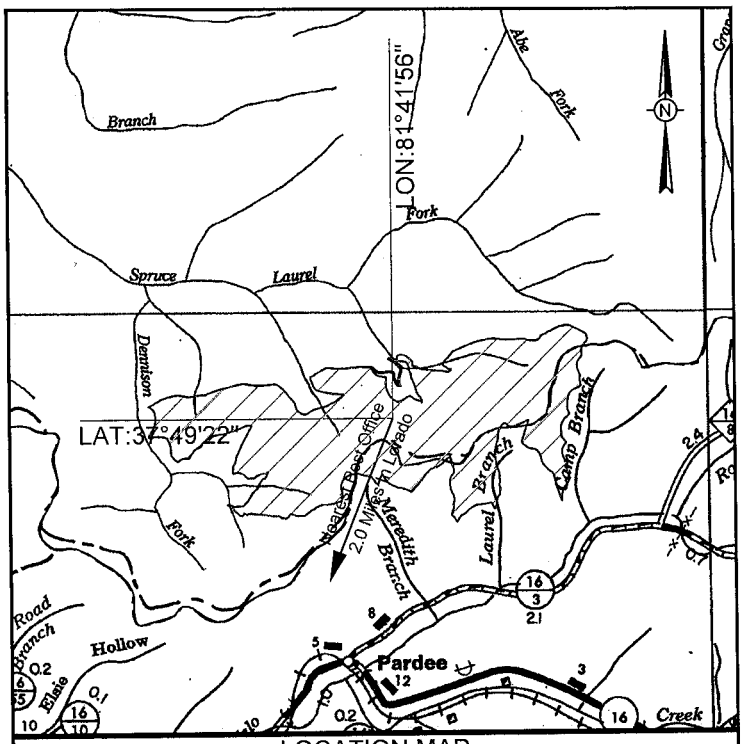
The following document is not readable via Optical Character Recognition. For more information or if you require the document to be read aloud please call: 304-399-5353

EXHIBIT 1
Location Map

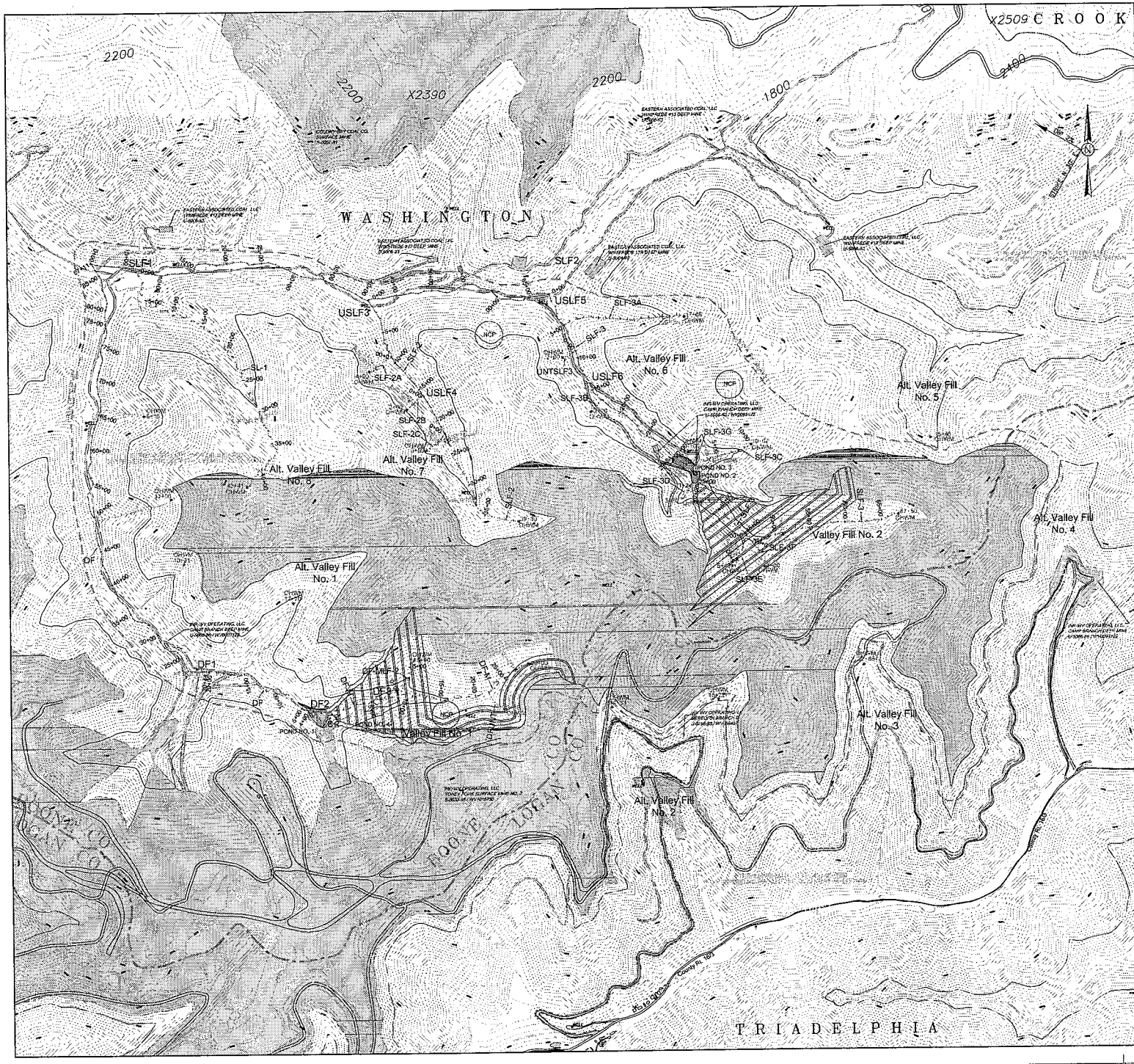


LOCATION MAP

SMA NO. S-5007-09 NPDES NO. WV1019902

WV DEPT. OF HIGHWAYS
WASHINGTON DISTRICT, BOONE COUNTY
TRIADELPHIA DISTRICT, LOGAN COUNTY
LORADO QUADRANGLE
SCALE: 1" = 1 MILE

Receiving streams:
Unnamed tributaries of/and Dennison Fork of Spruce Laurel Fork, unnamed tributaries of/and Spruce Laurel Fork; All of Spruce Fork of Little Coal River of Coal River of Kanawha River. Unnamed tributary of/and Camp Branch, Laurel Branch, unnamed tributary of/and Meredith Branch; All of Toney Fork of Buffalo Creek of Guyandotte River of Ohio River.



Stream and Wetland Delineation Map

- COUNTY LINE
- INTERMITTENT/PERENNIAL STREAM CONVERSION POINT
- EPHEMERAL/INTERMITTENT STREAM CONVERSION POINT
- ORDINARY HIGH WATER MARK
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- WETLAND AREAS 0.00 ACRES
- SLF2 BENTHICS SITE
- NCP NO CHANNEL PRESENT
- TOTAL PERMITTED AREA 764.00 ACRES
- OVERBONDED AREAS (INCLUDED IN TOTAL BONDED PERMIT AREA)
- ADJACENT PERMIT AREA
- AREA OF SURVEY
- STREAM PRESENT – NOT DELINEATED CONFIRMED NO PROJECT INVOLVEMENT AS SHOWN

