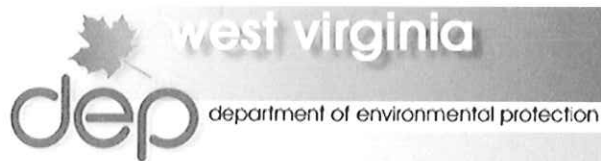


Submitted to:



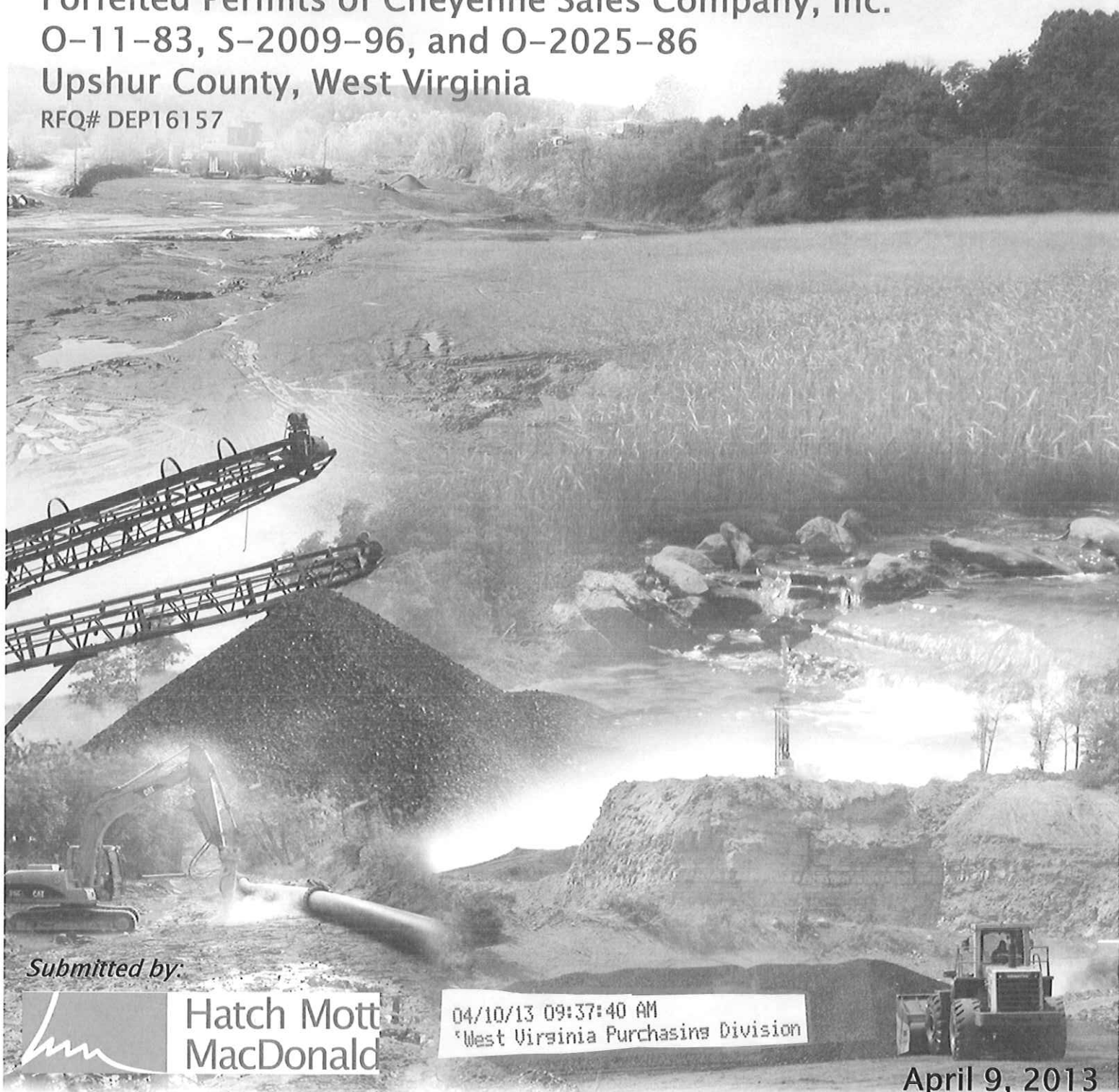
Expression of Interest

Professional Mapping and Design Services at the Bond
Forfeited Permits of Cheyenne Sales Company, Inc.

O-11-83, S-2009-96, and O-2025-86

Upshur County, West Virginia

RFQ# DEP16157



Submitted by:



Hatch Mott
MacDonald

04/10/13 09:37:40 AM
West Virginia Purchasing Division

April 9, 2013



Hatch Mott
MacDonald

**Expression of Interest
for
Professional Mapping and Design Services at
the Bond Forfeited Permits of
Cheyenne Sales Company, Inc.
O-11-83, S-2009-96 and O-2025-86
Upshur County, WV**

RFQ # DEP16157



Hatch Mott MacDonald

Transmittal

To: Department of Administration-
Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0103
Attn: Frank Whittaker

Date: 04-09-13

Job #:

Job Name: Cheyenne Sale Bond Forfeitures

From: Tim Rice

The following items are: ☐ Attached or ☐ under separate cover:

