. IN ADDITION TO A REVIEW OF THE CONTROL MEASURES, THE INSPECTOR IS REQUIRED TO RECORD THE FOLLOWING INFORMATION ON THIS FORM:  
A. THE DATES WHEN MAJOR GRADING ACTIVITIES OCCURRED IN A PARTICULAR AREA.  
B. THE DATES WHEN CONSTRUCTION ACTIVITIES CEASE IN AN AREA, TEMPORARILY OR PERMANENTLY.  
C. THE DATES WHEN AN AREA IS STABILIZED, TEMPORARILY OR PERMANENTLY. THESE RECORDS WILL BE USED TO ENSURE THAT AREAS WHERE NO CONSTRUCTION ACTIVITY IS OCCURRING WILL BE STABILIZED WITHIN THE REQUIRED TIME FRAME.
3. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; REPAIRS, IF NECESSARY, WILL BE INITIATED AS SOON AS PRACTICABLE BUT IN NO CASE BE COMPLETED LATER THAN 7 DAYS AFTER THE INSPECTION.
4. BUILT UP SEDIMENT WILL BE REMOVED FROM THE FILTER SOCK WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE SOCK.
5. THE FILTER SOCK WILL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, TO SEE IF THE FABRIC IS SECURELY PINNED TO THE GROUND.
6. TEMPORARY AND PERMANENT SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
7. THE SITE SUPERINTENDENT WILL SELECT TWO INDIVIDUALS WHO WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.
8. PERSONS SELECTED FOR INSPECTION AND MAINTENANCE RESPONSIBILITIES WILL RECEIVE TRAINING FROM THE SITE SUPERINTENDENT. THEY WILL BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS USED ON SITE IN GOOD WORKING ORDER.

**CENTRALIZED IMPOUNDMENT CONSTRUCTION STANDARDS NOTES**

THE DESIGN CONSTRUCTION AND REMOVAL OF EMBANKMENTS ASSOCIATED WITH CENTRALIZED IMPOUNDMENTS FOR OIL AND GAS WELLS MUST BE ACCOMPLISHED IN SUCH A MANNER AS TO PROTECT THE HEALTH AND SAFETY OF THE PEOPLE, THE NATURAL RESOURCES, AND ENVIRONMENT OF THE STATE. THE IMPOUNDMENT EMBANKMENTS SHALL BE DESIGNED, CONSTRUCTED, AND MAINTAINED TO BE STRUCTURALLY SOUND AND REASONABLY PROTECTED FROM UNAUTHORIZED ACTS OF THIRD PARTIES.

1. THE FOUNDATION FOR A CENTRALIZED IMPOUNDMENT EMBANKMENT MUST BE STRIPPED AND GRUBBED TO A MINIMUM DEPTH OF 2 FEET PRIOR TO PLACEMENT AND COMPACTION OF EARTHEN FILL MATERIAL. NO EMBANKMENT FILL SHALL BE PLACED ON FROZEN MATERIAL.
2. ANY SPRINGS ENCOUNTERED WITHIN THE FOUNDATION AREA SHALL BE DRAINED TO THE OUTSIDE/DOWNSTREAM TOE OF EMBANKMENT. CONSTRUCTED DRAIN SECTION SHALL BE AN EXCAVATED 2' X 2' TRENCH AND BACK FILLED WITH TYPE A SAND, COMPACTED BY HAND TAMPER. NO GEOTEXTILES SHALL BE USED TO LINE TRENCH. THE LAST 3' OF DRAIN AT THE DOWNSTREAM END SHALL BE CONSTRUCTED WITH AASHTO #8 MATERIAL.
3. SOILS FOR EARTHEN EMBANKMENT CONSTRUCTION SHALL BE LIMITED TO TYPES GC, GM, SC, SM, CL OR ML (ASTM-D2487 - UNIFIED SOILS CLASSIFICATION) SOILS MUST CONTAIN A MINIMUM OF 20% OF PLUS NO. 200 SIEVE AND BE "WELL GRADED" MATERIAL WITH NO COBBLES OR BOULDER SIZE MATERIAL MIXED WITH THE CLAY. A MINIMUM OF THREE SAMPLES SHALL BE CLASSIFIED.
4. THE EARTHEN EMBANKMENT SHALL BE COMPACTED BY A VIBRATING SHEEPSFOOT ROLLER. THE LIFTS MUST BE IN HORIZONTAL LAYERS WITH A MAXIMUM LOOSE LIFT THICKNESS OF 9" AND MAXIMUM PARTICLE SIZE LESS THAN 6". A 5-PASS MINIMUM OF THE COMPACTION EQUIPMENT OVER THE ENTIRE SURFACE OF EACH LIFT IS REQUIRED.
5. THE PLACEMENT OF ALL FILL MATERIAL SHALL BE FREE OF WOOD, STUMPS AND ROOTS, LARGE ROCKS AND BOULDERS, AND ANY OTHER NONCOMPACTABLE SOIL MATERIAL. THE EMBANKMENT SHALL BE COMPACTED TO A MINIMUM OF VISIBLE NON-MOVEMENT. HOWEVER, THE COMPACTION EFFORT SHALL NOT EXCEED THE OPTIMUM MOISTURE LIMITS.
6. THE EMBANKMENT TOP SHALL BE A MINIMUM OF 15 FEET WIDTH.
7. THE MINIMUM INSIDE SIDESLOPES SHALL BE 2H:1V AND OUTSIDE SIDESLOPES SHALL BE 3H:1V.
8. ALL EXPOSED EMBANKMENT SLOPES NOT COVERED BY COMPACTED ROCKFILL OR RIPRAP SHALL BE LIMED, FERTILIZED, SEEDDED AND MULCHED. PERMANENT VEGETATIVE GROUND COVER IN COMPLIANCE WITH THE WVDEP EROSION AND SEDIMENT CONTROL FIELD MANUAL MUST BE ESTABLISHED UPON THE COMPLETION OF THE IMPOUNDMENT CONSTRUCTION. EMBANKMENTS SHALL BE MAINTAINED WITH A GRASSY VEGETATIVE COVER AND FREE OF BRUSH AND/OR TREES.
9. A MINIMUM OF 2 FEET OF FREEBOARD SHALL BE MAINTAINED AT ALL TIMES DURING THE OPERATION OF THE IMPOUNDMENT.
10. ALL EMBANKMENT CONSTRUCTION AND COMPACTION TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

**CENTRALIZED IMPOUNDMENT LINER SYSTEM NOTES:**

1. THE DESIGNED CENTRALIZED IMPOUNDMENT FACILITY SHALL BE FULLY LINED WITH A GEOSYNTHETIC LINER SYSTEM. LINERS SHALL BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS.
1. THE SUB-BASE SHALL BEAR THE WEIGHT OF THE LINER SYSTEM, WATER AND EQUIPMENT OPERATING ON THE IMPOUNDMENT WITHOUT CAUSING OR ALLOWING A FAILURE OF THE LINER SYSTEM.
2. THE SUB-BASE SHALL BE COMPACTED TO ACCOMMODATE POTENTIAL SETTLEMENT WITHOUT DAMAGE TO THE LINER SYSTEM.
3. THE UPPER 6" OF THE SUB-BASE SHALL BE COMPACTED TO A STANDARD PROCTOR DENSITY OF AT LEAST 95%.
4. THE SUB-BASE SHALL BE HARD, UNIFORM, SMOOTH AND FREE OF DEBRIS, ROCK FRAGMENTS, PLANT MATERIAL AND OTHER FOREIGN MATERIAL. THE SUB-BASE SHALL BE FREE OF COARSE ROCK FRAGMENTS GREATER THAN 0.75 INCHES DIAMETER.
5. THE SUB-BASE SHALL BE COVERED WITH A GEOCOMPOSITE DRAINAGE AND GAS VENT LAYER TO CUSHION THE PRIMARY LINER AND ALLOW FOR ADEQUATE VENTING BETWEEN THE PRIMARY LINER AND THE SUB-BASE TO PREVENT THE ENTRAPMENT OF GASES AND WATER BENEATH THE LINER SYSTEM.
6. THE IMPOUNDMENT AREA SHALL BE DRAINED AND COMPLETELY DRY PRIOR TO THE PLACEMENT OF THE PRIMARY LINER. THE PRIMARY LINER SHALL MEET ALL WV DEP GUIDELINES AND SHALL PREVENT THE MIGRATION OF WATER THROUGH THE LINER TO THE GREATEST DEGREE THAT IS TECHNOLOGICALLY POSSIBLE.
7. THE PRIMARY LINER SHALL FULLY COVER THE BOTTOM AND SIDEWALLS OF THE IMPOUNDMENT.
8. THE PRIMARY LINER SHALL BE COMPOSED OF A SYNTHETIC MATERIAL AND HAVE A MINIMUM THICKNESS OF 60 MIL.
9. AN ANCHOR TRENCH SHALL BE EXCAVATED COMPLETELY AROUND THE PERIMETER OF THE IMPOUNDMENT AREA AT THE PLANNED ELEVATION OF THE TOP OF THE LINER SYSTEM. THE TRENCH SHALL BE A MINIMUM OF 36 INCHES DEEP AND 24 INCHES WIDE.
10. ALL ELEMENTS OF THE LINER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. ALL SEAMS AND SEALS AROUND ANY PROJECTIONS SHALL BE SEALED AND TESTED IN A METHOD APPROVED BY THE MANUFACTURER.
11. GAS RELIEF VENTS SHALL BE PROVIDED ALONG THE TOP OF THE LINER TO ALLOW GASES TO ESCAPE FROM UNDER THE GEOMEMBRANE. MAXIMUM SPACING FOR VENTS SHALL BE 50 FEET.
12. WATER LEVEL MARKINGS SHALL BE CLEARLY PAINTED (1' INCREMENTS) ON THE LINER SYSTEM TO IDENTIFY THE WATER SURFACE ELEVATION.

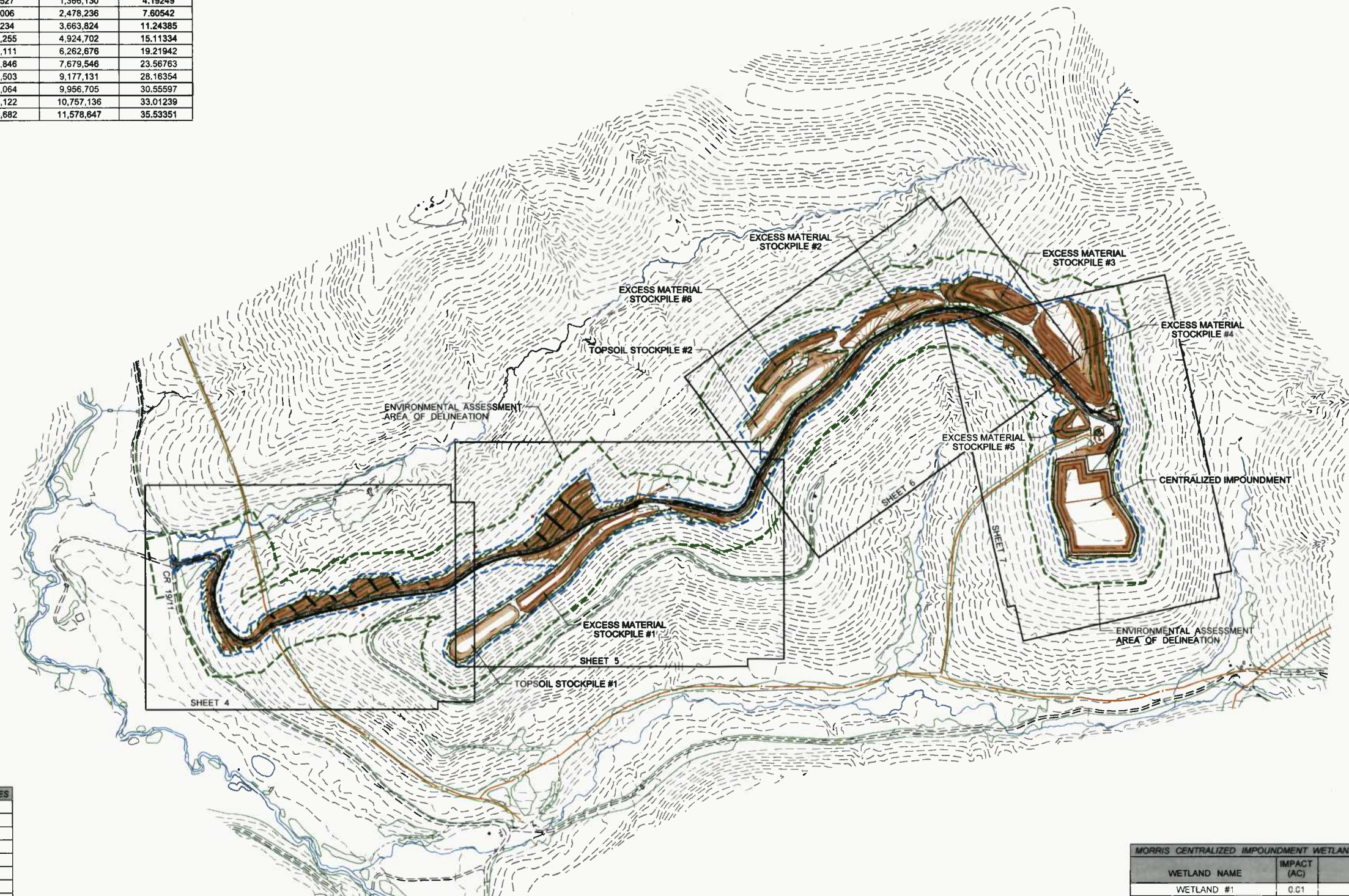


THIS DOCUMENT WAS PREPARED BY: STANTEC FOR: CNX GAS COMPANY, LLC.

GENERAL NOTES MORRIS CENTRALIZED IMPOUNDMENT SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014 SCALE: AS SHOWN DESIGNED BY: JMR/RJH FILE NO.: SLS-8057 SHEET 2 OF 32 REV:

CENTRALIZED IMPOUNDMENT STORAGE VOLUME SUMMARY			
ELEVATION	BARRELS	CUMULATIVE	
		GALLONS	ACRE-FT
1209.0	0	0	0.00000
1210.0	1,865	78,336	0.24040
1212.0	12,424	521,811	1.60138
1214.0	32,527	1,366,130	4.19249
1216.0	59,006	2,478,236	7.60542
1218.0	87,234	3,663,824	11.24385
1220.0	117,255	4,924,702	15.11334
1222.0	149,111	6,262,676	19.21942
1224.0	182,846	7,679,546	23.56763
1226.0	218,503	9,177,131	28.16354
1227.0 (STORAGE)	237,064	9,956,705	30.55597
1228.0	256,122	10,757,136	33.01239
1229.0	275,682	11,578,647	35.53351



LIMIT OF DISTURBANCE  
 I.L. MORRIS: 32.1 ACRES  
 TOTAL AREA: 32.1 ACRES

EXCESS MATERIAL STOCKPILES	
NAME	VOLUME (CY)
#1	10,722
#2	11,060
#3	22,480
#4	58,320
#5	5,850
#6	7,449
<b>TOTALS</b>	<b>115,881</b>

TOPSOIL STOCKPILES	
NAME	VOLUME (CY)
#1	3,615
#2	5,157
<b>TOTALS</b>	<b>8,772</b>

MORRIS CENTRALIZED IMPOUNDMENT EARTHWORK SUMMARY						
DESCRIPTION	CUT (CY)	FILL (CY)	SPOIL (CY)	BORROW (CY)	MAX SLOPE (%)	LENGTH OF SLOPE (FT)
ACCESS ROAD	11,759	33,077	0.0	21,318	20%	320
CENTRALIZED IMPOUNDMENT	136,243	1	136,242	0.0		
STRIPPED TOPSOIL (6")	8,515	0.0	8,515	0.0		
<b>TOTALS</b>	<b>156,517</b>	<b>33,078</b>	<b>144,757</b>	<b>21,318</b>		
<b>TOTAL REQUIRED STOCKPILE VOLUME*</b>				<b>123,439</b>		
<b>TOTAL AVAILABLE STOCKPILE VOLUME*</b>				<b>124,653</b>		
<b>EXCESS MATERIAL</b>				<b>0.0*</b>		

\* INCLUDES TOPSOIL

MORRIS CENTRALIZED IMPOUNDMENT WETLAND AND STREAM IMPACT TABLE			
WETLAND NAME	IMPACT (AC)	STREAM NAME	IMPACT (LF)
WETLAND #1	0.01	STREAM #1	0
WETLAND #2	0.01	STREAM #2	0
WETLAND #3	0.01	STREAM #3	0
WETLAND #4	0.01	-	-
WETLAND #5	0	-	-

THE EARTHWORK QUANTITIES PROVIDED ARE AN ESTIMATE FOR CONSIDERATION. THE QUANTITIES SHOWN ARE CALCULATED USING A 10.0% CUT/SWELL FACTOR AND A 0% FILL SHRINK FACTOR. THE QUANTITIES SHOWN MAY BE GREATER OR LESSER THAN ACTUALLY EXCAVATED. THE ENGINEER IS NOT RESPONSIBLE FOR VARIANCES FROM THE ESTIMATED QUANTITIES AND DOES NOT CERTIFY TO THEIR ACCURACY.

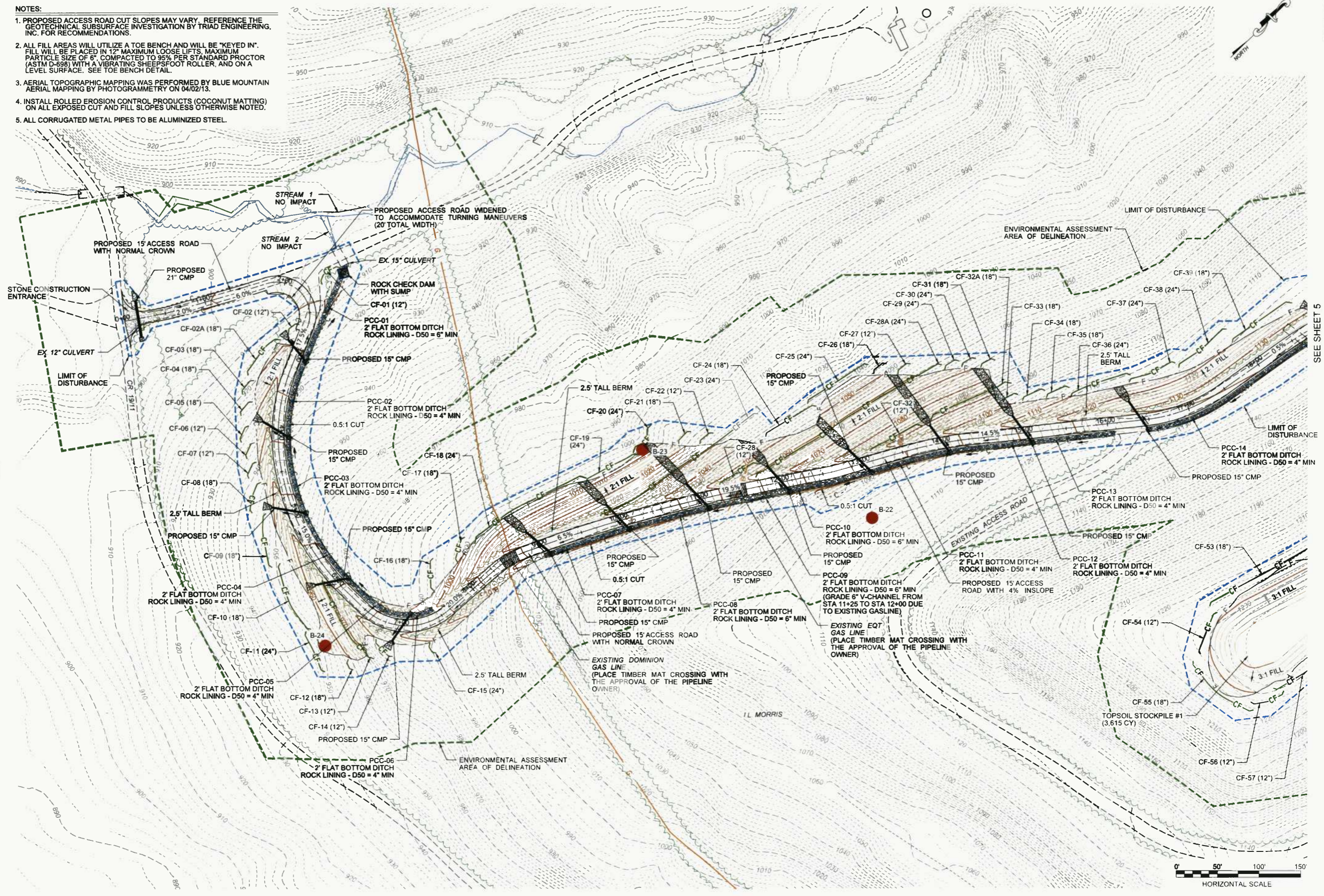


THIS DOCUMENT WAS PREPARED BY: STANTEC FOR: CNX GAS COMPANY, L.L.C.

OVERALL PLAN SHEET INDEX  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/JRH  
 FILE NO.: SLS-8057  
 SHEET 3 OF 32  
 REV:

- NOTES:**
1. PROPOSED ACCESS ROAD CUT SLOPES MAY VARY. REFERENCE THE GEOTECHNICAL SUBSURFACE INVESTIGATION BY TRIAD ENGINEERING, INC. FOR RECOMMENDATIONS.
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  3. AERIAL TOPOGRAPHIC MAPPING WAS PERFORMED BY BLUE MOUNTAIN AERIAL MAPPING BY PHOTOGRAMMETRY ON 04/02/13.
  4. INSTALL ROLLED EROSION CONTROL PRODUCTS (COCONUT MATTING) ON ALL EXPOSED CUT AND FILL SLOPES UNLESS OTHERWISE NOTED.
  5. ALL CORRUGATED METAL PIPES TO BE ALUMINIZED STEEL.



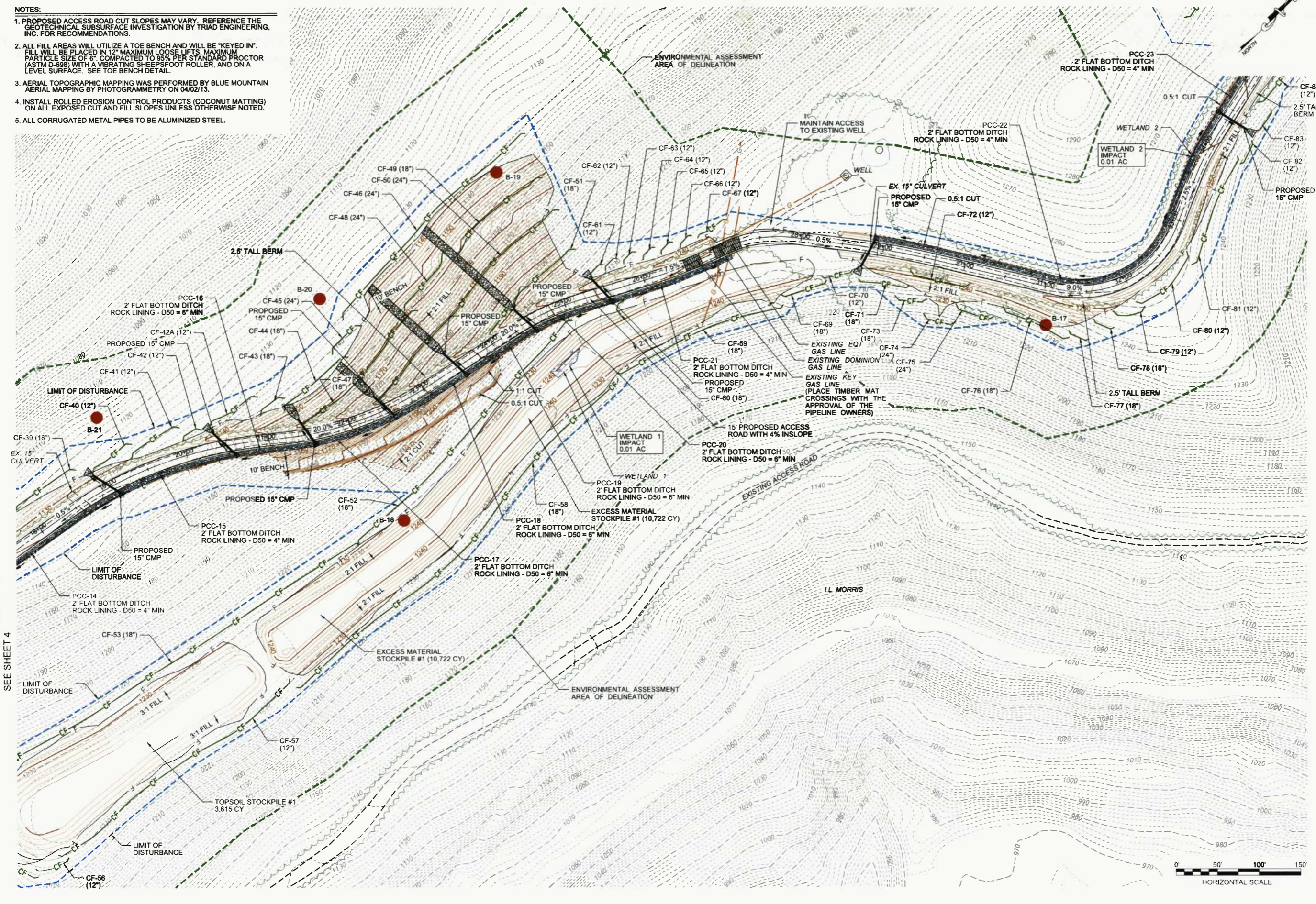
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ACCESS ROAD LAYOUT  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/JH  
 FILE NO.: SLS-8057  
 SHEET 4 OF 32  
 REV:

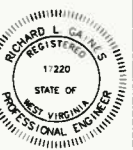
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SEE SHEET 4

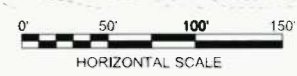
SEE SHEET 6



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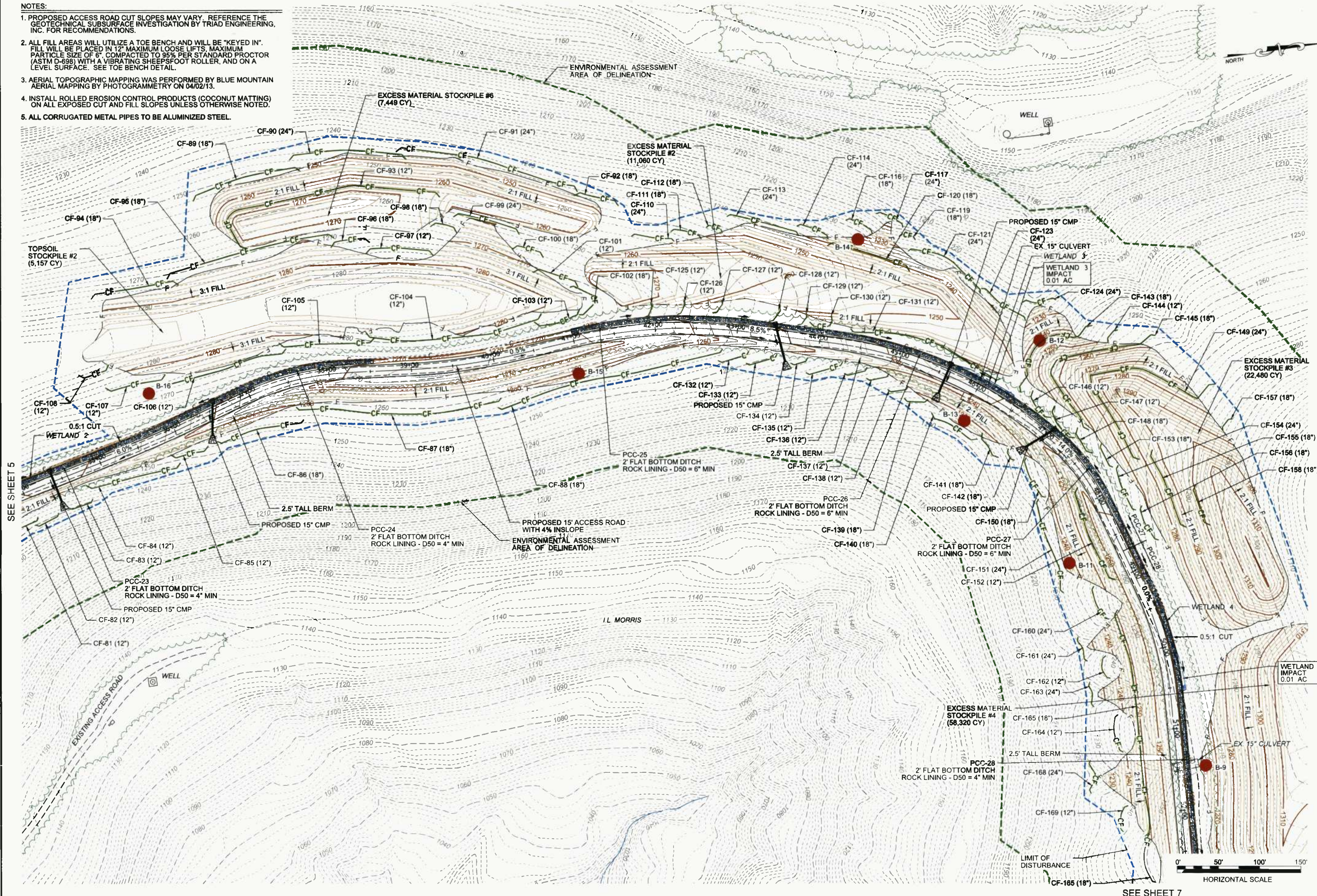
ACCESS ROAD LAYOUT  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 5 OF 32  
 REV:





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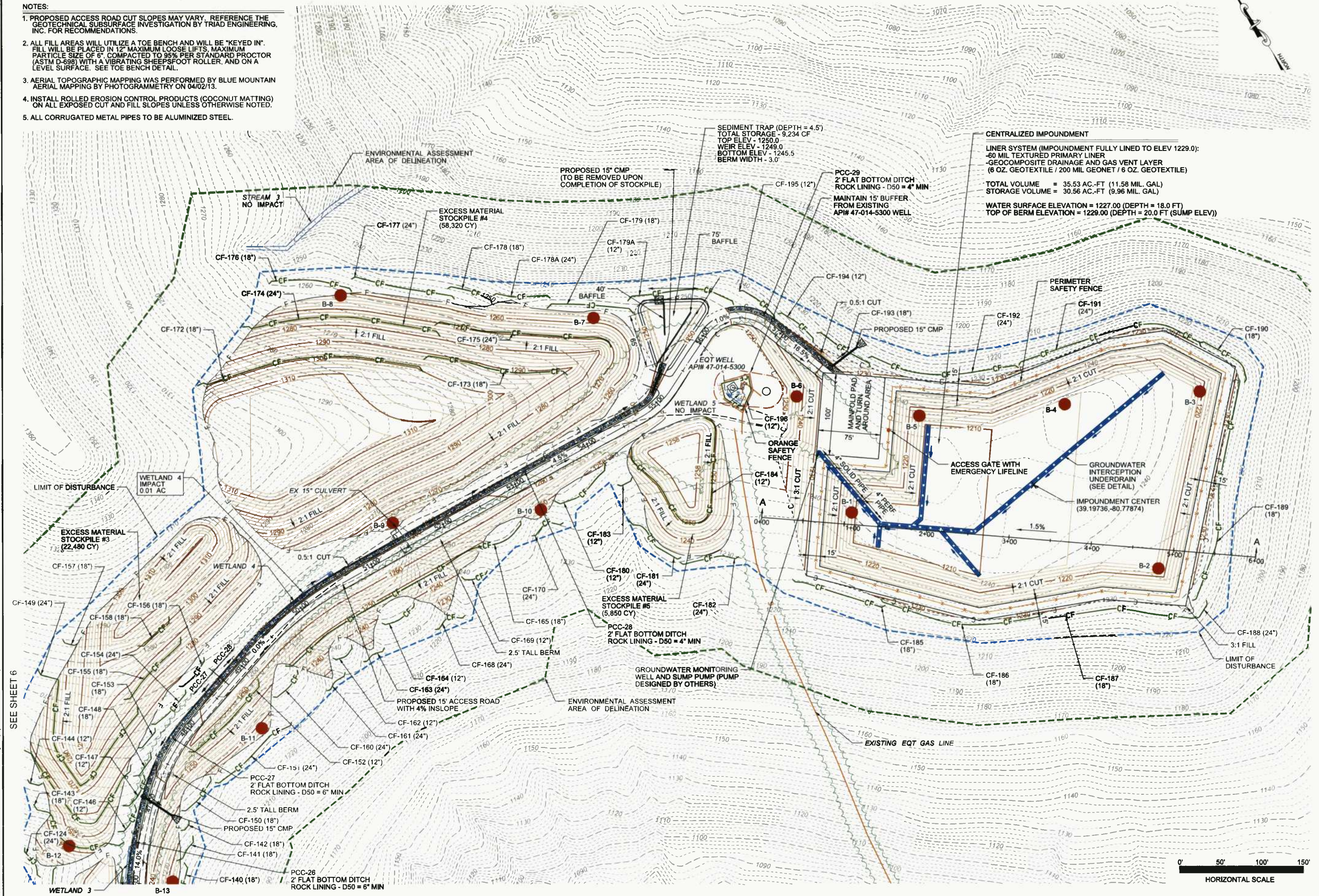


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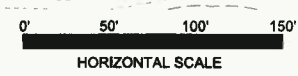
ACCESS ROAD LAYOUT  
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
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 SHEET 6 OF 32  
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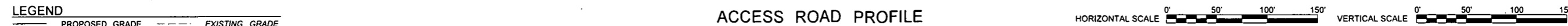
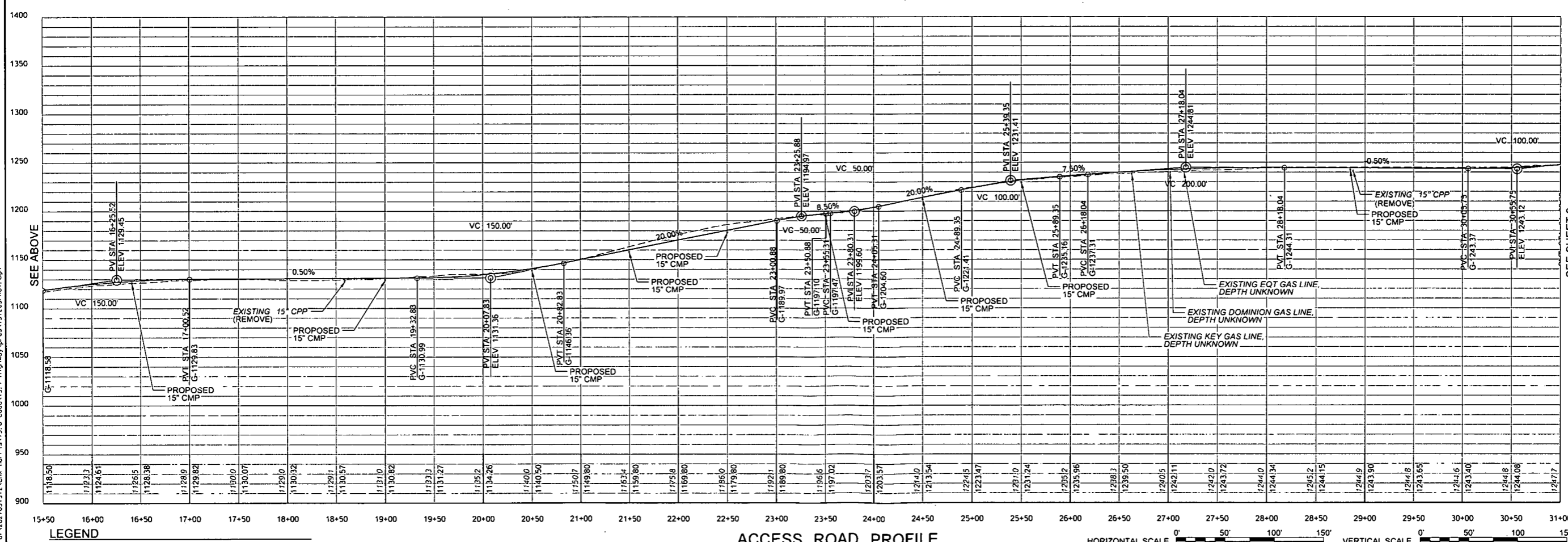
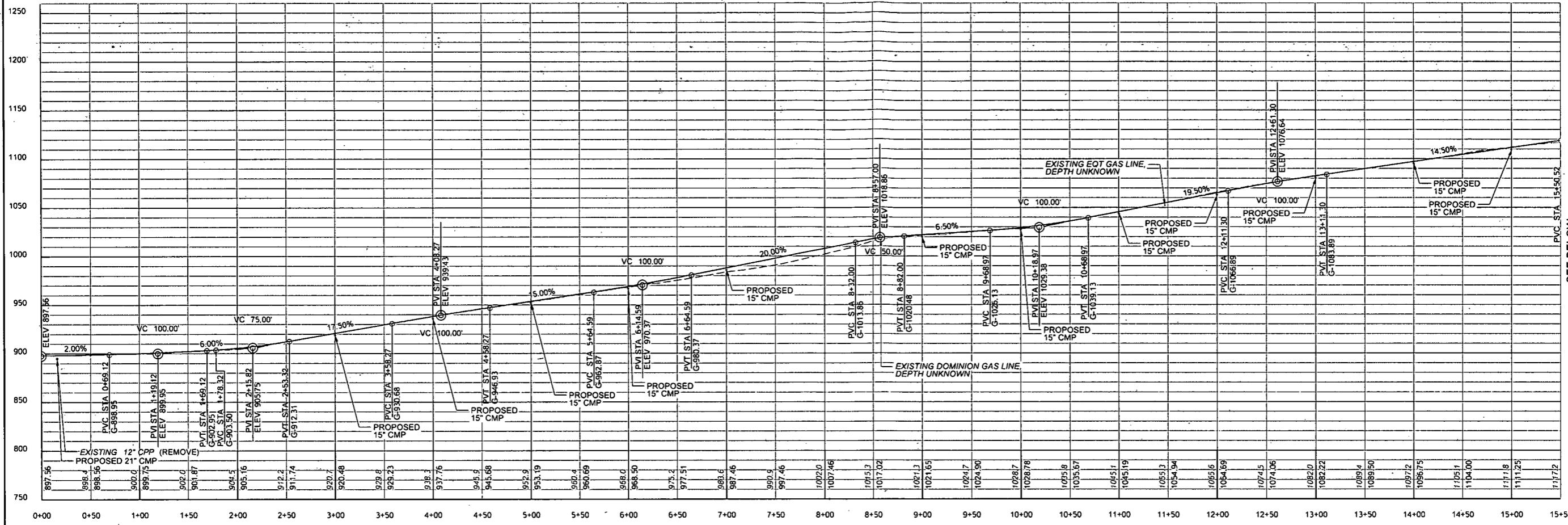
SEE SHEET 6



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ACCESS ROAD AND CENTRALIZED IMPOUNDMENT LAYOUT  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 7 OF 32  
 REV:



**Stantec**  
 111 E. BROAD STREET  
 FARMINGTON, WV 26564  
 PHONE: 304-987-9801

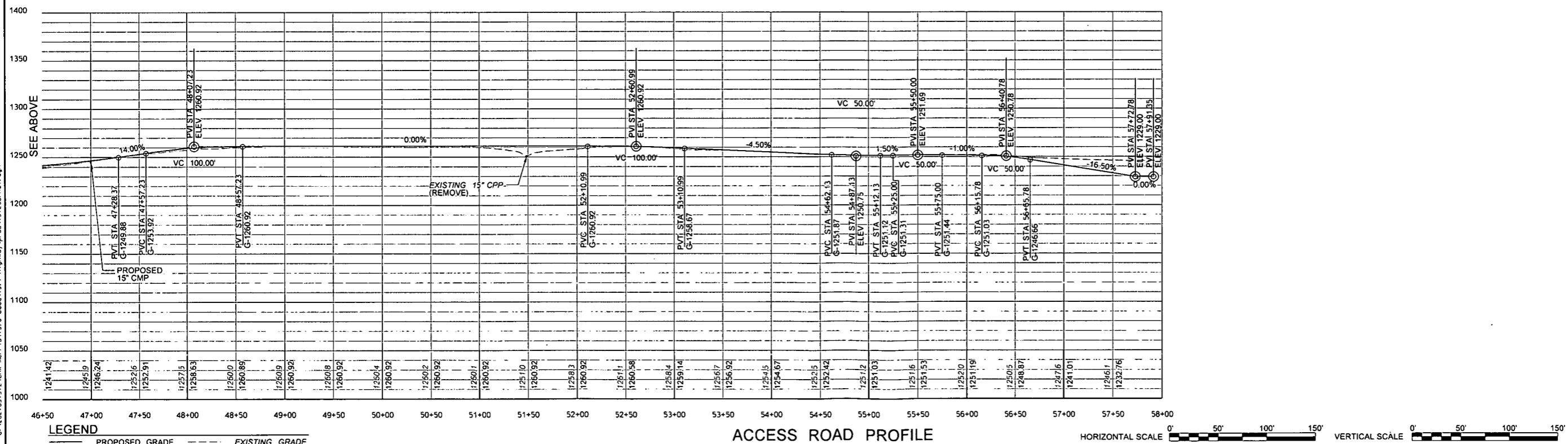
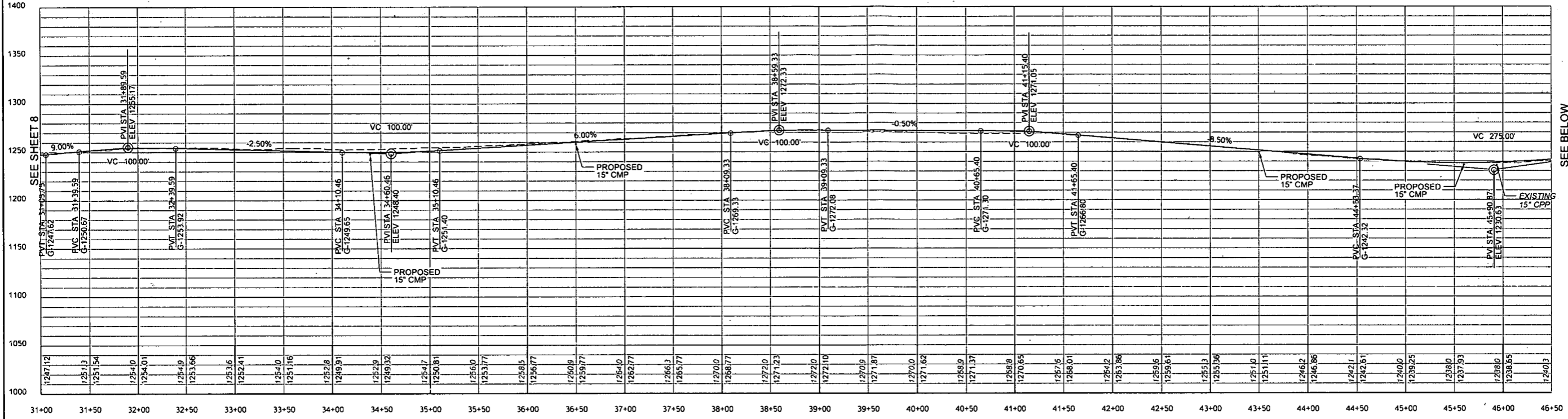
**Professional Energy Consultants**  
 A DIVISION OF SULLIVAN SURVEYING, INC.  
**S/S**  
 SURVEYORS  
 ENVIRONMENTAL  
 PROJECT MGMT.  
 www.sullivansurveyors.com  
 (304) 488-9504

RICHARD L. GALLIES  
 REGISTERED  
 17220  
 STATE OF  
 WEST VIRGINIA  
 PROFESSIONAL ENGINEER

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**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 8 OF 32  
 REV:



LEGEND  
 ——— PROPOSED GRADE  
 - - - - - EXISTING GRADE

HORIZONTAL SCALE 0' 50' 100' 150'  
 VERTICAL SCALE 0' 50' 100' 150'

SEE BELOW



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 (801) 482-9000



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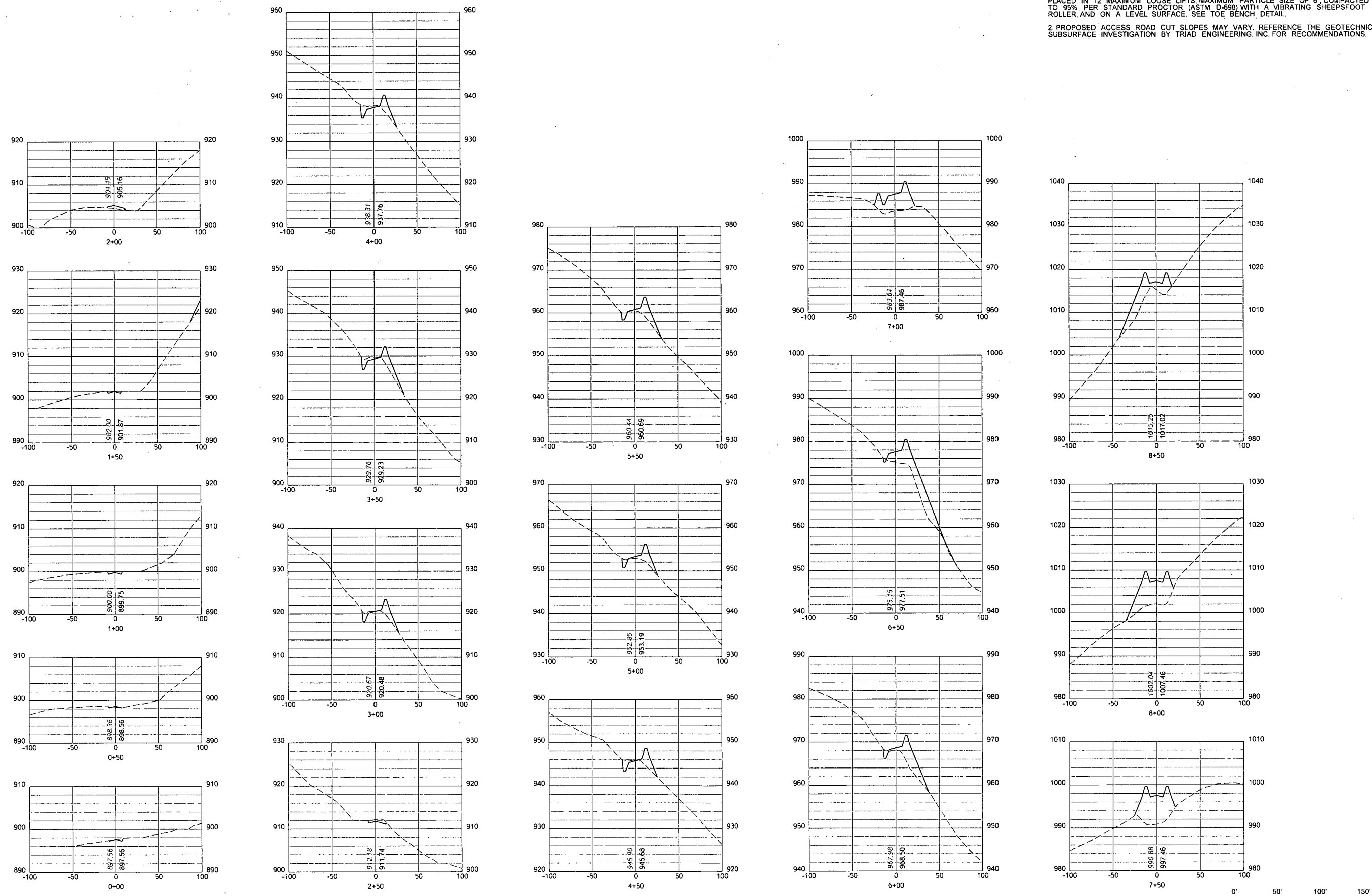
ACCESS ROAD PROFILE  
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 9 OF 32  
 REV:

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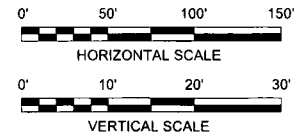
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NOTES:  
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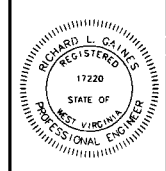


**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

ACCESS ROAD CROSS SECTIONS



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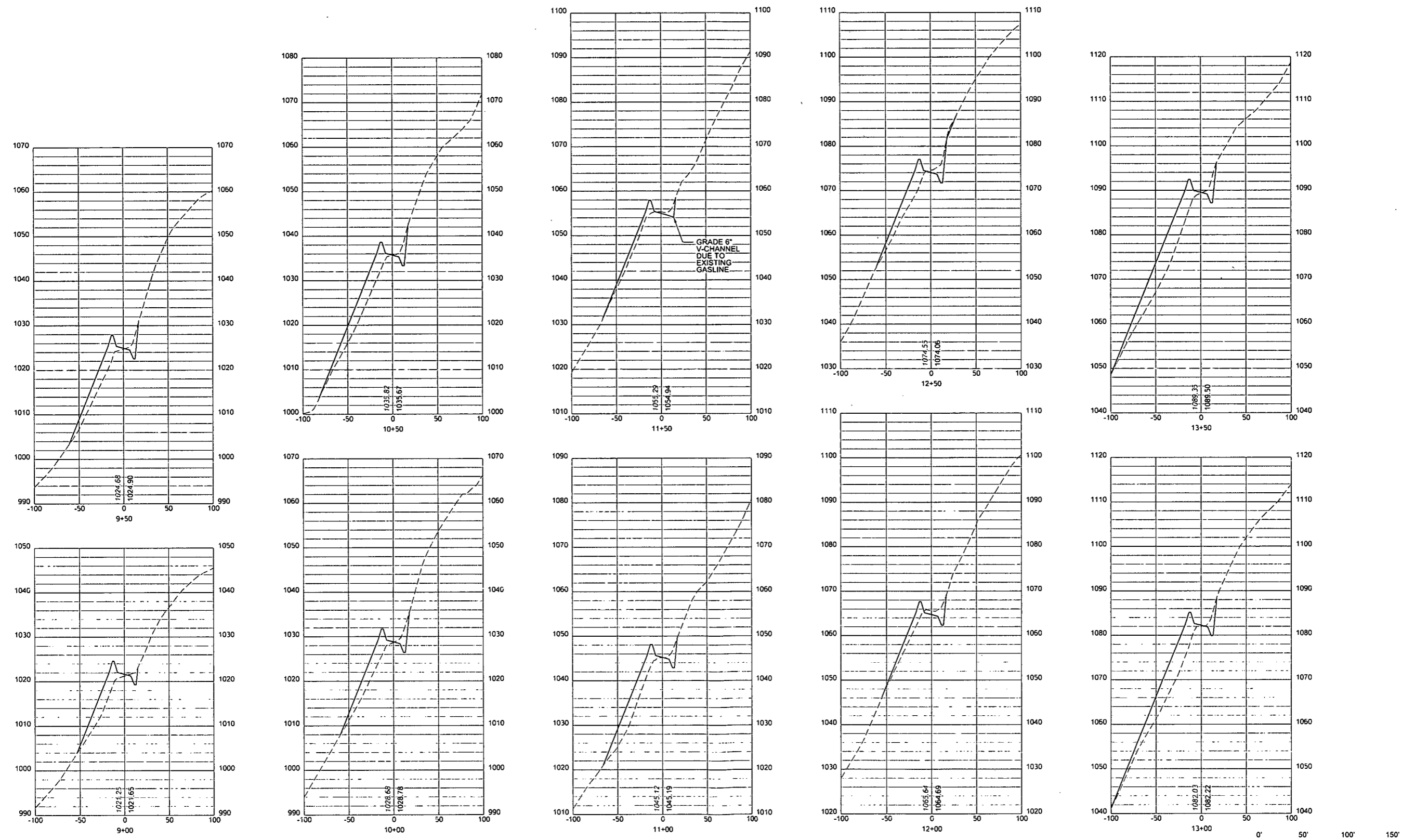
ACCESS ROAD CROSS SECTIONS  
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
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 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 10 OF 32  
 REV:

Emproy, Leocady  
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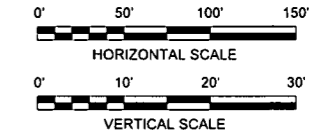
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7/1/2014  
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**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

ACCESS ROAD CROSS SECTIONS






**Stantec**  
 111 ELKINS STREET  
 FARMINGTON, WV 26564  
 PHONE: 304-901-9601

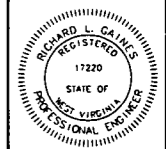
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 (304) 985-5654

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 FOR:  
 CNX GAS COMPANY, LLC.

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ACCESS ROAD CROSS SECTIONS  
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

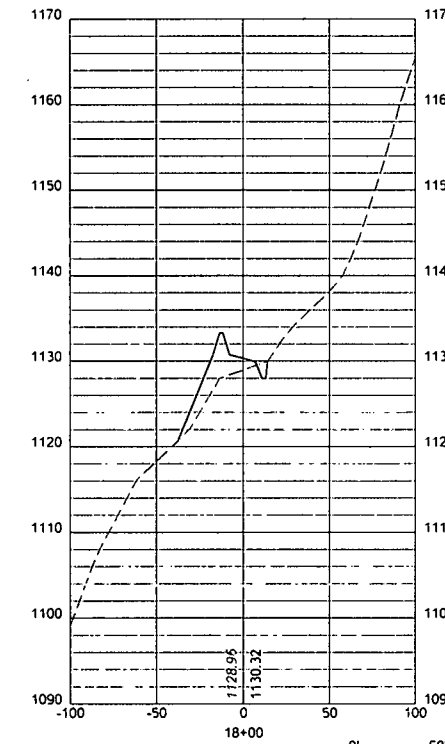
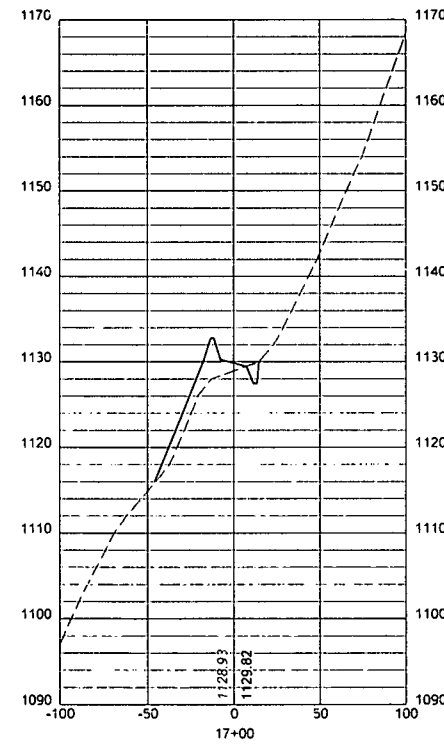
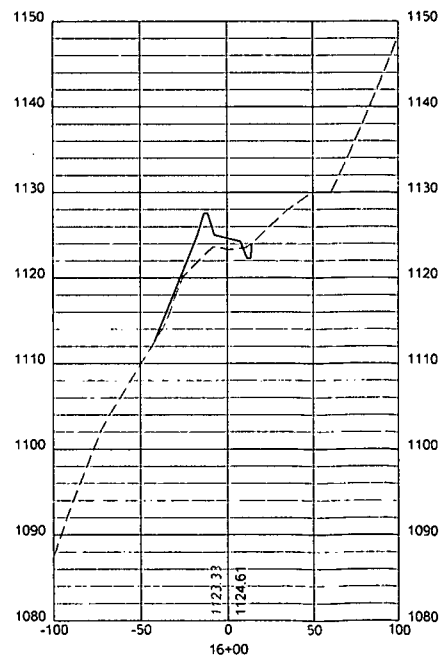
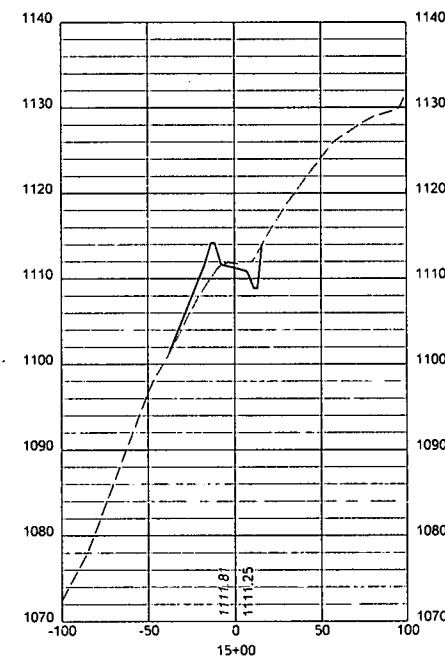
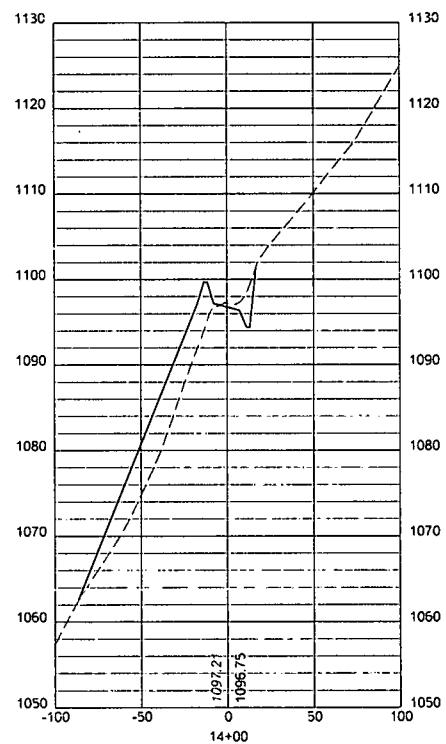
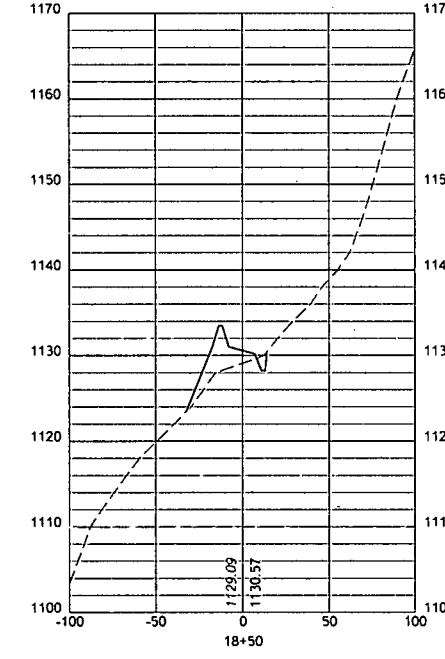
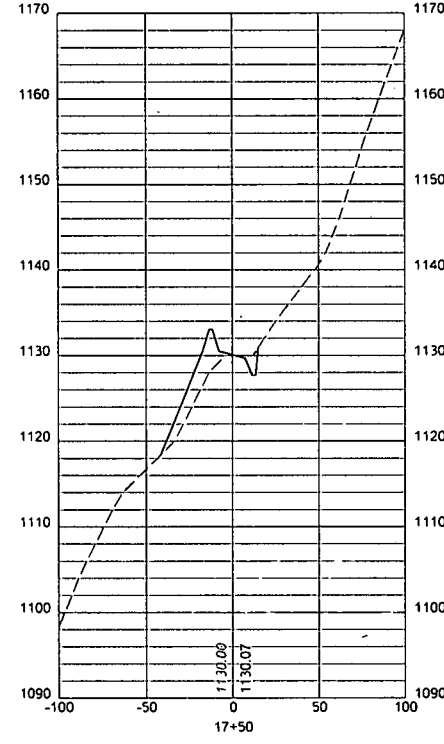
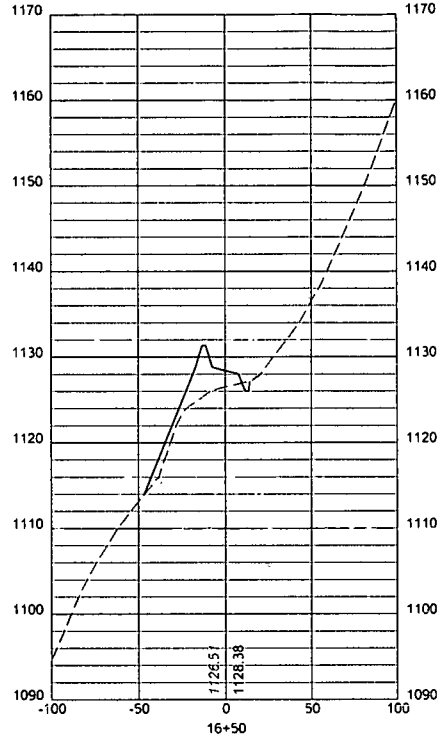
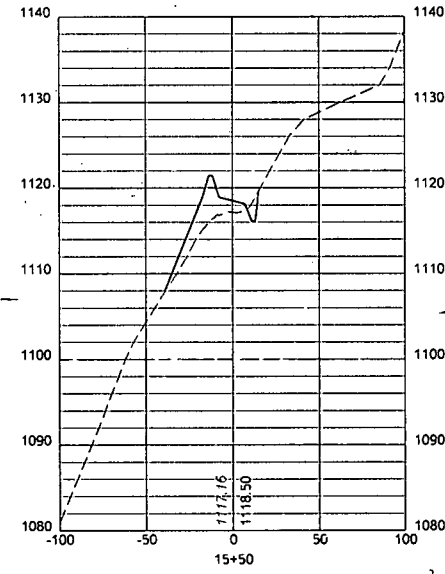
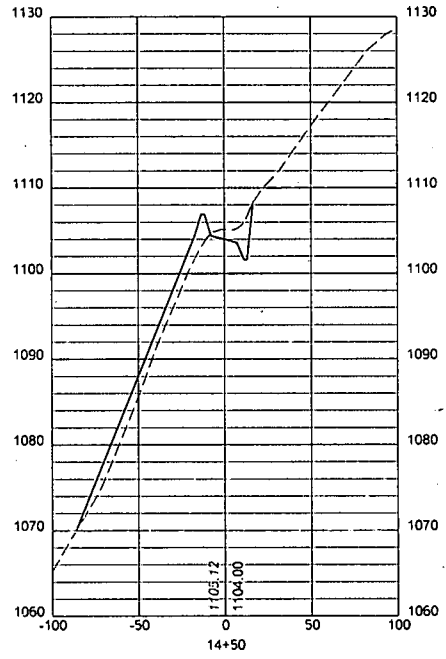
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DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 11 OF 32  
 REV:

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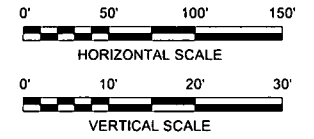
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2. PROPOSED ACCESS ROAD CUT SLOPES MAY VARY. REFERENCE THE GEOTECHNICAL SUBSURFACE INVESTIGATION BY TRIAD ENGINEERING, INC. FOR RECOMMENDATIONS.



**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

**ACCESS ROAD CROSS SECTIONS**



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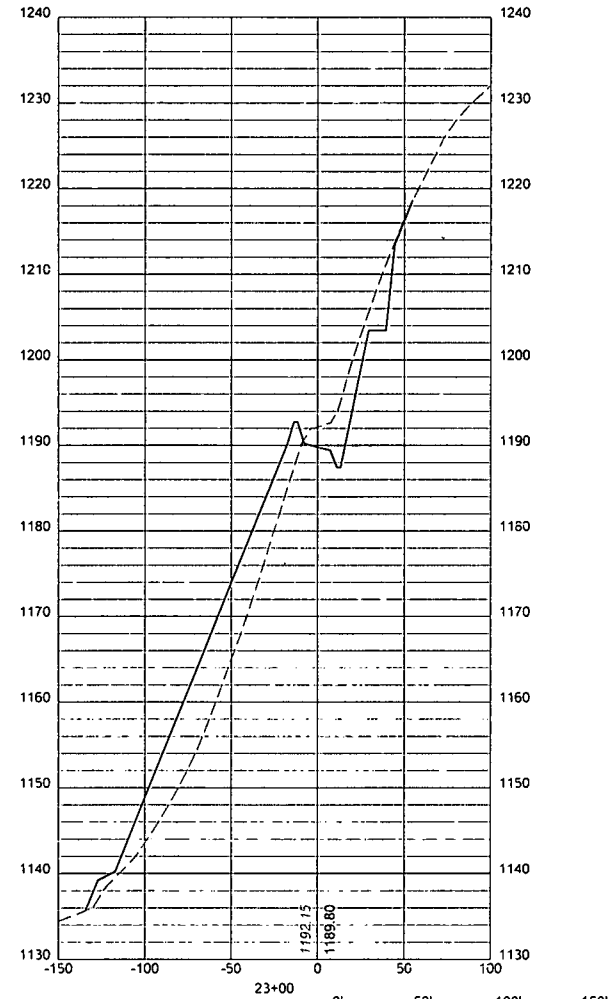
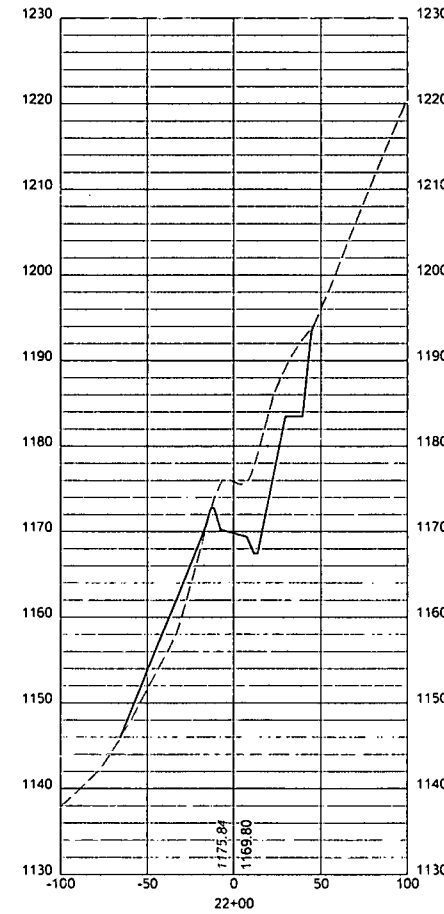
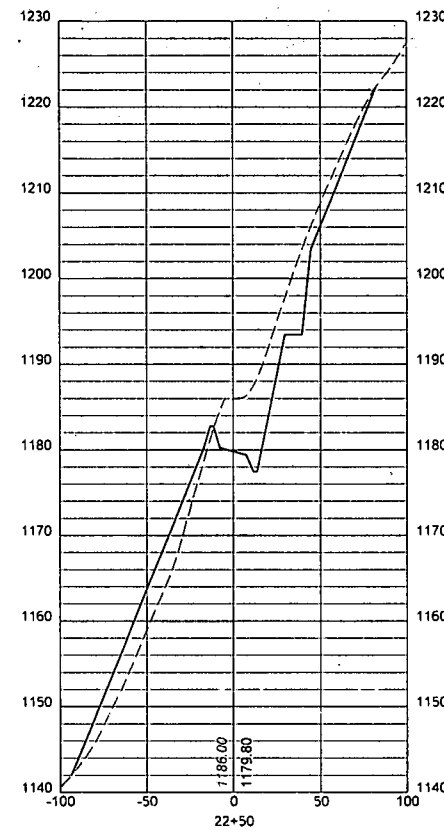
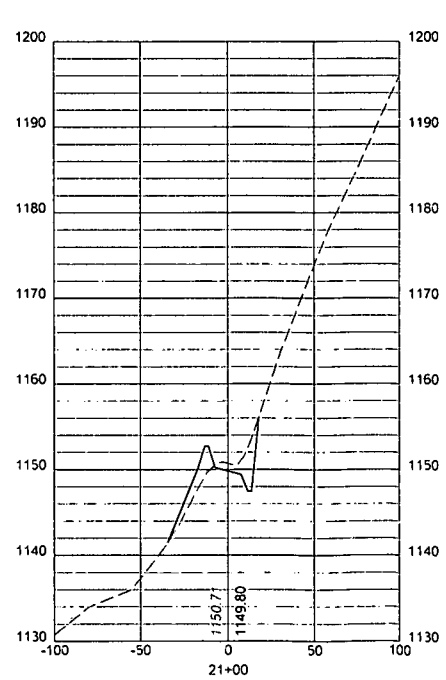
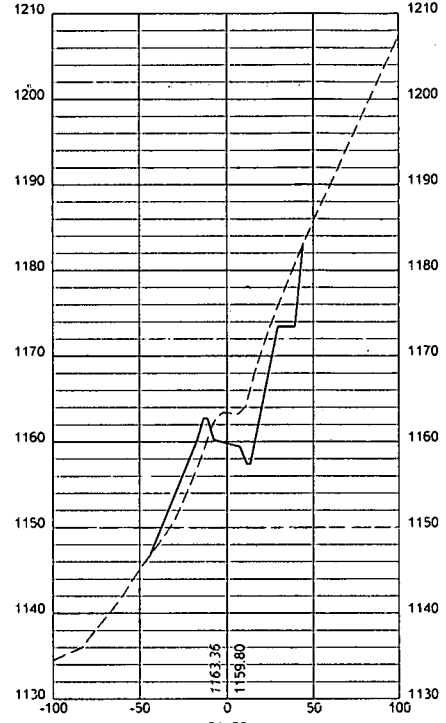
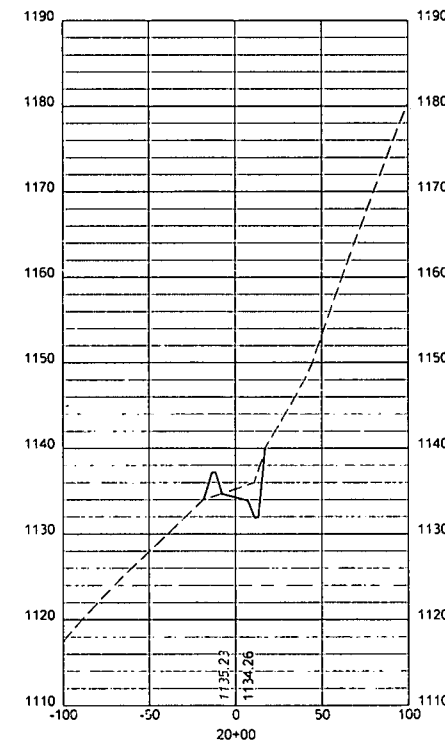
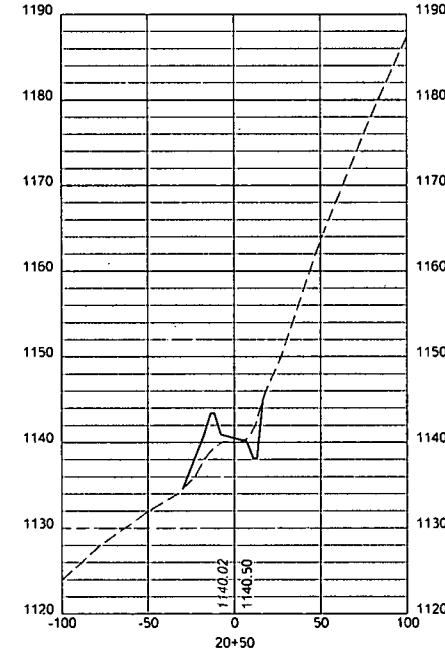
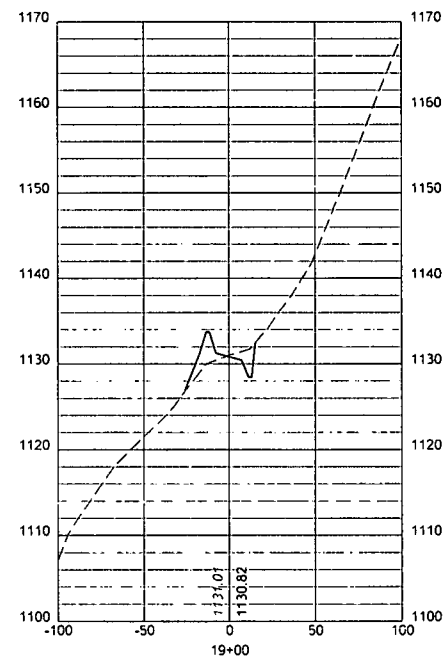
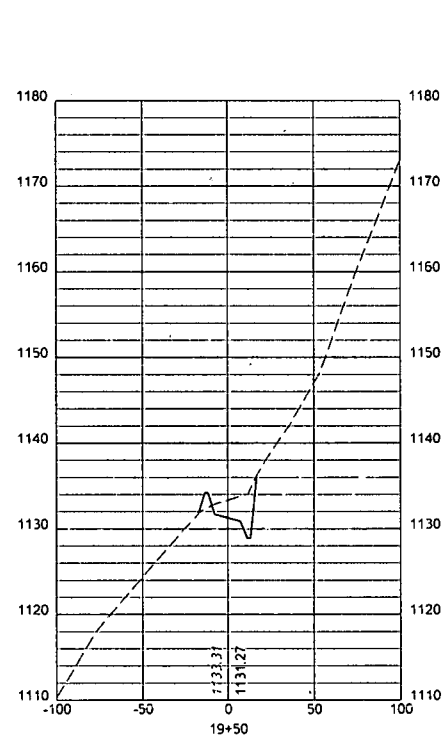


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ACCESS ROAD CROSS SECTIONS  
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 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

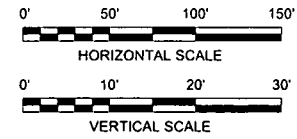
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 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 12 OF 32  
 REV:

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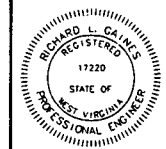
**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

**ACCESS ROAD CROSS SECTIONS**



DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 13 OF 32  
 REV:

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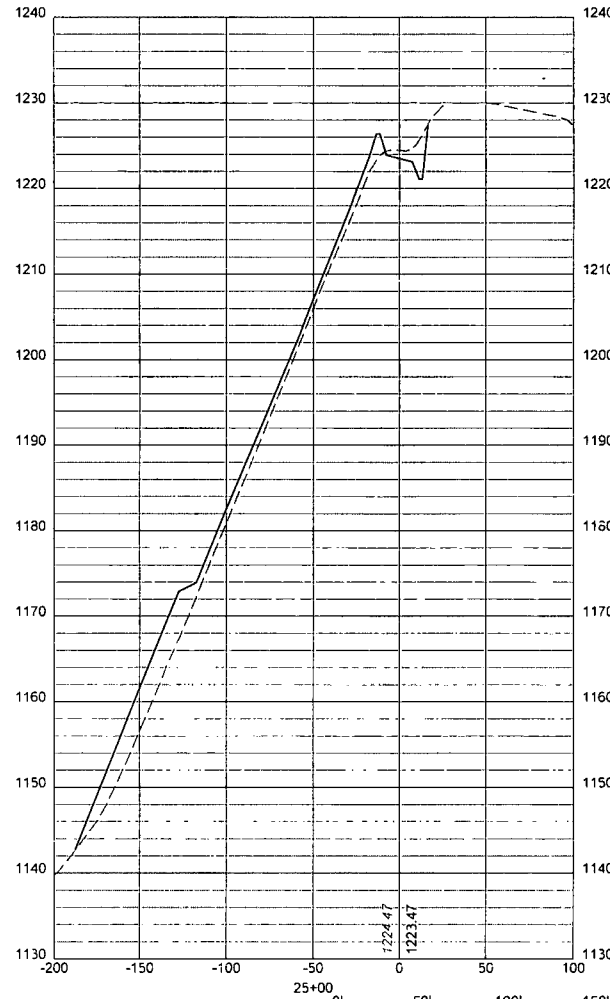
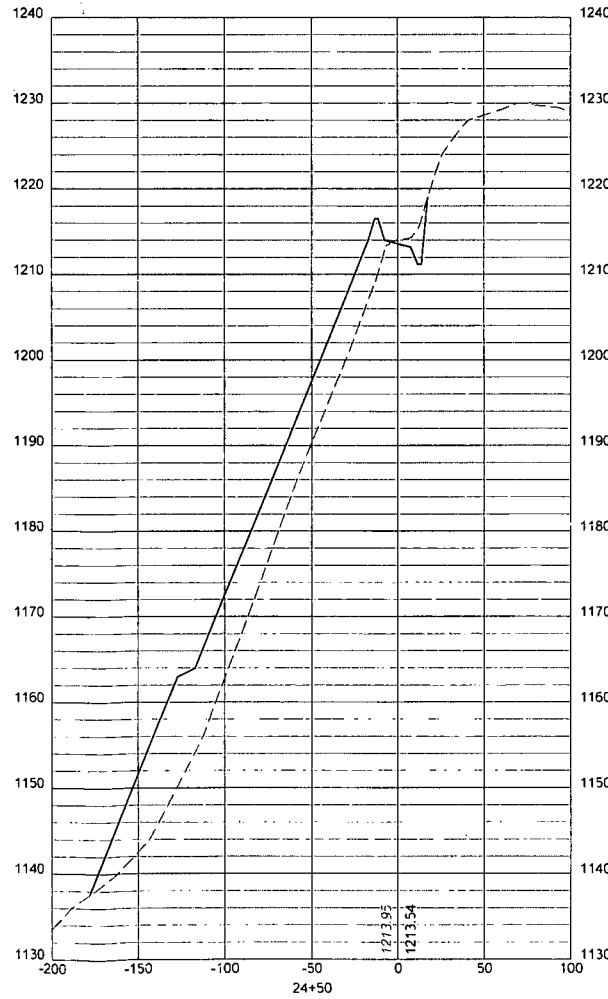
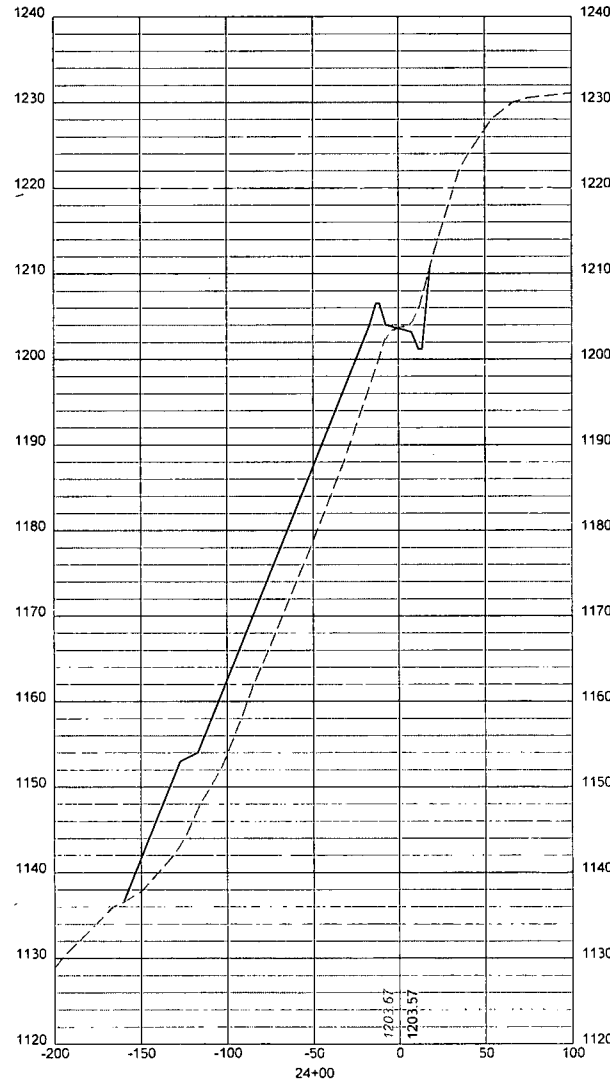
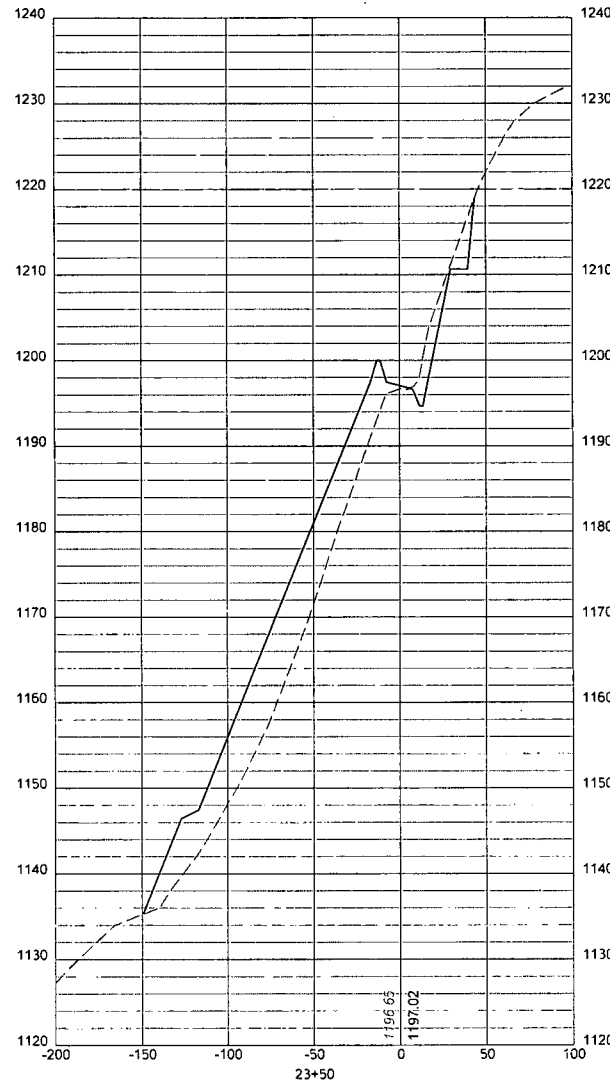
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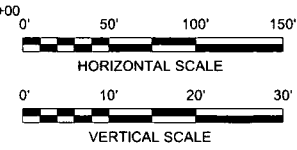
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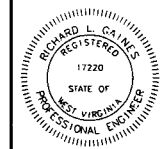
**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

**ACCESS ROAD CROSS SECTIONS**



DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 14 OF 32  
 REV:

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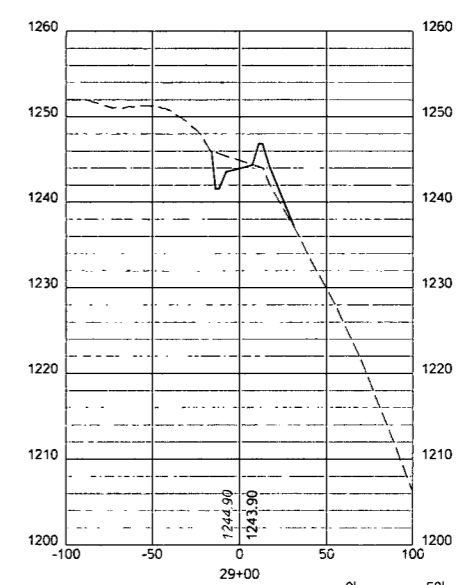
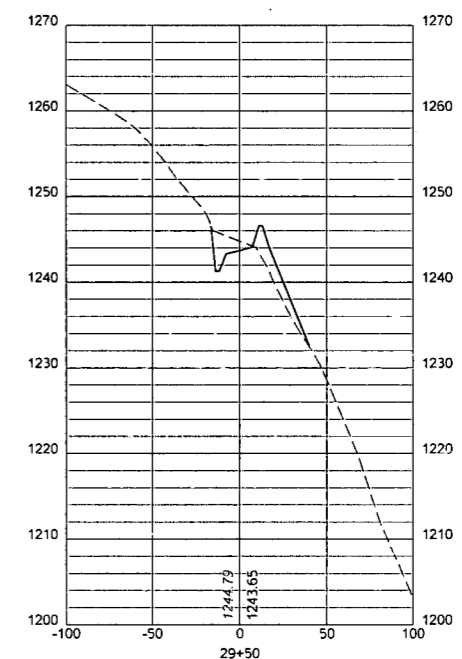
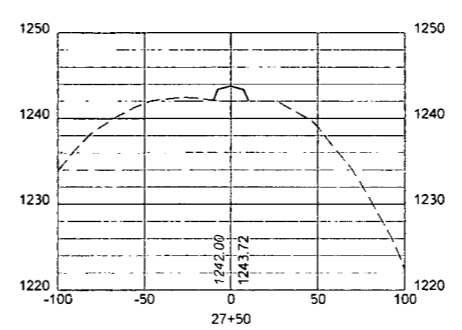
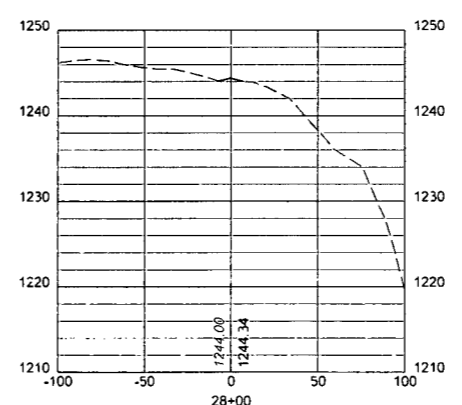
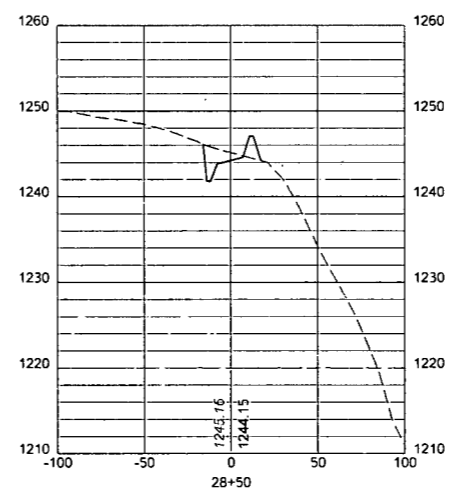
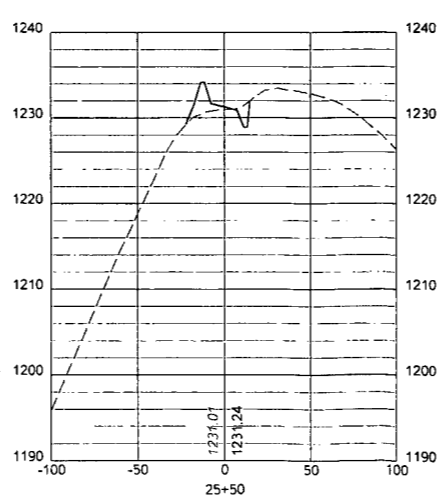
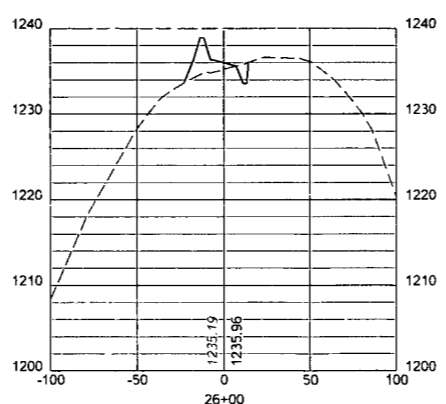
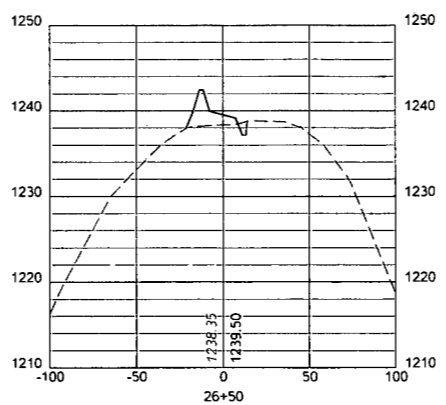
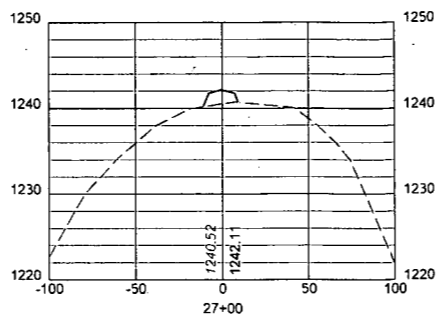


