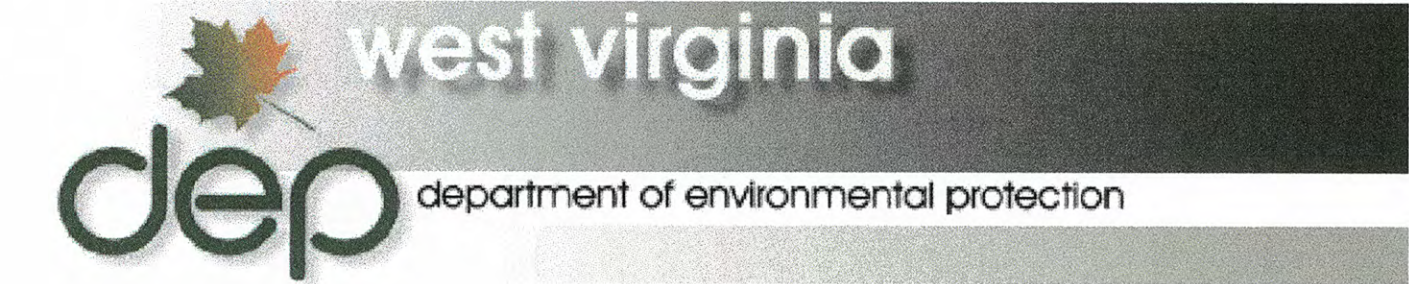


# WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

## OFFICE OF ABANDONED MINE LANDS AND RECLAMATION

RANDY C. HUFFMAN, CABINET SECRETARY  
EARL RAY TOMBLIN, GOVERNOR

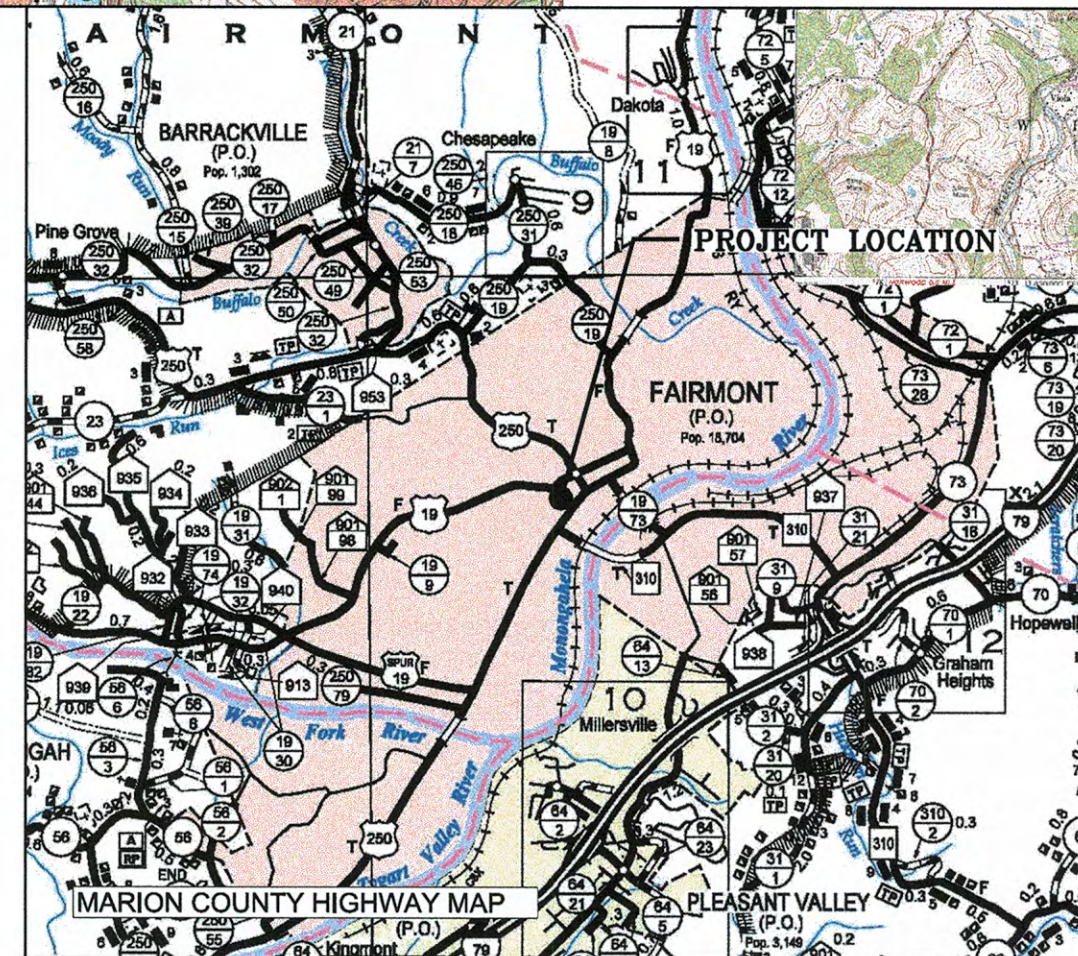
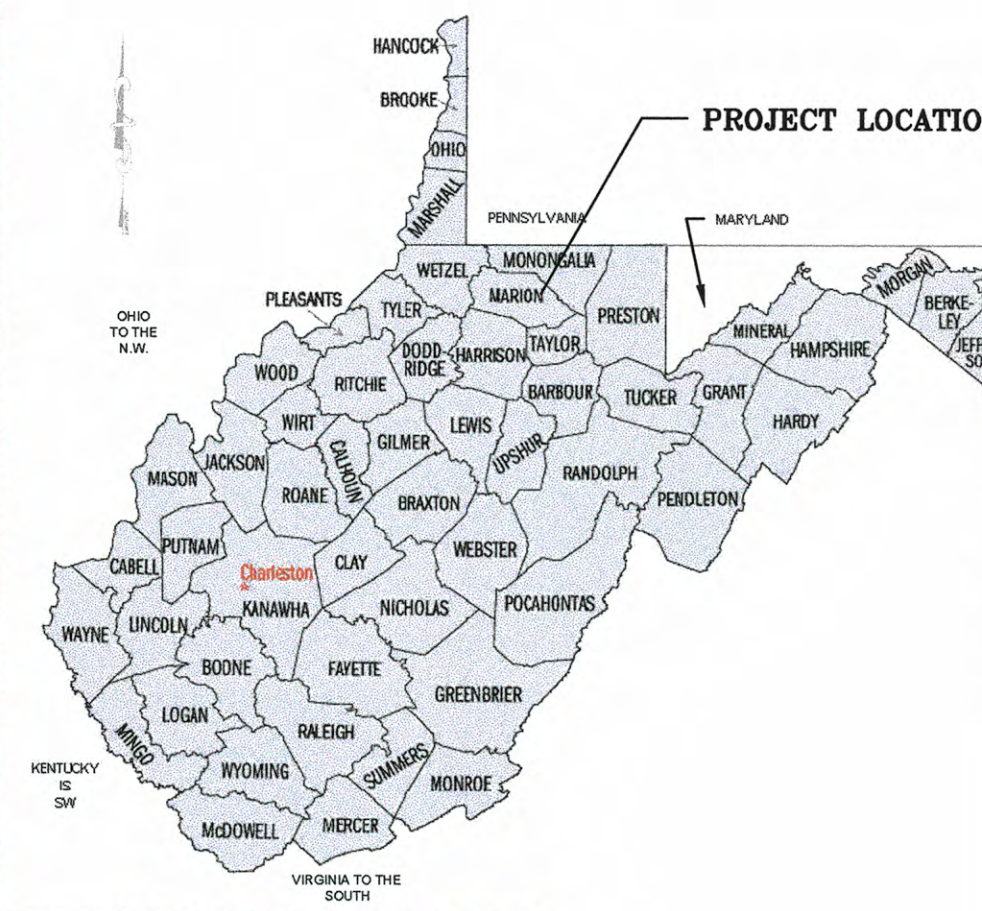
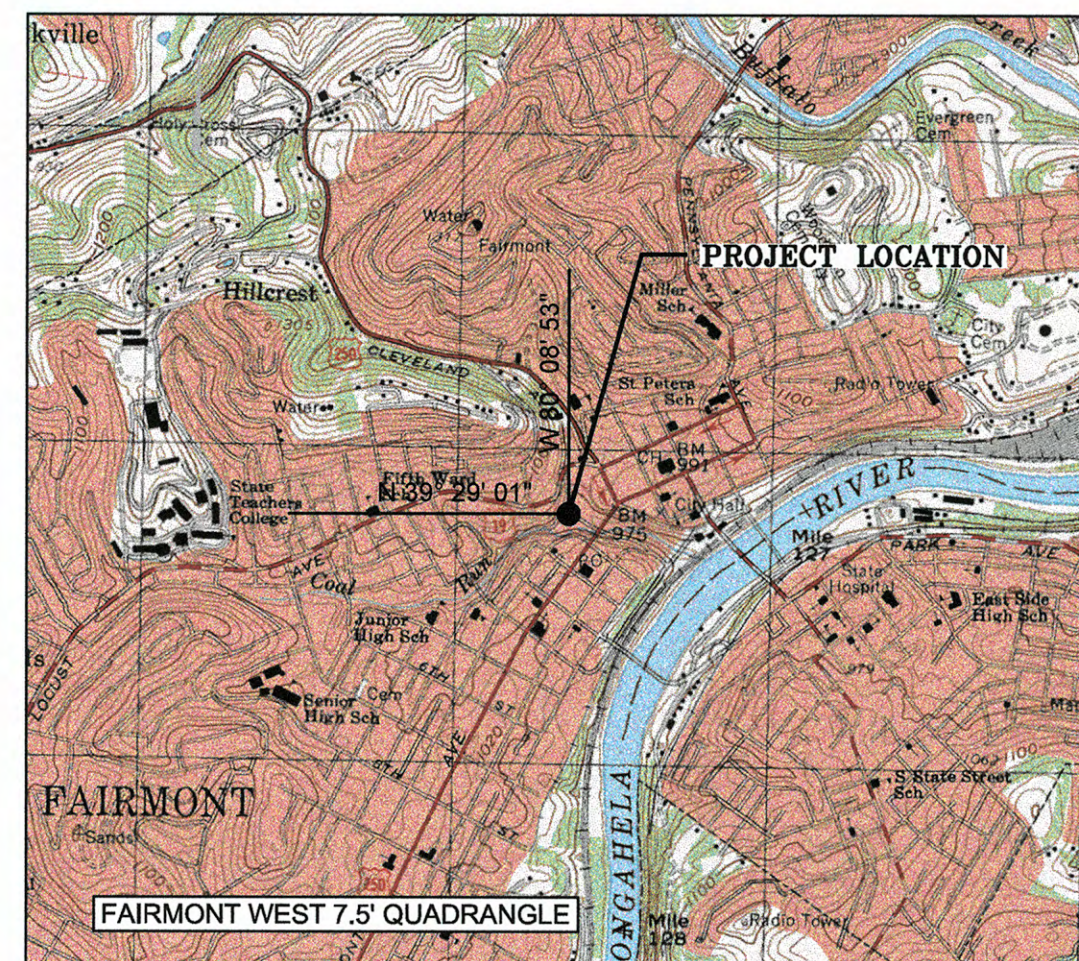