- | | | | | |
|---|--|---|--|---|
| ☐ Shop Drawings | ☐ Prints/copies | ☐ Photos | ☐ Mylars | ☐ Disks |
| ☐ Address change | ☐ Change order | ☐ Specifications | ☐ Meeting minutes | ☐ Cost estimates |
| ☐ Samples | ☐ VE Report | ☐ Reports | ☐ Contracts | ☐ Plans |
| ☐ Submittals | ☐ Letters | ☒ Other (See Below) | | |

Section	Quantity	Description	Code
	1	EOI for DEP16157	
	1	CD – Electronic Copy	

Remarks:

These are transmitted as checked below:

- | | |
|--|---|
| ☐ For approval | ☐ Return of loaned prints |
| ☐ For review & comments | ☐ Return ____ corrected prints |
| ☐ For your use | ☐ Resubmit ____ for review |
| ☐ As requested | ☐ Submit ____ for distribution |
| ☒ For bids due | |

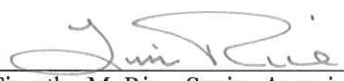
Code Legend	
Code 1	No exception taken
Code 2	Make corrections noted
Code 3	Amend & resubmit
Code 4	Rejected – see remarks
Code 5	Take action on sub-consultant stamp

They were sent via:

- | | | | | |
|---|---|------------------------------|---------------------------------------|---|
| ☐ Messenger | ☒ FedEx | ☐ UPS | ☐ Express Mail | ☐ US Postal Mail |
| ☐ Special Delivery | ☐ Other | | | |

Copy to: File

Signed:


Timothy M. Rice, Senior Associate

If enclosures are not as noted, please notify us at once

Hatch Mott MacDonald

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

N:\Marketing\Current Proposals\MEW050_- WVDEP16157-Three Cheyenne Sales Company\040913_Cheyenne Sale DEP EOI 16157_Mor Transmittal Form 011207.doc



State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Solicitation

NUMBER

DEP16157

PAGE

1

ADDRESS CORRESPONDENCE TO ATTENTION OF:

FRANK WHITTAKER
304-558-2316

RFQ COPY

TYPE NAME/ADDRESS HERE
Hatch Mott MacDonald
2601 Cranberry Square
Morgantown, WV 26508

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ENVIRONMENTAL PROTECTION
DEPT. OF
OFFICE OF SPECIAL RECLAMATION
105 S. RAILROAD STREET
PHILIPPI, WV
26416-9998 304-457-3219

DATE PRINTED

03/07/2013

BID OPENING DATE:

04/11/2013

BID OPENING TIME

01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		906-29		
	MULTIPLE PERMITS			DESIGN		
				EXPRESSION OF INTEREST		
	THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, IS SOLICITING EXPRESSIONS OF INTEREST FOR PROFESSIONAL MAPPING AND DESIGN SERVICES AT THE BOND FORFEITED PERMITS OF CHEYENNE SALES COMPANY INC. 0-11-83, S-2009-96 AND 0-2025-86 IN UP SHUR COUNTY, WEST VIRGINIA PER THE FOLLOWING BID REQUIREMENTS AND ATTACHED SPECIFICATIONS.					
	***** THIS IS THE END OF RFQ DEP16157 ***** TOTAL:					

SIGNATURE

Matthew W. Rue

TELEPHONE

304-212-4390

DATE

04-09-2013

TITLE

Office Manager

FEIN

16-1006700

ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Hatch Mott MacDonald

(Company)



(Authorized Signature)

Timothy M. Rice, Office Manager

(Representative Name, Title)

304-212-4390

(Phone Number)

304-594-2814

(Fax Number)

04-09-2013

(Date)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DEP16157

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

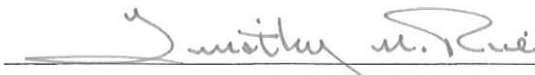
(Check the box next to each addendum received)

- | | |
|---|--|
| ☐ Addendum No. 1 | ☐ Addendum No. 6 |
| ☐ Addendum No. 2 | ☐ Addendum No. 7 |
| ☐ Addendum No. 3 | ☐ Addendum No. 8 |
| ☐ Addendum No. 4 | ☐ Addendum No. 9 |
| ☐ Addendum No. 5 | ☐ Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Hatch Mott MacDonald

Company



 Authorized Signature

04-09-2013

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

STATE OF WEST VIRGINIA
Purchasing Division**PURCHASING AFFIDAVIT**

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

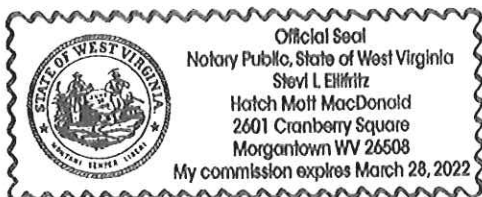
DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:Vendor's Name: Hatch Mott MacDonaldAuthorized Signature: *Jonathan M. Rue* Date: 04-09-13State of West VirginiaCounty of Monongalia, to-wit:Taken, subscribed, and sworn to before me this 09 day of April, 2013.My Commission expires March 28, 2022.**AFFIX SEAL HERE****NOTARY PUBLIC***Purchasing Affidavit (Revised 07/01/2012)*