COORDINATE SYSTEM: WEST VIRGINIA SOUTH STATE PLANE, NAD 27

TABLE 3. STREAM LOCATION SUMMARY

Sites	Latitude	Longitude	Elevation
SPRUCE LAUREL FORK			
SL-1 E/I	37°49'49"	81°43'03"	1561'
SL-1 OHWM	37°49'46"	81°43'55"	2246'
SLF-2 UP	37°49'46"	81°42'30"	1668'
SLF-2 E/I	37°49'38"	81°42'26"	1812'
SLF-2 OHWM	37°49'35"	81°42'17"	1962'
SLF-2A E/I	37°49'36"	81°42'43"	1962'
SLF-2A OHWM	37°49'33"	81°42'44"	1737'
SLF-2B E/I	37°49'31"	81°42'36"	1735'
SLF-2B OHWM	37°49'30"	81°42'37"	1805'
SLF-2C E/I	37°49'47"	81°42'28"	1783'
SLF-2C OHWM	37°49'48"	81°42'27"	1869'
SLF-3 UP	37°49'43"	81°41'49"	1700'
SLF-3 E/I	37°49'33"	81°41'13"	1856'
SLF-3 OHWM	37°49'36"	81°41'12"	2087'
SLF-3A E/I	37°50'03"	81°40'47"	1809'
SLF-3A OHWM	37°50'02"	81°41'37"	1723'
SLF-3B OHWM	37°49'50"	81°41'05"	1728'
SLF-3C E/I	37°49'44"	81°41'45"	1750'
SLF-3C OHWM	37°49'46"	81°41'38"	1874'
SLF-3D OHWM	37°49'38"	81°41'50"	1818'
SLF-3E E/I	37°49'29"	81°41'40"	1895'
SLF-3E OHWM	37°49'28"	81°41'41"	1962'
SLF-3F OHWM	37°49'28"	81°41'25"	1947'
SLF-3G OHWM	37°49'44"	81°41'47"	1744'
DENNISON FORK			
DF-M UP	37°49'15"	81°43'12"	1604'
DF-N E/I	37°49'15"	81°42'19"	1688'
DF-N OHWM	37°49'10"	81°42'16"	2020'
DF-MLF-2 OHWM	37°49'17"	81°42'36"	1992'

NOTE: NO WETLANDS WERE NOTED ON OR ADJACENT TO THE PROPOSED PROJECT.

I, the undersigned, hereby certify that this map is correct and sheets to the best of my knowledge and belief all of the information required by the surface mining law of this state

P. E. No. 9711

Date: / /

State of _____
County of _____
Acknowledged before me, a Notary Public, _____
This ___ day of _____, ____
My commission expires _____

REVISION	DATE	DESCRIPTION
A	12/08	REVISED AS PER WVDEP SECOND TECH. COR
A	08/08	REVISED AS PER WVDEP FIRST TECHNICAL CO

Prepared By:

Marshall Miller and A
Geology, Environmental Sciences & Eng
Bluefield, VA • Lexington, KY
Ashland, VA • Charleston, WV
Kingsport, TN • Lenexa, KS
Cincinnati, OH • Beckley, WV

DR103 03/09 TM
DR103_Stream Delineation.dwg

SMA NO. S-5002-09 NPDES N

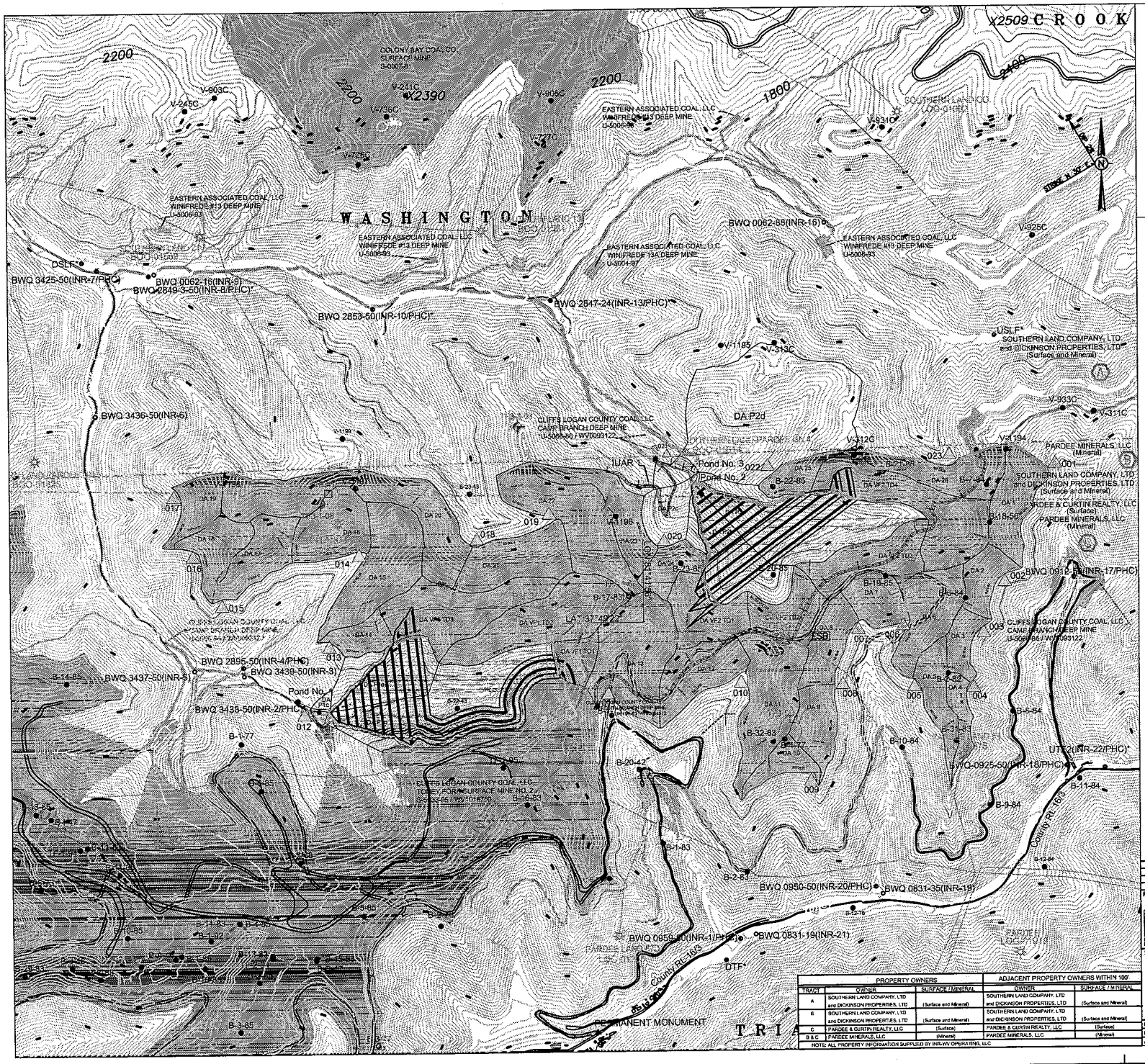
STREAM AND WETLAND DELINEAT
TONEY FORK SURFACE MINE No. 3
LORADO QUADRANGLE,
WASHINGTON DISTRICT, BOONE COUNTY
TRIADELPHIA DISTRICT, LOGAN COUNTY WEST
Prepared For:
INR-WV OPERATING, LLC
100 MARKET STREET, SUITE A, MAN, WV