### FAIRMONT (DAC) S, CS, P

FAIRMONT DISTRICT, MARION COUNTY, WEST VIRGINIA

OCTOBER 27, 2014

DRAWING LIST	
TITLE	SHEET NO.
TITLE SHEET	1
EXISTING CONDITIONS & SHEET INDEX	2
AREA 1 - EXISTING CONDITIONS	3
AREA 2 - EXISTING CONDITIONS	4
AREA 3 - EXISTING CONDITIONS	5
AREA 1 - GROUTING PLAN	6
AREA 1 - GROUTING PLAN WITH TAX MAP OVERLAY	7
AREA 2 - GROUTING PLAN	8
AREA 2 - GROUTING PLAN WITH TAX MAP OVERLAY	9
AREA 3 - MINE SEAL PLAN	10
AREA 3 - MINE SEAL PLAN WITH TAX MAP OVERLAY	11
GEOLOGICAL COLUMNS	12
DETAIL SHEET	13



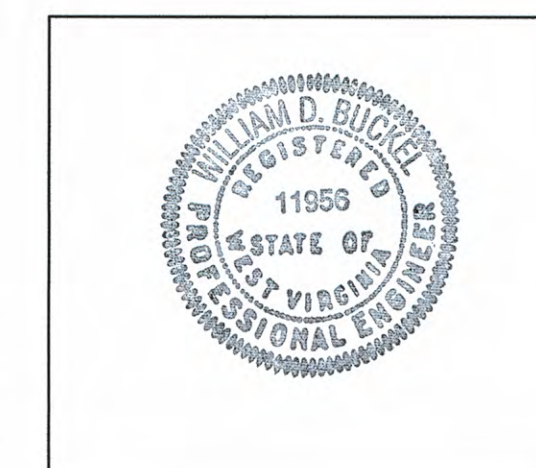
BID SCHEDULE			
ITEM NO.	QUANTITY		DESCRIPTION
1.0	1	LS	Mobilization and Demobilization (Shall not exceed 10% of the Total Amount Bid for the project.)
2.0	1	LS	Construction Layout (Shall not exceed 5% of the Total Amount Bid for the project.)
3.0	1	LS	Quality Control (Shall not exceed 3% of the Total Amount Bid for the project.)
4.0	1	LS	Site Preparation (Shall not exceed 7% of the Total Amount Bid for the project.)
5.0	250	LF	Erosion and Sediment Control
6.0	1	LS	Revegetation
9.1	2	EA	Dry Mine Seals
9.2	5	EA	Soda Ash Briquettes, 50 lb. bag
12.1	1146	LF	Drilling and Casing Vertical Injection Holes
12.2	2059	LF	Drilling and Casing Angled Injection Holes
13.1	2500	CY	Purchasing, Handling and Placing Concrete
13.2	2500	CY	Purchasing, Handling and Placing Grout
13.3	60	TON	Purchasing, Handling and Placing Fine Aggregate
13.4	60	TON	Purchasing, Handling and Placing Coarse Aggregate
13.5	500	LB	Accelerator
14.0	220	LF	Confirmation Drilling
15.0	40	HRS	Borehole Photography

Project Location Maps

ENGINEER — Hatch Mott MacDonald

2601 Cranberry Square  
Morgantown, WV 26508  
T: 304.212.4390 F: 304.594.2814  
www.hatchmott.com

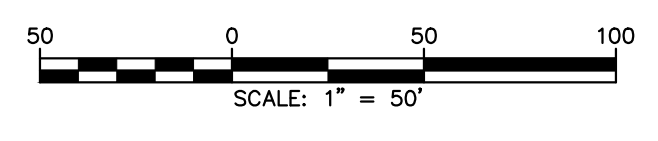
William D. Buckel, P.E.  
WV No. 011956



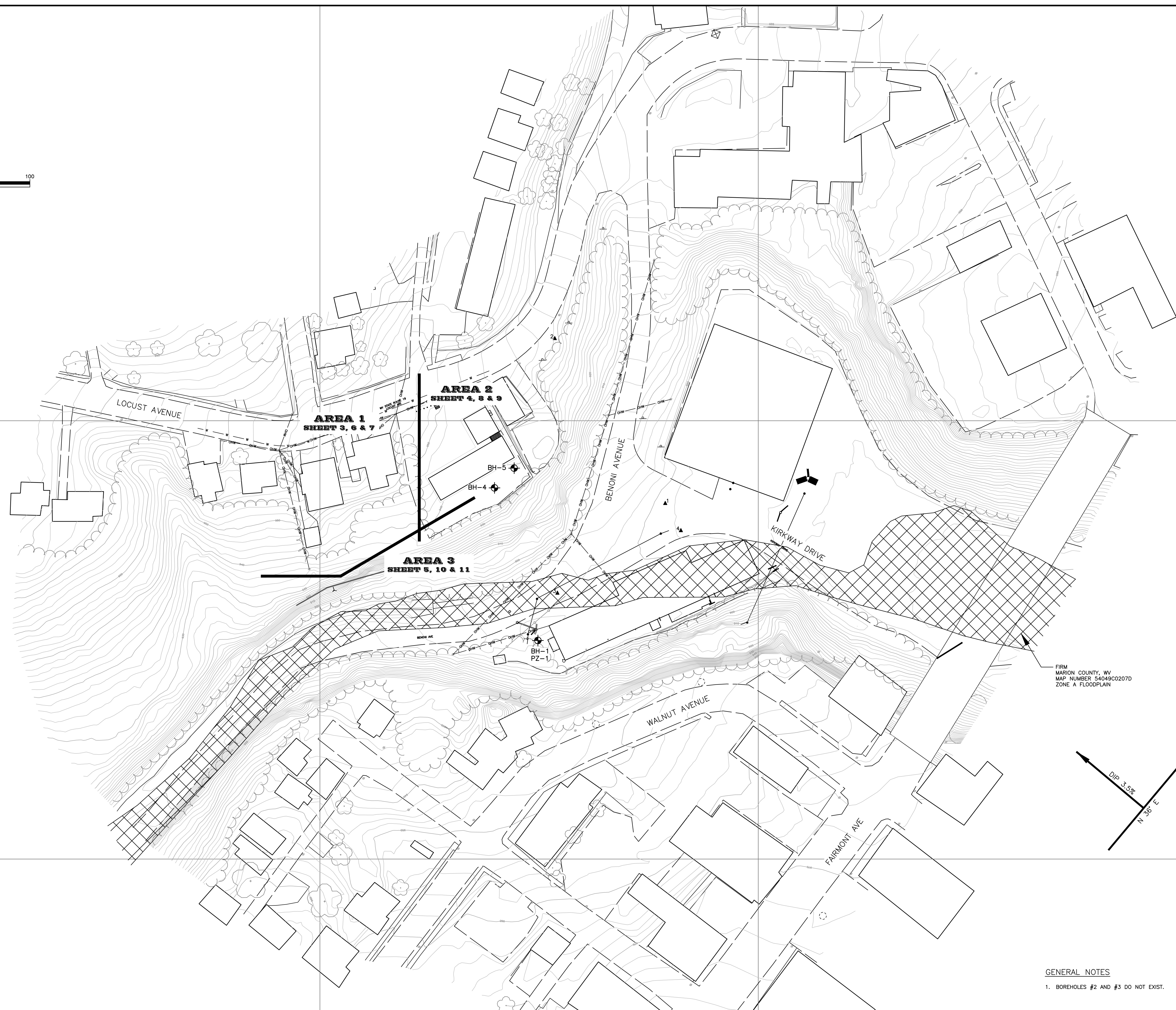
Miss Utility of West Virginia  
5608 MacCorkle Ave. S. W.  
So. Charleston, WV 25309

1.800.245.4848

E:1785



E:1786



N:358500

E:1785000

N:358500

E:1786500

FIRM  
MARION COUNTY, WV  
MAP NUMBER 54049C0207D  
ZONE A FLOODPLAIN

GENERAL NOTES  
1. BOREHOLES #2 AND #3 DO NOT EXIST.

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF ABANDONED MINE LANDS  
FAIRMONT DISTRICT, MARION COUNTY, WEST VIRGINIA  
FAIRMONT (DAC) S, CS, P  
EXISTING CONDITIONS & SHEET INDEX

**Hatch Mott MacDonald**  
2601 Cranberry Square  
Martinsburg, West Virginia 26508

Drawn: BLP  
Checked: JLL  
Approved: WDB  
Date: 10.27.2014

No.	Description	Date	By
1			
2			
3			
4			
5			
6			
7			
8			

dep west virginia  
department of environmental protection  
101 Cambridge Place  
Bridgeport, West Virginia 26330

Job	No.
330401	2
B/O	Total
2	13



**LEGEND**

- BH-2 TEST BOREHOLE
- LIMITS OF CONSTRUCTION
- UTILITY POLE
- SANITARY
- TREELINE
- GAS LINE
- PAVED ROAD
- 1010 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING MINE ENTRY
- APPROXIMATE LOCATION OF UNDERGROUND MINE WORKINGS (MCCOY MINE)
- AH-23 EXISTING ANGLED GROUT INJECTION HOLE
- VH-19 EXISTING VERTICAL GROUT INJECTION HOLE
- WATER LINE
- OVERHEAD UTILITY
- CONTROL POINT

**GENERAL NOTES**

- BOREHOLES #2 AND #3 DO NOT EXIST.

SCALE: 1" = 10'

3.5% N36°E

No.	Description	Date	By
1			
2			
3			
4			
5			
6			
7			

**Hatch Mott MacDonald**  
 2601 Cranberry Square  
 Morgantown, West Virginia 26508

Checked: JLL  
 Drawn: BLP  
 Designed: HMM

Approved: WDB  
 Date: 10.27.2014

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 OFFICE OF ABANDONED MINE LANDS

FAIRMONT DISTRICT, MARION COUNTY, WEST VIRGINIA

**FAIRMONT (DAC) S, CS, P**  
**AREA 1 - EXISTING CONDITIONS**

Job No. 330401  
 No. 3  
 B/O 3  
 Total 13



**LEGEND**

- BH-2 TEST BOREHOLE
- LIMITS OF CONSTRUCTION
- UTILITY POLE
- SANITARY
- TREELINE
- GAS LINE
- PAVED ROAD
- 1010 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING MINE ENTRY
- APPROXIMATE LOCATION OF UNDERGROUND MINE WORKINGS (MCCOY MINE)
- AH-23 EXISTING ANGLED GROUT INJECTION HOLE
- VH-19 EXISTING VERTICAL GROUT INJECTION HOLE
- WATER LINE
- OVERHEAD UTILITY
- CONTROL POINT

**GENERAL NOTES**

- BOREHOLES #2 AND #3 DO NOT EXIST.