Cover Letter

Section 1 – Corporate History & Experience

Section 2 – CCQQ – Attachment “B”

Section 3 – RPEM – Attachment “C”



**Hatch Mott
MacDonald**

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

April 9, 2013

Mr. Frank Whittaker
West Virginia Department of Environmental Protection
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

RE: RFQ # DEP 16157

**Expression of Interest for Professional Mapping and Design Services at the Bond Forfeited
Permits of Cheyenne Sales Company Inc. O-11-83, S-2009-96, and O-2025-86
Upshur County**

Dear Mr. Whittaker:

Hatch Mott MacDonald (HMM) is pleased to submit this proposal to provide professional mapping and design services for the West Virginia Department of Environmental Protection, Office of Special Reclamation (OSR). This project focuses on mapping, refuse reclamation, highwall elimination, stream bank protection, drainage control, and acid mine drainage issues which are core disciplines for our Morgantown office. Our managers have successfully designed numerous designs to address similar issues throughout the region for both the AML and Emergency Programs.

Our Morgantown and Charleston offices have several staff members that collectively have more than 100 years of direct design and management experience with mine reclamation design projects of all kinds. The Morgantown office employs a total staff of 25 with 4 separate design teams. These design teams consist of a mine reclamation experienced project manager, a CADD designer, and the necessary support staff to effectively complete this project on time and within budget. We are proud to announce that the Charleston office now employs 12 staff and also has a full design team functioning from that location. Also, please note that 2 members of our staff are certified in Natural Stream Design levels I-IV.

HMM has recently provided design services on several projects for WVDEP-AML that are very similar in scope to these projects. We have also permitted in excess of 70 permits under the SMCRA guidelines for various coal clients. We presently have the most current and up to date design details and specifications being used on your projects. Our experienced staffs are knowledgeable in estimation and construction and we are prepared to provide our services through the design and into the bidding and construction phases if needed. The many years of staff experience on AML projects enables us to provide engineering or project support during any phase of the project needed.

We appreciate the opportunity to submit this Expression of Interest and look forward to continuing our working relationship.

Respectfully submitted,
Hatch Mott MacDonald

Richard L. Steinhart, PE
Vice President
T 412.497.2910 F 412.497.2940
richard.steinhart@hatchmott.com

Timothy M. Rice
Senior Associate
T 304.212.4388 F 304.594.2814
timothy.rice@hatchmott.com

[corporate history & experience]

INTRODUCTION

Hatch Mott MacDonald (HMM) is a leading North American consulting engineering firm with over a century of worldwide experience. HMM has designed and managed some of the world's most prominent projects. Proud of our role in major ventures across North America, we offer public and private clients the complete range of services from planning, feasibility studies/surveys, design, program/construction management, design/build, environmental, startup, and commissioning for projects across a broad range of facilities. HMM is well known and respected for its engineering expertise, currently ranking 35th in ENR's Top 500 Design Firms.

Our focus on risk management, innovation, and corporate dedication to quality has been widely recognized with numerous industry awards and accolades from clients. HMM has served public and private clients in North America for over 50 years, and internationally for over 100 years.

We have a reputation for developing cost-effective solutions and delivering projects on-time and within budget as demonstrated by our volume of repeat business. Our commitment to quality on our projects is enhanced with proven project management procedures that assure quality product delivery on-time and within budget. HMM's Integrated Management System is our implementation program registered under the ISO 9001 Standard. HMM offers specialized expertise and understanding of the key issues typical of engineering and construction management, with a complete range of consulting services covering all phases of project development and implementation.

LOCAL OFFICES

HMM is a leading North American consulting engineering firm with over 2,400 staff in 70 offices. Regionally, our offices are located at:

2601 Cranberry Square	405 Capitol Street
Morgantown, WV 26508	Suite 601
T 304.212.4390	Charleston, WV 25301
F 304.594.2814	T:304.356.3010
	F: 304.357.9222

CONSULTING AREAS

The resources of HMM are available through the following consulting areas:

- ♦ Construction Engineering Services
- ♦ Contract Operations
- ♦ Environmental Compliance & Remediation
- ♦ Environmental Site Assessment & Remediation
- ♦ Geographical Information Systems
- ♦ Hazardous Waste Management
- ♦ Hydraulic Infrastructure Evaluation & Rehabilitation
- ♦ Hydrogeological Services
- ♦ Industrial Wastewater Management
- ♦ Information Technology & Management

- ♦ Mining Environmental Services
- ♦ Municipal Engineering and Planning
- ♦ Pipeline Services
- ♦ Rails-To-Trails Projects
- ♦ Recreational Facilities
- ♦ Recycling/Solid Waste Management
- ♦ Site Development Engineering
- ♦ Storage Tank Management
- ♦ Stormwater & Watershed Management
- ♦ Transportation Engineering
- ♦ Wastewater Engineering and Management
- ♦ Water Supply Management
- ♦ Wetland / Ecological Studies

STAFFING

Hatch Mott MacDonald was formed as a joint venture between Hatch Associates of Canada, a leading design engineering firm, and Mott MacDonald, headquartered in London, an infrastructure and education consulting engineering firm. The combined resources of Hatch Associates and Mott MacDonald offer a worldwide engineering staff of over 20,000 people. In 2001, HMM acquired the environmental consulting firm of Killam Associates to offer water, wastewater and environmental services throughout North America. Our total US staff is now over 2,400 engineers, scientists and technical support personnel.