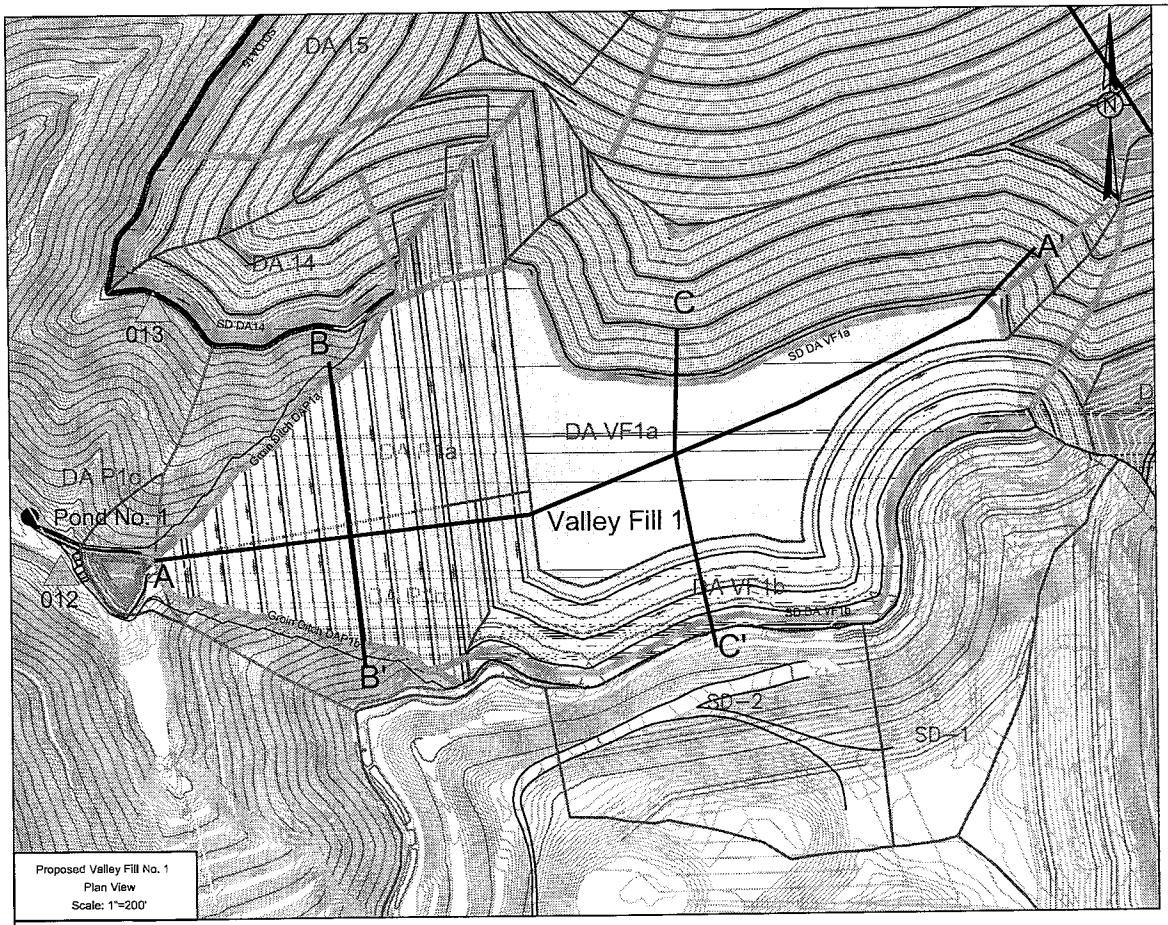
CAD BY	TM	03/09
CHECKED BY	JAA	03/09
APPROVED BY	CJE	03/09

Scale In Fee
500 0 5

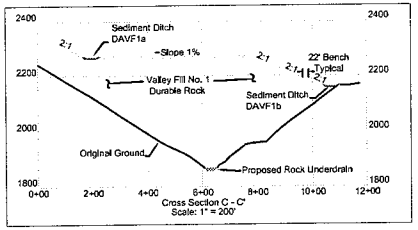
EXHIBIT 2
Stream Delineation Map

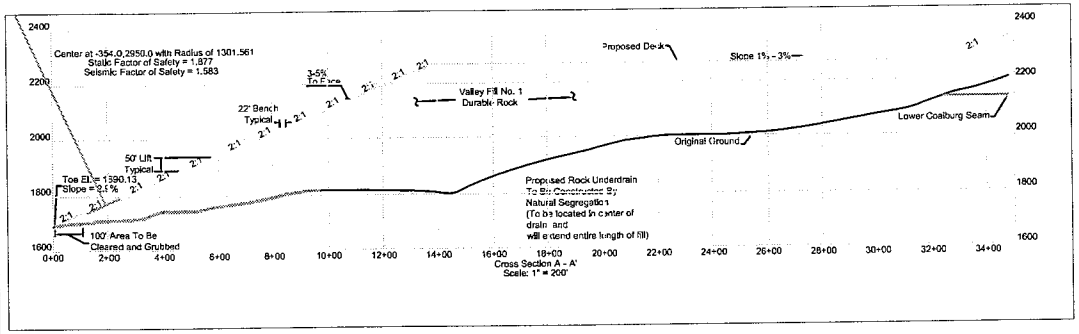
EXHIBIT 3
Proposal Map

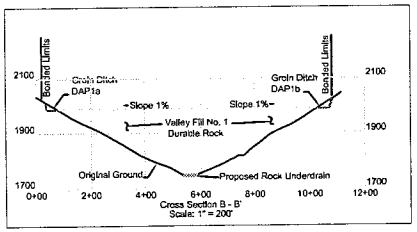




Proposed Valley Fill No. 1
Plan View
Scale: 1"=200'







PROFILE LEGEND

- ORIGINAL GRADE
- PROPOSED REGRADE
- DURING MINING SURFACE
- FACTOR OF SAFETY

PLAN VIEW LEGEND

- 10' REGRADE INTERMEDIATE CONTOURS
- 50' REGRADE INDEX CONTOURS
- DRAINAGE DIVISION LINES
- GRAIN DITCHES/FLUMES
- DRAINAGE STRUCTURE
- A — A' LINE OF CROSS SECTION
- DRAINAGE STRUCTURE FLOW DIRECTION

SEAM OUTCROPS

- N15 – CLARION
- N14 – CLARION SPLIT
- N13 – STOCKTON A
- N12 – LOWER STOCKTON
- N11 – COALBURG
- N10 – LOWER COALBURG
- N9 – LOWER DOROTHY
- N8U – UPPER WINIFREDE
- N8L – LOWER WINIFREDE

NOTES

1. REFER TO SECTION P FOR DRAINAGE
2. REFER TO SECTION R FOR STABILITY
3. REFER TO SECTION R FOR EXCESS S

REVISION	DATE	DESCRIPTION
A	12/09	REVISED AS PER WVDEP SECOND TECH. CO

Prepared By: Marshall Miller and Associates
Geology, Environmental Sciences, & E
Beckley, WV · Charleston, W
Ashland, VA · Charleston, W
Huggart, WV · Lenexa, KS
Cincinnati, OH · Beckley, WV
RPH 03-02 12/09 MU
PR Consulting

SMA NO. S-5007-09 NPDE

VALLEY FILL NO. 1 DETAIL SI
TONEY FORK SURFACE MINE No.
LORADO QUADRANGLE,
WASHINGTON DISTRICT, BOONE COUNT
TRIADELPHIA DISTRICT, LOGAN COUNTY WES
Prepared For:
CLIFFS LOGAN COUNTY COAL, LLC
100 MARKET STREET, SUITE A, MAN WV