Scale: 1" = 10'

North Arrow: N36°E, 3.5%

No.	Description	Revision
1		
2		
3		
4		
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7		
8		

**Hatch Mott MacDonald**  
 2601 Cranberry Square  
 Morgantown, West Virginia 26508

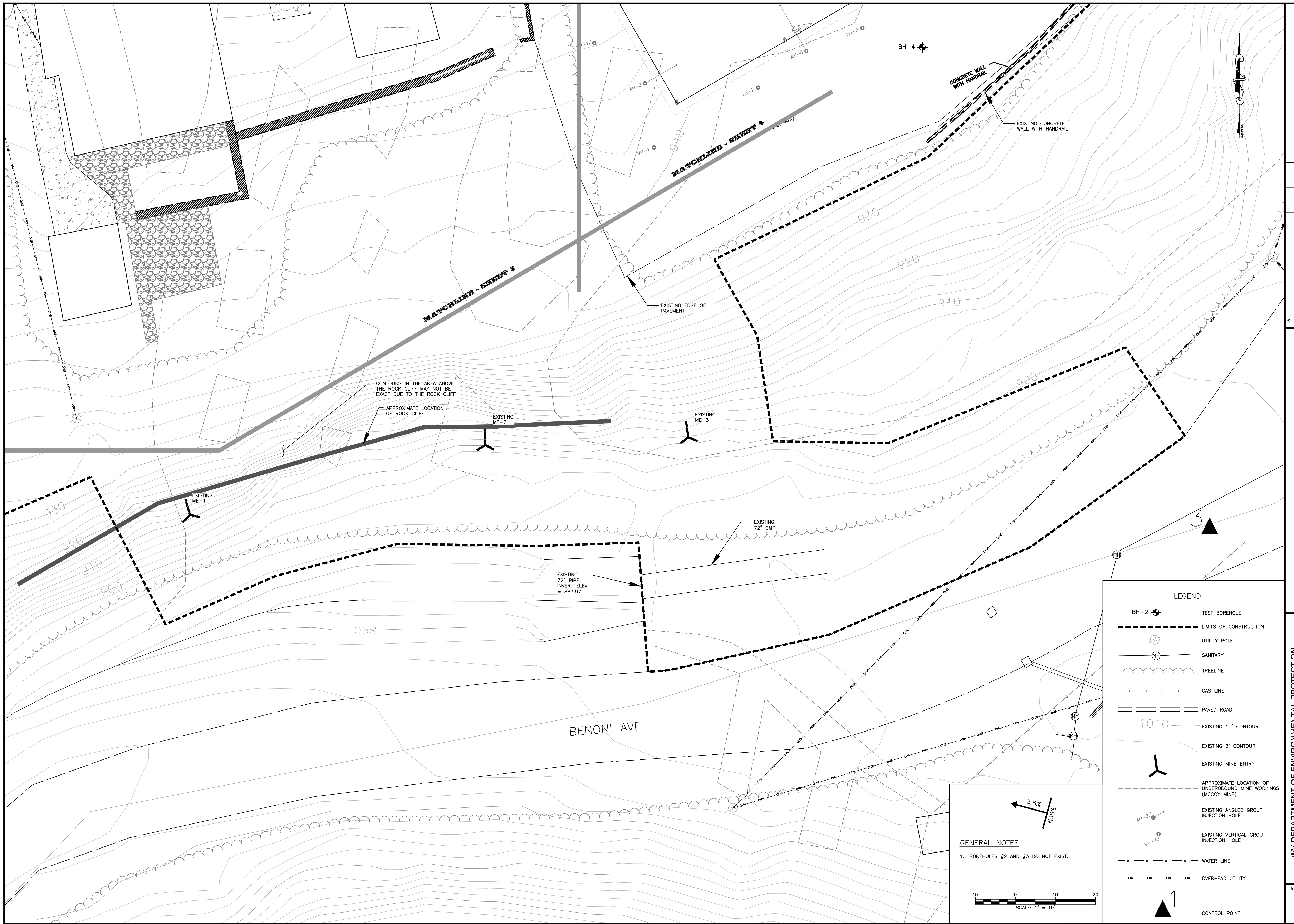
Drawn: BLP  
 Checked: JLL  
 Approved: WDB  
 Date: 10.27.2014

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 OFFICE OF ABANDONED MINE LANDS

FAIRMONT DISTRICT, MARION COUNTY, WEST VIRGINIA

FAIRMONT (DAC) S, CS, P  
 AREA 2 - EXISTING CONDITIONS

Job No.	330401	No.	4
B/O	4	Total	13



**LEGEND**

- BH-2 TEST BOREHOLE
- LIMITS OF CONSTRUCTION
- UTILITY POLE
- SANITARY
- TREELINE
- GAS LINE
- PAVED ROAD
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING MINE ENTRY
- APPROXIMATE LOCATION OF UNDERGROUND MINE WORKINGS (MCCOY MINE)
- EXISTING ANGLED GROUT INJECTION HOLE
- EXISTING VERTICAL GROUT INJECTION HOLE
- WATER LINE
- OVERHEAD UTILITY
- CONTROL POINT

**GENERAL NOTES**

- BOREHOLES #2 AND #3 DO NOT EXIST.

SCALE: 1" = 10'

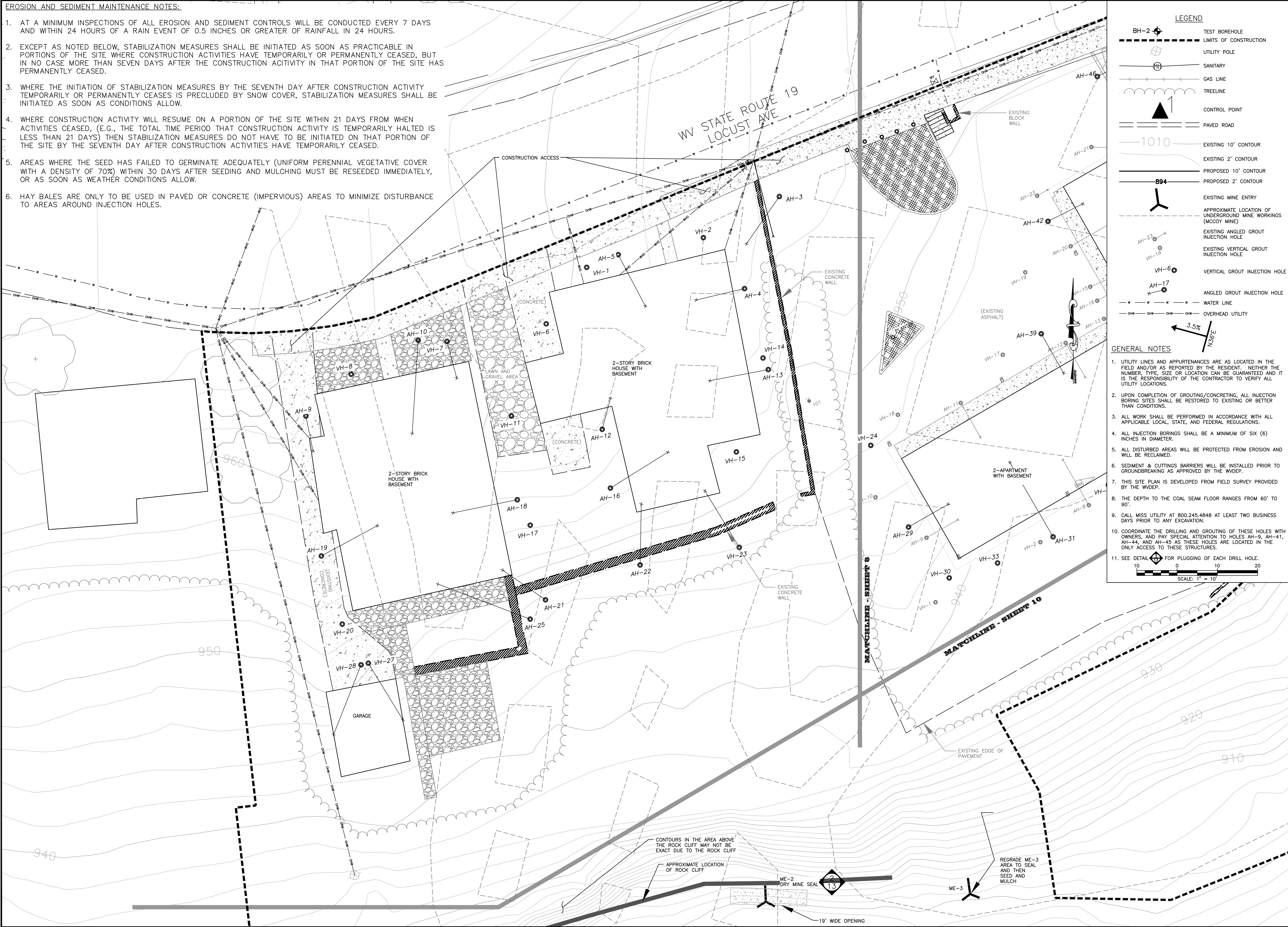
No.	Description	Date	By
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Date	Approved	Checked	Drawn
10.27.2014	WDB	JLL	BLP

Hatch Mott MacDonald  
 2601 Cranberry Square  
 Morgantown, West Virginia 26508

**EROSION AND SEDIMENT MAINTENANCE NOTES:**

1. AT A MINIMUM INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROLS WILL BE CONDUCTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAIN EVENT OF 0.5 INCHES OR GREATER OF RAINFALL IN 24 HOURS.
2. EXCEPT AS NOTED BELOW, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN SEVEN DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED.
3. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS CONDITIONS ALLOW.
4. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED, (E.G., THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY HALTED IS LESS THAN 21 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED.
5. AREAS WHERE THE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70%) WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RESEED IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.
6. HAY BALES ARE ONLY TO BE USED IN PAVED OR CONCRETE (IMPERVIOUS) AREAS TO MINIMIZE DISTURBANCE TO AREAS AROUND INJECTION HOLES.