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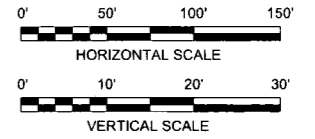
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**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

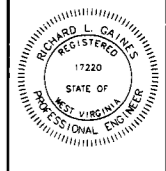
**ACCESS ROAD CROSS SECTIONS**



DATE: 07/01/2014
SCALE: AS SHOWN
DESIGNED BY: JMR/JRH
FILE NO.: SLS-8057
SHEET 15 OF 32
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ACCESS ROAD CROSS SECTIONS  
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 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

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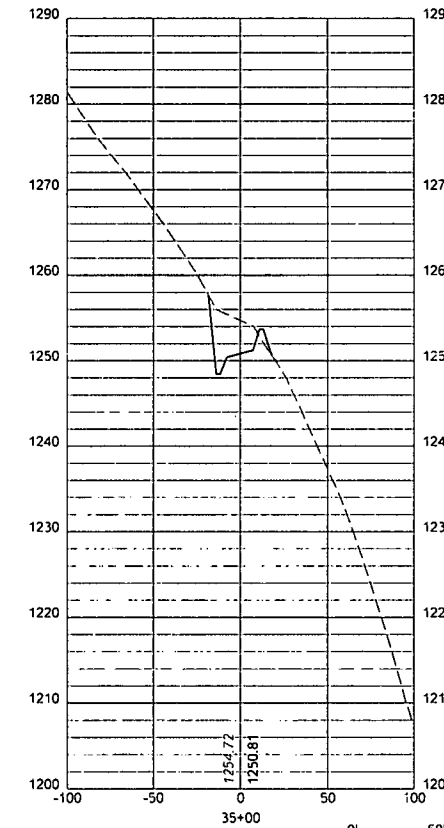
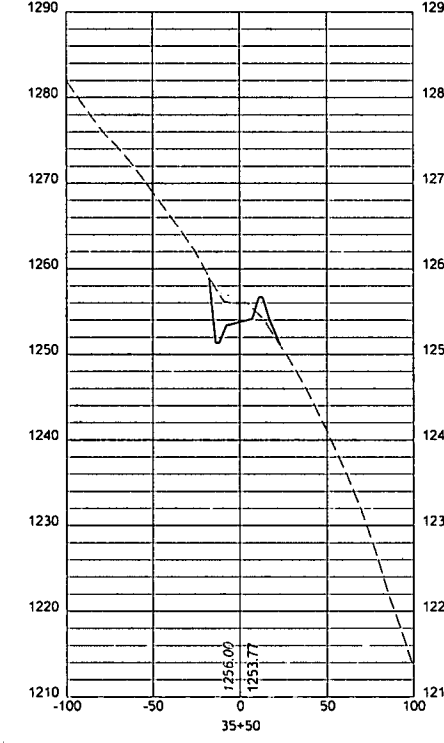
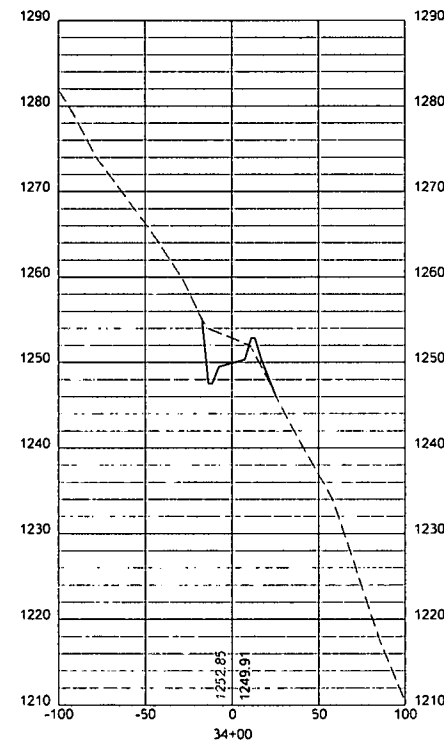
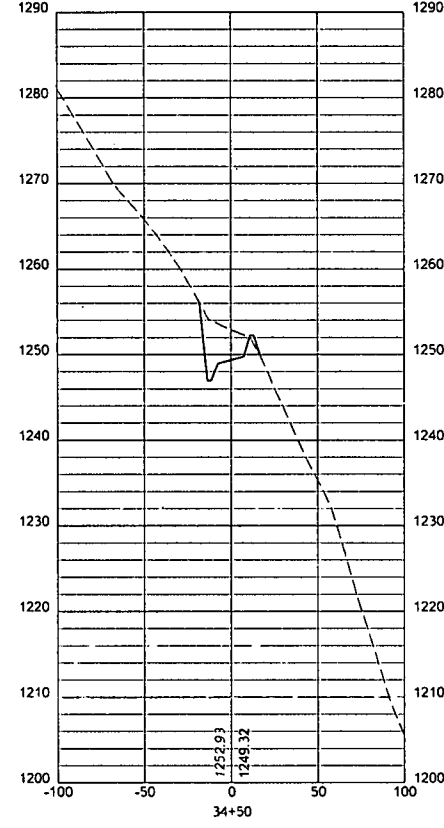
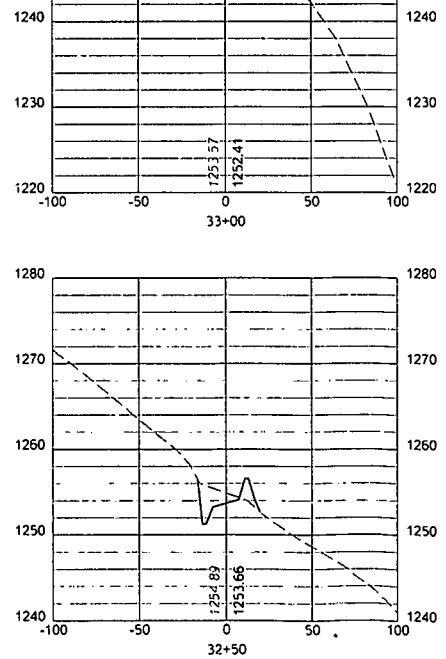
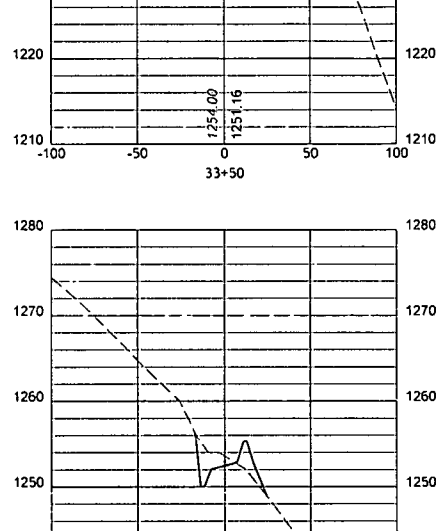
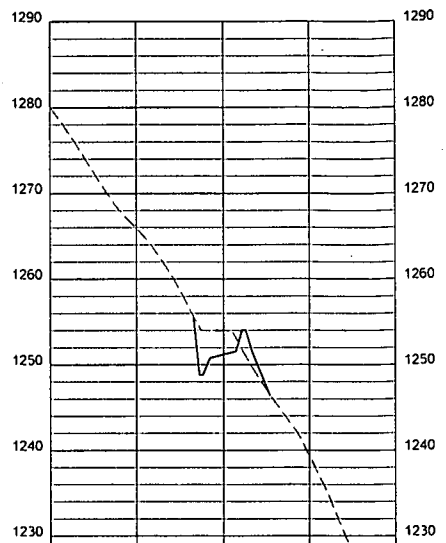
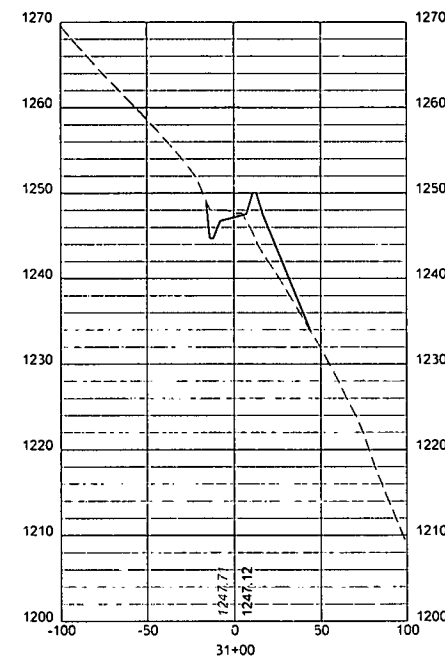
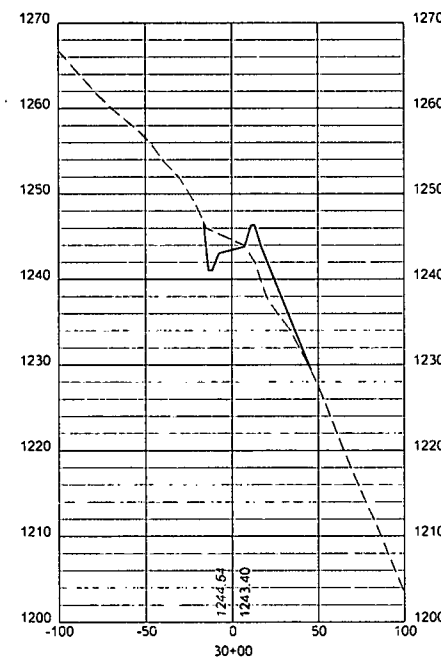
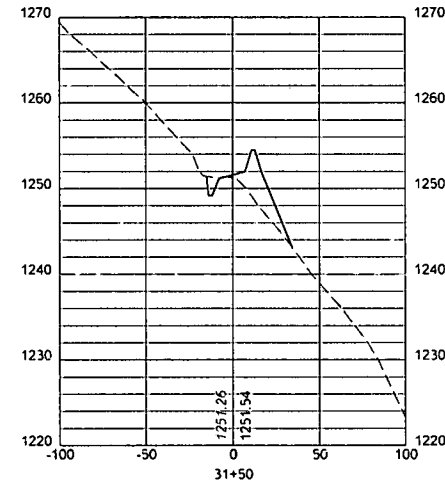
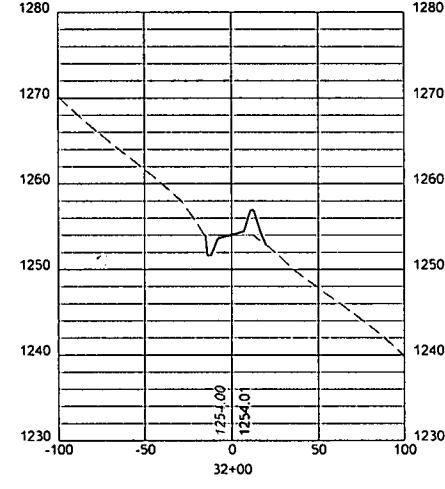
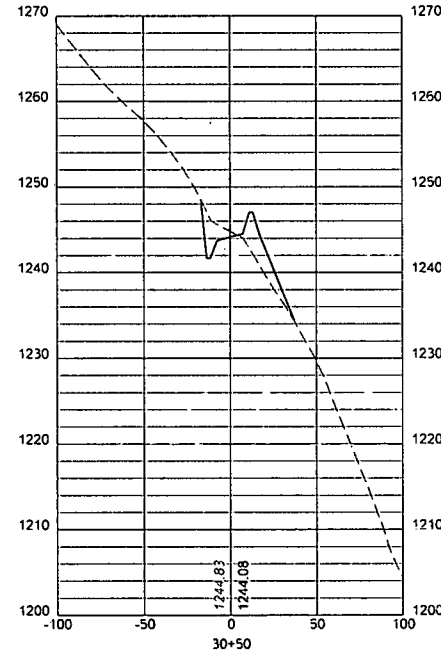
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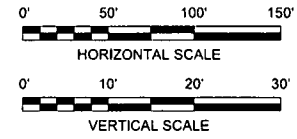
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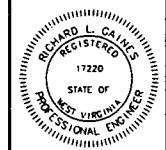


**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

**ACCESS ROAD CROSS SECTIONS**



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**MORRIS CENTRALIZED  
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 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

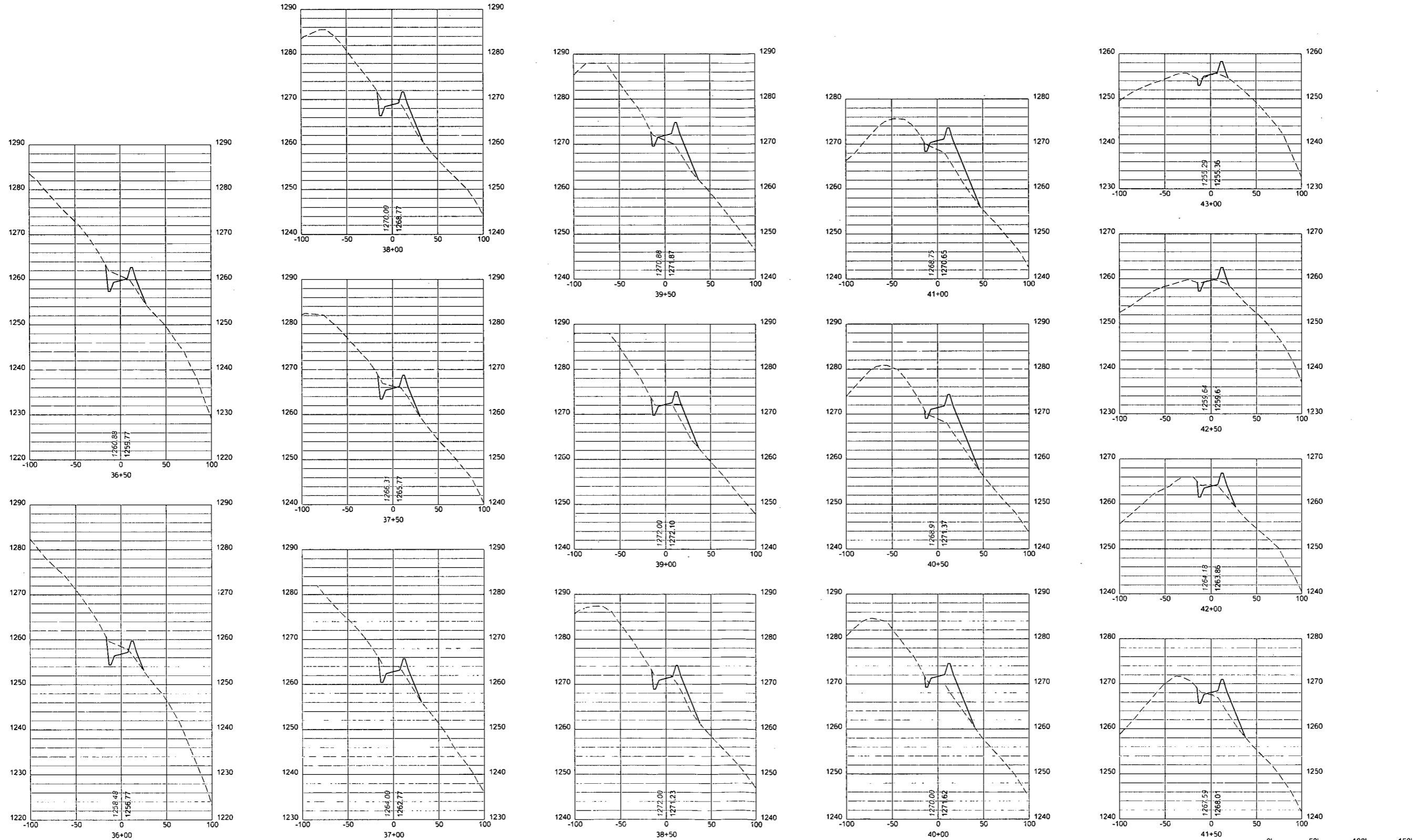
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 SHEET 16 OF 32  
 REV:



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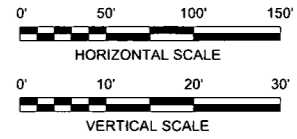
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ACCESS ROAD CROSS SECTIONS

**LEGEND**  
 — PROPOSED GRADE  
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 REGISTERED  
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ACCESS ROAD CROSS SECTIONS  
**MORRIS CENTRALIZED  
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 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

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 SHEET 17 OF 32  
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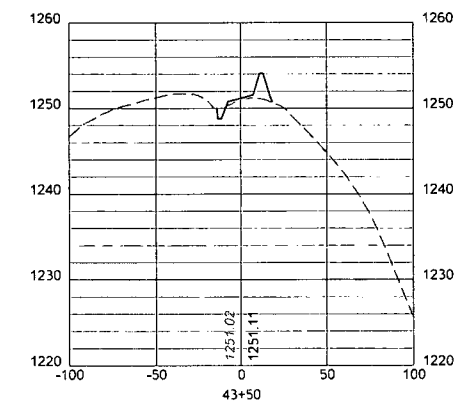
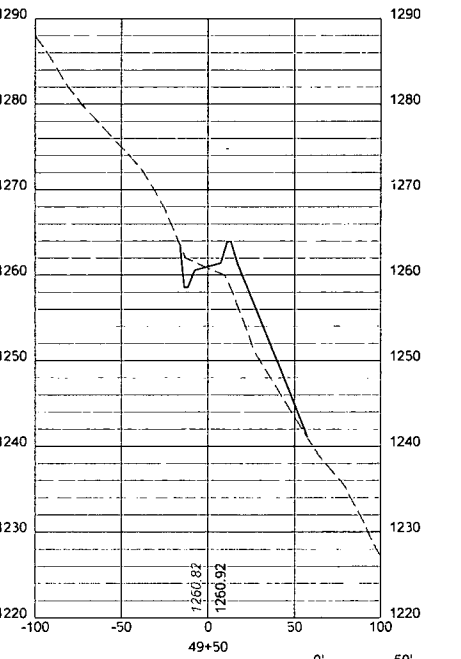
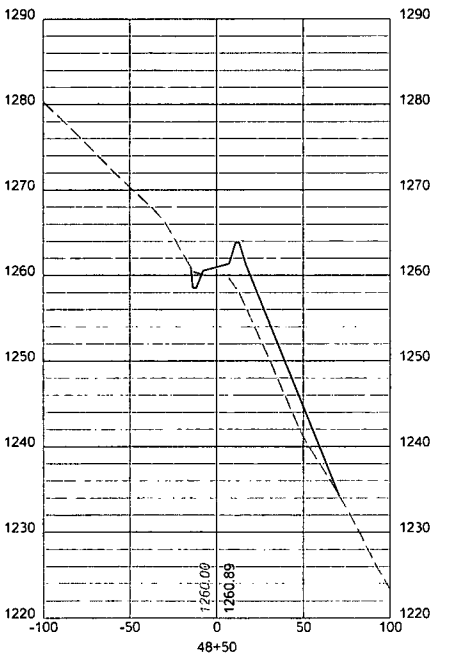
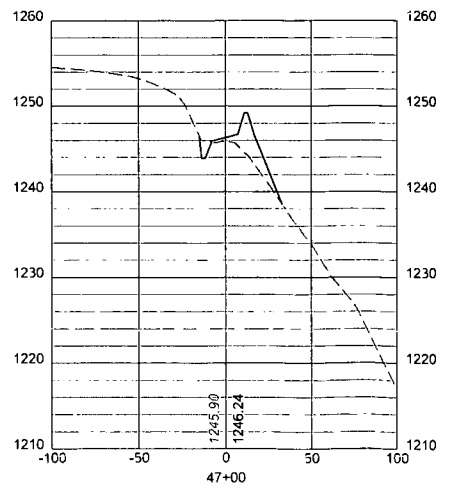
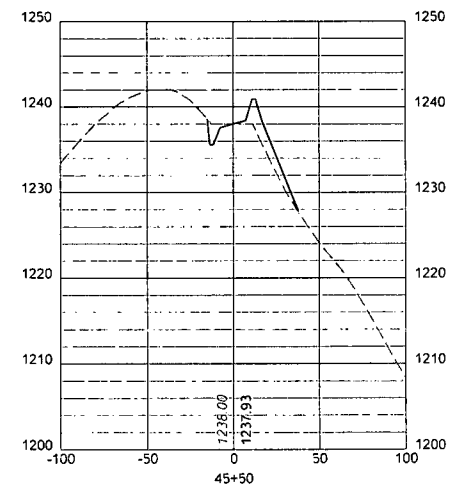
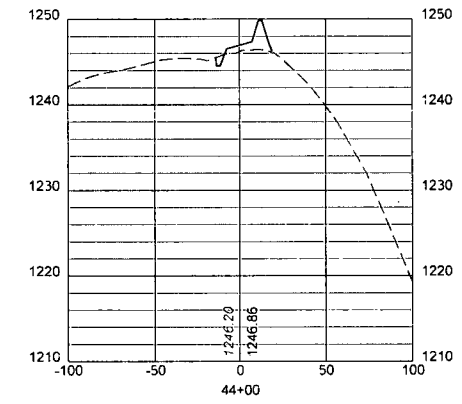
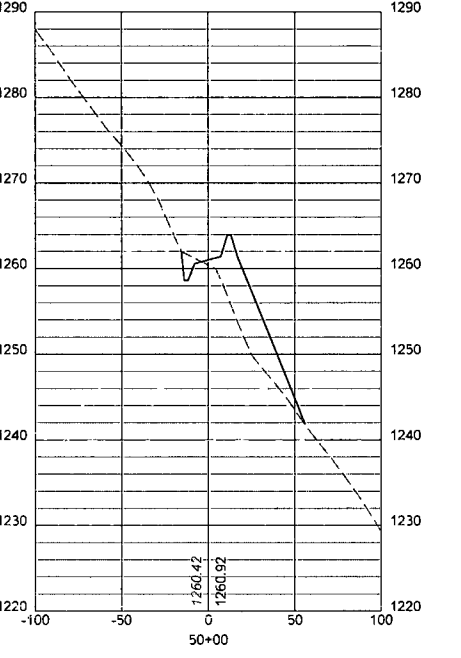
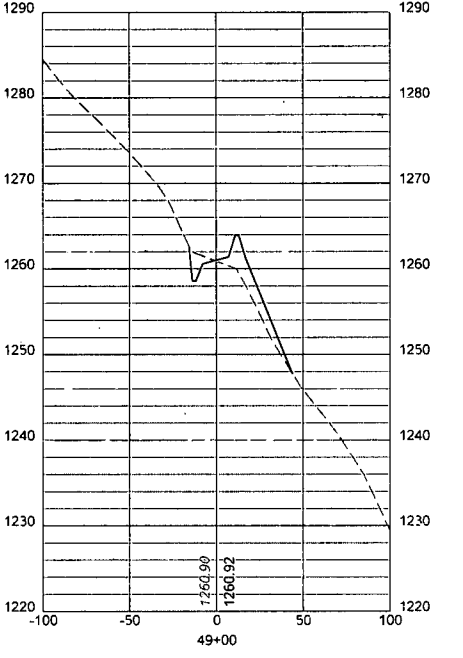
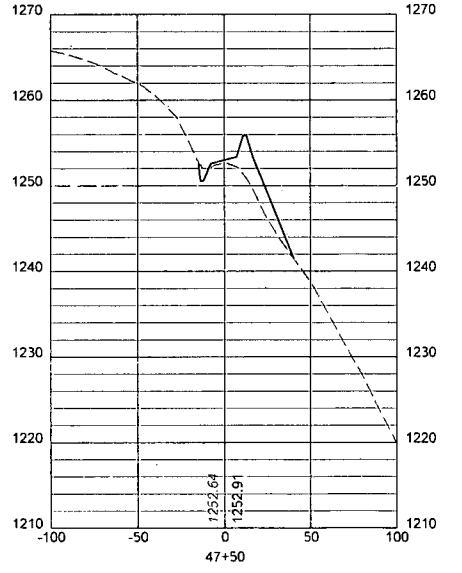
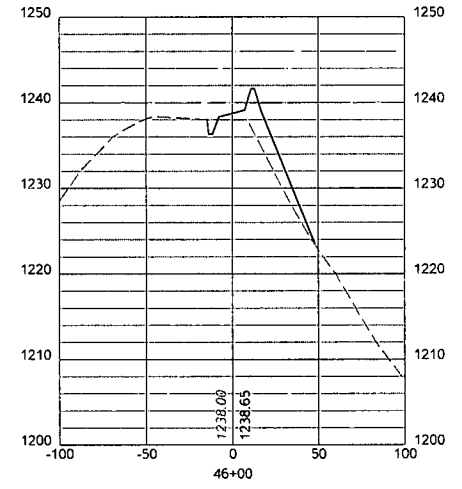
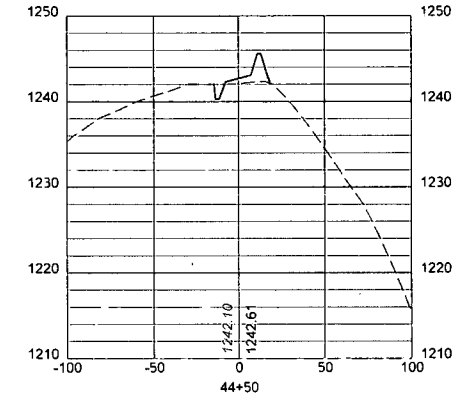
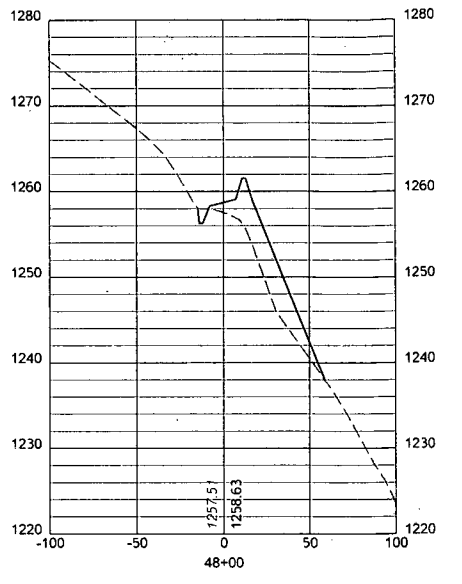
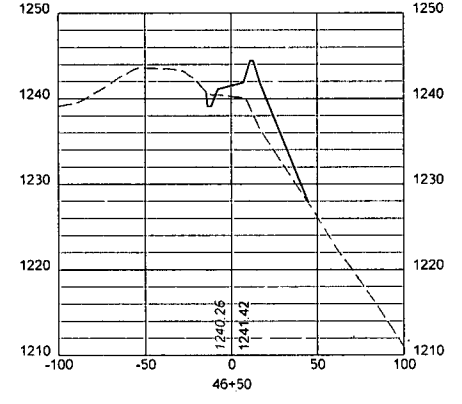
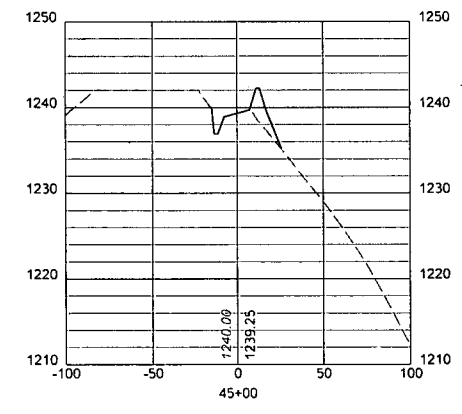


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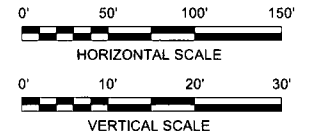
**NOTES:**

- 1. ALL FILL AREAS WILL UTILIZE A TOE BENCH AND WILL BE "KEYED IN". FILL WILL BE PLACED IN 12" MAXIMUM LOOSE LIFTS, MAXIMUM PARTICLE SIZE OF 6", COMPACTED TO 95% PER STANDARD PROCTOR (ASTM D-698) WITH A VIBRATING SHEEPSFOOT ROLLER, AND ON A LEVEL SURFACE. SEE TOE BENCH DETAIL.
- 2. PROPOSED ACCESS ROAD CUT SLOPES MAY VARY. REFERENCE THE GEOTECHNICAL SUBSURFACE INVESTIGATION BY TRIAD ENGINEERING, INC. FOR RECOMMENDATIONS.