MANAGEMENT STRATEGIES

HMM uses the "Project Team" approach to efficiently manage and complete projects on time and within specified budgets. A Project Manager directs the team and interfaces with the client to ensure an uninterrupted flow of information. Capable managers draw upon the versatile personnel at HMM to provide pertinent technical knowledge relative to a particular project.

Hatch Mott MacDonald's engineering professionals are fully supported by extensive computer resources (CADD, graphics, and an Information Technology staff), and highly trained field crews for surveying and environmental sampling and monitoring.

From the analysis stage to project implementation, the professional staff of HMM provides clients with cost-effective engineering and planning solutions for their environmental problems. HMM's outstanding reputation is based upon dedicated service to clients and demonstrated technical abilities.

Hatch Mott MacDonald is proud of its established reputation, which is based on efficient project management, technical expertise, and knowledge of regulatory requirements. These features are reflected in HMM's success at maintaining long-term client relationships. Experienced staff and an organizational approach make HMM extremely competent in meeting a client's needs, now and in the future.



The Morgantown and Charleston offices are currently staffed to provide to provide four to five different design teams simultaneously. These teams generally consist of a Project Engineer and the necessary design drafting and support staff.

EXPERIENCE AND QUALIFICATIONS

Hatch Mott MacDonald (HMM) is a full-service consulting engineering firm offering both public and private clients a complete range of services from conceptual, feasibility/ planning studies and environmental assessment through preliminary and detailed design to procurement, construction engineering inspection and project and construction management services, as well as operations and maintenance. Headquartered in New Jersey, HMM has hundreds of staff located in the northeast and Mid-Atlantic regions. More than 2,400 employees in 70 offices throughout the U.S. and Canada will support the local staff. This project will be performed from our Morgantown, WV office.

Our resources in the Appalachian Coal region have grown steadily over the past few years. HMM's focus on mining services has led to a staff of over 60 individuals in this service area. More specifically, the Morgantown and Charleston offices have over 40 staff members dedicated to the mining and energy service area, including engineers, geologists, biologists, scientists, and support staff. This growth is attributed to our corporate commitment to the industry and the values established by HMM. Hatch, one of our parent companies, has been in business for 50 years and focuses on mining services on an international level.

Mining Environmental Services

HMM offers a full spectrum of mining and mining-related environmental and design engineering services. Successfully completed projects range from reserve analyses, permitting and feasibility studies to complex mining and reclamation plans for surface and underground mining installation, prep plants and refuse handling facilities. Versatility is demonstrated by a proven ability to work with large and small operators. Personnel are accustomed to communicating effectively with both multi-department international companies and sole proprietors.



Surface Mining

- ◆ Surface Mining Permits
- ◆ Auger Mining Permits
- ◆ Feasibility Studies
- ◆ Land Reclamation & Remediation
- ◆ Permit Transfers
- ◆ Pre-Blast Surveys
- ◆ Acid Mine Discharge (AMD) Remediation

Underground Mining

- ◆ Deep Mine Permits
- ◆ Mine Design & Mapping
- ◆ Ventilation Plans
- ◆ Subsidence Plans
- ◆ Surface Support Plans
- ◆ Air Shaft Design & Coordination
- ◆ Incidental Boundary Revisions (IBR)
- ◆ Pre-Subsidence Surveys

Support Facilities

- ◆ Preparation Plant Permits
- ◆ Coal Yard & Loadout Permits
- ◆ Refuse Pile Reprocessing Permits
- ◆ Site Planning
- ◆ Air Quality Permits
- ◆ Coal Refuse/Fly Ash Permits
- ◆ Coal Refuse/Fresh Water Impoundments
- ◆ Portal Facilities Design & Construction Management

Mine Planning

- ◆ Geological Exploration
- ◆ Reserve Studies
- ◆ Economic Evaluations
- ◆ Aerial Mapping
- ◆ Drilling
- ◆ Environmental Site Assessment
- ◆ Natural Stream Design
- ◆ Stream Mitigation



Professional Surveying

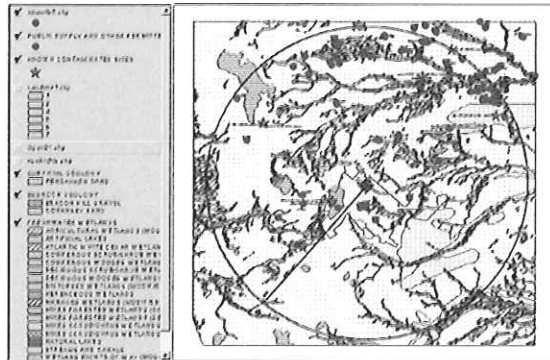
- ◆ Underground Coal Mine Surveys
- ◆ Stockpile Volumetric Surveys
- ◆ Construction Surveys
- ◆ Boundary Retracement
- ◆ Topographic Surveys
- ◆ Horizontal & Vertical Control Networks
- ◆ GIS/GPS Surveys

Operations Support

- ◆ Small Operator Assistance Program (SOAP) Preparation
- ◆ Thermal-graphic Equipment Analyses
- ◆ Machine & Equipment Appraisal & Analyses
- ◆ Conveyor System Analyses
- ◆ Electrical System Analyses