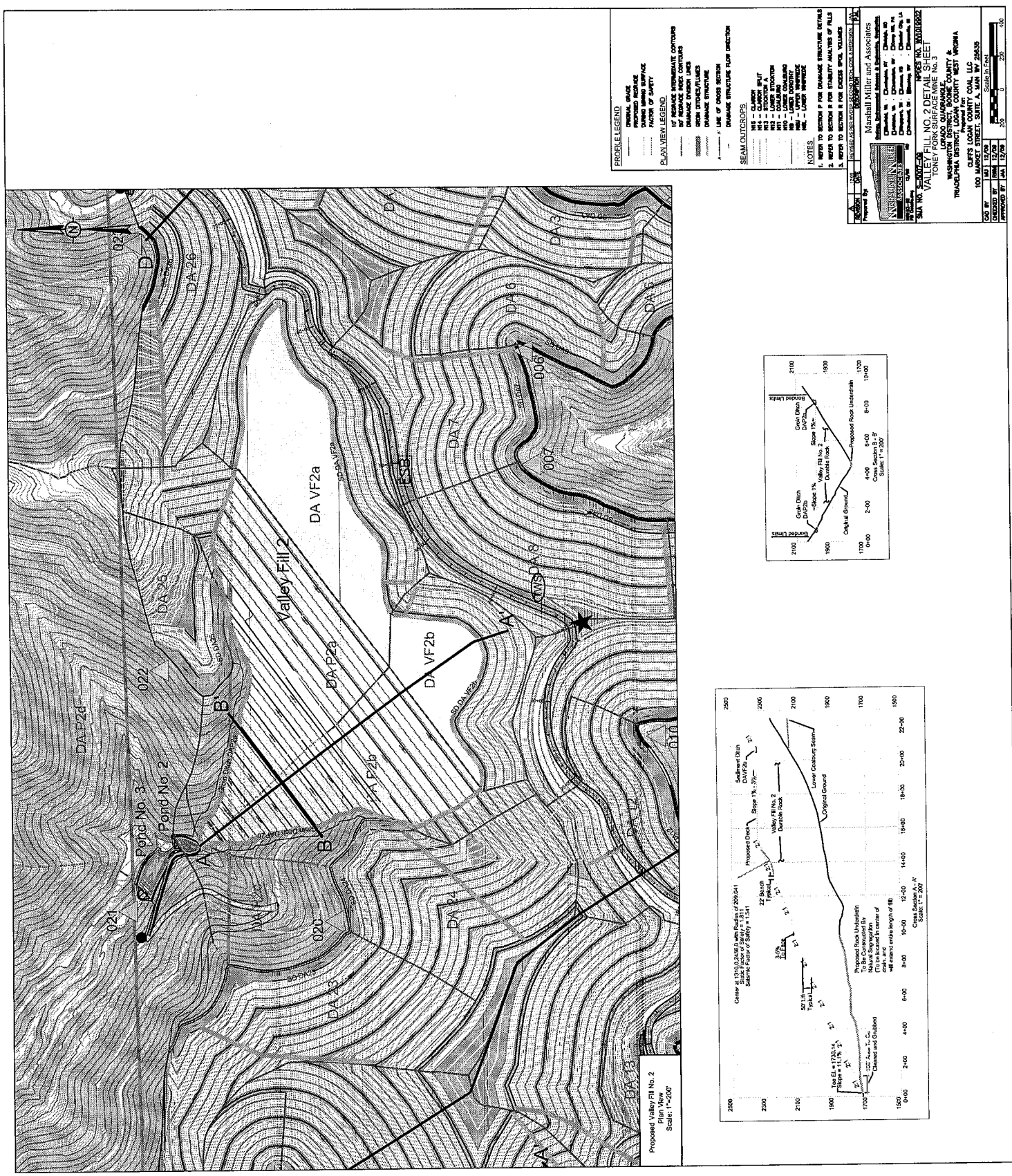
CAD BY	MU	12/09
CHECKED BY	RWM	12/09
APPROVED BY	JAA	12/09

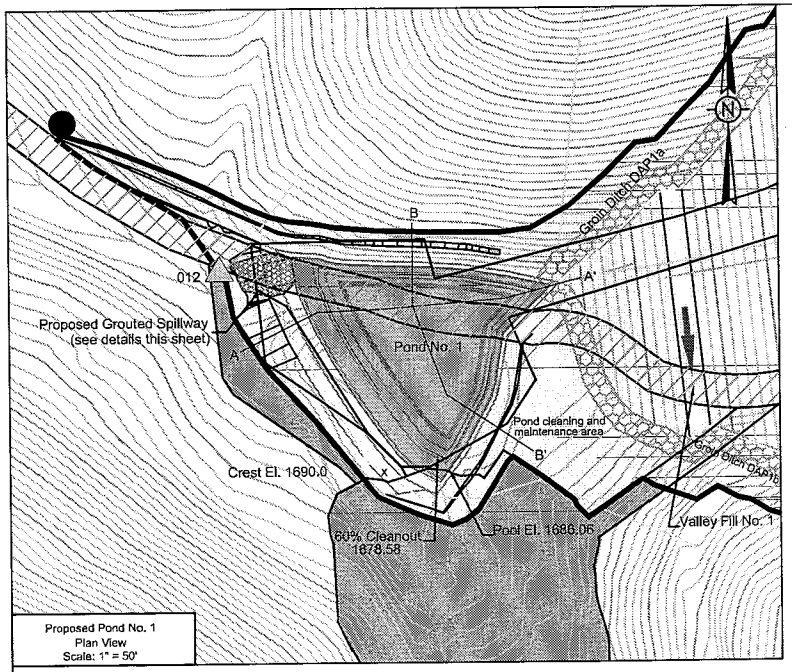
Scale in F
200 0

EXHIBIT 4
Valley Fill No. 1 Detail Map

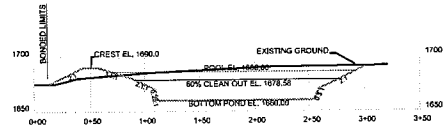
EXHIBIT 5

Valley Fill No. 2 Detail Map

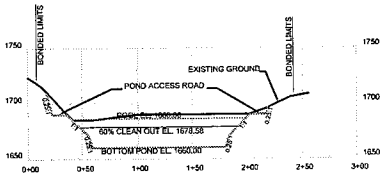




Proposed Pond No. 1
Plan View
Scale: 1" = 50'

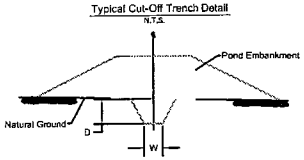


Pond No. 1 Profile A-A'
Scale: 1" = 50'



Pond No. 1 Profile B-B'
Scale: 1" = 50'

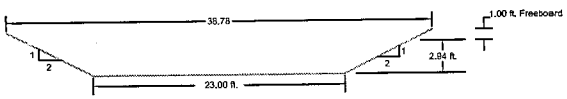
Typical Cut-Off Trench Detail
N.T.S.



Construction Notes:

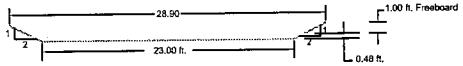
1. Cut-Off Trench shall be excavated along the centerline of the dam.
2. Cut-Off Trench shall extend up both abutments to the normal pool elevation.
3. Trench depth, D, shall extend to a relatively impervious layer of soil or to bedrock.
4. Trench width, W, shall be adequate to accommodate the equipment used in excavation, backfill, and compaction operations.

Pond No. 1 Spillway - Level Control Section
N.T.S.

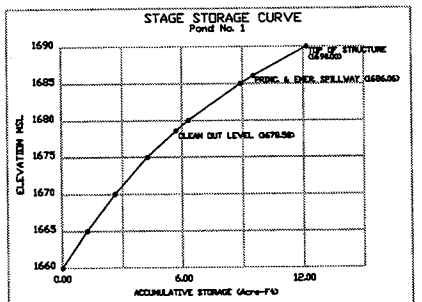


Channel Type: Trapezoidal, Equal Side Slopes
Dimensions: Left Side Slope 2.00:1
Right Side Slope 2.00:1
Base Dimension: 23.00
Wetted Perimeter: 36.17
Area of Wetted Cross Section: 85.05
Discharge: 403.88 cfs
Depth of Flow: 2.94 feet
Velocity: 4.75 fps
Channel Lining: Rough Concrete
Freeboard: 1.00 feet
Slope: 0%

Pond No. 1 Spillway - Chute Section
N.T.S.



Channel Type: Trapezoidal, Equal Side Slopes
Dimensions: Left Side Slope 2.00:1
Right Side Slope 2.00:1
Base Dimension: 23.00
Wetted Perimeter: 25.13
Area of Wetted Cross Section: 11.40
Discharge: 403.88 cfs
Depth of Flow: 0.48 feet
Velocity: 35.44 fps
Channel Lining: Rough Concrete
Freeboard: 1.00 feet
Slope: 50.0%



STORAGE VOLUME COMPUTATIONS

Pond No. 1

ELEV. (Ft)	WIDTH (Ft)	LENGTH (Ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (Ft)	STORAGE (ac-Ft)	ACC. STORAGE (ac-Ft)	STAGE INTERVAL (Ft)
1660.00	N/A	N/A	0.2200					
1665.00	N/A	N/A	0.3545	0.2464	5.00	1.2320	1.2320	5.00
1670.00	N/A	N/A	0.2969	0.3258	5.00	1.6290	2.8610	10.00
1675.00	N/A	N/A	0.3618	0.3293	5.00	1.6465	4.5075	15.00
1678.58	N/A	N/A	0.4283	0.3946	3.58	1.4122	5.9197	18.58
1680.00	N/A	N/A	0.4350	0.4316	1.42	0.6270	6.5467	20.00
1685.00	N/A	N/A	0.5930	0.5140	5.00	2.5700	9.0175	25.00
1686.06	N/A	N/A	0.6120	0.5975	1.06	0.6333	9.6508	26.06
1690.00	N/A	N/A	0.7230	0.6645	3.94	2.6268	12.1469	30.00

Total Required Sediment Control Capacity = 8.52 ac-ft
Total Sediment Control Capacity Provided in Pond No. 1 = 9.52 ac-ft

Notes:

1) Rock Rip-Rap Apron shall be constructed at each exit channel.
2) Cut slopes on ponds shall be as follows

Durable Rock	0.25:1
Weathered Rock	1.0:1
Soil	2.0:1

3) See Regrade/Drainage Map for drainage area lines.