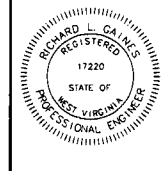
**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

**ACCESS ROAD CROSS SECTIONS**

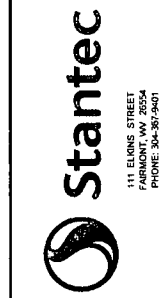


DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 18 OF 32  
 REV:

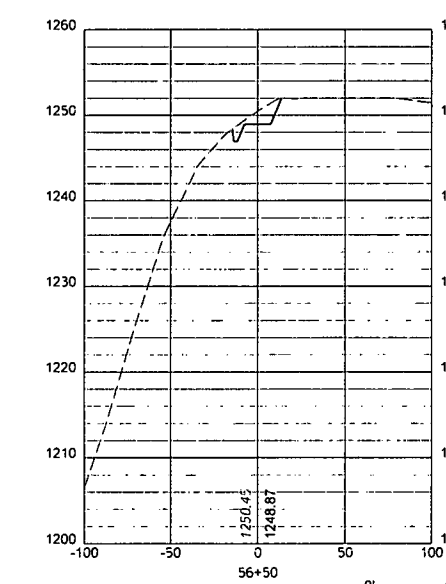
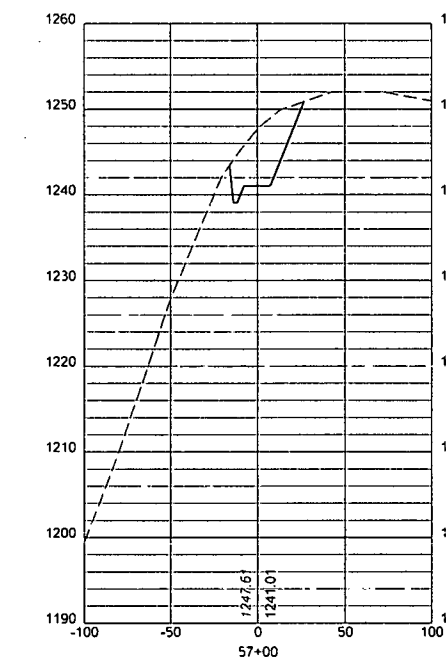
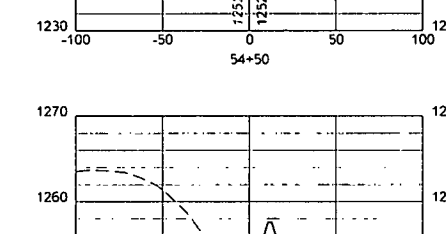
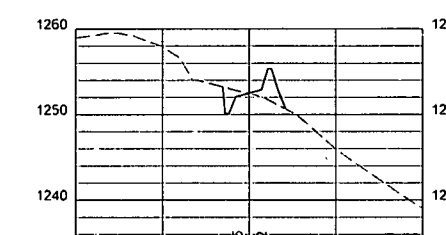
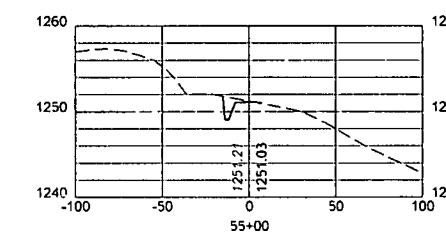
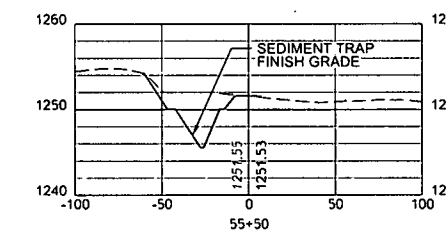
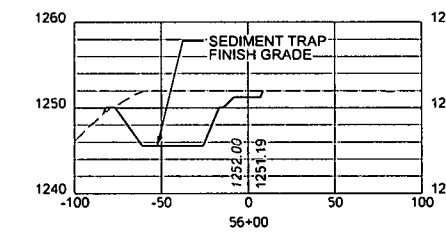
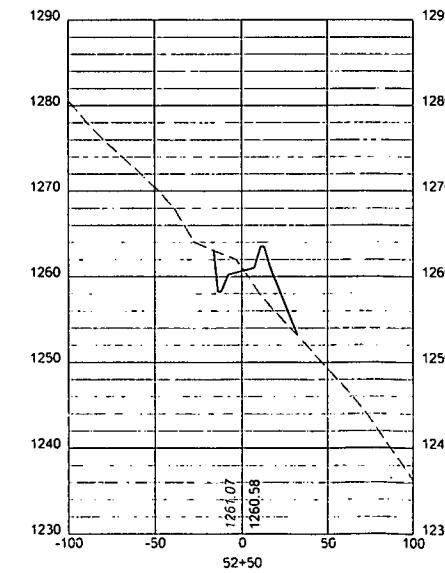
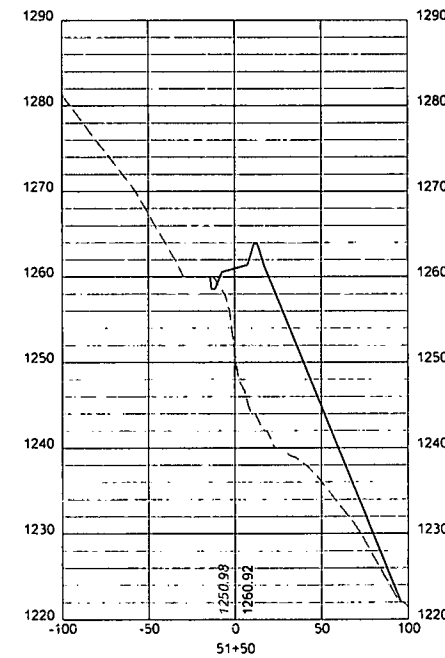
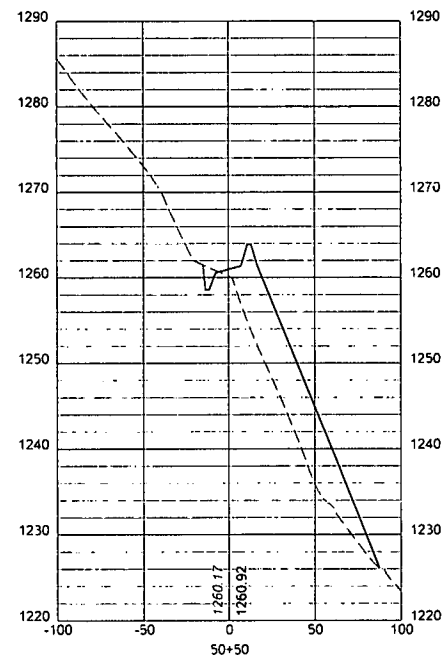
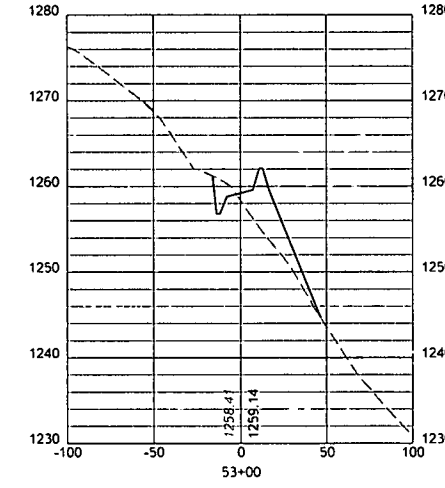
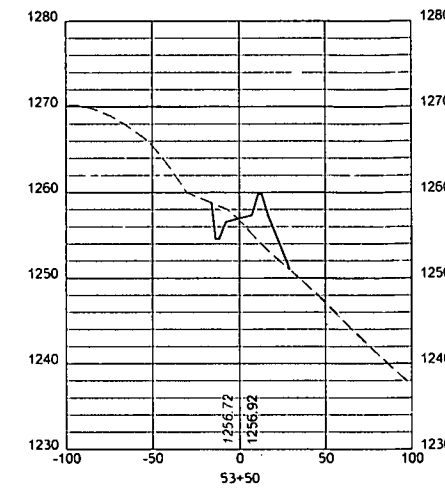
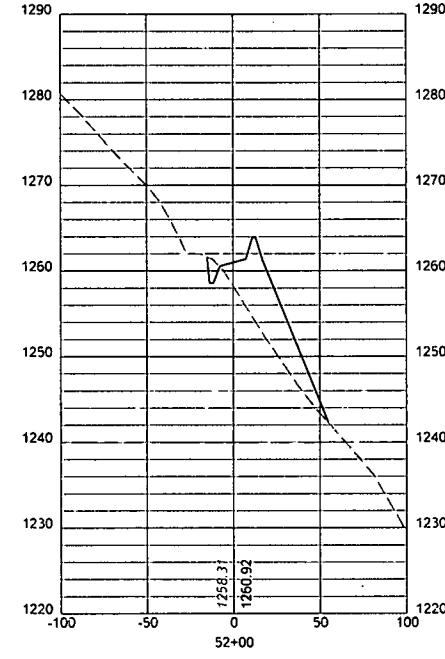
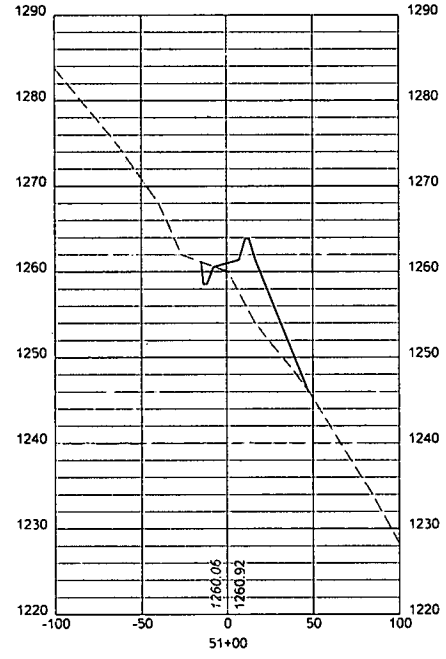
ACCESS ROAD CROSS SECTIONS  
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV



Professional Energy Consultants  
 SURVEYORS  
 ENGINEERS  
 PROJECT MGMT.  
**SLS**  
 (304) 482-9824  
 WWW.SLSURVEYS.COM

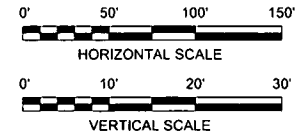


**NOTES:**  
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 2. PROPOSED ACCESS ROAD CUT SLOPES MAY VARY. REFERENCE THE GEOTECHNICAL SUBSURFACE INVESTIGATION BY TRIAD ENGINEERING, INC. FOR RECOMMENDATIONS.



**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

**ACCESS ROAD CROSS SECTIONS**



**Stantec**  
 111 ELKINS STREET  
 FARMINGTON, WV 26034  
 PHONE: 304-887-7401

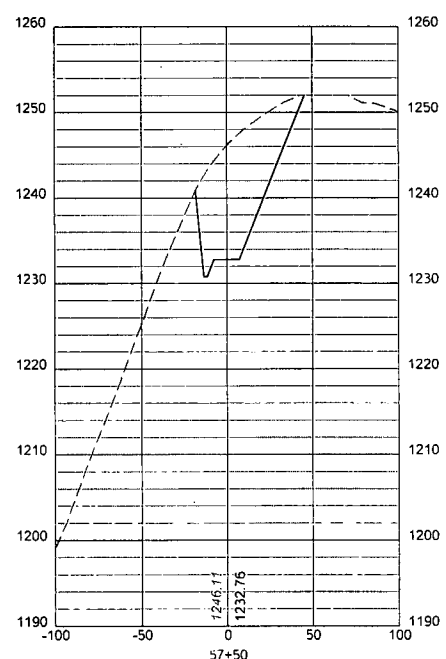
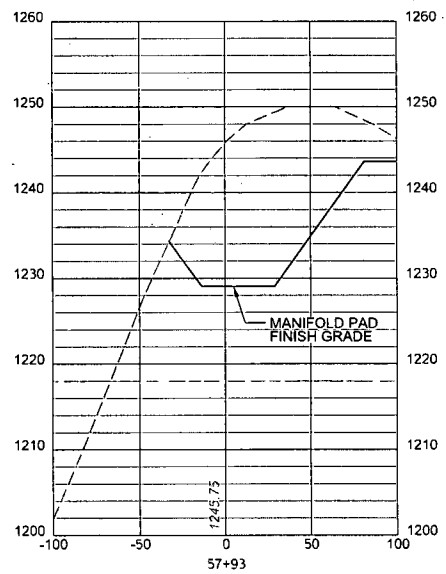
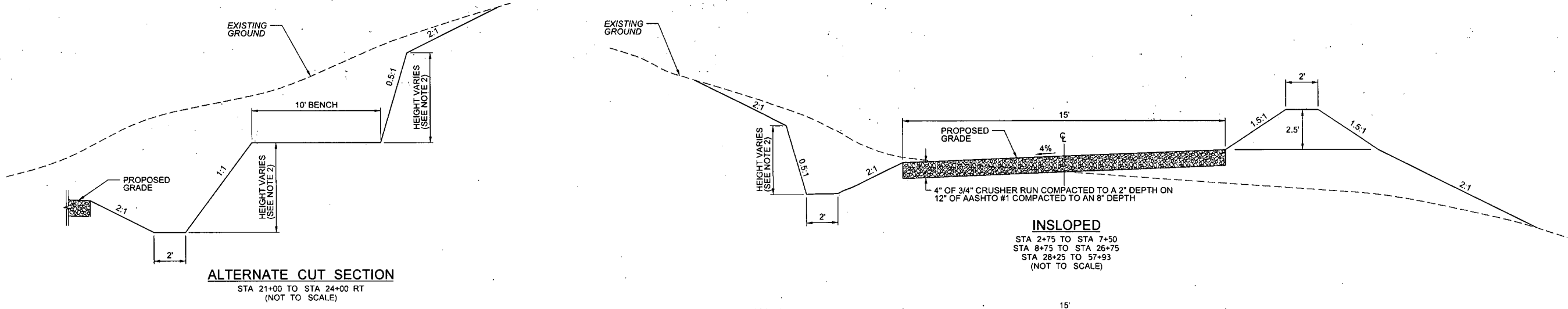
**Professional Energy Consultants**  
 A DIVISION OF S&S CONSULTANTS, INC.  
 SURVEYORS  
 ENVIRONMENTAL  
 PROJECT MGMT.  
 WWW.S&SUNIVERSITY.COM  
 (304) 462-9804

**RICHARD L. GAINES**  
 REGISTERED  
 17320  
 STATE OF  
 WEST VIRGINIA  
 PROFESSIONAL ENGINEER

THIS DOCUMENT WAS  
 PREPARED BY:  
 STANTEC  
 FOR:  
 CNX GAS COMPANY, LLC.

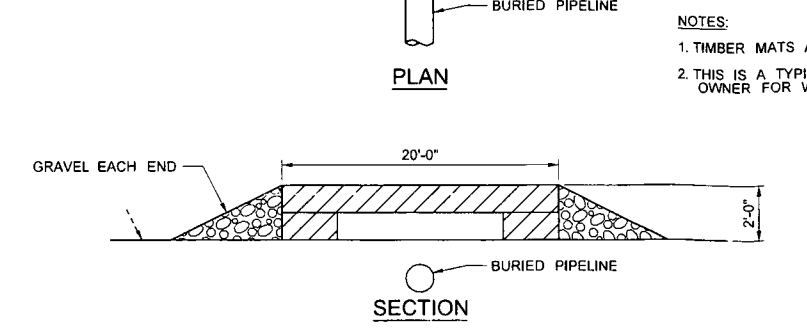
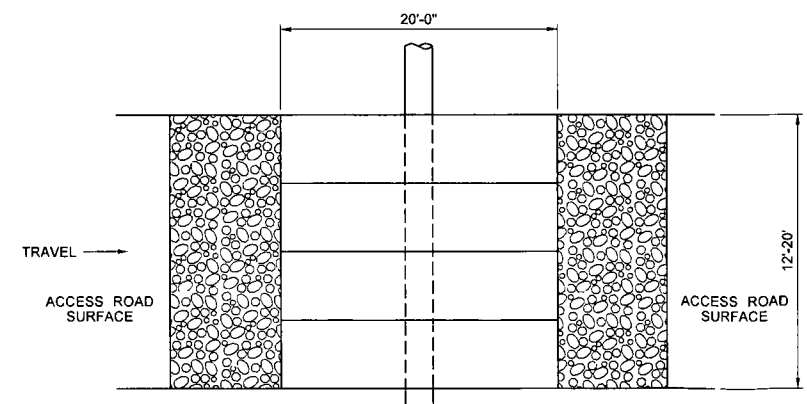
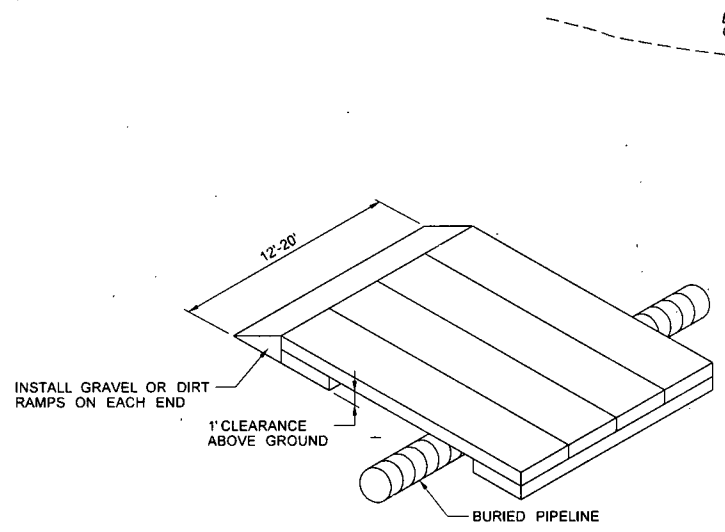
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 19 OF 32  
 REV:

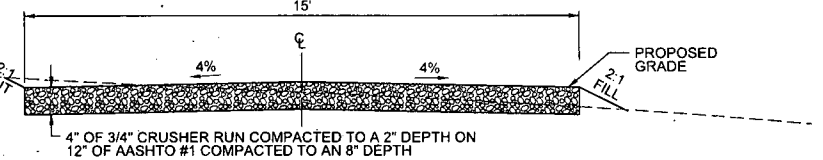


**ACCESS ROAD CROSS SECTIONS**

**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE



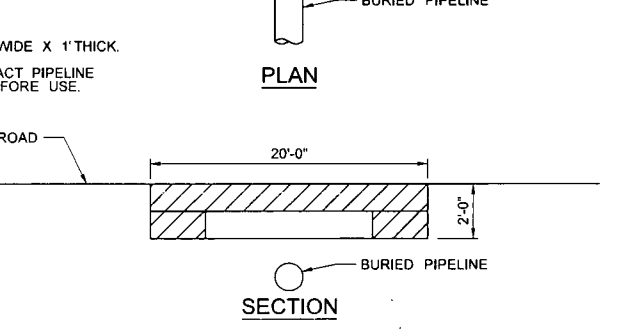
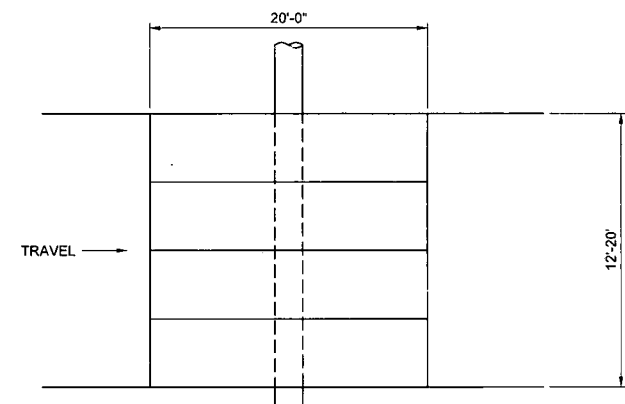
**FLAT GROUND APPLICATIONS**



**CROWNED CROSS SLOPE**  
 STA 0+00 TO STA 2+75  
 STA 7+50 TO STA 8+75  
 STA 26+75 TO 28+25  
 (NOT TO SCALE)

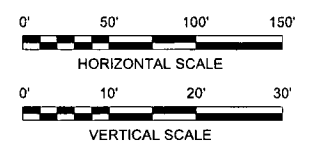
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 2. PROPOSED ACCESS ROAD CUT SLOPES MAY VARY. REFERENCE THE GEOTECHNICAL SUBSURFACE INVESTIGATION BY TRIAD ENGINEERING, INC. FOR RECOMMENDATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE APPROPRIATE CUT SLOPE BASED UPON THE RECOMMENDATIONS PRESENTED IN THE GEOTECHNICAL REPORT AS CONSTRUCTION PROGRESSES DEPENDING UPON MATERIAL ENCOUNTERED.

**ACCESS ROAD TYPICAL SECTIONS**

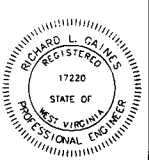


**HILLSIDE APPLICATIONS**

**TIMBER MAT CROSSING FOR BURIED PIPELINE**  
 NOT TO SCALE



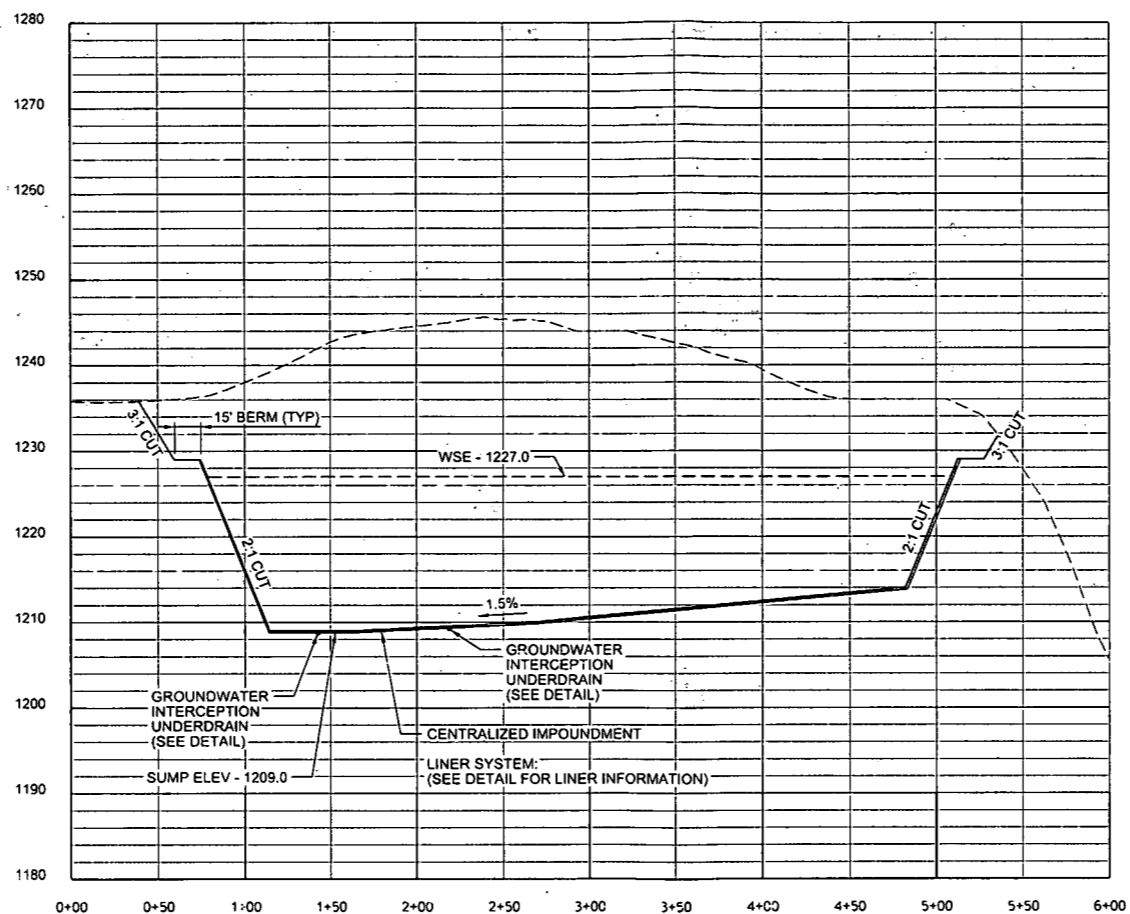
**Professional Energy Consultants**  
 A DIVISION OF SULLY & BARNER, INC.  
 SURVEYORS  
 GEOTECHNICAL  
 ENVIRONMENTAL  
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 WWW.SULLYSURVEY.COM  
 (301) 462-9634



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 STANTEC  
 FOR:  
 CNX GAS COMPANY, LLC.