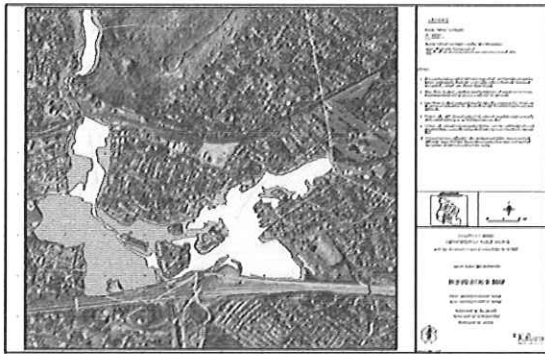
Geographic Information Systems

Over the last decade, HMM has responded to its clients' growing needs for Geographical Information System (GIS) through investments in software, hardware and employee training. The ability of GIS to integrate central databases with mapping that can be shared throughout an organization is making this information technology a standard for government agencies, utilities and private companies. HMM provides a full range of GIS services in the areas of: water/wastewater utility, stormwater utility, municipal government, hydrology and hydraulics, and natural resources.



Software Applications

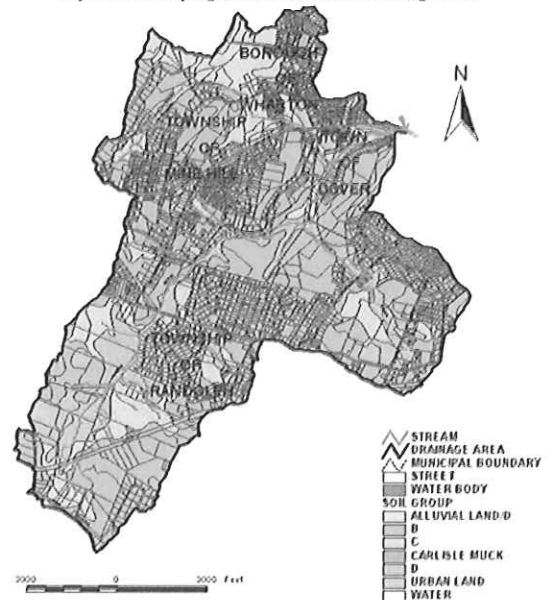
- ♦ ARC/INFO©
- ♦ ArcView©
- ♦ ArcCAD
- ♦ ArcFM
- ♦ AutoCAD/AutoCAD Map
- ♦ Microstation



Software Capabilities

- ♦ Infrastructure Modeling
- ♦ Document Management
- ♦ Hydrologic/Hydraulic Modeling
- ♦ Groundwater Modeling
- ♦ Coordinate Geometry (COGO)
- ♦ Geographical Positioning Systems (GPS)
- ♦ Digital Elevation/Terrain Modeling
- ♦ Integration of Third Party Modeling Software
- ♦ Internet/Intranet

Major Soil Grouping In Jackson Brook Drainage Area



Hardware Resources

- ♦ Hewlett-Packard 1055 & 755 Design Jet Plotters
- ♦ Dell Precision Workstation (750 MHz Processors with 256K RAM)
- ♦ Network through a 6300 Dell PowerEdge Server
- ♦ RAID-5 Array for Data Storage
- ♦ XEROX 8830 Scanners & Printers

Construction Engineering Services

HMM's established reputation in providing construction observation and project management services is based upon the firm's experienced professionals' technical expertise and knowledge of the construction field. Interaction with the firm's various design teams is undertaken so that the latest technologies will be implemented with the highest efficiency. State-of-the-art laser and computerized surveying equipment and techniques are employed for data gathering, processing, reporting and construction control.



Facilities

- ◆ Wastewater & Water Treatment Facilities
- ◆ Mining Facilities
- ◆ Biosolids Removal Facilities
- ◆ Pumping Stations
- ◆ Dams & Dikes
- ◆ Materials Recycling Facilities
- ◆ Solid Waste Transfer Stations
- ◆ Vehicle Maintenance Facilities
- ◆ Parking Garages
- ◆ Storage Facilities
- ◆ Airport Hangars & Terminals
- ◆ Office & Administration Buildings
- ◆ CSO & SSO Rehabilitation
- ◆ Sanitary Sewers & Water Mains
- ◆ Recreational Facilities

Project Management

- ◆ CPM Scheduling Review
- ◆ Cost Controls
- ◆ Shop Drawing Review
- ◆ Payment Requests Processing
- ◆ Change Order Management
- ◆ Record Plan Preparation
- ◆ Claims Avoidance/Dispute Resolution
- ◆ Progress Meetings
- ◆ Information Management

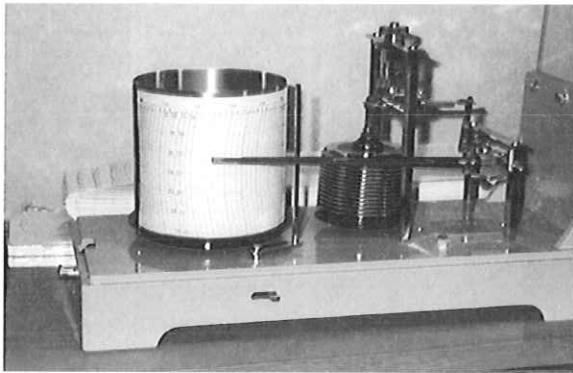


Resident Engineering

- ◆ Construction Surveys
- ◆ Construction Observation
- ◆ Concrete Testing & Inspection
- ◆ Safety Monitoring