**LEGEND**

- BH-2 TEST BOREHOLE
- LIMITS OF CONSTRUCTION
- UTILITY POLE
- SANITARY
- GAS LINE
- TRELLINE
- CONTROL POINT
- PAVED ROAD
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING MINE ENTRY
- APPROXIMATE LOCATION OF UNDERGROUND MINE WORKINGS (MCCOY MINE)
- EXISTING ANGLED GROUT INJECTION HOLE
- EXISTING VERTICAL GROUT INJECTION HOLE
- VERTICAL GROUT INJECTION HOLE
- ANGLED GROUT INJECTION HOLE
- WATER LINE
- OVERHEAD UTILITY

**GENERAL NOTES**

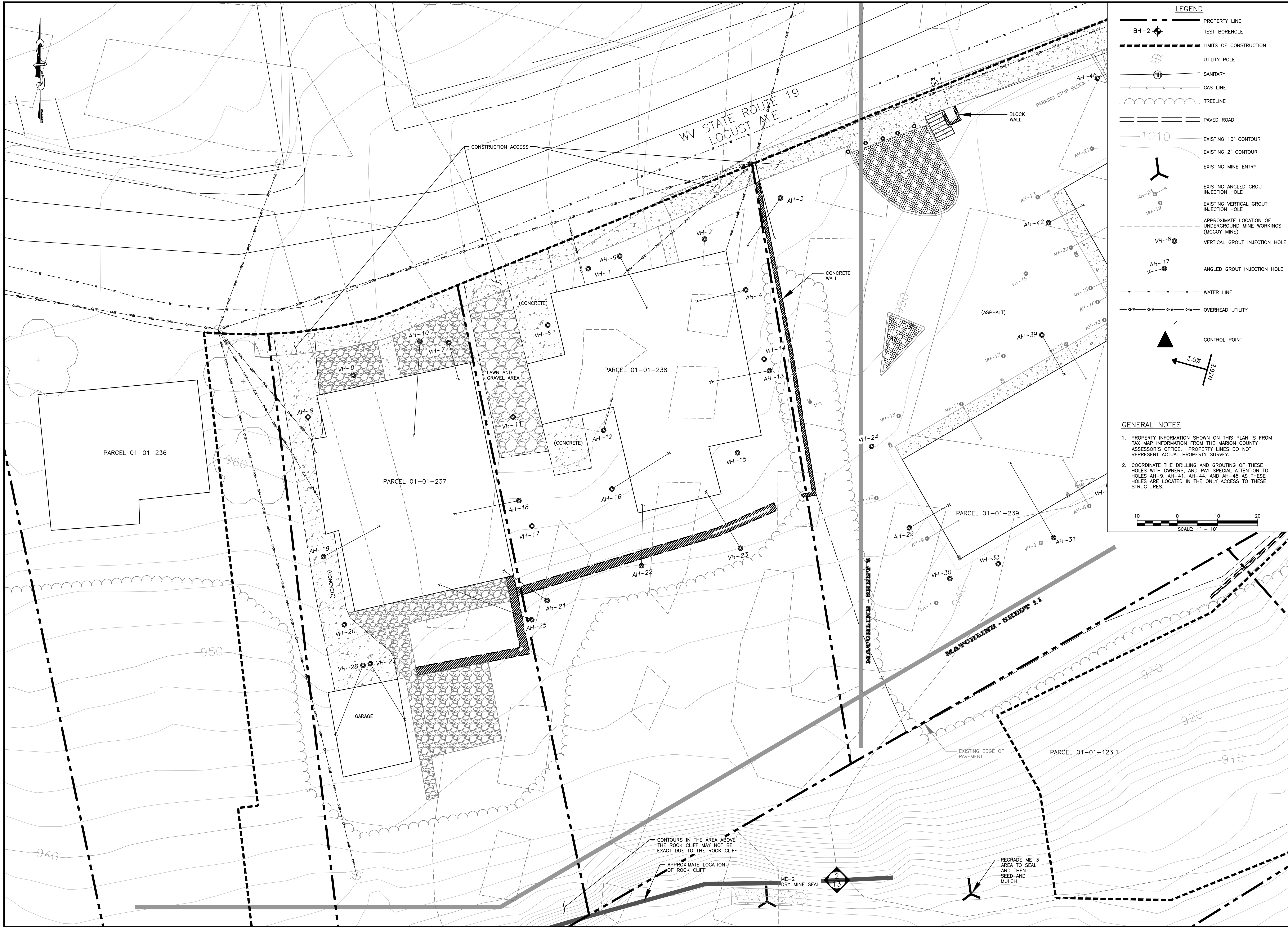
1. UTILITY LINES AND APPURTENANCES ARE AS LOCATED IN THE FIELD AND/OR AS REPORTED BY THE RESIDENT. NEITHER THE NUMBER, TYPE, SIZE OR LOCATION CAN BE GUARANTEED AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS.
2. UPON COMPLETION OF GROUTING/CONCRETING, ALL INJECTION BORING SITES SHALL BE RESTORED TO EXISTING OR BETTER THAN CONDITIONS.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
4. ALL INJECTION BORINGS SHALL BE A MINIMUM OF SIX (6) INCHES IN DIAMETER.
5. ALL DISTURBED AREAS WILL BE PROTECTED FROM EROSION AND WILL BE RECLAIMED.
6. SEDIMENT & CUTTINGS BARRIERS WILL BE INSTALLED PRIOR TO GROUND BREAKING AS APPROVED BY THE WDEP.
7. THIS SITE PLAN IS DEVELOPED FROM FIELD SURVEY PROVIDED BY THE WDEP.
8. THE DEPTH TO THE COAL SEAM FLOOR RANGES FROM 60' TO 90'.
9. CALL MISS UTILITY AT 800.245.4848 AT LEAST TWO BUSINESS DAYS PRIOR TO ANY EXCAVATION.
10. COORDINATE THE DRILLING AND GROUTING OF THESE HOLES WITH OWNERS, AND PAY SPECIAL ATTENTION TO HOLES AH-9, AH-41, AH-44, AND AH-45 AS THESE HOLES ARE LOCATED IN THE ONLY ACCESS TO THESE STRUCTURES.
11. SEE DETAIL FOR PLUGGING OF EACH DRILL HOLE.

SCALE: 1" = 10'

No.	Description	Date	By
1		10/27/2014	WDB
2			
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**Hatch Mott MacDonald**  
 2601 Cranberry Square  
 Morgantown, West Virginia 26508

Drawn: BLP  
 Checked: JLL  
 Approved: WDB  
 Date: 10/27/2014



**LEGEND**

- PROPERTY LINE
- TEST BOREHOLE
- LIMITS OF CONSTRUCTION
- UTILITY POLE
- SANITARY
- GAS LINE
- TREELINE
- PAVED ROAD
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING MINE ENTRY
- EXISTING ANGLED GROUT INJECTION HOLE
- EXISTING VERTICAL GROUT INJECTION HOLE
- APPROXIMATE LOCATION OF UNDERGROUND MINE WORKINGS (MCCOY MINE)
- VERTICAL GROUT INJECTION HOLE
- ANGLED GROUT INJECTION HOLE
- WATER LINE
- OVERHEAD UTILITY
- CONTROL POINT

**GENERAL NOTES**

- PROPERTY INFORMATION SHOWN ON THIS PLAN IS FROM TAX MAP INFORMATION FROM THE MARION COUNTY ASSESSOR'S OFFICE. PROPERTY LINES DO NOT REPRESENT ACTUAL PROPERTY SURVEY.
- COORDINATE THE DRILLING AND GROUTING OF THESE HOLES WITH OWNERS, AND PAY SPECIAL ATTENTION TO HOLES AH-9, AH-41, AH-44, AND AH-45 AS THESE HOLES ARE LOCATED IN THE ONLY ACCESS TO THESE STRUCTURES.

No.	Description	Revision
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**Hatch Mott MacDonald**  
 2601 Cranberry Square  
 Morgantown, West Virginia 26508

Drawn: BLP  
 Checked: JLL  
 Approved: WDB  
 Date: 10.27.2014



**LEGEND**

- BH-2 [Symbol] TEST BOREHOLE
- [Symbol] LIMITS OF CONSTRUCTION
- [Symbol] UTILITY POLE
- [Symbol] SANITARY
- [Symbol] GAS LINE
- [Symbol] TREELINE
- [Symbol] CONTROL POINT
- [Symbol] PAVED ROAD
- 1010 [Symbol] EXISTING 10' CONTOUR
- [Symbol] EXISTING 2' CONTOUR
- 894 [Symbol] PROPOSED 10' CONTOUR
- [Symbol] PROPOSED 2' CONTOUR
- [Symbol] EXISTING MINE ENTRY
- [Symbol] APPROXIMATE LOCATION OF UNDERGROUND MINE WORKINGS (MCCOY MINE)
- AH-23 [Symbol] EXISTING ANGLED GROUT INJECTION HOLE
- VH-19 [Symbol] EXISTING VERTICAL GROUT INJECTION HOLE
- VH-6 [Symbol] VERTICAL GROUT INJECTION HOLE
- AH-17 [Symbol] ANGLED GROUT INJECTION HOLE
- [Symbol] WATER LINE
- [Symbol] OVERHEAD UTILITY

- GENERAL NOTES**
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  - ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
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  - SEDIMENT & CUTTINGS BARRIERS WILL BE INSTALLED PRIOR TO GROUNDBREAKING AS APPROVED BY THE WDEP.
  - THIS SITE PLAN IS DEVELOPED FROM FIELD SURVEY PROVIDED BY THE WDEP.
  - THE DEPTH TO THE COAL SEAM FLOOR RANGES FROM 60' TO 90'.
  - CALL MISS UTILITY AT 800.245.4848 AT LEAST TWO BUSINESS DAYS PRIOR TO ANY EXCAVATION.
  - COORDINATE THE DRILLING AND GROUTING OF THESE HOLES WITH OWNERS, AND PAY SPECIAL ATTENTION TO HOLES AH-3, AH-41, AH-44, AND AH-45 AS THESE HOLES ARE LOCATED IN THE ONLY ACCESS TO THESE STRUCTURES.
  - SEE DETAIL [Symbol] FOR PLUGGING OF EACH DRILL HOLE.

- EROSION AND SEDIMENT MAINTENANCE NOTES:**
- AT A MINIMUM INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROLS WILL BE CONDUCTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAIN EVENT OF 0.5 INCHES OR GREATER OF RAINFALL IN 24 HOURS.
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  - HAY BALES ARE ONLY TO BE USED IN PAVED OR CONCRETE (IMPERVIOUS) AREAS TO MINIMIZE DISTURBANCE TO AREAS AROUND INJECTION HOLES.