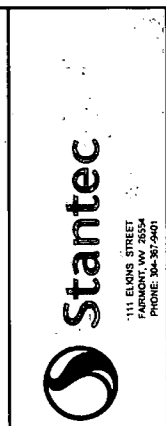
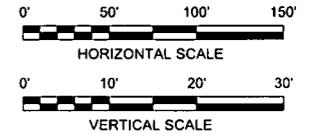
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 20 OF 32  
 REV:

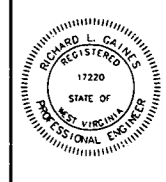


CENTRALIZED IMPOUNDMENT SECTION A-A

**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE



**Professional Energy Consultants**  
 SURVEYORS  
 ENGINEERS  
 PROJECT MANAGERS  
 www.slsurveyors.com  
 (304) 487-0824



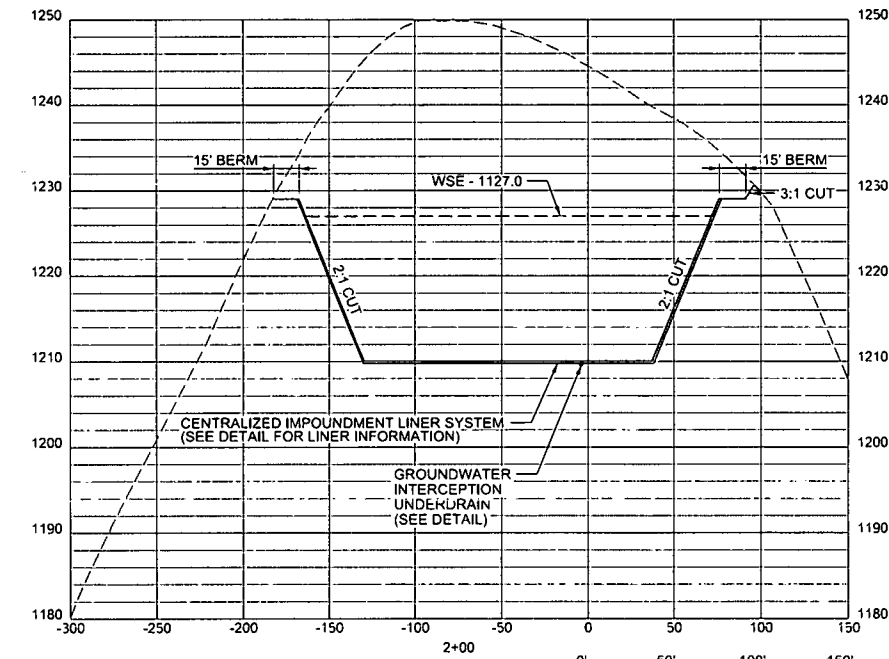
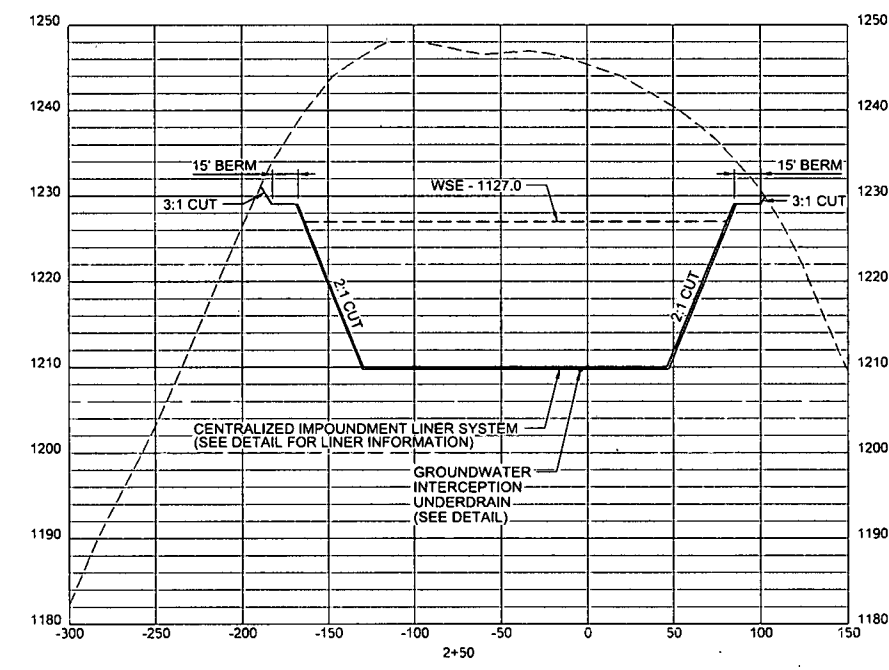
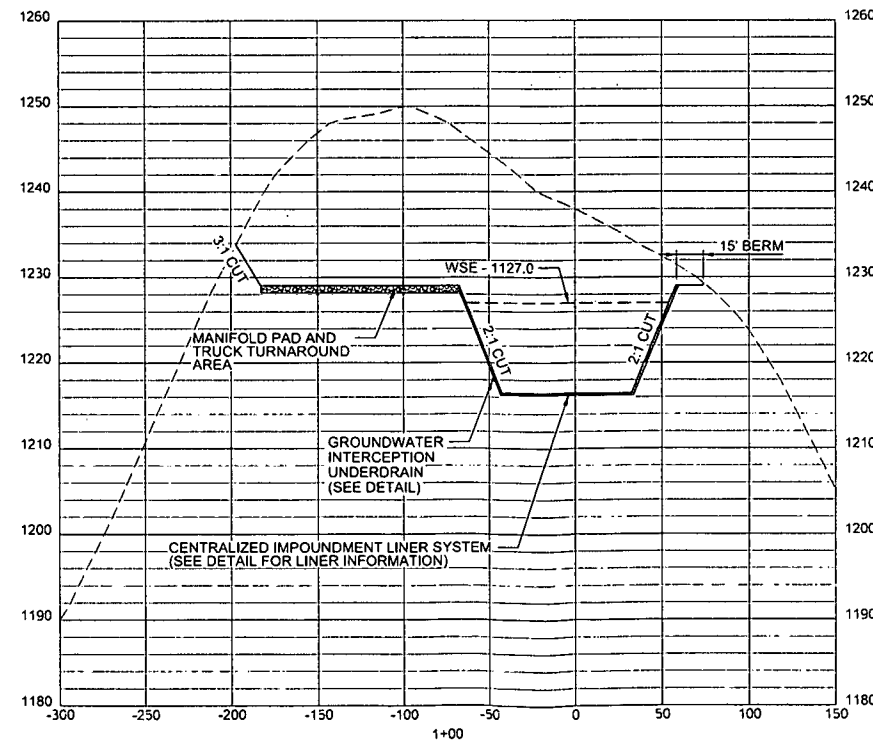
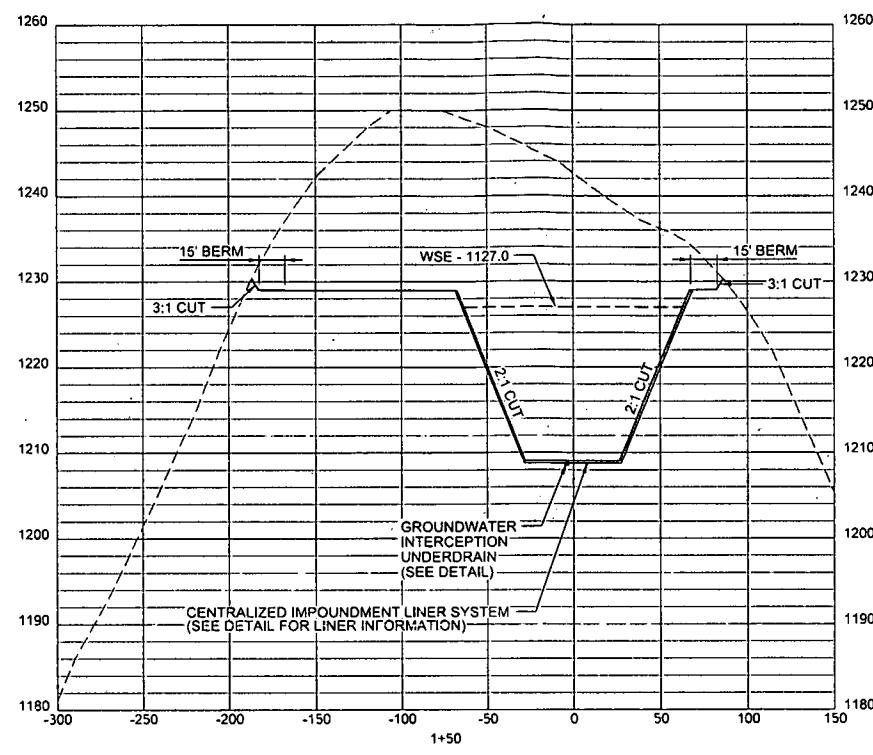
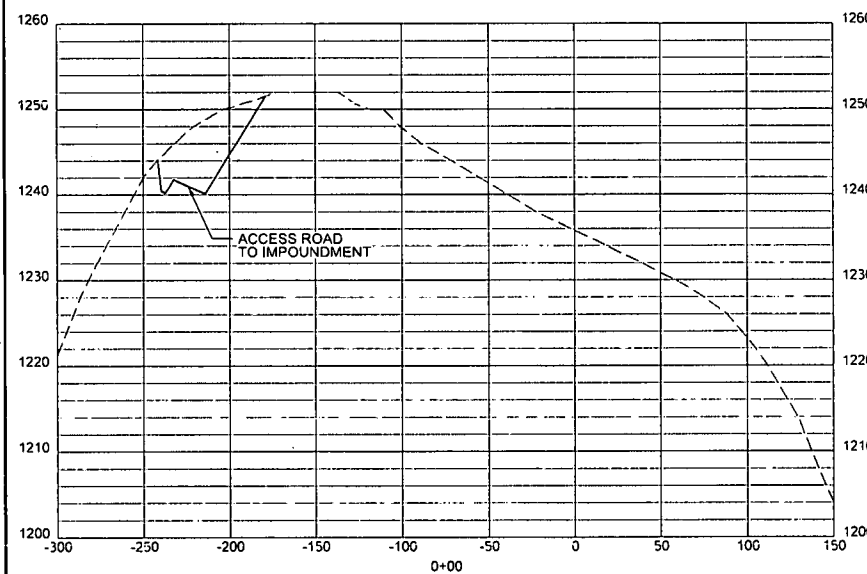
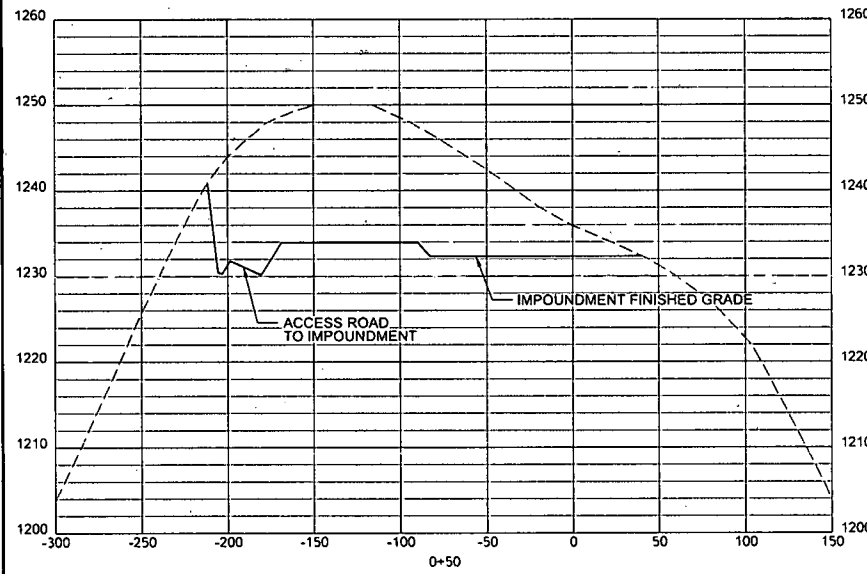
THIS DOCUMENT WAS  
 PREPARED BY:  
 STANTEC  
 FOR:  
 CNX GAS COMPANY, LLC.

CENTRALIZED IMPOUNDMENT SECTION A-A  
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 21 OF 32  
 REV:

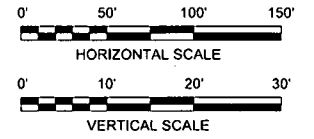


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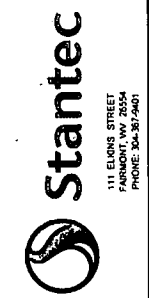


**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

CENTRALIZED IMPOUNDMENT CROSS SECTIONS ALONG SECTION LINE A-A



7/12/2014 1:00 PM SURVEY FEET  
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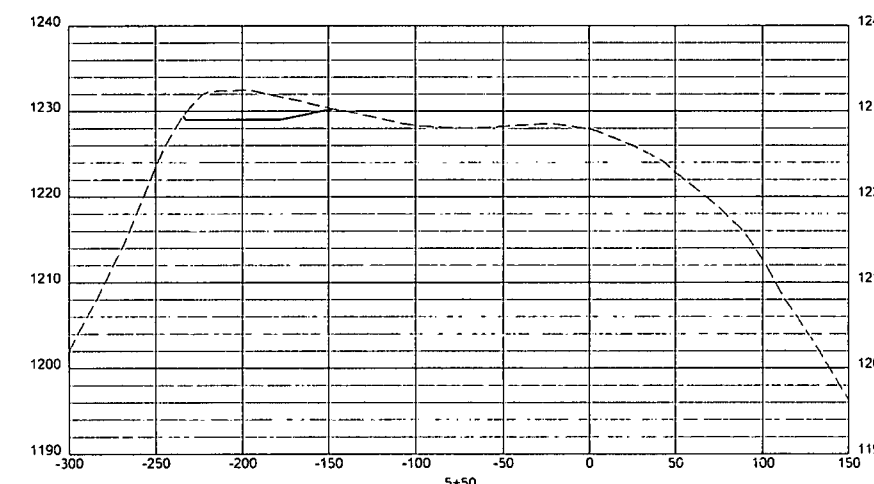
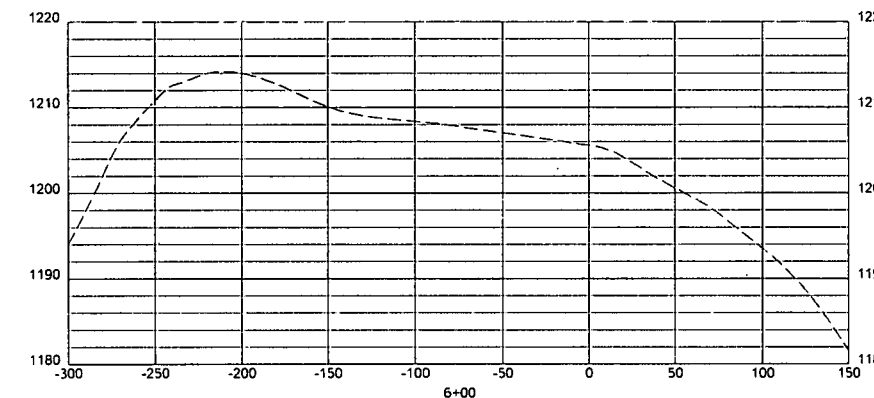
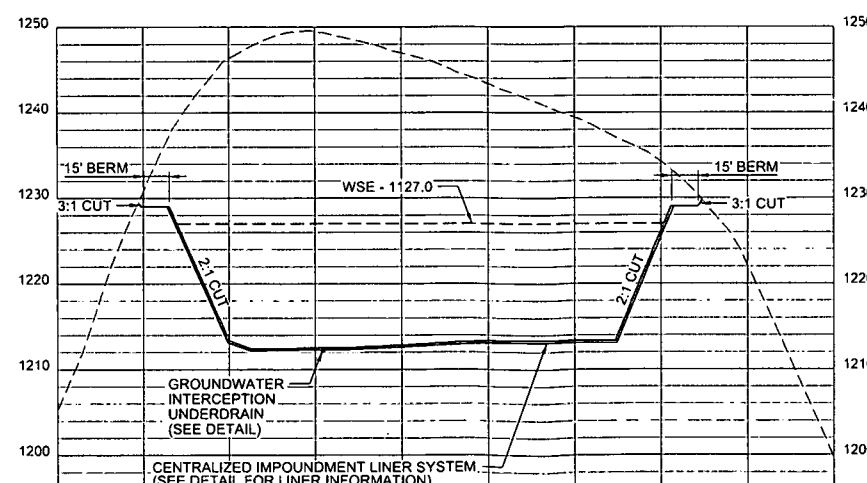
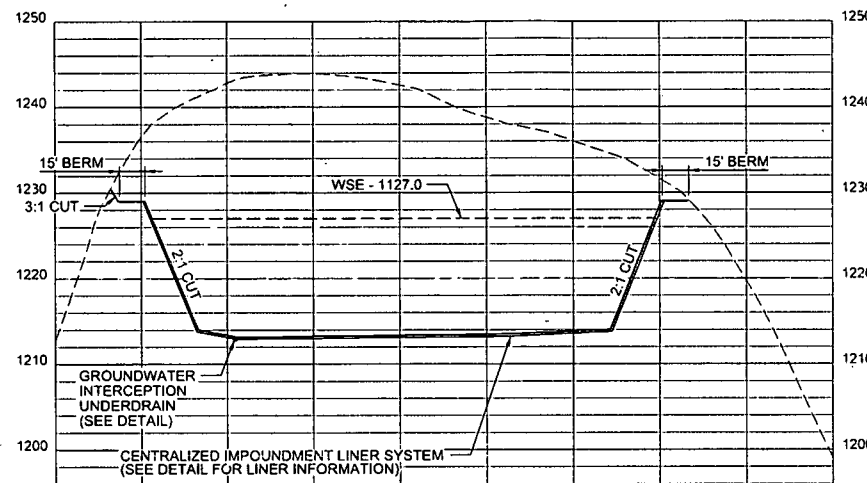
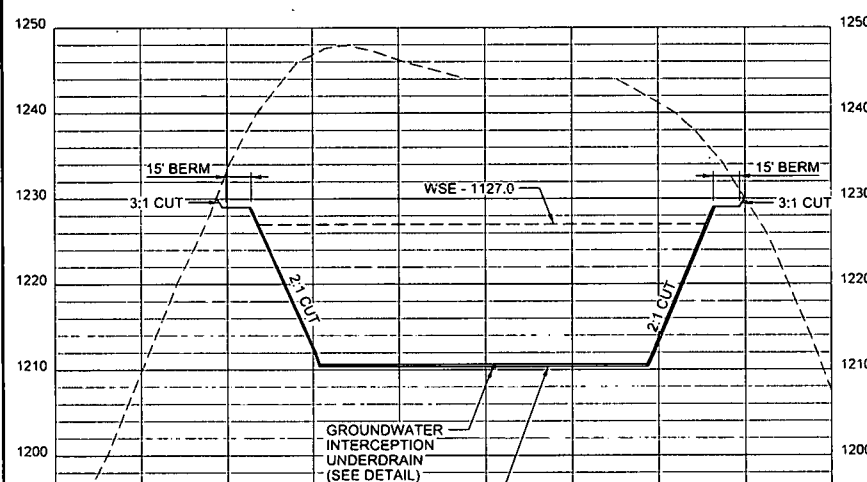
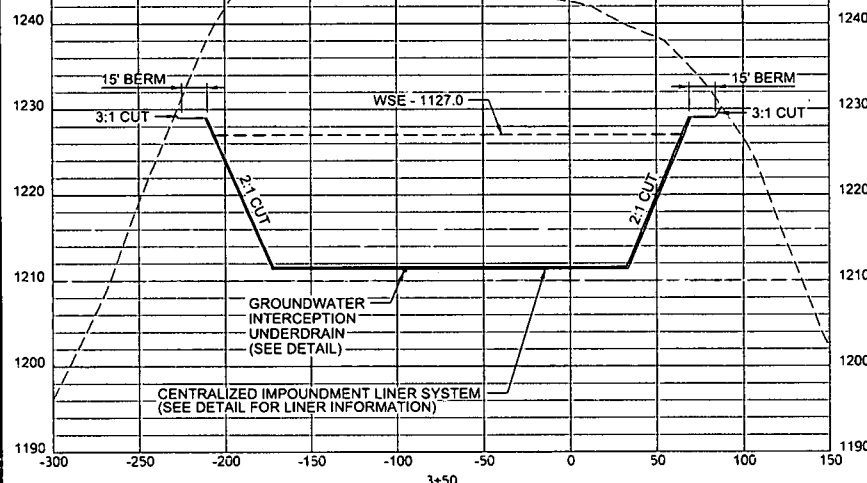
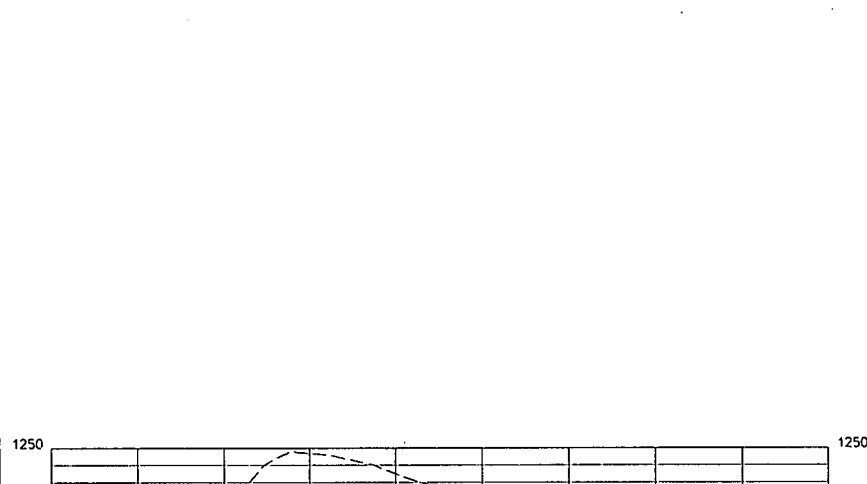
Professional Energy Consultants  
 ADVISORS OF BATHURST, INC.  
 SURVEYORS  
 ENVIRONMENTAL  
 PROJECT MGMT.  
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 (901) 462-9884



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 FOR:  
 CNX GAS COMPANY, LLC.

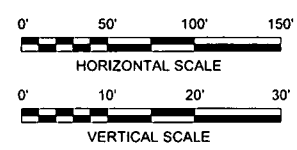
CENTRALIZED IMPOUNDMENT  
 CROSS SECTIONS  
**MORRIS CENTRALIZED  
 IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/JH  
 FILE NO.: SLS-8057  
 SHEET 22 OF 32  
 REV:



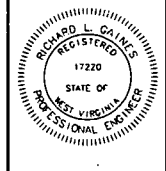
**LEGEND**  
 — PROPOSED GRADE  
 - - - EXISTING GRADE

**CENTRALIZED IMPOUNDMENT CROSS SECTIONS ALONG SECTION LINE A-A**



DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/JH  
 FILE NO.: SLS-8057  
 SHEET 23 OF 32  
 REV:

**MORRIS CENTRALIZED IMPOUNDMENT**  
 CROSS SECTIONS  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV



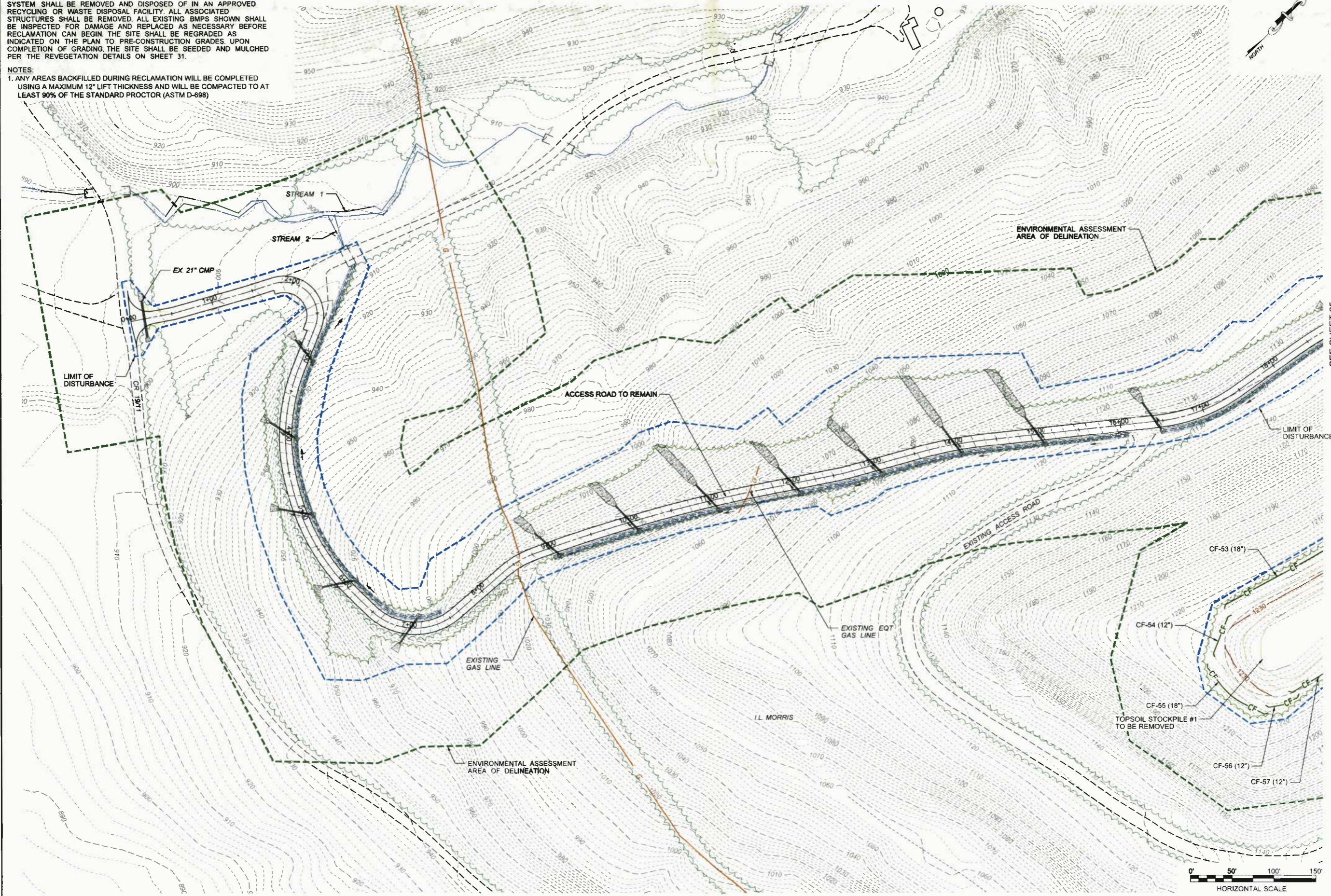
Professional Energy Consultants  
 A DIVISION OF BATHURST PARTNERS, INC.  
 SURVEYORS  
 ENGINEERS  
 ENVIRONMENTAL  
 PROJECT MGMT.  
 WWW.SLSURVEYS.COM  
 (304) 485-8834

**Stantec**  
 111 ELKINS STREET  
 FARMINGTON, WV 26534  
 PHONE: 304-901-9401

Energy Legacy, TBL  
 Co. of Rock, PA  
 Oil Co. Full Site, Pdf. p.11

**SITE RECLAMATION NARRATIVE**  
 WITHIN SIX MONTHS OF THE EXPIRATION OF APPROVAL OF THE IMPOUNDMENT FACILITY, THIS SITE SHALL BE CLOSED AND RESTORED TO A PRE-CONSTRUCTION CONDITION. THE IMPOUNDMENT LINER SYSTEM SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED RECYCLING OR WASTE DISPOSAL FACILITY. ALL ASSOCIATED STRUCTURES SHALL BE REMOVED. ALL EXISTING BMPs SHOWN SHALL BE INSPECTED FOR DAMAGE AND REPLACED AS NECESSARY BEFORE RECLAMATION CAN BEGIN. THE SITE SHALL BE REGRADED AS INDICATED ON THE PLAN TO PRE-CONSTRUCTION GRADES. UPON COMPLETION OF GRADING, THE SITE SHALL BE SEEDED AND MULCHED PER THE REVEGETATION DETAILS ON SHEET 31.

**NOTES:**  
 1. ANY AREAS BACKFILLED DURING RECLAMATION WILL BE COMPLETED USING A MAXIMUM 12" LIFT THICKNESS AND WILL BE COMPACTED TO AT LEAST 90% OF THE STANDARD PROCTOR (ASTM D-698)



1/1/2014  
 WORKSPACE: DOT\_2006 (SURVEY FEET)  
 US 1202705:1372\cnc\_morr1s11.0\_cadd\1.1\_highway\pres\RECLAM\_1372esf501.dgn



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ACCESS ROAD RECLAMATION PLAN  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 24 OF 32  
 REV:

SEE SHEET 25



Energy Services  
11600 S. 116th St., Suite 100, Overland Park, KS 66213  
Tel: 913.375.1300 Fax: 913.375.1301  
www.energyservices.com

**SITE RECLAMATION NARRATIVE**

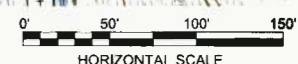
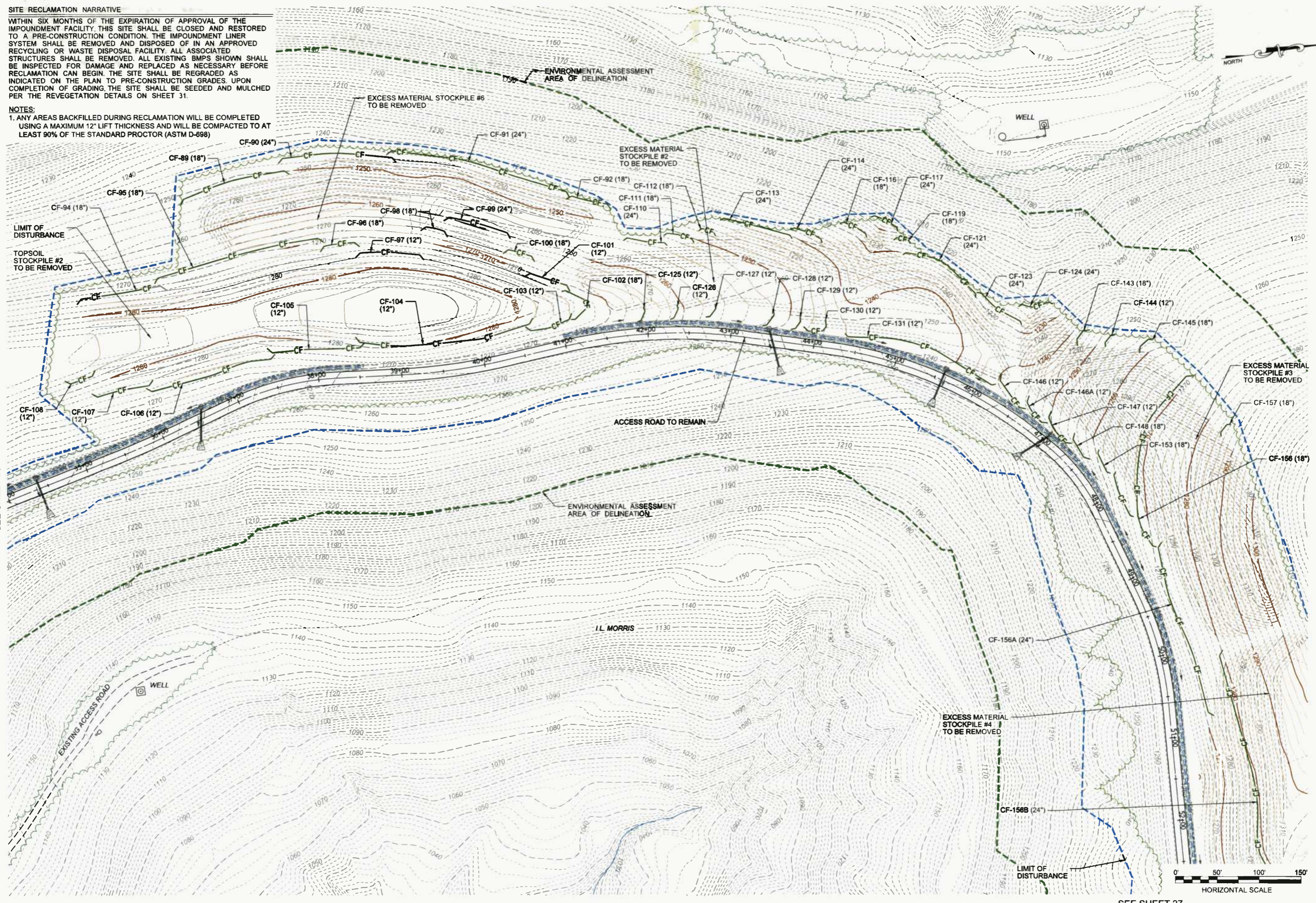
WITHIN SIX MONTHS OF THE EXPIRATION OF APPROVAL OF THE IMPOUNDMENT FACILITY, THIS SITE SHALL BE CLOSED AND RESTORED TO A PRE-CONSTRUCTION CONDITION. THE IMPOUNDMENT LINER SYSTEM SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED RECYCLING OR WASTE DISPOSAL FACILITY. ALL ASSOCIATED STRUCTURES SHALL BE REMOVED. ALL EXISTING BMPs SHOWN SHALL BE INSPECTED FOR DAMAGE AND REPLACED AS NECESSARY BEFORE RECLAMATION CAN BEGIN. THE SITE SHALL BE REGRADED AS INDICATED ON THE PLAN TO PRE-CONSTRUCTION GRADES. UPON COMPLETION OF GRADING, THE SITE SHALL BE SEEDED AND MULCHED PER THE REVEGETATION DETAILS ON SHEET 31.