Hydrogeological Services

HMM's hydrogeological specialists are employed on a wide range of projects, from small urban properties to entire watersheds. The majority of our staff holds advanced degrees and are registered professionals. They evaluate and develop groundwater resources; delineate contamination and predict impacts on human and ecological receptors; provide the technical basis for the design of subsurface wastewater disposal, construction dewatering and aquifer remediation systems; generate hydrogeologic models, frame computer simulations and perform statistical analyses for risk assessments and resource prospecting; provide full technical assistance in permitting in all these areas; provide peer review for the work of outside hydrogeologists; advise legal counsel and provide expert testimony.



Groundwater Resources

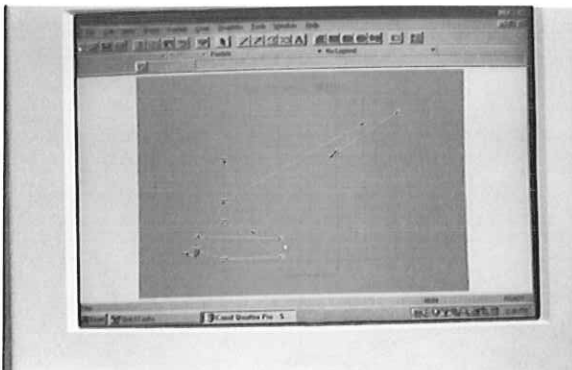
- ◆ Resource Evaluations
- ◆ Water Allocation Permits
- ◆ Well-Head Protection Area Delineation
- ◆ Diversion Impact Assessments

Dewatering

- ◆ Dewatering System Design
- ◆ Temporary Water Allocation Permits
- ◆ Dewatering Permits-by-Rule

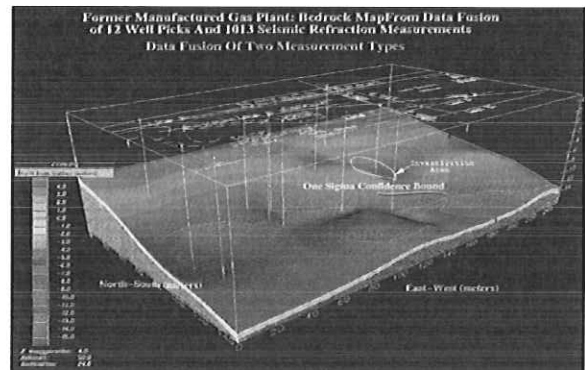
Discharge to Groundwater

- ◆ Hydraulic Mounding Analysis
- ◆ Discharge to Groundwater Permits
- ◆ Dilution Modeling



Remedial Design

- ◆ Plume Control
- ◆ Treated Wastewater Disposal System Design
- ◆ Contaminant Fate & Transport Modeling
- ◆ Technical Support for Natural Remediation
- ◆ Aquifer Reclassification
- ◆ Ground Water Chemistry
- ◆ Expert Testimony
- ◆ Peer Review



Landfill Investigations

- ◆ Leachate Generation & Control Modeling
- ◆ Landfill Gas Venting System Design
- ◆ Aquifer Impact Assessments

Aquifer Investigations

- ◆ Pumping Test Design & Analysis
- ◆ Aquifer Modeling
- ◆ Simulation of Groundwater Flow
- ◆ Aquifer/Surface Water Interaction Analyses

Environmental Compliance Services

Effective management of ongoing environmental compliance issues is often difficult, especially as many companies continue to cutback on non-production personnel. As a result, many EH&S managers find themselves overloaded with multiple tasks. HMM can be a valuable resource that EH&S managers can use to more effectively and efficiently manage their company's environmental obligations, stay up-to-date with current state and federal regulatory trends, identify areas where cost-effective waste reduction measures can be implemented, and receive an objective third-party review of the company's environmental compliance level and/or liabilities. HMM can add value to the company's bottom line and help the management team to refocus resources on product quality and customer service, while staying abreast of regulatory changes and compliance issues.

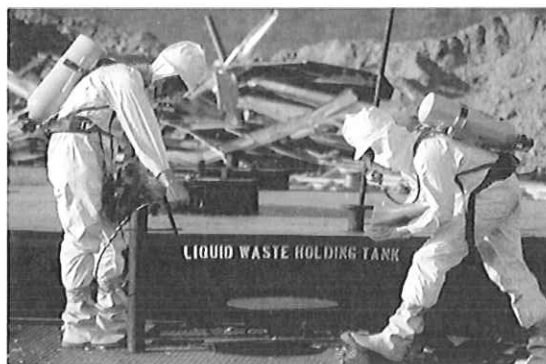
Periodic Reporting

- ◆ Annual SARA Reports (312/313)
- ◆ Annual Air Emission Reports
- ◆ Monthly DMR Sampling / Reports
- ◆ POTW Pretreatment Sampling / Reports
- ◆ Hazardous Waste Biennial Reports
- ◆ Residual Waste Biennial Reports
- ◆ Chemical Analysis of Wastes
- ◆ Source Reduction Strategies
- ◆ Storage Tank Registrations / Inspections