No.	Description	Revision
1		
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8		

Date	By
10.27.2014	WDB
	Approved
	Checked
	Drawn
	Designated

**Hatch Mott MacDonald**  
 2601 Cranberry Square  
 Morgantown, West Virginia 26508

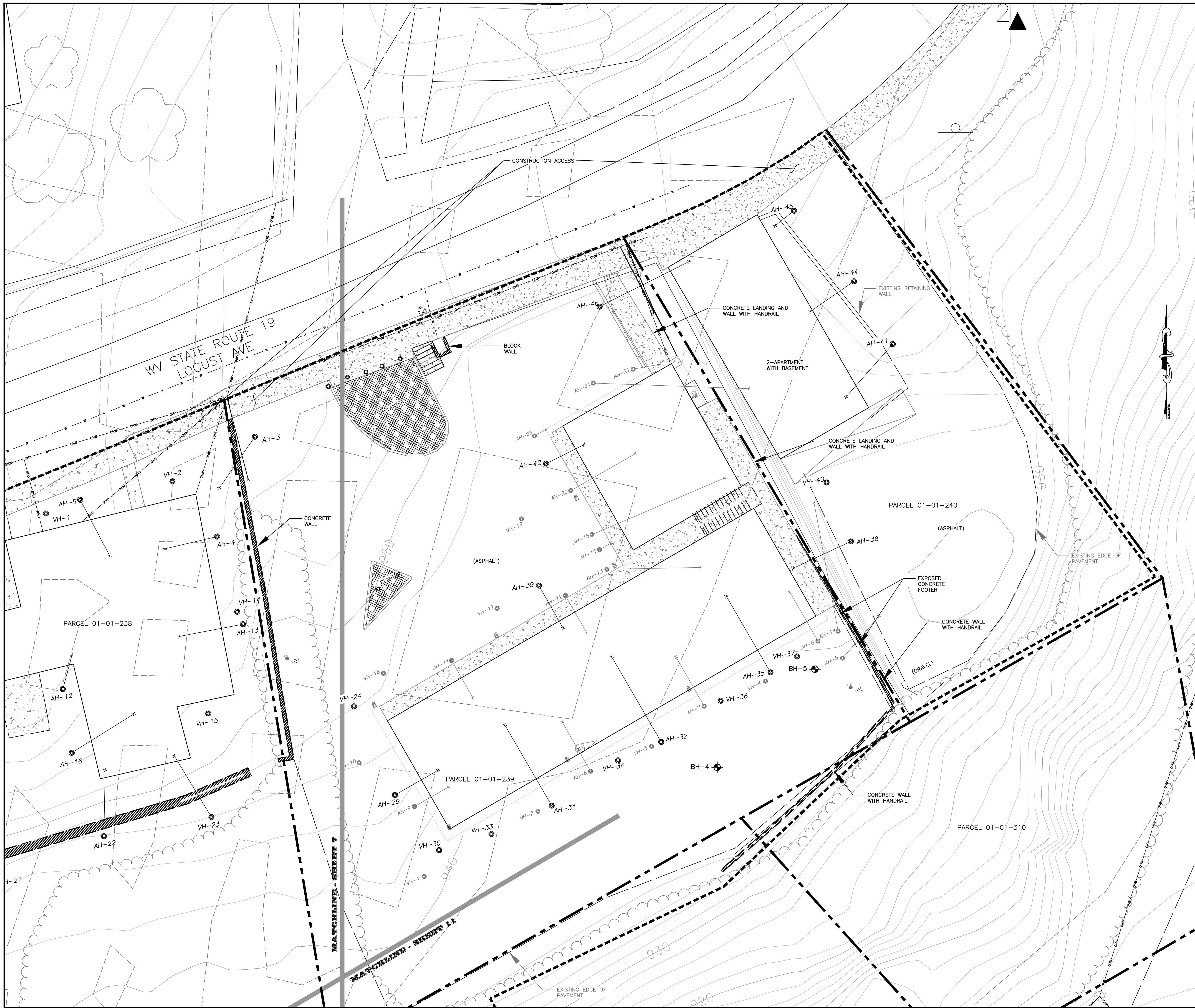
WV DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 OFFICE OF ABANDONED MINE LANDS

FAIRMONT DISTRICT, MARION COUNTY, WEST VIRGINIA

**FAIRMONT (DAC) S, CS, P**  
**AREA 2 - GROUTING PLAN**

Job No.	8
330401	
B/O	8
Total	13





**LEGEND**

- PROPERTY LINE
- TEST BOREHOLE
- LIMITS OF CONSTRUCTION
- UTILITY POLE
- SANITARY
- GAS LINE
- TRELLINE
- PAVED ROAD
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING MINE ENTRY
- EXISTING ANGLED GROUT INJECTION HOLE
- EXISTING VERTICAL GROUT INJECTION HOLE
- APPROXIMATE LOCATION OF UNDERGROUND MINE WORKINGS (MCCOY MINE)
- VERTICAL GROUT INJECTION HOLE
- ANGLED GROUT INJECTION HOLE
- WATER LINE
- OVERHEAD UTILITY
- CONTROL POINT

**GENERAL NOTES**

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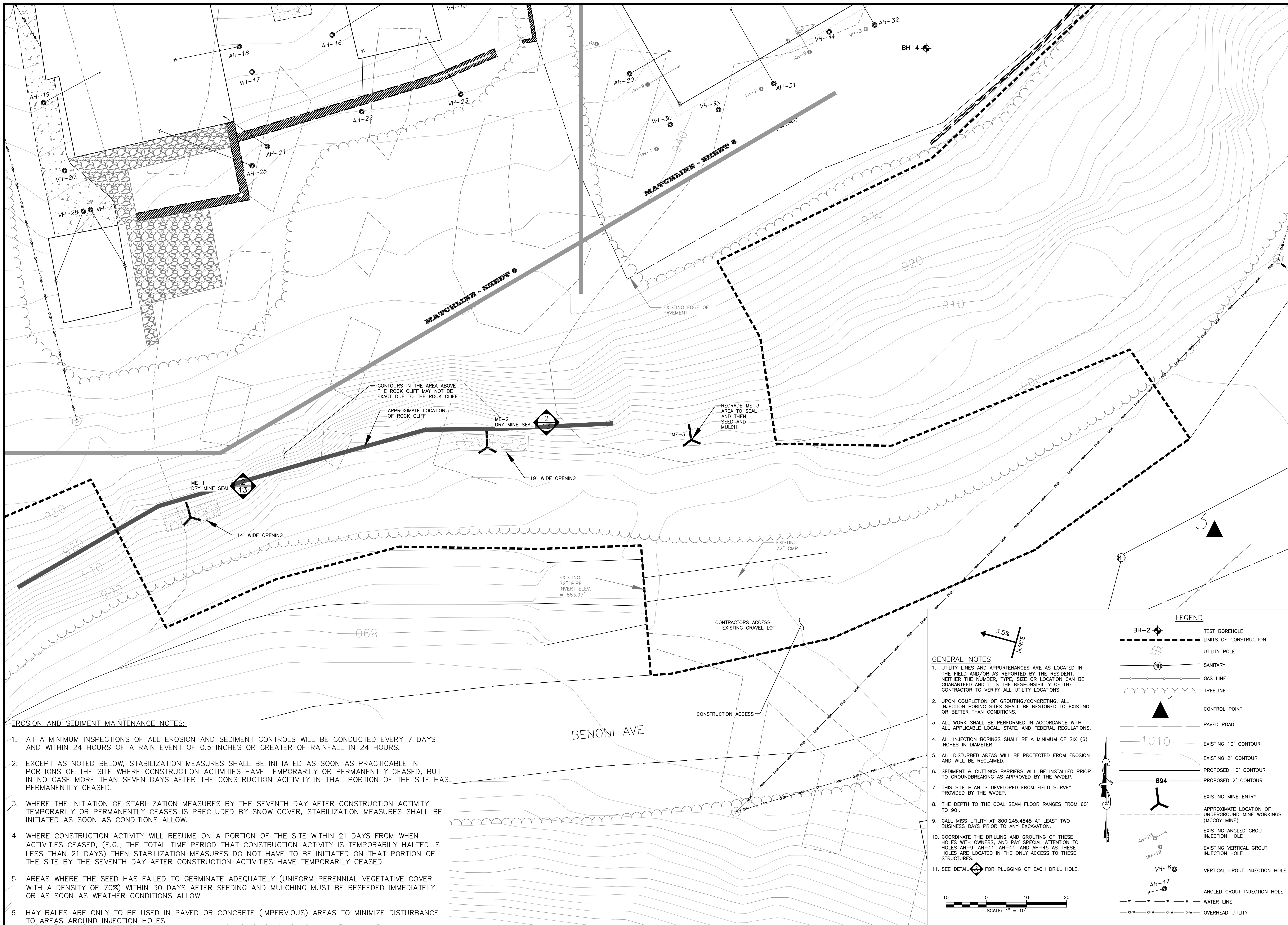
**SCALE: 1" = 10'**

**CONTROL POINT**  
3.5%  
N36°E

No.	Description	Revision
1		
2		
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5		
6		
7		
8		

**Hatch Mott MacDonald**  
2601 Cranberry Square  
Martinsburg, West Virginia 26508

Drawn	BLP	Checked	JLL	Approved	WDB	Date	10.27.2014
Designed	HMM						



- EROSION AND SEDIMENT MAINTENANCE NOTES:**
- AT A MINIMUM INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROLS WILL BE CONDUCTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAIN EVENT OF 0.5 INCHES OR GREATER OF RAINFALL IN 24 HOURS.
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**LEGEND**

- BH-2: TEST BOREHOLE
- : LIMITS OF CONSTRUCTION
- ⊕: UTILITY POLE
- ⊕: SANITARY
- : GAS LINE
- : TREELINE
- ▲: CONTROL POINT
- : PAVED ROAD
- : EXISTING 10' CONTOUR
- : EXISTING 2' CONTOUR
- : PROPOSED 10' CONTOUR
- : PROPOSED 2' CONTOUR
- : EXISTING MINE ENTRY
- : APPROXIMATE LOCATION OF UNDERGROUND MINE WORKINGS (MCCOY MINE)
- : EXISTING ANGLED GROUT INJECTION HOLE
- : EXISTING VERTICAL GROUT INJECTION HOLE
- : VERTICAL GROUT INJECTION HOLE
- : ANGLED GROUT INJECTION HOLE
- : WATER LINE
- : OVERHEAD UTILITY

**GENERAL NOTES**

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- SEDIMENT & CUTTINGS BARRIERS WILL BE INSTALLED PRIOR TO GROUNDBREAKING AS APPROVED BY THE WVDEP.
- THIS SITE PLAN IS DEVELOPED FROM FIELD SURVEY PROVIDED BY THE WVDEP.
- THE DEPTH TO THE COAL SEAM FLOOR RANGES FROM 60' TO 90'.
- CALL MISS UTILITY AT 800.245.4848 AT LEAST TWO BUSINESS DAYS PRIOR TO ANY EXCAVATION.
- COORDINATE THE DRILLING AND GROUTING OF THESE HOLES WITH OWNERS, AND PAY SPECIAL ATTENTION TO HOLES AH-9, AH-41, AH-44, AND AH-45 AS THESE HOLES ARE LOCATED IN THE ONLY ACCESS TO THESE STRUCTURES.
- SEE DETAIL FOR PLUGGING OF EACH DRILL HOLE.