LEGEND

- Original Ground Contours
- Proposed 5 Ft. Contours
- A — A' Line of Cross-Section
- Permit Boundary
- Adjacent Permit
- Proposed Drainage
- 012 NPDES Outlet

REVISION	DATE	DESCRIPTION
A	12/09	REVISED AS PER WVDEP SECOND TECH. CO

Prepared By:
Marshall Miller and Associates
Geology, Environmental Sciences & D
Bluefield, VA · Lexington, KY
Ashland, VA · Charleston, W
Kingsport, TN · Lenoxa, KS
Cleveland, OH · Beckley, WV

12/09 MJ

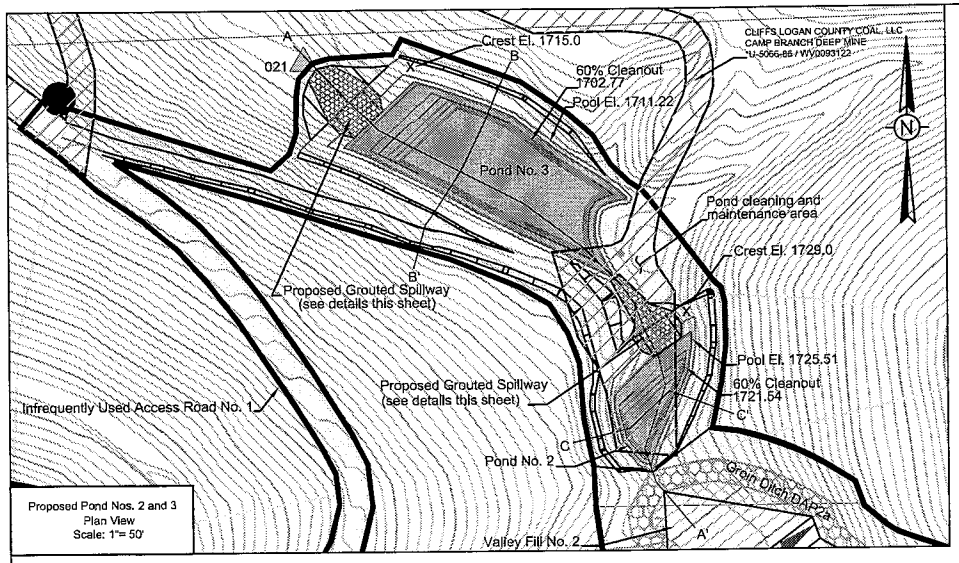
SMA NO. S-5007-09 NPDES

POND No. 1 DETAIL SHEE
TONEY FORK SURFACE MINE No.
LORADO QUADRANGLE,
WASHINGTON DISTRICT, BOONE COUNT
TRIADELPHIA DISTRICT, LOGAN COUNTY WEST
Prepared For:
CLIFFS LOGAN COUNTY COAL, LLC
100 MARKET STREET, SUITE A, MAN WV

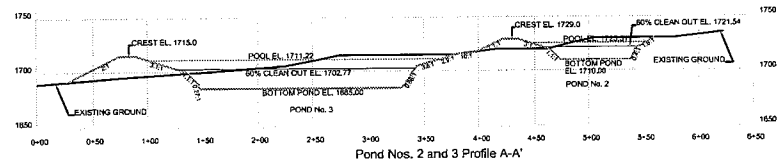
CAD BY	MJ	12/09
CHECKED BY	RWM	12/09
APPROVED BY	JAA	12/09

Scale as no

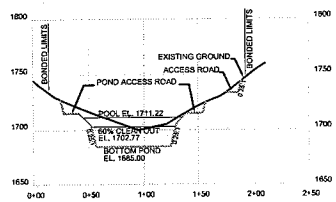
EXHIBIT 6
Pond No. 1 Detail Map



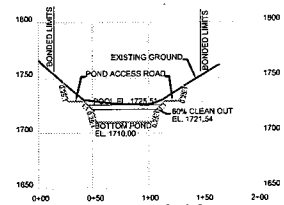
Proposed Pond Nos. 2 and 3
Plan View
Scale: 1"= 50'



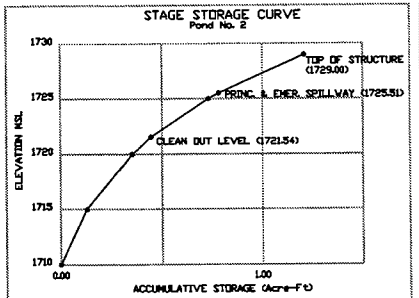
Pond Nos. 2 and 3 Profile A-A'
Scale: 1" = 50'



Pond No. 3 Profile B-B'
Scale: 1" = 50'

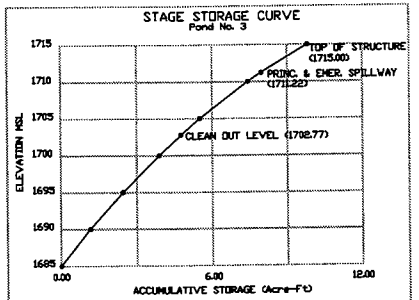


Pond No. 2 Profile C-C'
Scale: 1" = 50'



STORAGE VOLUME COMPUTATIONS
Pond No. 2

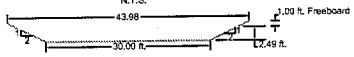
ELEV. (Ft)	WIDTH (Ft)	LENGTH (Ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (Ft)	STORAGE (ac-Ft)	ACC. STORAGE (ac-Ft)	STAGE INTERVAL (Ft)
1710.00	N/A	N/A	0.2660					
1715.00	N/A	N/A	0.4368	0.3250	5.00	0.1300	0.1300	5.00
1720.00	N/A	N/A	0.6538	0.5453	5.00	0.2725	0.3025	10.00
1721.54	N/A	N/A	0.6669	0.6599	1.54	0.0923	0.4448	11.54
1725.00	N/A	N/A	0.9998	0.8284	3.46	0.2852	0.7300	15.00
1725.51	N/A	N/A	0.1003	0.51	0.51	0.0513	0.7813	15.51
1729.00	N/A	N/A	0.1430	0.1216	3.49	0.4238	1.2050	19.00



STORAGE VOLUME COMPUTATIONS
Pond No. 3

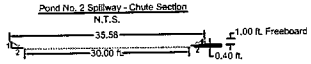
ELEV. (Ft)	WIDTH (Ft)	LENGTH (Ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (Ft)	STORAGE (ac-Ft)	ACC. STORAGE (ac-Ft)	STAGE INTERVAL (Ft)
1685.00	N/A	N/A	0.2138					
1690.00	N/A	N/A	0.2500	0.2319	5.00	1.1575	1.1575	5.00
1695.00	N/A	N/A	0.2700	0.2630	5.00	1.3150	2.4725	10.00
1700.00	N/A	N/A	0.2970	0.2845	5.00	1.4225	3.8950	15.00
1702.77	N/A	N/A	0.3241	0.3106	2.77	0.8598	4.7548	17.77
1705.00	N/A	N/A	0.3466	0.3351	2.23	0.7469	5.4925	20.00
1710.00	N/A	N/A	0.4260	0.3860	5.00	1.9300	7.4225	25.00
1715.00	N/A	N/A	0.4914	0.4587	1.22	0.5339	7.9573	26.22
1715.00	N/A	N/A	0.5230	0.4900	3.78	1.8446	9.8021	30.00

Pond No. 2 Spillway - Level Control Section
N.T.S.