Air Quality

- ◆ RFD Applications
- ◆ Plan Approval Applications
- ◆ Title V Permit Applications
- ◆ PSD / Permit Modifications
- ◆ System Testing / Balancing



Contingency Planning

- ◆ Environmental Compliance Audits
- ◆ SPCC Plan Preparation / Recertification
- ◆ PPC Plan Preparation / Recertification
- ◆ Environmental Emergency Response Plans
- ◆ Storm Water Pollution Prevention Plans
- ◆ Hazard Communication Plans
- ◆ Risk Management Plans
- ◆ Training

Wastewater Management

- ◆ NPDES Part I/ Part II Permit Applications
- ◆ POTW Permit Applications
- ◆ Storm Water Runoff Permit Applications
- ◆ Treatment Plant Troubleshooting
- ◆ Toxicity Reduction Evaluations



Ecological Services

Hatch Mott MacDonald provides a wide range of scientific and environmental expertise needed to successfully address complex environmental problems and to design practical, cost-effective solutions. HMM is committed to assisting its clients by guiding projects through both the regulatory process and the construction phase utilizing cost effective design and engineering while protecting and enhancing the environment. We have provided ecological services to many types of clients including public and private utilities, state and municipal authorities and agencies, commercial site developers, energy companies, residential and other private property owners, municipalities and institutions. Our scientists and field technicians have the necessary technical expertise required to design and execute ecologically-focused surveys and studies and the capability to set a strategic course of action for projects to be successfully licensed and permitted at all regulatory levels.



Regulatory Compliance

- ◆ Agency Consultation and Coordination
- ◆ Ecological Resources Policy Development
- ◆ Environmental Audits
- ◆ Environmental Compliance Inspection
- ◆ Environmental Impact Statements and Assessments
- ◆ Environmental Monitoring
- ◆ Environmental Risk Assessment
- ◆ Expert Testimony and Litigation Support
- ◆ Federal, State and Local Permitting

Environmental Technology

- ◆ Bioengineering
- ◆ Bioremediation and Phytoremediation
- ◆ Engineered Wetlands for Water Treatment
- ◆ Ecological Restoration



Ecological Resource Surveys/Studies

- ◆ Biota and Ecosystem Baseline Surveys
- ◆ Ecological Resource Management
- ◆ Ecological Risk Assessment
- ◆ Habitat Evaluation and Assessment
- ◆ Rare, Threatened and Endangered Species Assessment
- ◆ Soils, Sediments and Water Quality Investigations
- ◆ Wetland Delineation and Assessment
- ◆ Wetland Mitigation, Replication and Monitoring



Other Related Services

- ◆ Erosion and Sedimentation Control Plans
- ◆ GPS Survey
- ◆ GIS Applications
- ◆ Stormwater Management Plans
- ◆ Vegetation Management Plans
- ◆ Landscape Planting Plans

Environmental Site Assessment and Remediation

For nearly two decades, HMM has performed Phase I/Phase II environmental site assessments at hundreds of sites. They have consulted with multi-national and local buyers of property, assisting them with their due diligence efforts prior to acquisition of new companies or properties. On properties where contamination is present in excess of acceptable levels, HMM has designed and implemented remediation measures. Such remediation projects have been completed under a variety of environmental programs, including CERCLA (Superfund), RCRA Corrective Action, ISRA, Pennsylvania Act 2 and other state Brownfield programs. Projects have been completed on numerous sites that have soil and/or groundwater contaminated with chlorinated solvents, petroleum from leaking storage tanks, heavy metals, PCBs, and other organic compounds. Our design engineers are specialists in groundwater collection and treatment, waste removal and facility closure design, and our field staff is fully equipped and instrumented, and appropriately trained and medically monitored.



Environmental Site Assessments

- ◆ Phase I Site Assessments (ASTM)
- ◆ Transaction Screening Assessments
- ◆ Phase II Site Investigations
- ◆ Geophysical Surveys
- ◆ Monitoring Well Installations/Borings
- ◆ Soil, Air & Water Sampling
- ◆ Waste Sampling & Characterization
- ◆ Groundwater Flow Modeling
- ◆ Contaminant Transport Modeling
- ◆ QA/QC Plans



Remedial Design

- ◆ Feasibility Studies / Alternatives Analysis
- ◆ Physical/Chemical Treatment
- ◆ Biological Treatment
- ◆ Thermal Treatment
- ◆ Recovery Well Designs
- ◆ Soil Vapor Extraction
- ◆ Air Sparging
- ◆ Hydraulic Containment
- ◆ Closure Plans
- ◆ Pilot & Demonstration Programs
- ◆ Cost Estimating
- ◆ Risk Based Corrective Action
- ◆ Natural Remediation Compliance Plans
- ◆ Permitting



Site Remediation

- ◆ Contract Administration
- ◆ Construction Oversight Services
- ◆ System Operations & Maintenance
- ◆ Closure Reporting
- ◆ Post-Remediation Monitoring
- ◆ Expert Testimony

Water Supply Management

HMM has demonstrated a unique combination of talent and experience in meeting hydraulic and water supply engineering challenges for over 60 years. The firm has demonstrated particular strength and developed broad experience in water system planning, hydraulic analysis, design, rehabilitation and implementation. We can provide a full range of water supply management services including hydraulic analyses, planning and feasibility studies, preliminary and final designs, preparation of contract drawings and specifications, construction cost estimates, time schedule outlines, bid analyses, complete resident engineering services during project construction and development of operation and maintenance manuals, as well as start-up assistance and operator training.