Scale: 1" = 10'

**west virginia**  
 department of environmental protection  
 dep

101 Cambridge Place  
 Bridgeport, West Virginia 26330

No.	Description	Date	By
1		10.27.2014	WDB
2			
3			
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8			

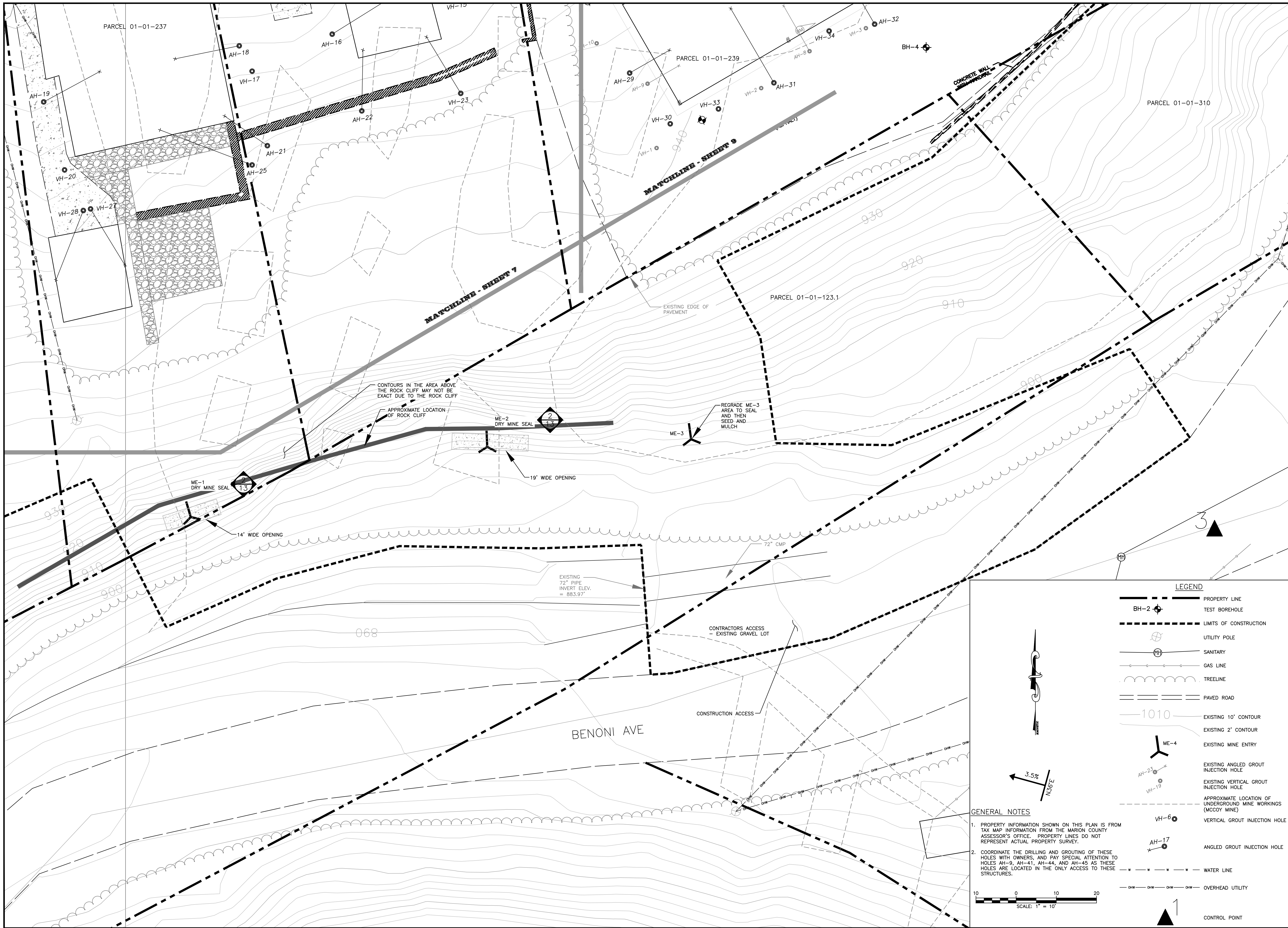
**Hatch Mott MacDonald**  
 2601 Cranberry Square  
 Morgantown, West Virginia 26508

Drawn: BLP  
 Checked: JLL  
 Approved: WDB  
 Date: 10.27.2014

**WV DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
 OFFICE OF ABANDONED MINE LANDS

FAIRMONT DISTRICT, MARION COUNTY, WEST VIRGINIA  
**FAIRMONT (DAC) S, CS, P**  
**AREA 3 - MINE SEAL PLAN**

Job No.	330401	No.	10
B/O	10	Total	13



No.	Description	Date	By
1			
2			
3			
4			
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7			

**Hatch Mott MacDonald**  
 2601 Cranberry Square  
 Morgantown, West Virginia 26508

Drawn: BLP  
 Checked: JLL  
 Approved: WDB  
 Date: 10.27.2014

Designed: HMM

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 OFFICE OF ABANDONED MINE LANDS

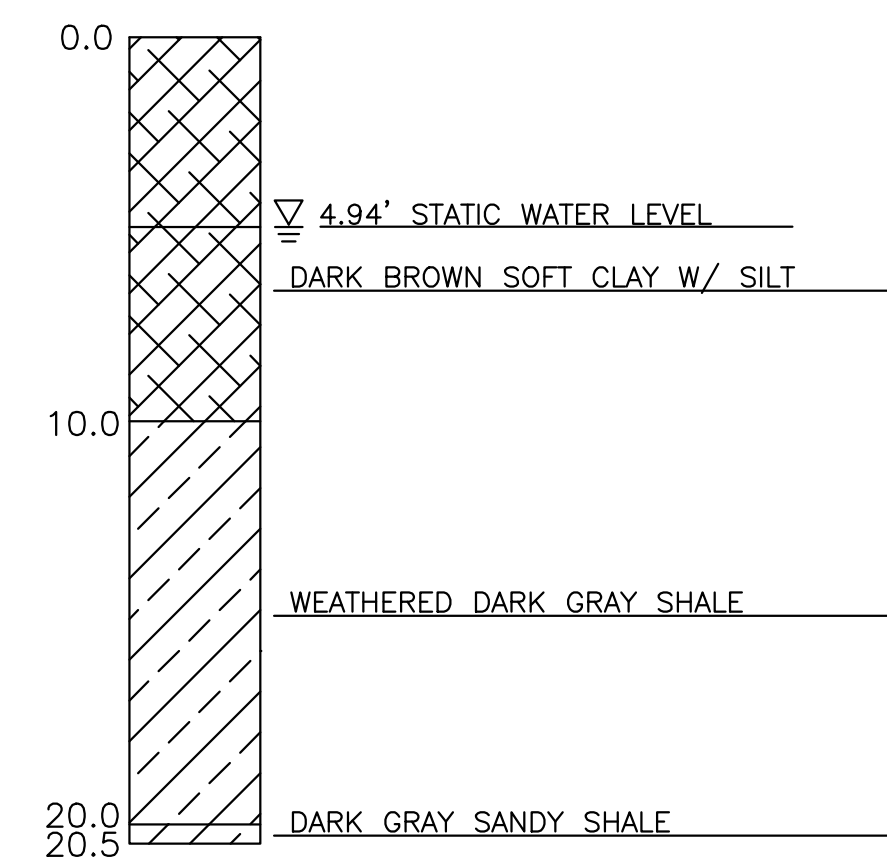
FAIRMONT DISTRICT, MARION COUNTY, WEST VIRGINIA