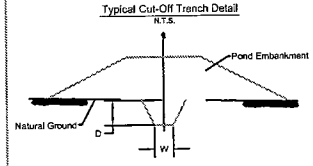
Channel Type: Trapezoidal, Equal Side Slopes
Dimensions: Left Side Slope 2.00:1
Right Side Slope 2.00:1
Base Dimension: 30.00
Wetted Perimeter: 41.16
Area of Wetted Cross Section: 87.29
Discharge: 386.89 cfs
Depth of Flow: 2.49 feet
Velocity: 4.43 fps
Channel Lining: Rough Concrete
Freeboard: 1.00 feet
Slope: 0.0%

Pond No. 2 Spillway - Chute Section
N.T.S.



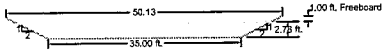
Channel Type: Trapezoidal, Equal Side Slopes
Dimensions: Left Side Slope 2.00:1
Right Side Slope 2.00:1
Base Dimension: 30.00
Wetted Perimeter: 31.77
Area of Wetted Cross Section: 12.20
Discharge: 386.89 cfs
Depth of Flow: 0.40 feet
Velocity: 31.72 fps
Channel Lining: Rough Concrete
Freeboard: 1.00 feet
Slope: 50.0%

Typical Cut-Off Trench Detail
N.T.S.



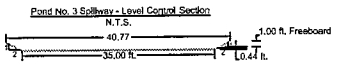
Construction Notes:
1. Cut-Off Trench shall be excavated along the centerline of the dam.
2. Cut-Off Trench shall extend up both abutments to the normal pool elevation.
3. Trench depth, D, shall extend to a relatively impervious layer of soil or to bedrock.
4. Trench width, W, shall be adequate to accommodate the equipment used in excavation, backfill, and compaction operations.

Pond No. 3 Spillway - Level Control Section
N.T.S.



Channel Type: Trapezoidal, Equal Side Slopes
Dimensions: Left Side Slope 2.00:1
Right Side Slope 2.00:1
Base Dimension: 35.00
Wetted Perimeter: 47.45
Area of Wetted Cross Section: 112.97
Discharge: 540.83 cfs
Depth of Flow: 2.78 feet
Velocity: 4.79 fps
Channel Lining: Rough Concrete
Freeboard: 1.00 feet
Slope: 0.0%

Pond No. 3 Spillway - Level Control Section
N.T.S.



Channel Type: Trapezoidal, Equal Side Slopes
Dimensions: Left Side Slope 2.00:1
Right Side Slope 2.00:1
Base Dimension: 35.00
Wetted Perimeter: 36.97
Area of Wetted Cross Section: 15.85
Discharge: 540.83 cfs
Depth of Flow: 0.44 feet
Velocity: 34.13 fps
Channel Lining: Rough Concrete
Freeboard: 1.00 feet
Slope: 50.0%

Total Combined Required Sediment Control Capacity for Ponds 2 and 3 = 8.56 ac-ft
Total Sediment Control Capacity Provided by Pond 2 = 0.78 ac-ft
Total Sediment Control Capacity Provided by Pond 3 = 7.96 ac-ft
Total Combined Capacity Provided by Ponds 2 and 3 = 8.74 ac-ft

Notes:
1) Rock Rip-Rap Apron shall be constructed at each exit channel.
2) Cut slopes on ponds shall be as follows

Durable Rock	0.25:1
Weathered Rock	1.0:1
Soil	2.0:1

3) See Regrade/Drainage Map for drainage area lines.

LEGEND
- Original Ground Contours
- Proposed 5 Ft. Contours
- A — A' Line of Cross-Section
- Permit Boundary and Bonded Area
- Adjacent Permit
- Proposed Drain
- 016 NPDES Outlet

REVISION	DATE	DESCRIPTION
3	12/09	REVISED AS PER WVDEP SECOND TECH. C
2	08/09	REVISED AS PER WVDEP FIRST TECHNICAL

Prepared By:
Marshall Miller and Associates
Geology, Environmental Sciences & E
Bluefield, VA · Lexington, K
Ashland, VA · Charleston, W
Kingport, TN · Lenoxe, KS
Chillicothe, OH · Beckley, WV

SMA NO. S-5007-09 NPDES
POND Nos. 2 and 3 DETAIL SI
TONEY FORK SURFACE MINE No.
LORADO QUADRANGLE,
WASHINGTON DISTRICT, BOONE COUNT
TRIADELPHIA DISTRICT, LOGAN COUNTY WES
Prepared For:
CLIFFS LOGAN COUNTY COAL, LLC
100 MARKET STREET, SUITE A, MAN WV

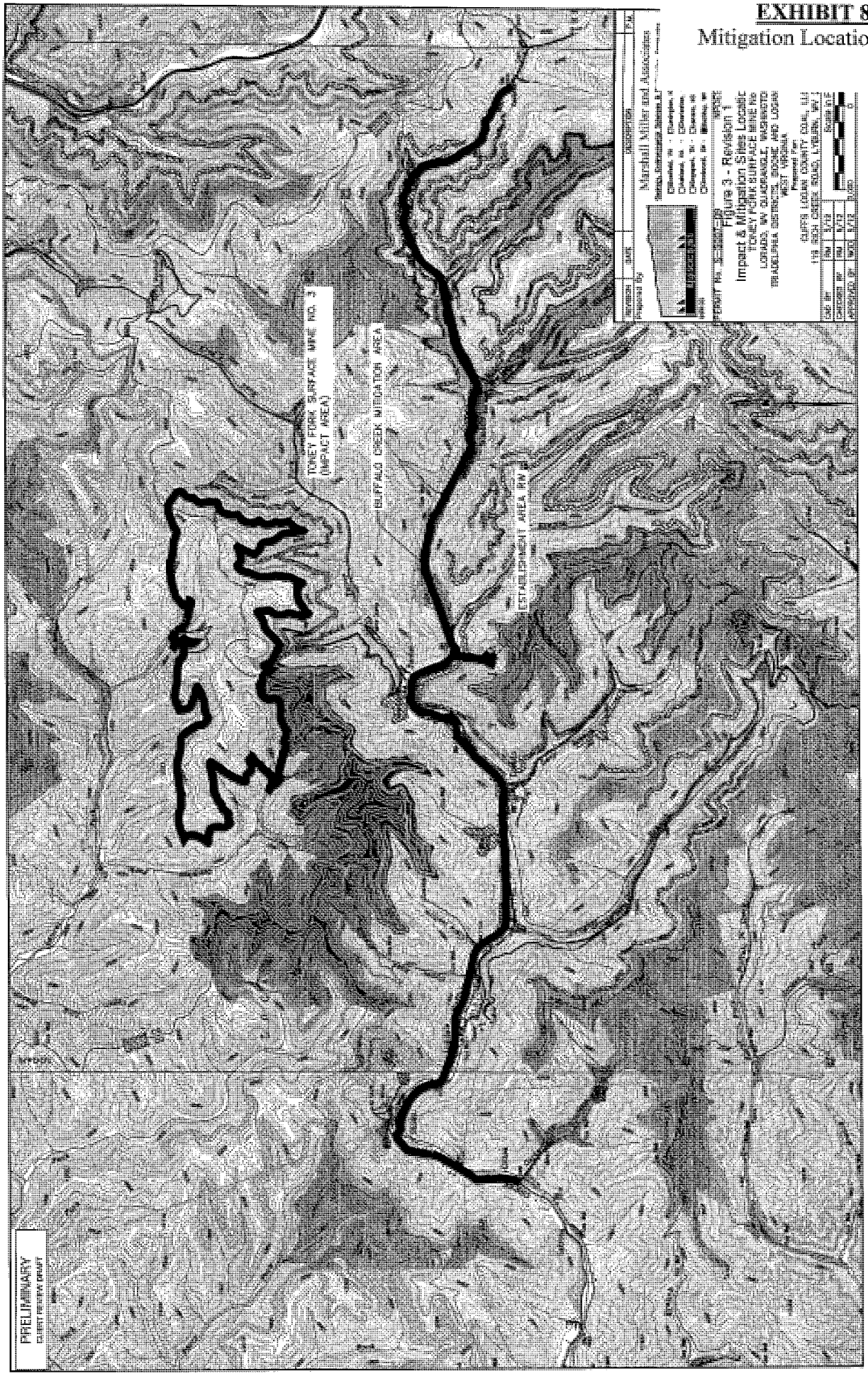
CAD BY	MJ	04/09
CHECKED BY	RRM	04/09
APPROVED BY	JAA	04/09