**NOTES:**

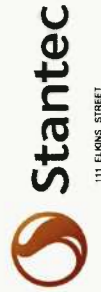
1. ANY AREAS BACKFILLED DURING RECLAMATION WILL BE COMPLETED USING A MAXIMUM 12" LIFT THICKNESS AND WILL BE COMPACTED TO AT LEAST 90% OF THE STANDARD PROCTOR (ASTM D-698)

SEE SHEET 25

Top 2014.dwg, DOT 2006 SURVEY FEET, 11/13/2015, 172, cax, morris, 11.3.0 - cadd\3.1\ghwoy\p\as REC. A.M. 1372esp503.dgn



SEE SHEET 27



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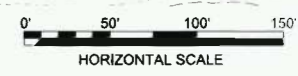
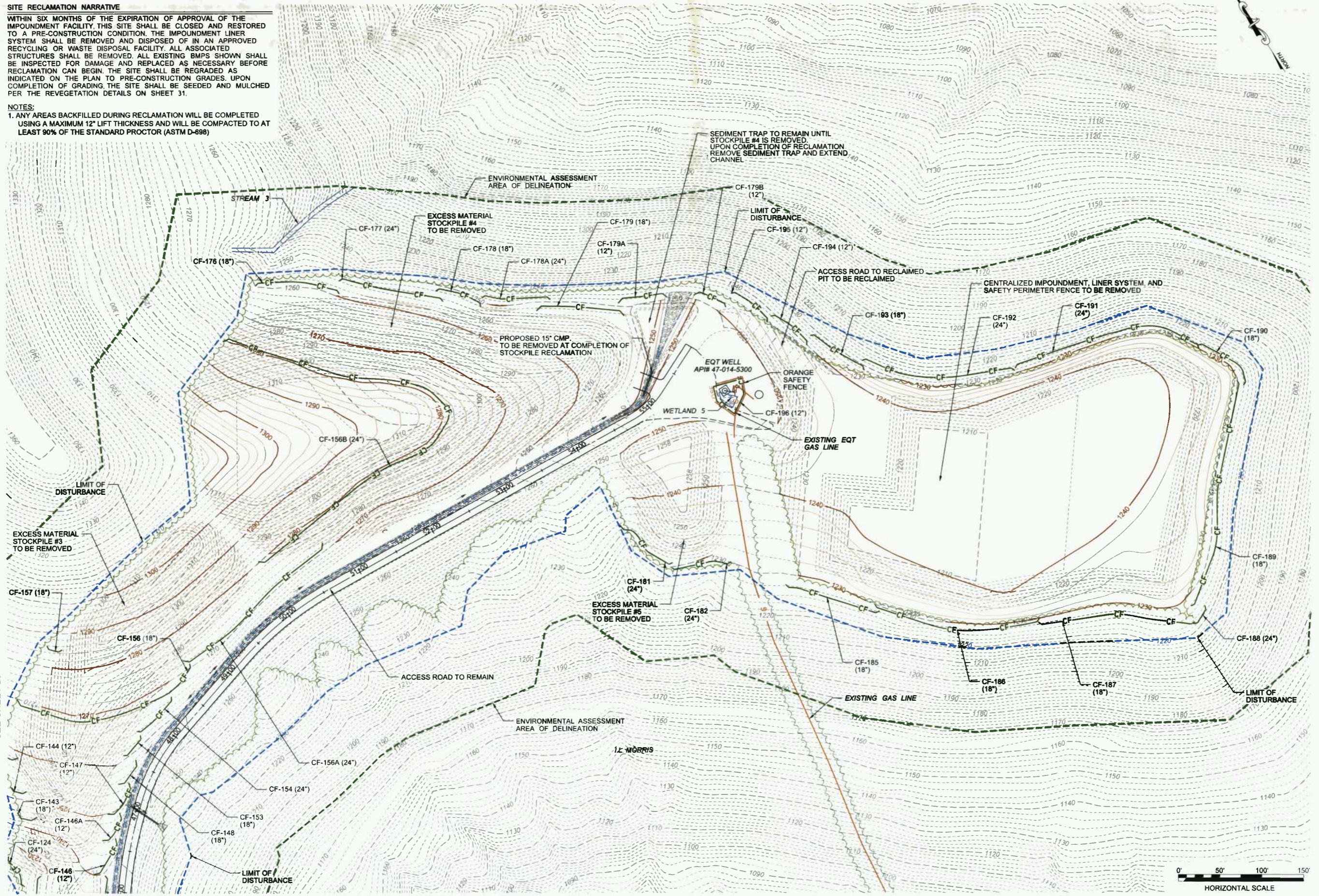
ACCESS ROAD RECLAMATION PLAN  
**MORRIS CENTRALIZED IMPOUNDMENT**  
SOUTHWEST DISTRICT DODDRIDGE COUNTY, WY

DATE: 07/01/2014  
SCALE: AS SHOWN  
DESIGNED BY: JMR/RJH  
FILE NO.: SLS-8057  
SHEET 26 OF 32  
REV:

**SITE RECLAMATION NARRATIVE**

WITHIN SIX MONTHS OF THE EXPIRATION OF APPROVAL OF THE IMPOUNDMENT FACILITY, THIS SITE SHALL BE CLOSED AND RESTORED TO A PRE-CONSTRUCTION CONDITION. THE IMPOUNDMENT LINER SYSTEM SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED RECYCLING OR WASTE DISPOSAL FACILITY. ALL ASSOCIATED STRUCTURES SHALL BE REMOVED. ALL EXISTING BMPs SHOWN SHALL BE INSPECTED FOR DAMAGE AND REPLACED AS NECESSARY BEFORE RECLAMATION CAN BEGIN. THE SITE SHALL BE REGRADED AS INDICATED ON THE PLAN TO PRE-CONSTRUCTION GRADES. UPON COMPLETION OF GRADING, THE SITE SHALL BE SEEDED AND MULCHED PER THE REVEGETATION DETAILS ON SHEET 31.

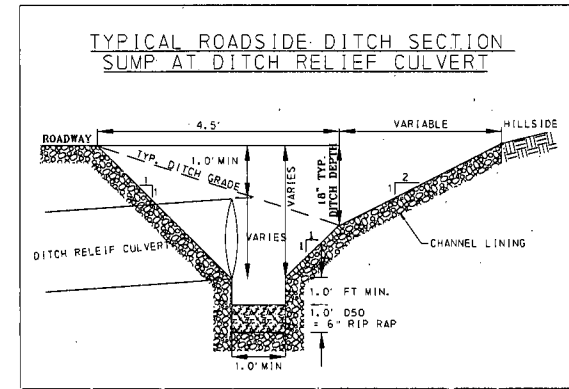
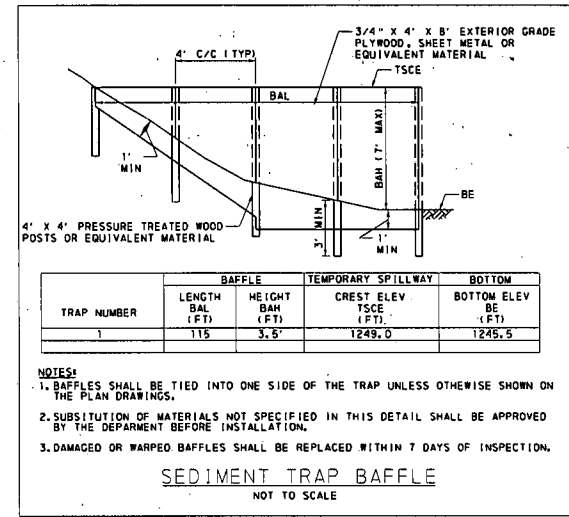
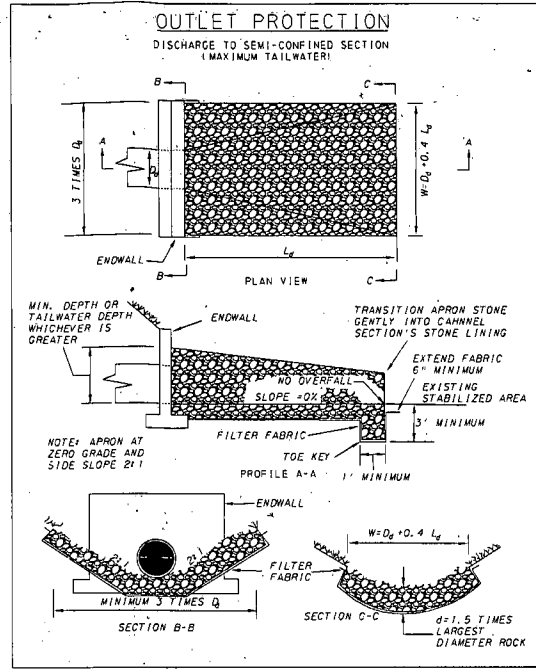
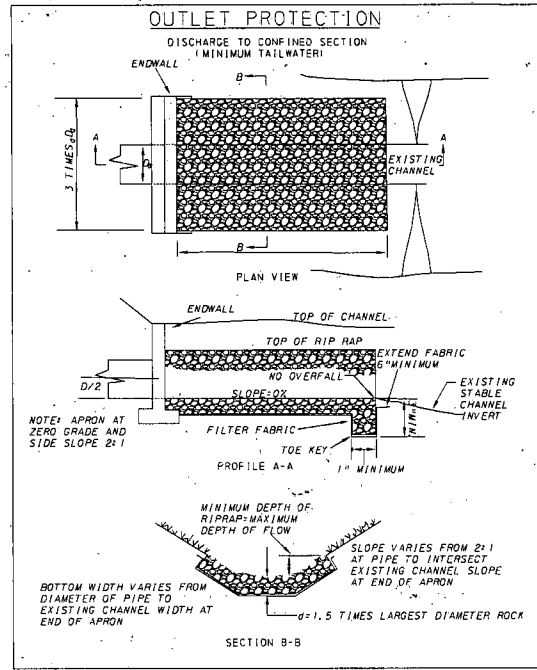
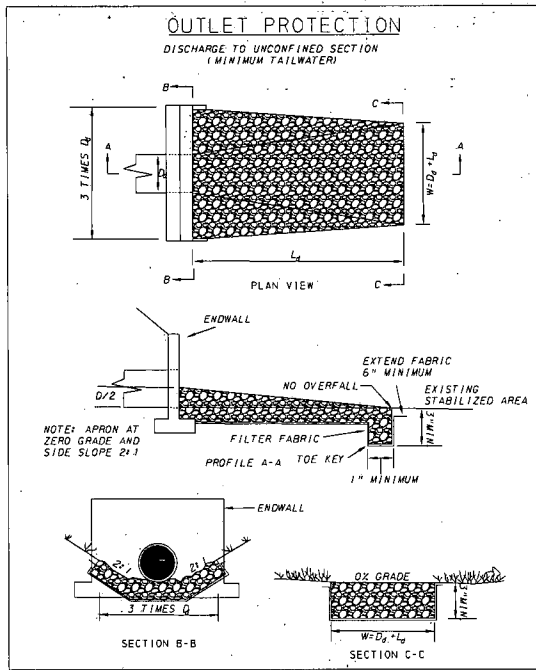
**NOTES:**  
 1. ANY AREAS BACKFILLED DURING RECLAMATION WILL BE COMPLETED USING A MAXIMUM 12" LIFT THICKNESS AND WILL BE COMPACTED TO AT LEAST 90% OF THE STANDARD PROCTOR (ASTM D-698)



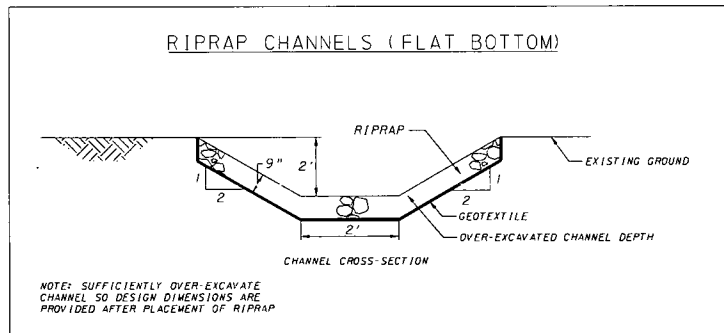
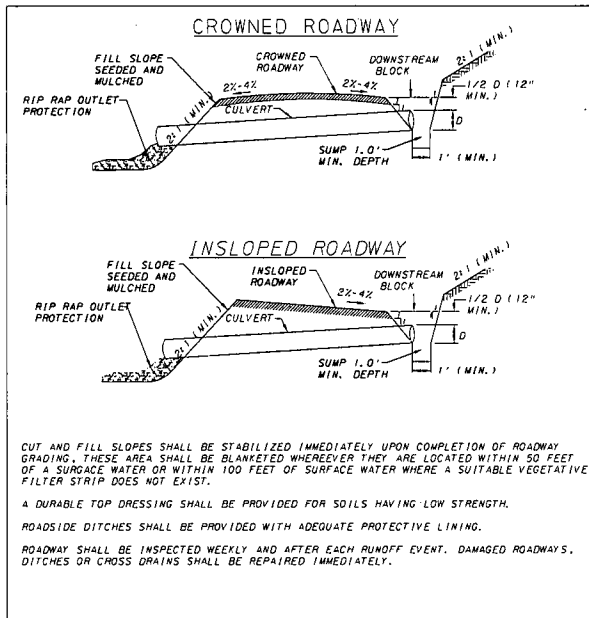
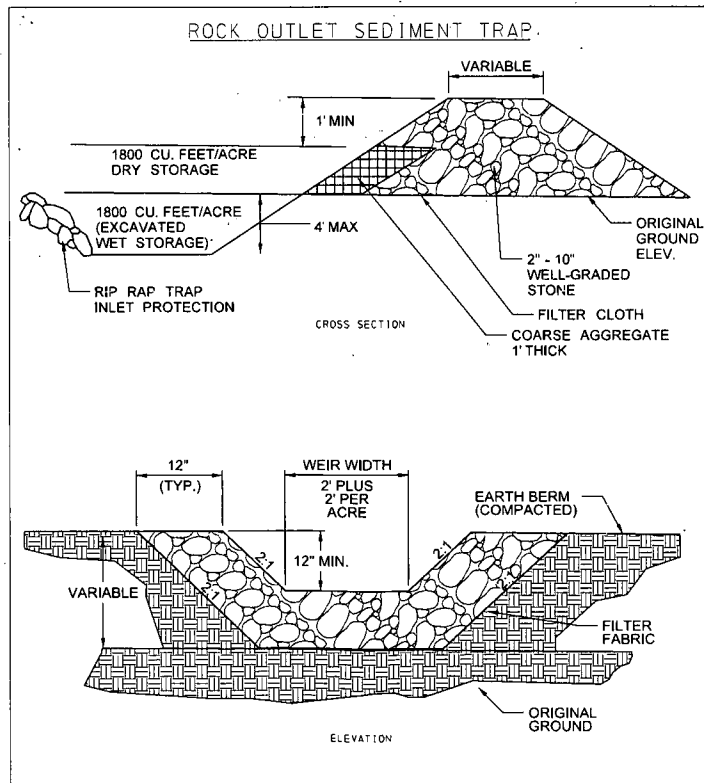
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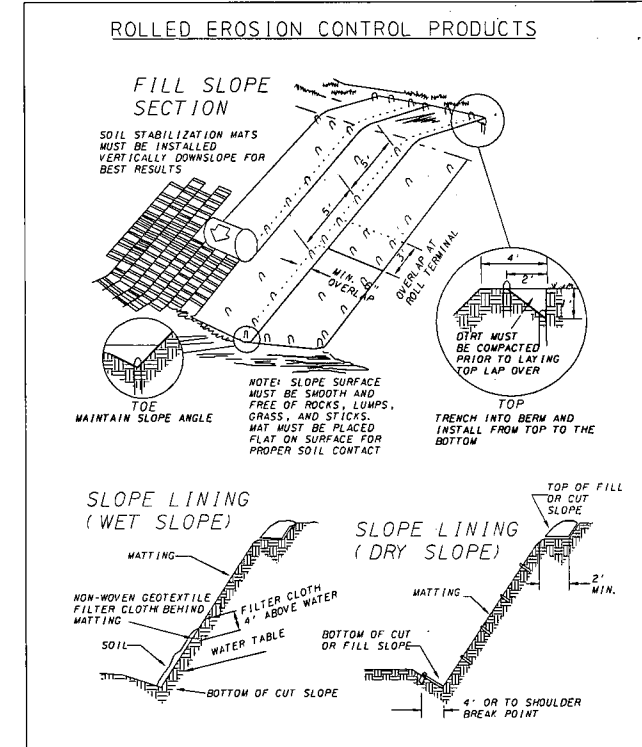
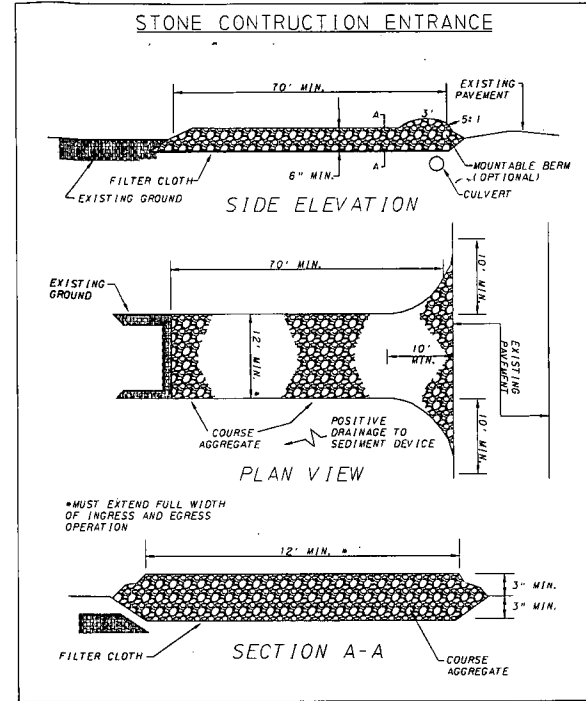
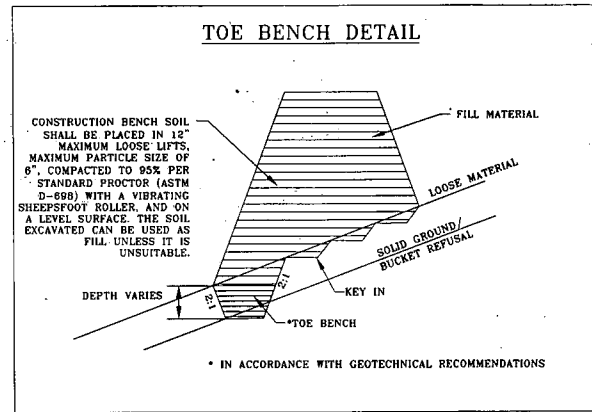
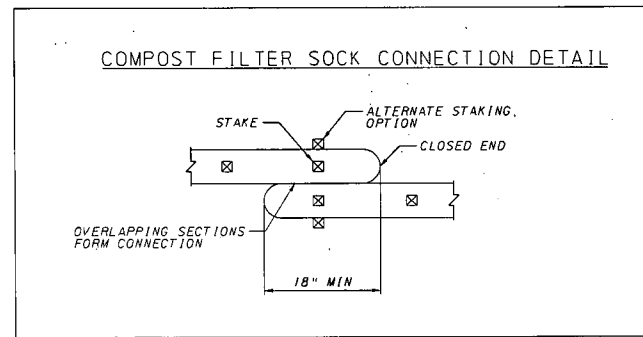
ACCESS ROAD AND CENTRALIZED IMPOUNDMENT RECLAMATION PLAN  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIIDGE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
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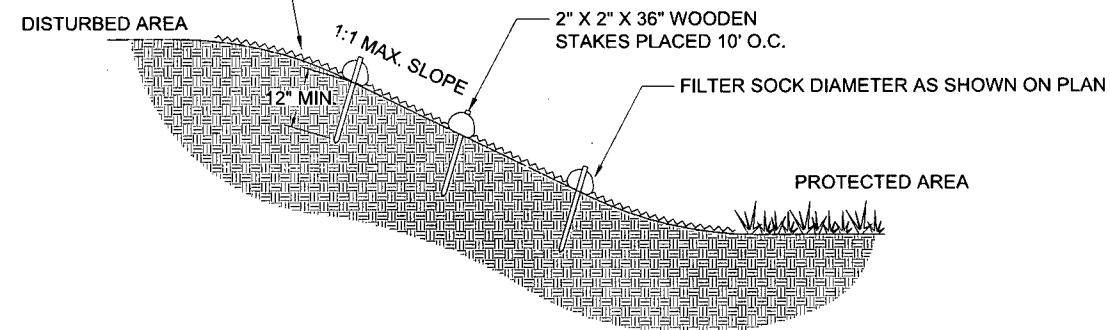
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			MIN D50 (IN)	ROCK DEPTH (IN)	LENGTH (FT)	WIDTH (FT)
0+15	21	45	6	14	12	CHANNEL
3+00	15	33	6	14	8	10
4+00	15	36	6	14	8	10
5+00	15	40	6	14	8	10
6+00	15	40	6	14	8	10
7+00	15	38	6	14	8	10
9+00	15	40	6	14	8	10
10+00	15	40	6	14	8	10
11+00	15	40	6	14	8	10
12+00	15	40	6	14	8	10
13+00	15	40	6	14	8	10
14+00	15	40	6	14	8	10
15+00	15	40	6	14	8	10
16+41	15	40	6	14	8	10
19+00	15	40	6	14	8	10
20+50	15	40	6	14	8	10
21+50	15	36	6	14	8	10
22+50	15	36	6	14	8	10
23+50	15	37	6	14	8	10
24+50	15	36	6	14	8	10
25+50	15	37	6	14	8	10
28+85	15	38	6	14	8	10
34+39	15	39	6	14	8	10
36+50	15	40	6	14	8	10
43+50	15	45	6	14	8	10
45+60	15	36	6	14	8	10
47+00	15	40	6	14	8	10
55+25	15	30	6	14	8	10
57+75	15	39	6	14	8	10



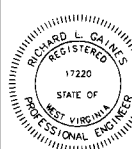
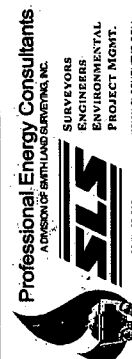
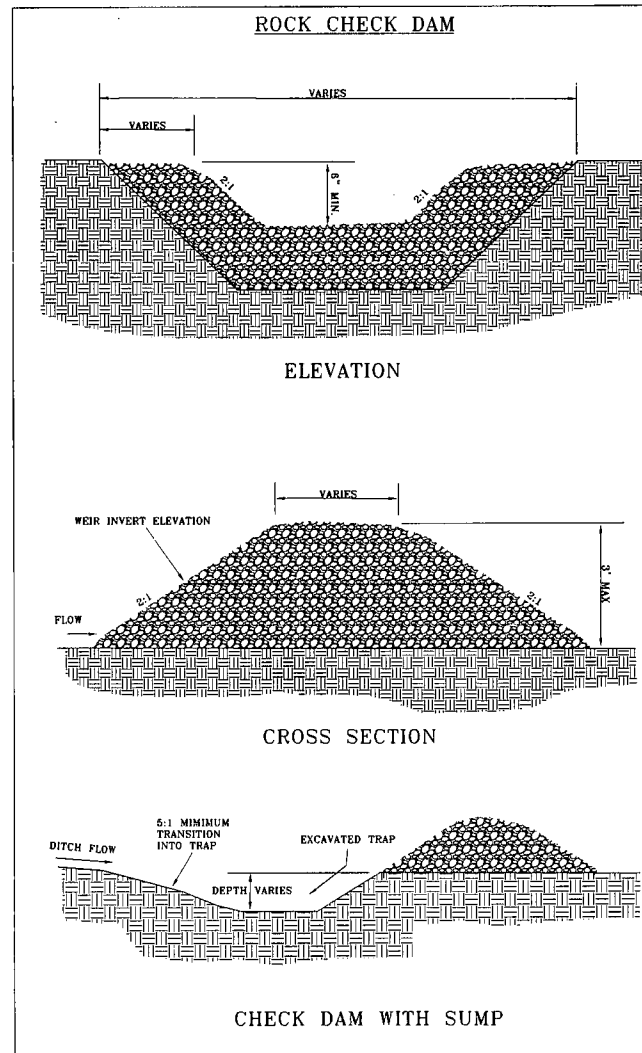
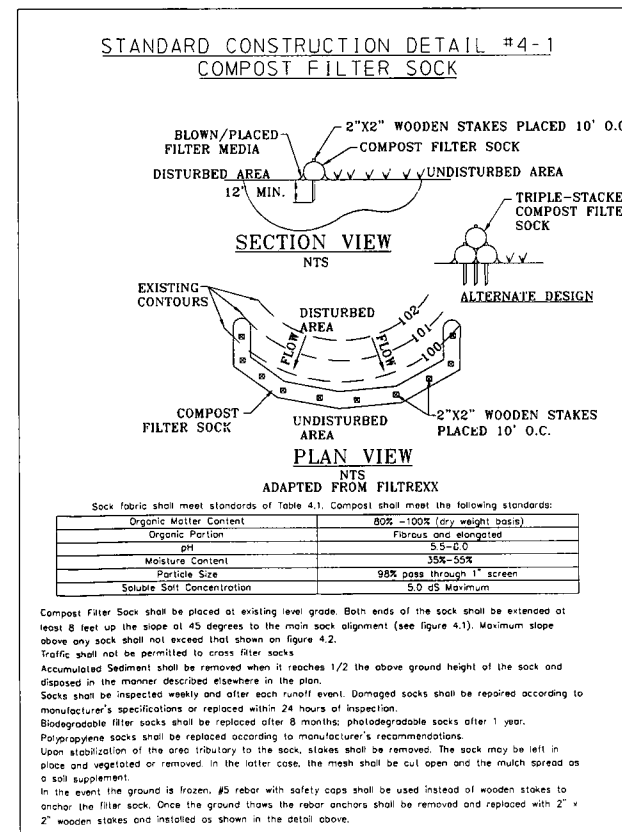
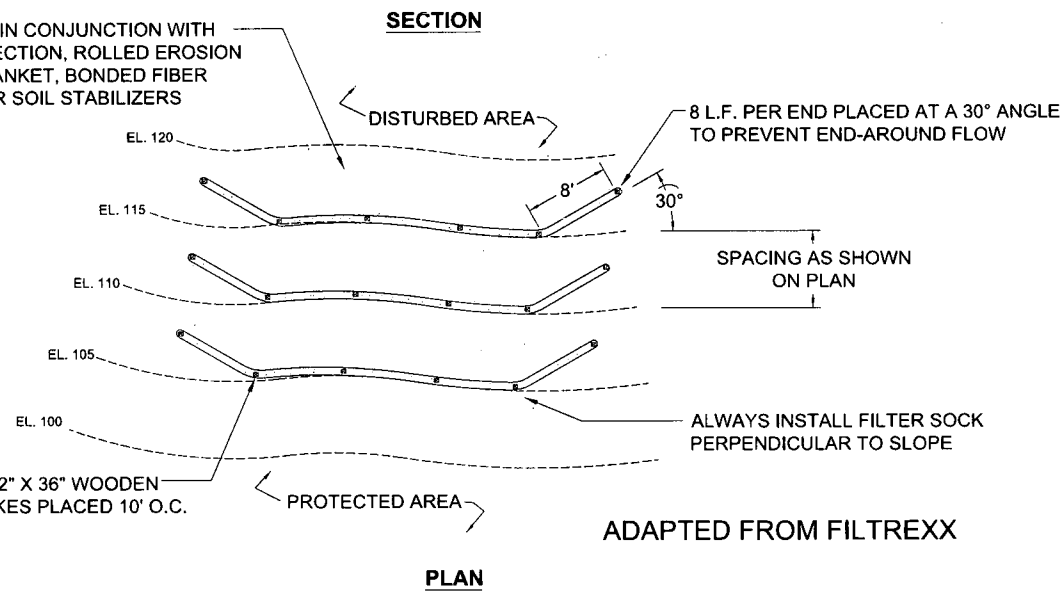


ALWAYS USE IN CONJUNCTION WITH SLOPE PROTECTION, ROLLED EROSION CONTROL BLANKET, BONDED FIBER MATTRESS OR SOIL STABILIZERS