**FAIRMONT (DAC) S, CS, P**  
**AREA 3 - MINE SEAL PLAN WITH TAX MAP OVERLAY**

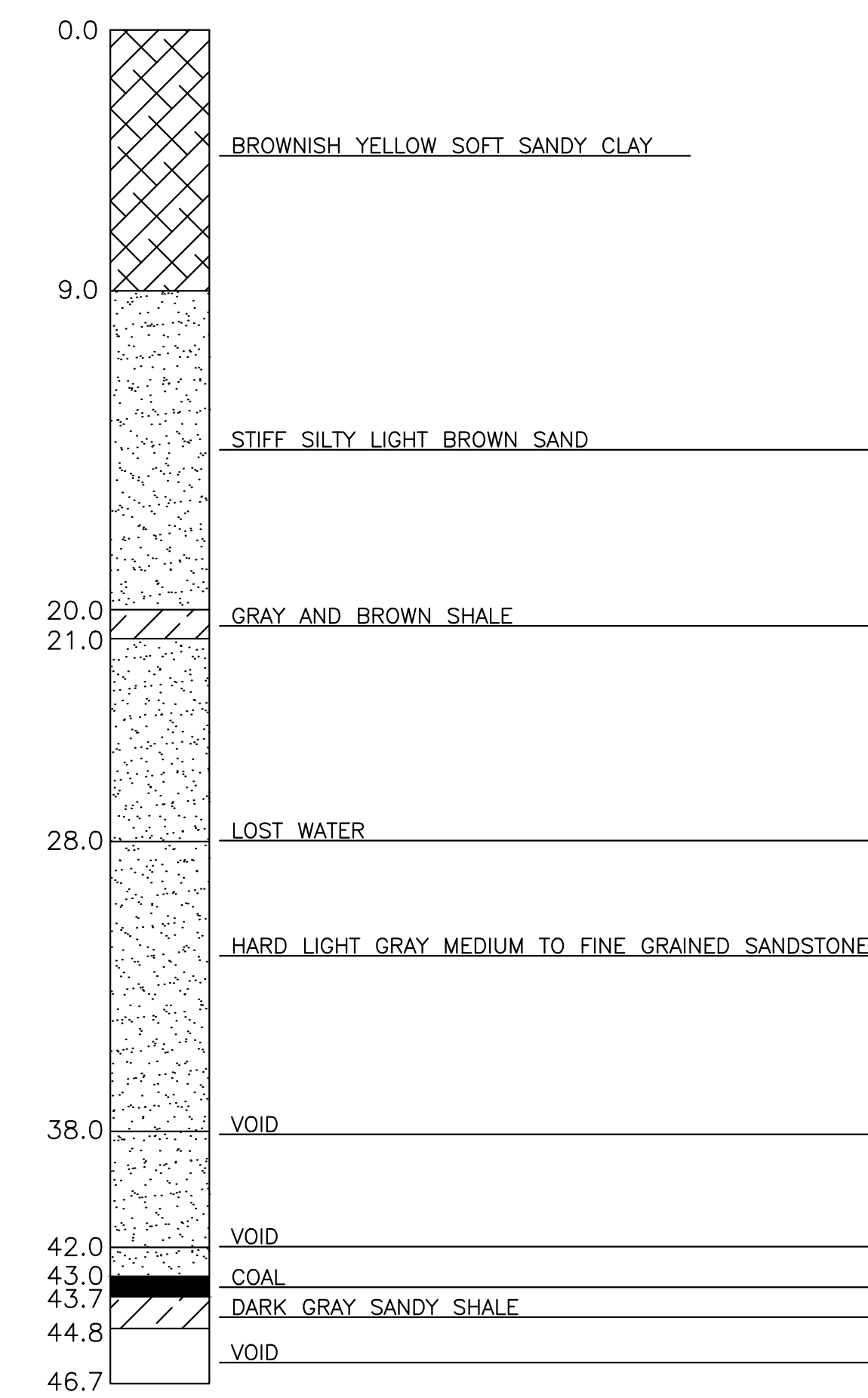
Job No. 330401 11  
 B/O Total 11 13

940  
930  
920  
910  
900  
890  
880  
870  
860  
850

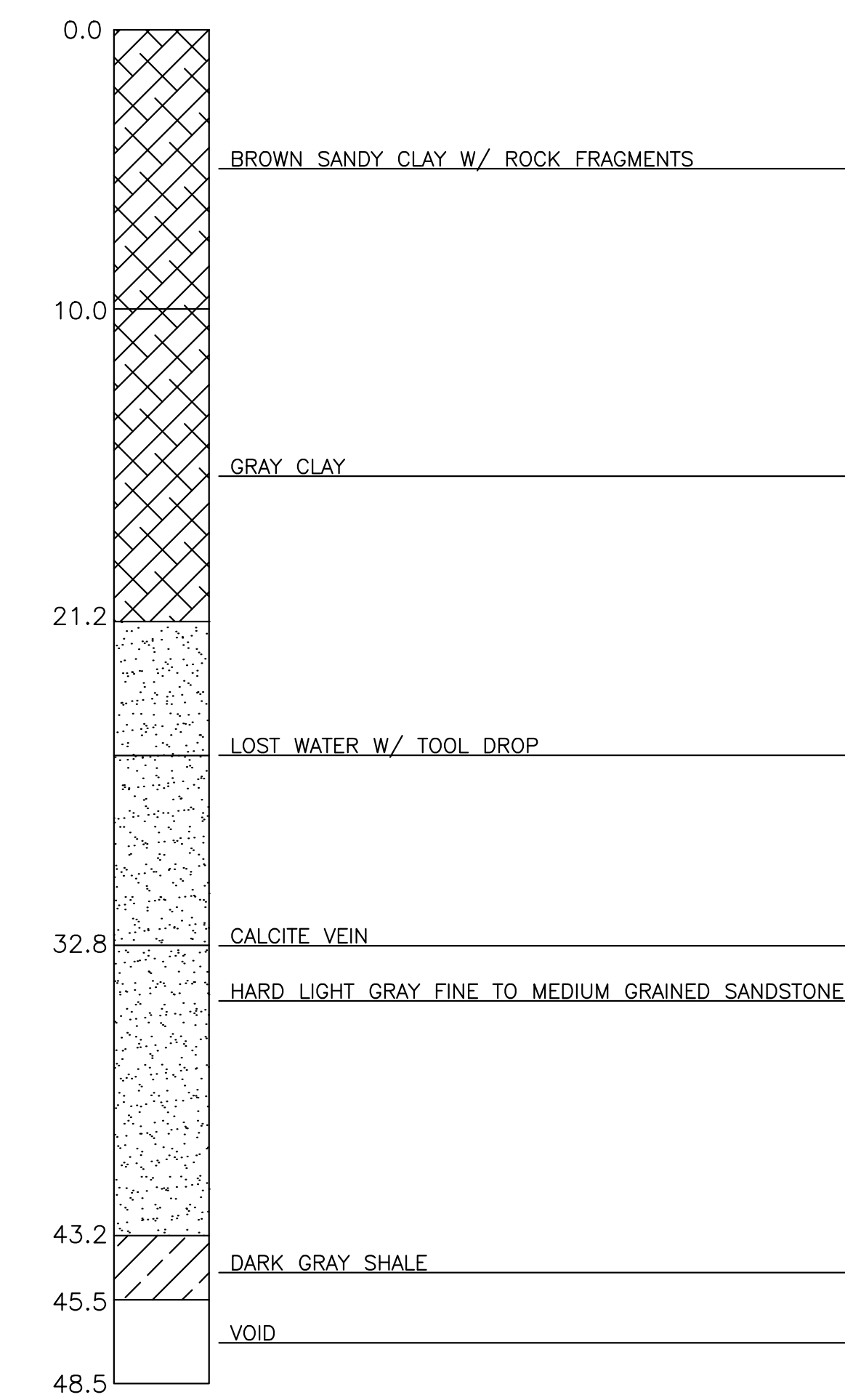
BH-1  
SURFACE ELEV. 889.5'



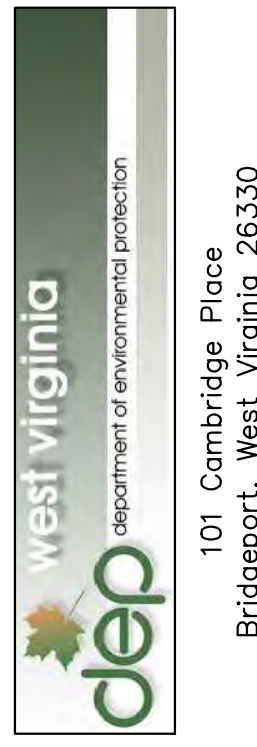
BH-4  
SURFACE ELEV. 939.1'



BH-5  
SURFACE ELEV. 939.3'



SCALE: 1" = 5'



101 Cambridge Place  
Bridgeport, West Virginia 26330

No.	Description	Date	By
8			
7			
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1			

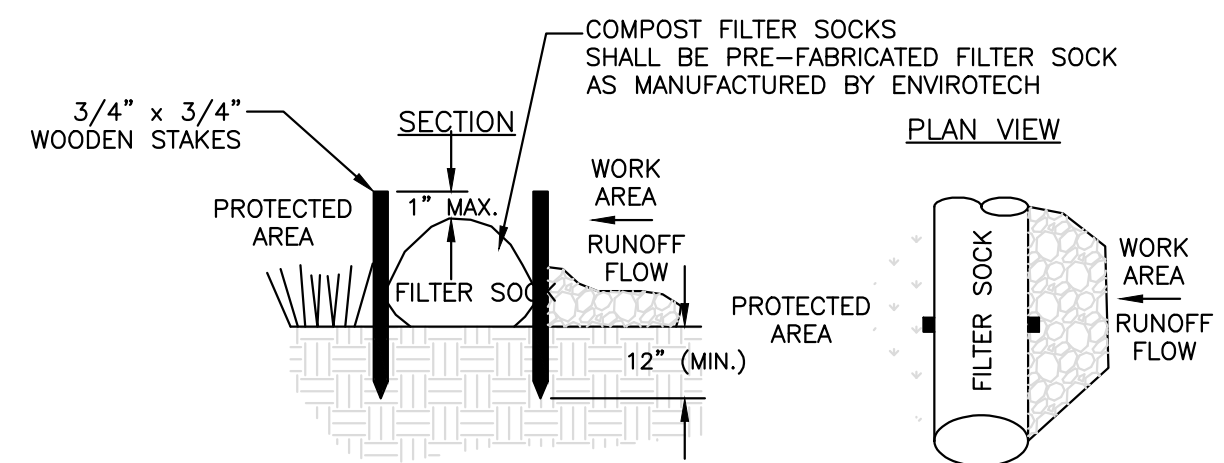
**Hatch Mott MacDonald**  
2601 Cranberry Square  
Morgantown, West Virginia 26508

Designed: HMM  
Drawn: SNC  
Checked: WDB  
Approved: WDB  
Date: 10.27.2014

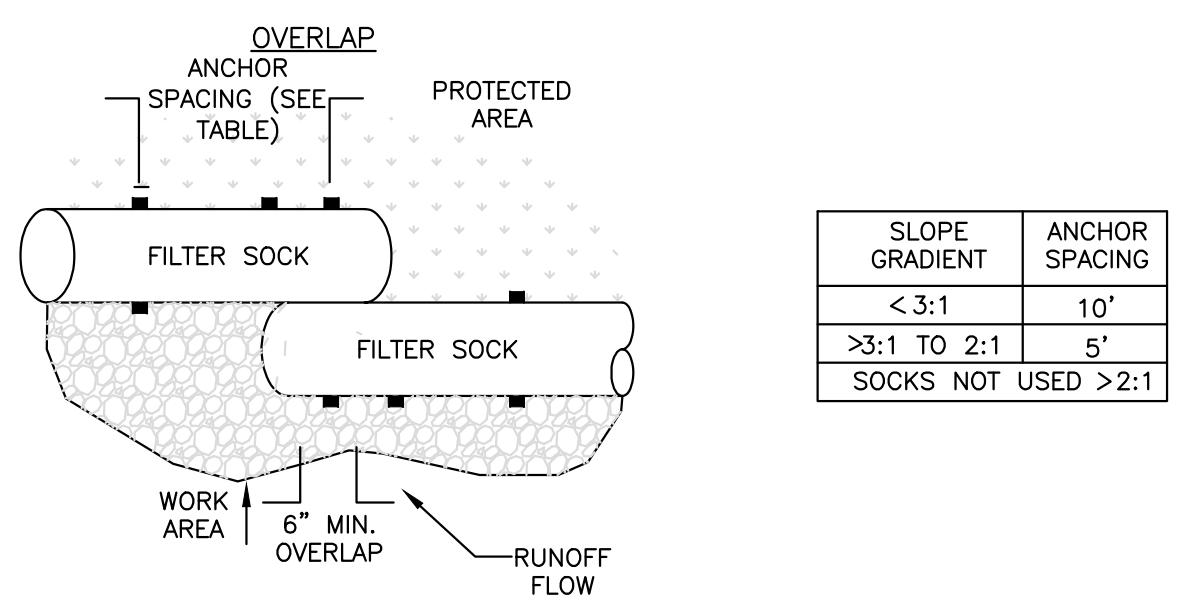
WV DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF ABANDONED MINE LANDS  
FAIRMONT DISTRICT, MARION COUNTY, WEST VIRGINIA  
**FAIRMONT (DAC) S, CS, P  
GEOLOGIC COLUMNS**