Scale as no

EXHIBIT 7
Pond Nos 2 and 3 Detail Map

EXHIBIT 8

Mitigation Location Map



PRELIMINARY
CLIENT REVIEW DRAFT

NOTES:
1. INSTALL AND MAINTAIN APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
2. WORK THESE PLANS WITH MM&A CMP REPORT DATED MAY 25, 2012.
3. EXISTING MATURE TREES IN THE VICINITY OF THE WORK AREA SHALL BE PRESERVED WHENEVER PRACTICABLE. REASONABLE SPECIAL EFFORTS SHALL BE MADE TO PRESERVE THE SPECIFIC TREES SHOWN ON THIS SHEET. IN SITUATIONS WHERE THE PROPOSED ALIGNMENT WOULD NECESSITATE REMOVAL OF TREES, THE STREAM RESTORATION PROFESSIONAL MAY MAKE LATERAL ADJUSTMENTS TO THE ALIGNMENT TO SAVE AS MANY TREES AS PRACTICABLE.

STATION CONVERSION TABLE

PLAN VIEW STATION	SLOPE LENGTH	DESCRIPTION
0+00	0	CONFLUENCE OF RW WITH BUFFALO CREEK
1+26	133	UPSTREAM END SEGMENT A
4+29	449	DOWNSTREAM END SEGMENT B
6+29	652	UPSTREAM END SEGMENT B

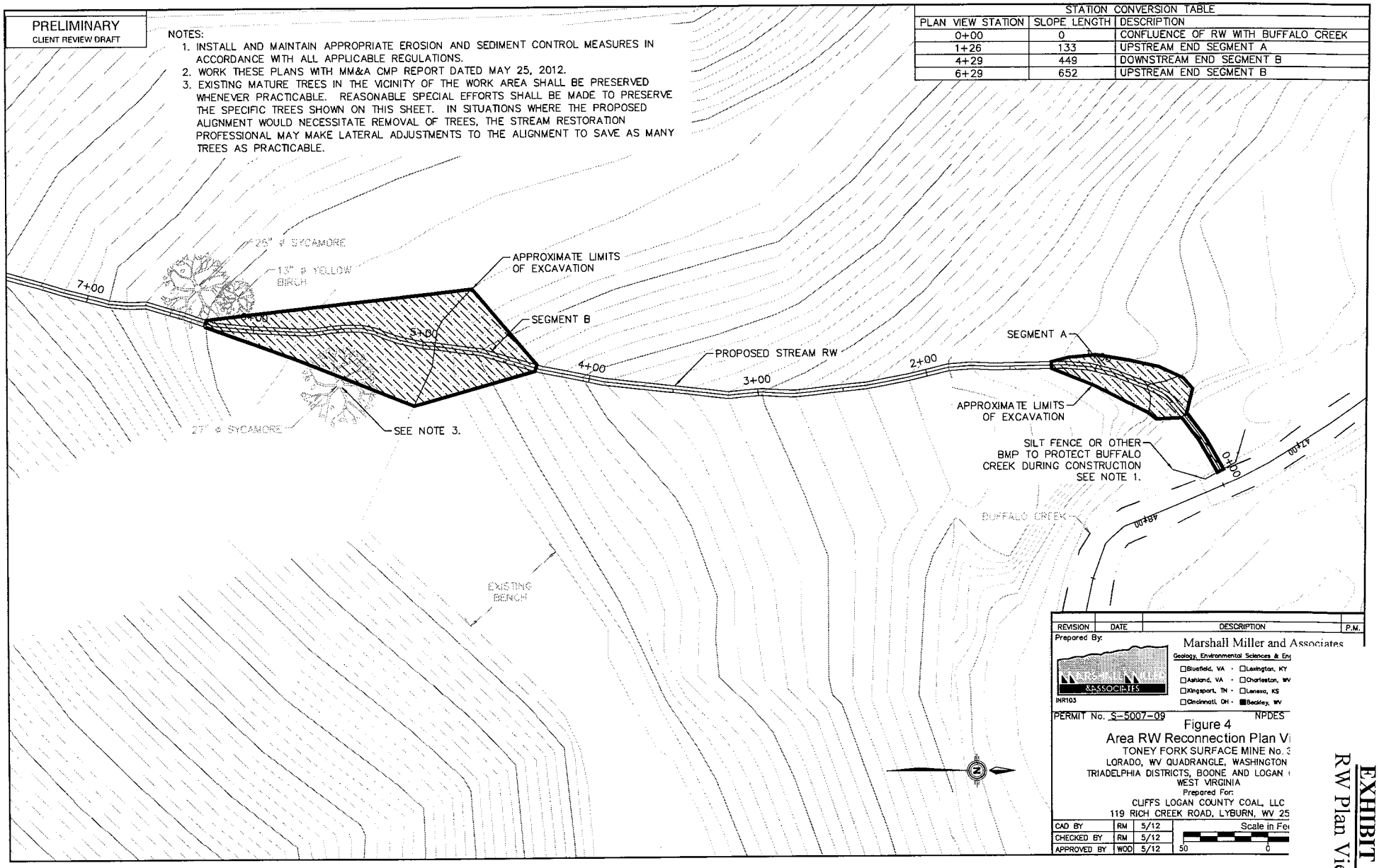


EXHIBIT 9
RW Plan View

PRELIMINARY
CLIENT REVIEW DRAFT

NOTES:
1. INSTALL AND MAINTAIN APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
2. WORK THESE PLANS WITH MM&A CMP REPORT DATED MAY 25, 2012.

STATION CONVERSION TABLE

PLAN VIEW STATION	SLOPE LENGTH	DESCRIPTION
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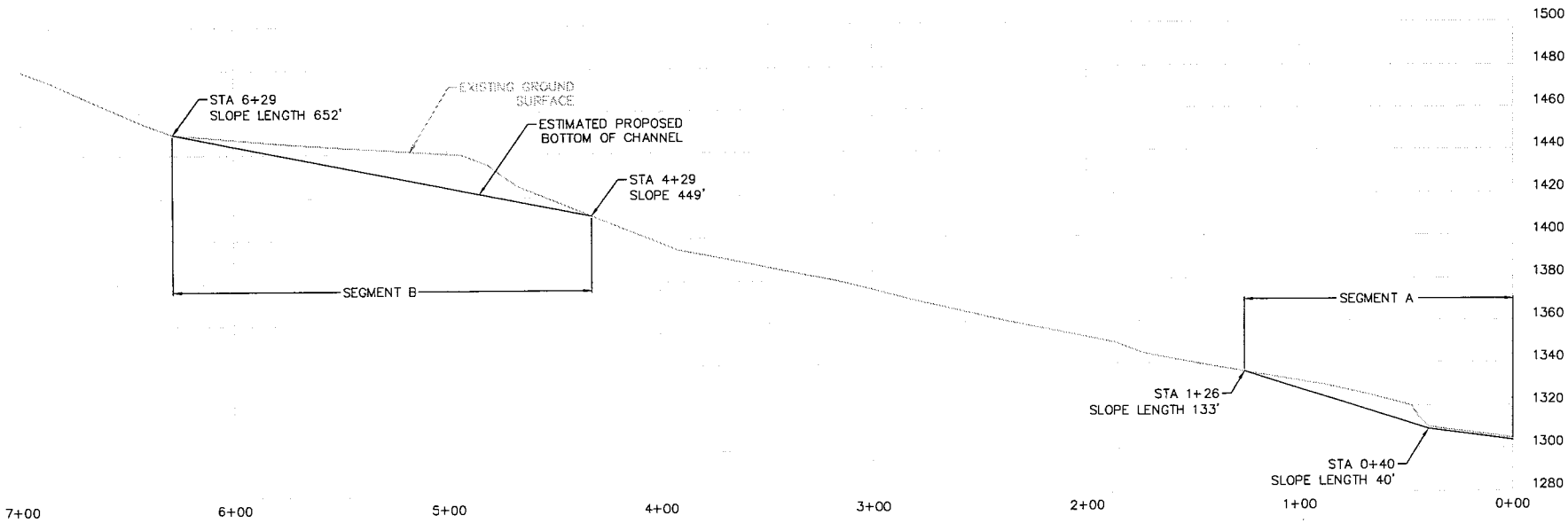