- NOTES:**
1. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF THE FILTER SOCK WHEN ACCUMULATION HAS REACHED 1/2 OF EFFECTIVE HEIGHT OF FILTER SOCK
  2. LOOSE FILTER MEDIA MAY BE BACKFILLED ON THE UPSLOPE SIDE OF THE FILTER SOCK TO ENHANCE PERFORMANCE



ALWAYS USE IN CONJUNCTION WITH SLOPE PROTECTION, ROLLED EROSION CONTROL BLANKET, BONDED FIBER MATTRESS OR SOIL STABILIZERS

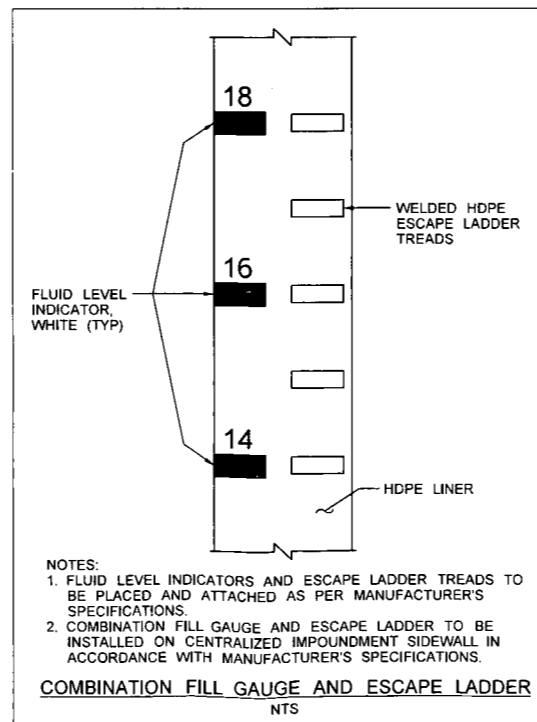
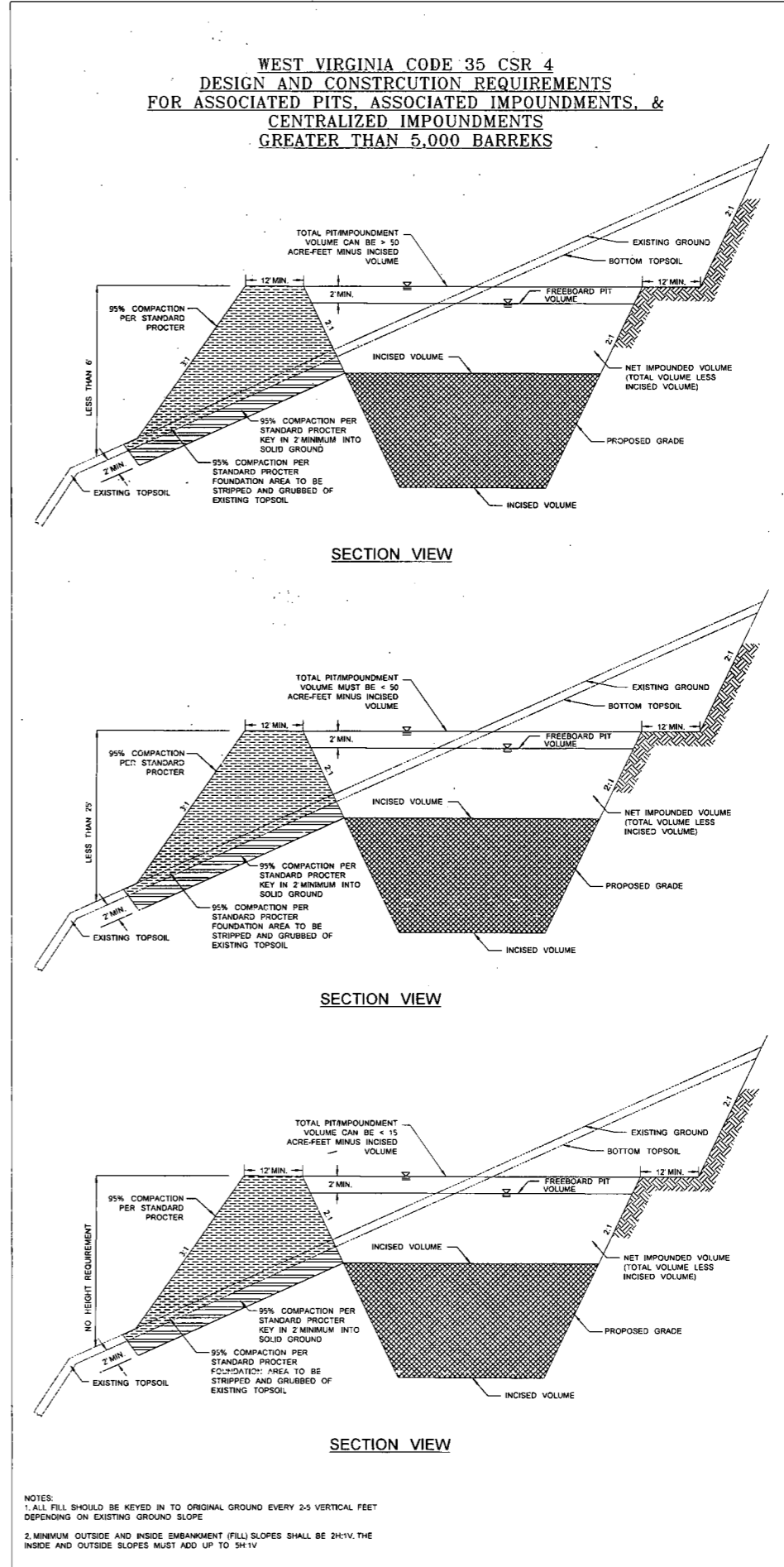
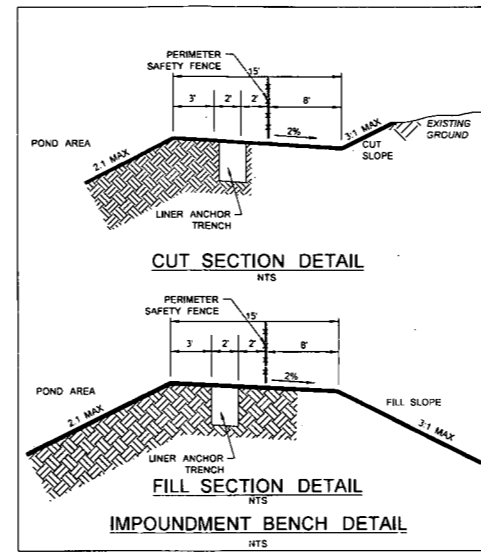
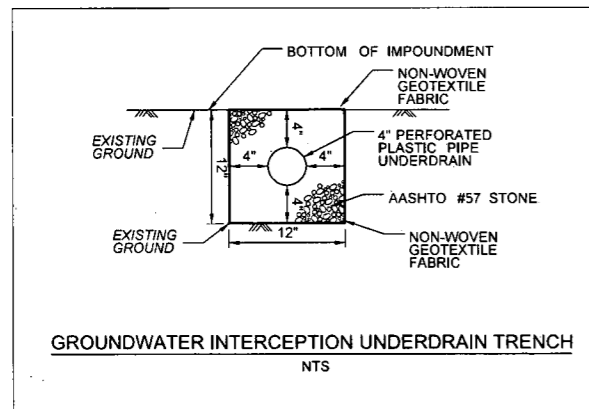
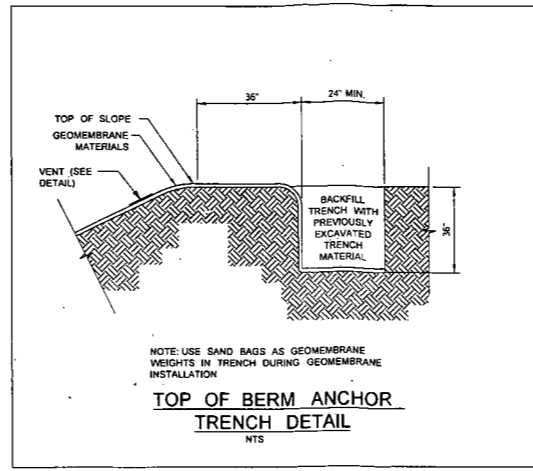
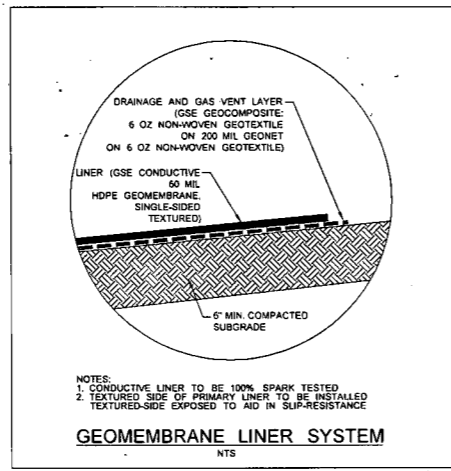
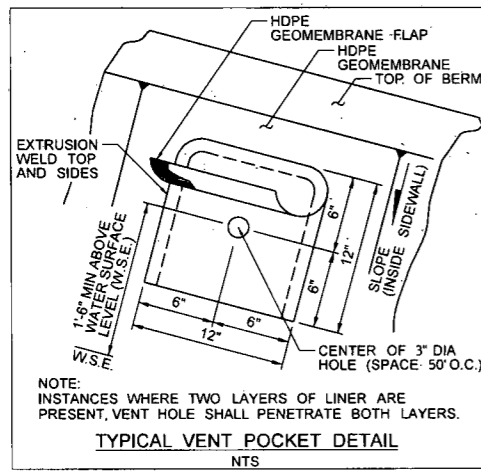


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CONSTRUCTION DETAILS  
**MORRIS CENTRALIZED IMPOUNDMENT**  
SOUTHWEST DISTRICT DODDRIEGE COUNTY, WV

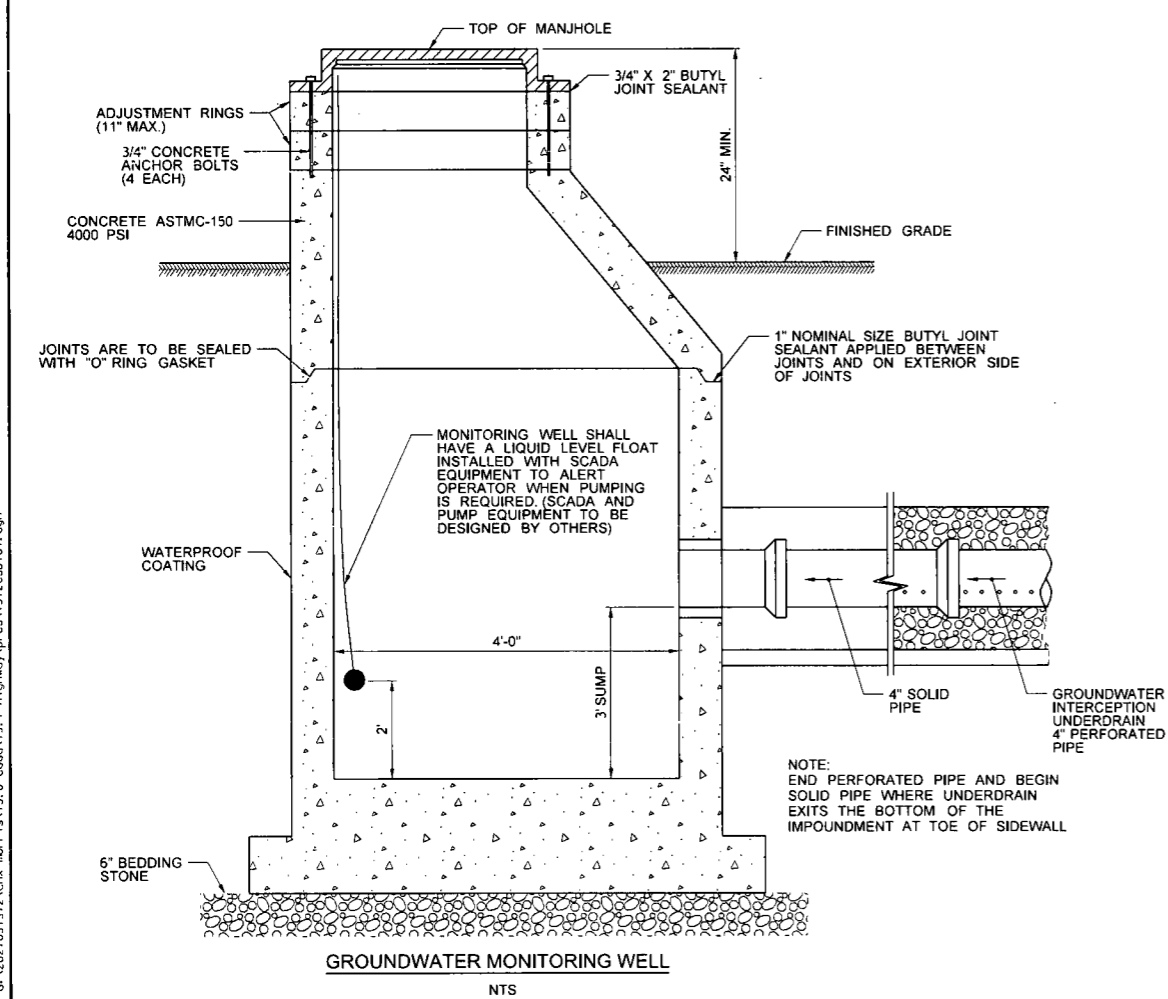
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FILE NO.: SLS-8057  
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NOTES:  
 1. FLUID LEVEL INDICATORS AND ESCAPE LADDER TREADS TO BE PLACED AND ATTACHED AS PER MANUFACTURER'S SPECIFICATIONS.  
 2. COMBINATION FILL GAUGE AND ESCAPE LADDER TO BE INSTALLED ON CENTRALIZED IMPOUNDMENT SIDEWALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

NOTES:  
 1. ALL FILL SHOULD BE KEVED IN TO ORIGINAL GROUND EVERY 2-3 VERTICAL FEET DEPENDING ON EXISTING GROUND SLOPE  
 2. MINIMUM OUTSIDE AND INSIDE EMBANKMENT (FILL) SLOPES SHALL BE 2H:1V. THE INSIDE AND OUTSIDE SLOPES MUST ADD UP TO 5H:1V



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CONSTRUCTION DETAILS  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV

DATE: 07/01/2014  
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 DESIGNED BY: JMR/RJH  
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 REV:

## REVEGETATION

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 HYDROSEEDING ACCORDING TO THE RATES INDICATED IN TABLE IV-5. 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 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 DISK 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 HAS BEEN 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 TIME OF SEEDBED PREPARATION.

#### C. PERMANENT SEED MIXTURES

PLANNERS SHOULD TAKE INTO CONSIDERATION THE SPECIES MAKEUP OF THE EXISTING PASTURE AND THE LANDOWNER'S FUTURE PASTURE MANAGEMENT PLANS WHEN RECOMMENDING SEED MIXTURES. SELECTIONS 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.
- ONLY ENDOPHYTIC FREE VARIETIES OF TALL FESCUE SHOULD BE USED. TALL FESCUE AND CROWNVEATCH ARE ALSO VERY INVASIVE SPECIES, NON-NATIVE TO WV.
- 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 THE 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 OF 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 SEEDBED SHOULD BE MULCHED IMMEDIATELY FOLLOWING SEEDING. MULCHES CONSERVE DESIRABLE SOIL PROPERTIES, REDUCE SOIL MOISTURE LOSS, PREVENT CRUSTING AND SEALING OF THE SOIL SURFACE AND PROVIDE A SUITABLE MICROCLIMATE FOR SEED GERMINATION. AREAS THAT CANNOT BE SEEDBED BECAUSE OF THE SEASON SHOULD BE MULCHED TO PROVIDE SOME PROTECTION TO THE SOIL SURFACE. AN ORGANIC MULCH, STRAW OR HAY SHOULD BE USED AND THE AREA THEN SEEDBED 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 HYDROSEEDING 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 SEEDBED 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.

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. ANCHORING

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.

#### 1. MECHANICAL ANCHORING

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.

TABLE IV-1  
 RECOMMENDED SEEDING DATES

PLANTING DATES	SUITABILITY
MARCH 1 - APRIL 15 & AUGUST 1 - OCTOBER 1	BEST SEEDING PERIODS
APRIL 15 - AUGUST 1	HIGH RISK - MOISTURE STRESS LIKELY
OCTOBER 1 - DECEMBER 1	HIGH RISK - FREEZE DAMAGE TO YOUNG SEEDLINGS
DECEMBER 1 - MARCH 1	GOOD SEEDING PERIOD. DORMANT SEEDING

TABLE 3  
 TEMPORARY 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 - POORLY	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 - POORLY	5.5 - 7.0
SUNDOGGRASS	40	5/15 - 8/15	WELL - POORLY	5.5 - 7.5
WINTER TIE	168	8/15 - 10/15	WELL - POORLY	5.5 - 7.5
WINTER WHEAT	180	8/15 - 11/15	WELL - MOD. WELL	5.5 - 7.0
JAPANESE MILLET	30	6/15 - 8/15	WELL	4.5 - 7.0
REDDTOP	5	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

NOTE: THESE RATES SHOULD BE INCREASED 50% IF PLANTED APRIL 15 - AUGUST 1 AND OCTOBER 1 - MARCH 1.

TABLE 4B  
 WILDLIFE AND FARM FRIENDLY SEED MIXTURES

SPECIES/MIXTURES	SEEDING RATE (LBS./ACRE)	DRAINAGE	PH RANGE
KY BLUEGRASS	20		
REDDTOP/LADINO OR BIRDSFOOT TREFLOIL	3	WELL - MOD. WELL	5.5 - 7.5
TIMOTHY	5	WELL - MOD. WELL	6.5 - 8.0
TIMOTHY/ALFALFA	12		
BIRDSFOOT TREFLOIL	8	WELL - POORLY	5.5 - 7.5
ORCHARDGRASS	10		
LADINO CLOVER/REDDTOP	2	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS	10		
LADINO CLOVER	2	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS	20		
PERENNIAL RYEGRASS	10	WELL - MOD. WELL	5.5 - 7.5
CREeping RED FESCUE/PERENNIAL RYEGRASS	30	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS OR KY BLUEGRASS	20	WELL - MOD. WELL	6.0 - 7.5
BIRDSFOOT TREFLOIL/REDDTOP	10		
ORCHARDGRASS	5	WELL - MOD. WELL	5.5 - 7.5
LATHCO FLATPEA	30	WELL - MOD. WELL	5.5 - 7.5
PERENNIAL RYEGRASS	20	WELL - MOD. WELL	5.5 - 7.5
LATHCO FLATPEA	30	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS	20	WELL - MOD. WELL	5.5 - 7.5

\* "LATHCO" FLATPEA IS POTENTIALLY POISONOUS TO SOME LIVESTOCK. ALL LEGUMES SHOULD BE PLANTED WITH PROPER INOCULANTS PRIOR TO SEEDING. FOR UNPREPARED SEEDBEDS OR SEEDING OUTSIDE THE OPTIMUM TIMEFRAME, ADD 50% MORE SEED TO THE SPECIFIED RATE.

MIXTURES LISTED IN BOLD ARE SUITABLE FOR USE IN SHADED WOODLAND SETTINGS; THOSE IN ITALICS ARE SUITABLE FOR USE IN FILTER STRIPS.

TABLE 2  
 ACCEPTABLE FERTILIZATION RECOMMENDATION

SPECIES	N (LBS./AC)	P2O5 (LBS./AC)	EXAMPLE REC. PER ACRE
COOL SEEDING 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

TABLE 4A  
 PERMANENT SEEDING MIXTURE

SPECIES/MIXTURES	SEEDING RATE (LBS./ACRE)	DRAINAGE	PH RANGE
CROWNVEATCH/TALL FESCUE	10 - 15	WELL - MOD. WELL	5.0 - 7.5
CROWNVEATCH/PERENNIAL RYEGRASS	10 - 15	WELL - MOD. WELL	5.0 - 7.5
LADINO CLOVER/SERECIA LESPEDEZA/TALL FESCUE	30		
LADINO CLOVER/REDDTOP	3	WELL - MOD. WELL	5.0 - 7.5
CROWNVEATCH/TALL FESCUE/REDDTOP	10	WELL - MOD. WELL	5.0 - 7.5
TALL FESCUE/BIRDSFOOT TREFLOIL/REDDTOP	10	WELL - MOD. WELL	5.0 - 7.5
SERECIA LESPEDEZA/TALL FESCUE/REDDTOP	30	WELL - MOD. WELL	4.5 - 7.5
REDDTOP/TALL FESCUE/CREeping RED	30	WELL - MOD. WELL	5.0 - 7.5
TALL FESCUE	50	WELL - POORLY	4.5 - 7.5

\* "LATHCO" FLATPEA IS POTENTIALLY POISONOUS TO SOME LIVESTOCK. ALL LEGUMES SHOULD BE PLANTED WITH PROPER INOCULANTS PRIOR TO SEEDING. FOR UNPREPARED SEEDBEDS OR SEEDING OUTSIDE THE OPTIMUM TIMEFRAME, ADD 50% MORE SEED TO THE SPECIFIED RATE.

MIXTURES LISTED IN BOLD ARE SUITABLE FOR USE IN SHADED WOODLAND SETTINGS; THOSE IN ITALICS ARE SUITABLE FOR USE IN FILTER STRIPS.

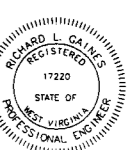
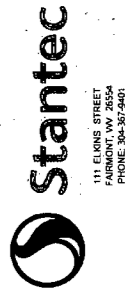
TABLE IV-5  
 LIME AND FERTILIZER TABLE

PH OF SOIL	LIME IN TONS PER ACRE	FERTILIZER (LBS., PER ACRE) (10-20-20 OR EQ.)
ABOVE 5.0	2	500
5.0 TO 6.0	3	500
BELOW 5.0	4	500

TABLE IV-6  
 MULCH MATERIALS LS RATES AND USED

MATERIAL	MINIMUM RATES PER ACRE	COVERAGE	REMARKS
HAY OR STRAW	2 TO 3 TONS	COVER 75% TO 90% OF SURFACE	SUBJECT TO WIND BLOWING OR WASHING UNLESS TIED DOWN
WOOD FIBER PULP FIBER	1000 TO 1500 LBS	COVER ALL DISTURBED AREAS	FOR HYDROSEEDING
WOOD - CELLULOSE RECIRCULATED PAPER			

TABLES IV 1-4 TAKEN FROM NATURAL RESOURCES CONSERVATION SERVICE MANUAL "CRITICAL AREA PLANTING"



THIS DOCUMENT WAS PREPARED BY:  
 STANTEC  
 FOR:  
 CNX GAS COMPANY, LLC.

CONSTRUCTION DETAILS  
**MORRIS CENTRALIZED IMPOUNDMENT**  
 SOUTHWEST DISTRICT DODDRIE COUNTY, WV

DATE: 07/01/2014  
 SCALE: AS SHOWN  
 DESIGNED BY: JMR/RJH  
 FILE NO.: SLS-8057  
 SHEET 31 OF 32  
 REV.

CNX MORRIS CENTRALIZED IMPOUNDMENT MATERIAL QUANTITIES				
CENTRALIZED IMPOUNDMENT				
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL
<b>1.0 CLEARING AND GRUBBING</b>				
1.a. TREE CLEARING	3.2	AC	\$	\$
1.b. MOWING	0	AC	\$	\$
<b>2.0 COMPOST FILTER SOCK</b>				
2.a. 12" COMPOST FILTER SOCK	241	LF	\$	\$
2.b. 18" COMPOST FILTER SOCK	963	LF	\$	\$
2.c. 24" COMPOST FILTER SOCK	455	LF	\$	\$
<b>3.0 AGGREGATE SURFACING (MANIFOLD PAD)</b>				
3.a. 12" of AASHTO #1 COMPACTED TO 8"	417	TONS	\$	\$
3.b. 4" of 3/4" CRUSHER RUN COMPACTED TO 2"	172	TONS	\$	\$
3.c. GEOTEXTILE	833	SY	\$	\$
<b>4.0 SLOPE MATTING</b>				
4.a. COCONUT SLOPE MATTING	1,422	SY	\$	\$
<b>5.0 SEED &amp; MULCH</b>				
5.a. SEEDING (INCLUDES AREA OF SLOPE MATTING AND DITCH LINING)	1.5	AC	\$	\$
5.b. MULCH (EXCLUDES AREA OF SLOPE MATTING AND DITCH LINING)	1.2	AC	\$	\$
<b>6.0 EXCAVATION</b>				
6.a. CENTRALIZED IMPOUNDMENT (CUT W/ 10% SWELL)	136,243	CY	\$	\$
6.b. TOPSOIL (ESTIMATED 6")	3,148	CY	\$	\$
<b>7.0 CENTRALIZED IMPOUNDMENT LINER SYSTEM</b>				
7.a. 60 MIL TEXTURED PRIMARY LINER	14,223	SY	\$	\$
7.b. GEOCOMPOSITE DRAINAGE AND GAS VENT LAYER (6 OZ NON-WOVEN GEOTEXTILE ON 200 MIL GEONET ON 6 OZ NON-WOVEN GEOTEXTILE)	14,223	SY	\$	\$
<b>8.0 GROUNDWATER INTERCEPTION UNDERDRAIN SYSTEM</b>				
8.a. 4" CORRUGATED PERFORATED PIPE	684	LF	\$	\$
8.b. 4" CORRUGATED SOLID PIPE	81	LF	\$	\$
8.c. NON-WOVEN GEOTEXTILE	340	SY	\$	\$
8.d. AASHTO #57 AGGREGATE	46	TONS	\$	\$
8.e. MANHOLE MONITORING WELL	1	EA	\$	\$
<b>9.0 MISCELLANEOUS</b>				
9.a. PERIMETER SAFETY FENCE	1,471	LF	\$	\$
9.b. ACCESS GATE WITH EMERGENCY LIFE LINE	1	EA	\$	\$
9.c. ORANGE SAFETY FENCE (WETLAND 5)	140	LF	\$	\$

NOTE:  
 GEOTEXTILE FABRIC, ROLLED EROSION CONTROL PRODUCT AND LINER SYSTEM QUANTITIES DO NOT ACCOUNT FOR OVERLAP.

CNX MORRIS CENTRALIZED IMPOUNDMENT MATERIAL QUANTITIES				
ACCESS ROAD				
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL
<b>1.0 CLEARING AND GRUBBING</b>				
1.a. TREE CLEARING	15.9	AC	\$	\$
1.b. MOWING	0	AC	\$	\$
<b>2.0 COMPOST FILTER SOCK</b>				
2.a. 12" COMPOST FILTER SOCK	4,654	LF	\$	\$
2.b. 18" COMPOST FILTER SOCK	7,289	LF	\$	\$
2.c. 24" COMPOST FILTER SOCK	4,553	LF	\$	\$
<b>3.0 AGGREGATE SURFACING</b>				
3.a. 12" of AASHTO #1 COMPACTED TO 8"	4,860	TONS	\$	\$
3.b. 4" of 3/4" CRUSHER RUN COMPACTED TO 2"	1,998	TONS	\$	\$
3.c. GEOTEXTILE	9,719	SY	\$	\$
<b>4.0 SLOPE MATTING</b>				
4.a. COCONUT SLOPE MATTING	25,586	SY	\$	\$
<b>5.0 SEED &amp; MULCH</b>				
5.a. SEEDING (INCLUDES AREA OF SLOPE MATTING AND DITCH LINING)	24.6	AC	\$	\$
5.b. MULCH (EXCLUDES AREA OF SLOPE MATTING AND DITCH LINING)	19.3	AC	\$	\$
<b>6.0 EXCAVATION</b>				
6.a. ACCESS ROAD (CUT W/ 10% SWELL)	11,759	CY	\$	\$
6.b. TOPSOIL (ESTIMATED 6")	5,367	CY	\$	\$
<b>7.0 DITCH LINING (ROADSIDE CHANNELS)</b>				
7.a. ROCK LINED (D50 = 4" MIN)	1,607	TONS	\$	\$
7.b. ROCK LINED (D50 = 6" MIN)	1,800	TONS	\$	\$
7.c. GEOTEXTILE	6,708	SY	\$	\$
<b>8.0 CMP CULVERT</b>				
8.a. 15"	1,076	LF	\$	\$
8.a. 21"	45	LF	\$	\$
<b>9.0 RIP RAP APRONS (D50 = 6" MIN)</b>				
9.a. OUTLET PROTECTION	158	TONS	\$	\$
9.b. GEOTEXTILE	389	SY	\$	\$
<b>10.0 SLOPE PROTECTION BELOW RIP RAP APRONS</b>				
10.a. ROCK (D50 = 6" MIN)	590	TONS	\$	\$
10.b. GEOTEXTILE	840	SY	\$	\$
<b>11.0 DITCH LENGTH</b>				
	4,753	LF	\$	\$
<b>12.0 KEYWAY EXCAVATION (TOE LENGTH x 18' AVG WIDTH x 4' AVG DEPTH)</b>				
	13,107	CY	\$	\$



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