Job	No.
330401	12
B/O	Total
12	13

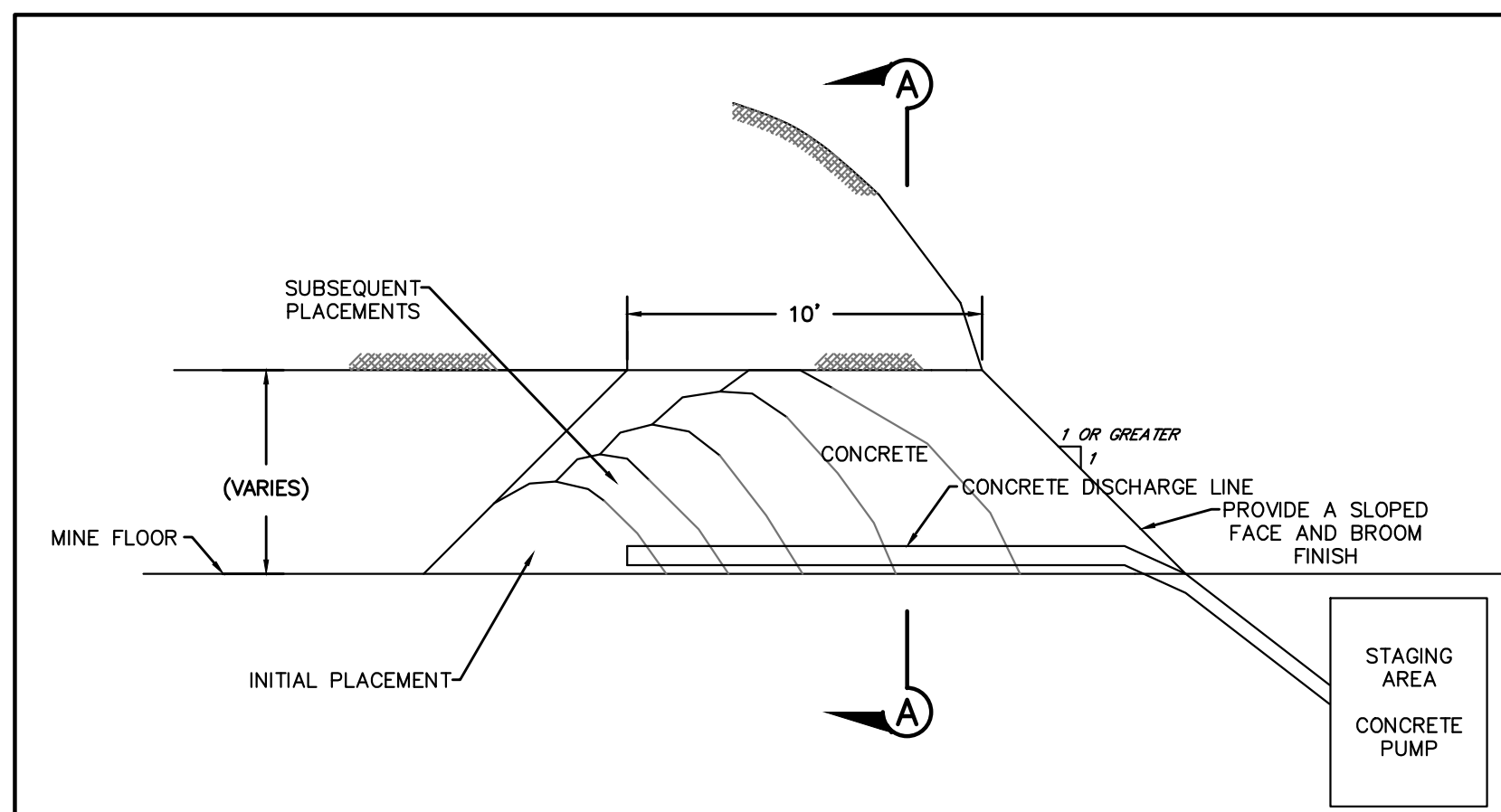
INJECTION HOLE DRILLING SUMMARY			
INJECTION NUMBER	ANGLE FROM VERTICAL	ESTIMATED LENGTH VERTICAL	ESTIMATED LENGTH ANGLED
VH-1	0°	84'	---
VH-2	0°	81	---
AH-3	10.5°	---	80'
AH-4	9.0°	---	80'
AH-5	10.1°	---	84'
VH-6	0°	84'	---
AH-7	6.3°	---	87'
VH-8	0°	88'	---
AH-9	5.9°	---	87'
AH-10	15.1°	---	90'
VH-11	0°	83'	---
AH-12	5.7°	---	81'
AH-13	11.3°	---	77'
VH-14	0°	76'	---
VH-15	0°	74'	---
AH-16	11.8°	---	84'
VH-17	0°	78'	---
AH-18	7.5°	---	80'
AH-19	11.6°	---	80'
VH-20	0°	77'	---
AH-21	10.9°	---	70'
AH-22	12.7°	---	71'
AH-23	13.7°	---	71'
VH-24	0°	70'	---
AH-25	20.0°	---	73'
AH-26	NOT IN CONTRACT DRAWINGS		
AH-27	12.8°	---	76'
AH-28	14.3°	---	77'
AH-29	9.9°	---	67'
VH-30	0°	62'	---
AH-31	14.2°	---	62'
AH-32	21.0°	---	63'
VH-33	0°	60'	---
VH-34	0°	59'	---
AH-35	11.5°	---	61'
VH-36	0°	59'	---
VH-37	0°	59'	---
AH-38	16.1°	---	54'
AH-39	9.7°	---	68'
VH-40	0°	52'	---
AH-41	15.5°	---	62'
AH-42	8.1°	---	70'
VH-43	NOT IN CONTRACT DRAWINGS		
AH-44	11.0°	---	64'
AH-45	4.8°	---	67'
AH-46	18.6°	---	73'
TOTALS		1146'	2059'



- NOTES:**
- INSTALL FILTER SOCK ALONG CONTOURS AND ON EXISTING LEVEL GRADE.
  - PROPER SITE PREPARATION IS ESSENTIAL TO ENSURE COMPLETE CONTACT OF THE FILTER SOCK WITH THE SOIL.
  - REMOVE ALL ROCKS, CLODS, VEGETATION, OR OTHER OBSTRUCTIONS SO THAT THE INSTALLED FILTER SOCK WILL HAVE DIRECT CONTACT WITH THE SOIL.
  - INSTALL THE FILTER SOCK SO THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE FILTER SOCK. FILTER SOCK SHOULD BE OVERLAPPED 6" MINIMUM AT FIELD JOINTS TO PREVENT SEDIMENT PASSING THROUGH THEM.
  - 3/4" x 3/4" WOODEN STAKES SHOULD BE USED TO SECURE THE FILTER SOCK TO THE SOIL LEAVING 1" OF STAKE EXPOSED ABOVE THE SOCK.
  - TERMINAL ENDS OF FILTER SOCK SHOULD BE DOG-LEGGED UP SLOPE AT A 45° ANGLE TO ENSURE CONTAINMENT AND PREVENT CHANNELING OF SEDIMENT.
  - CARE SHALL BE TAKEN DURING INSTALLATION SO AS TO AVOID DAMAGE OCCURRING TO THE FILTER SOCK AS A RESULT OF THE INSTALLATION PROCESS.
  - FIELD MONITORING SHALL BE PERFORMED BY THE ENGINEER TO VERIFY THAT THE PLACEMENT DOES NOT DAMAGE THE FILTER SOCK.
  - ANY FILTER SOCK DAMAGED DURING PLACEMENT SHALL BE REPLACED AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
  - UPON STABILIZATION OF THE TRIBUTARY AREA, THE FILTER SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH IS REMOVED AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.
  - TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
  - ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND BE DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
  - SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION INDICATING ACTION IS REQUIRED.



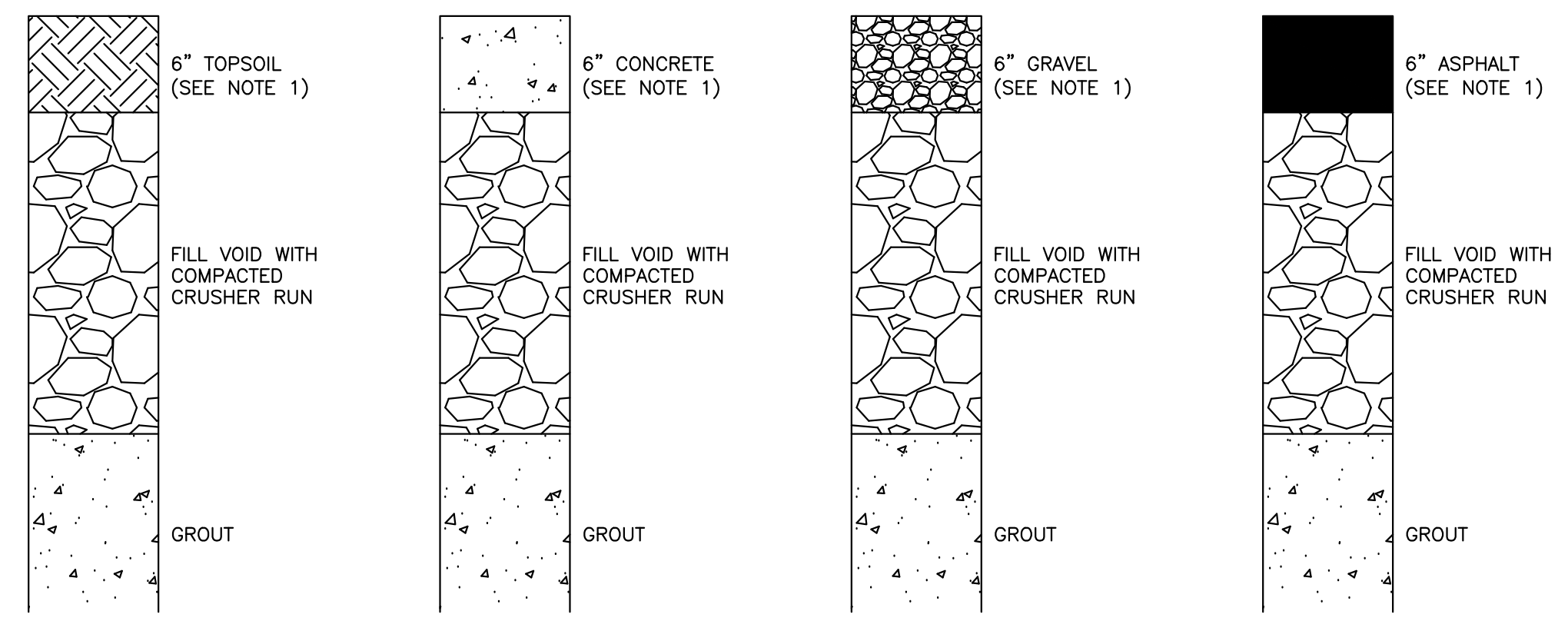
**1**  
13  
**FILTER SOCK DETAIL**  
NOT TO SCALE



- NOTE:**
- PLACE CONCRETE USING 10' DISCHARGE LINE FROM FACE. MATERIAL TO BE PLACED IN STAGES TO CONTROL QUANTITIES. CONCRETE TO HAVE SLUMP <4". HAND OR BROOM FINISH FINAL FACE.
  - AN ACCELERATOR SUCH AS CALCIUM CHLORIDE MAY BE ADDED TO CONCRETE TO FACILITATE PLACEMENT.

**DRY MINE SEAL TYPICAL SECTION**  
N.T.S.

**2**  
13  
**DRY MINE SEAL DETAIL**  
NOT TO SCALE



- NOTES:**
- USE APPROPRIATE PLUG BASED ON EXISTING SURFACE OF EACH INDIVIDUAL DRILL HOLE.

**3**  
13  
**PLUGGING DETAIL**  
NOT TO SCALE

No.	Description	Date	By
1			
2			
3			
4			
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6			
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