WORK PLAN:
1. BEGIN WORK BY EXCAVATING CHANNEL BETWEEN STA 0+00 AND STA 0+40. EXCAVATE CHANNEL TO CROSS-SECTIONAL DIMENSIONS OF FORMER CHANNEL BETWEEN STA 1+26 AND STA 4+29. FOLLOW APPROXIMATE GRADE OF EXISTING GROUND SURFACE.
2. EXCAVATE CHANNEL AT APPROXIMATELY CONSTANT GRADIENT FROM STA 0+40 (THE TOE OF THE EXISTING MAJOR SLOPE) TO 1+26. EXCAVATE CHANNEL TO CROSS-SECTIONAL DIMENSIONS OF FORMER CHANNEL BETWEEN STA 1+26 AND 4+29.
3. EXCAVATE SEGMENT B BETWEEN STA 4+29 AND STA 6+29 TO APPROXIMATE CROSS-SECTIONAL DIMENSIONS OF CHANNEL UPSTREAM OF STA 6+29. DO NOT EXCAVATE INTO OR OTHERWISE DAMAGE THE PAVEMENT, AS THIS MAY CAUSE SUBSIDENCE OF FLOWS.

REVISION	DATE	DESCRIPTION	P.M.

Prepared By:
Marshall Miller and A
Geology, Environmental Sciences & E
Bluefield, VA · Lexington, K
Ashland, VA · Charleston, W
Kingsport, TN · Lenexa, KS
Cincinnati, OH · Beckley, WV
INR103

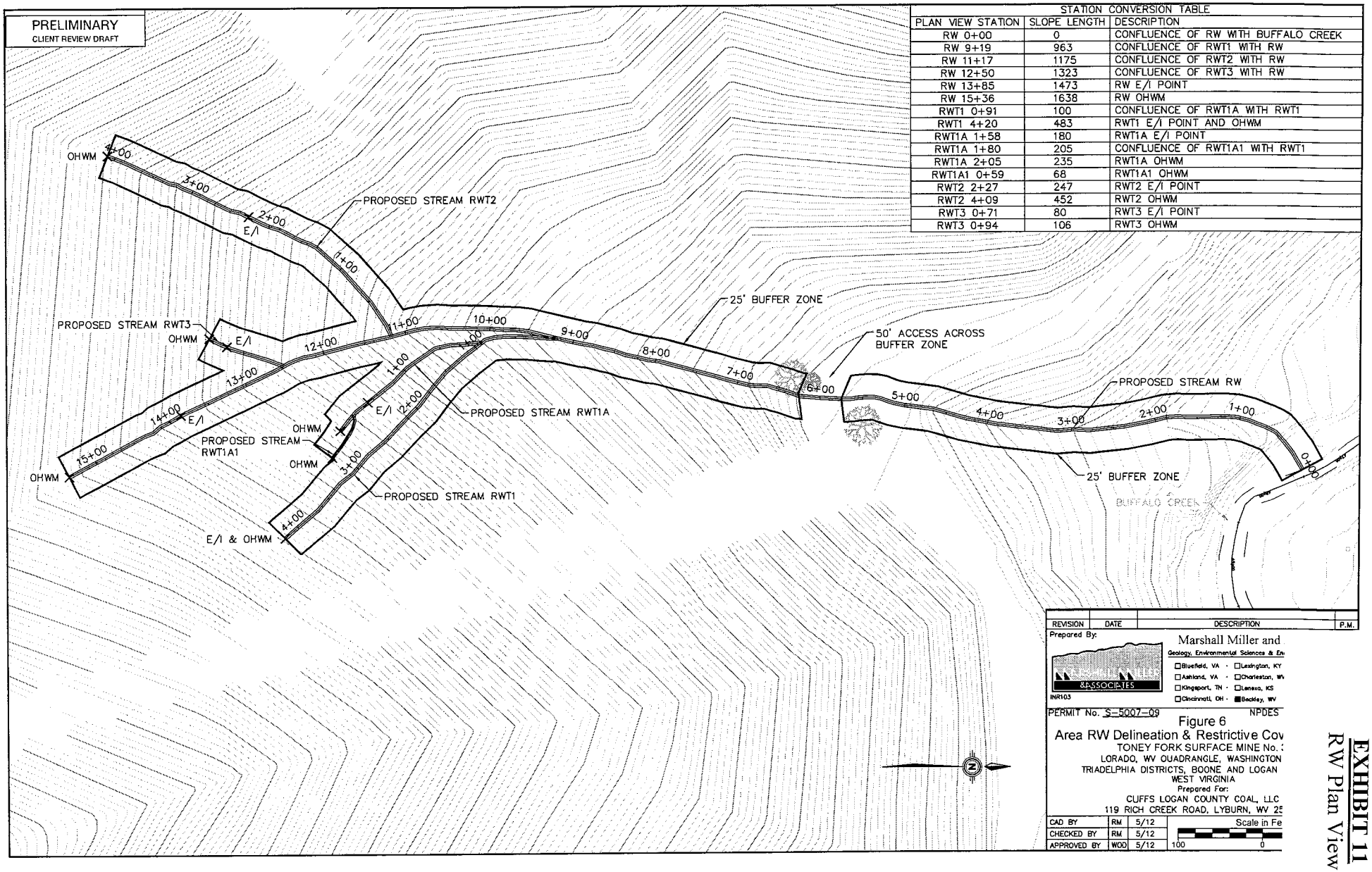
PERMIT No. S-5007-09 NPDES

Figure 5
Area RW Reconnection Profile
TONEY FORK SURFACE MINE No.
LORADO, WV QUADRANGLE, WASHINGTON
TRIADELPHIA DISTRICTS, BOONE AND LOGAN
WEST VIRGINIA
Prepared For:
CLIFFS LOGAN COUNTY COAL, LLC
119 RICH CREEK ROAD, LYBURN, WV 2

CAD BY	RM	5/12
CHECKED BY	RM	5/12
APPROVED BY	WOD	5/12

Scale in Fe
50 0

EXHIBIT 10
RW Plan View



STATION CONVERSION TABLE

PLAN VIEW STATION	SLOPE LENGTH	DESCRIPTION
RW 0+00	0	CONFLUENCE OF RW WITH BUFFALO CREEK
RW 9+19	963	CONFLUENCE OF RWT1 WITH RW
RW 11+17	1175	CONFLUENCE OF RWT2 WITH RW
RW 12+50	1323	CONFLUENCE OF RWT3 WITH RW
RW 13+85	1473	RW E/I POINT
RW 15+36	1638	RW OHWM
RWT1 0+91	100	CONFLUENCE OF RWT1A WITH RWT1
RWT1 4+20	483	RWT1 E/I POINT AND OHWM
RWT1A 1+58	180	RWT1A E/I POINT
RWT1A 1+80	205	CONFLUENCE OF RWT1A1 WITH RWT1
RWT1A 2+05	235	RWT1A OHWM
RWT1A1 0+59	68	RWT1A1 OHWM
RWT2 2+27	247	RWT2 E/I POINT
RWT2 4+09	452	RWT2 OHWM
RWT3 0+71	80	RWT3 E/I POINT
RWT3 0+94	106	RWT3 OHWM

EXHIBIT 11
RW Plan View