Planning

- ◆ Master Planning for Water Supply & Treatment
- ◆ Resource Management
- ◆ Resource Inventories
- ◆ Grant & Loan Application Assistance

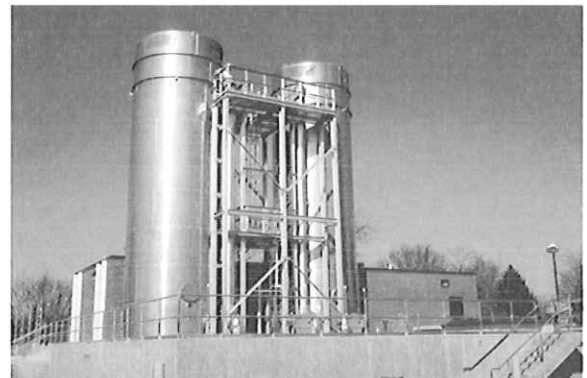
Construction Services

- ◆ Field Services
- ◆ Liaison Representation
- ◆ Construction Management
- ◆ Contract Administration



Investigative Studies

- ◆ Hydraulic Analysis
- ◆ System Pressure & Fire Flow Analysis
- ◆ Water Quality Treatability
- ◆ Rate Studies
- ◆ Feasibility Studies
- ◆ Valuations
- ◆ Expert Testimony



Design

- ◆ Water Supply
- ◆ Water Treatment
- ◆ Air Stripping
- ◆ Pumping Stations
- ◆ Transmission & Distribution Pipelines
- ◆ Storage Facilities
- ◆ Rehabilitation
- ◆ Treatment Plant Optimization & Management

Storage Tank Management

HMM provides storage tank management through a highly trained staff of professional geologists and engineers. This staff can investigate, analyze and make recommendations to our clients on tank management plans, tank upgrades and/or new tank designs. All staff is familiar with current state and USEPA rules and regulations and can expertly assist our clients in compliance with current standards. Our design team is experienced in double-walled steel or fiberglass tanks as well as tank upgrades in compliance with the regulations.

Evaluation of Existing Tank Systems

- ◆ Registration, Permitting & Release Reporting
- ◆ Integrity Testing
- ◆ Abandonment In-Place
- ◆ Removals & Disposals
- ◆ Upgrades & Modifications per Federal Regulations



Tank Management Plans

- ◆ Evaluation of Existing Systems through Data Searches, Interview & Site Surveys
- ◆ Determination of Compliance/Non Compliance with Federal/State Regulations
- ◆ Determination of Future System Needs
- ◆ Determination of Tank Upgradability
- ◆ Scheduling Removals/Abandonment/Replacements
- ◆ Cost Estimating
- ◆ Recommendation of Sequenced Compliance

Design of New Tank Systems

- ◆ Corrosion Protection Systems
- ◆ Double-Wall Steel to 20,000 Gallons
- ◆ Fiberglass to 6,000 Gallons
- ◆ Vault or Below Ground Installations
- ◆ Above Ground Concrete
- ◆ Dispensing Units for Motor Fuel
- ◆ Multi-fuel Tank Partitioning for Gas & Diesel
- ◆ Instrumented Leak Detection Systems
- ◆ Canopies & Islands
- ◆ Specialized #6 Heating Oil Design
- ◆ Specialized Aviation Gasoline Designs
- ◆ Bid Plans & Specifications
- ◆ State & Local Construction Code Permitting
- ◆ Construction Management
- ◆ System Start-up
- ◆ Fuel & Fleet Management Systems



Municipal Engineering Services/ Public Works Management

As a result of the practical experience developed during more than six decades of engineering consultation, and through the utilization of the talents of staff experienced in engineering, planning and public works management, HMM can draw upon a vast depth of resources to provide consulting services for its public clients, particularly in the Public Works Area. HMM's multiple office locations, coupled with the diverse capabilities of the firm's experienced staff of certified public works managers, allow HMM to provide the Public Works Management service needed to meet the full range of the day-to-day demands of local government.

Master Planning, Design, Budget & Implementation

- ◆ Municipal Improvements
- ◆ Drainage & Flood Control Facilities
- ◆ Wastewater Collection, Pumping & Treatment Facilities
- ◆ Roadway Construction, Resurfacing & Reconstruction
- ◆ Intersection & Signalization Improvements
- ◆ Water Supply Treatment, Storage & Distribution Systems
- ◆ Beach Erosion Control, Marine & Coastal Structures & Flood Zone Management
- ◆ Parks, Golf Courses & other Recreational Facilities
- ◆ Solid Waste Management & Recycling
- ◆ Building Design Services
- ◆ Land Surveying
- ◆ Tax Map Revisions & Street Address Map Revisions
- ◆ Energy Audits



- ◆ Liaison to Financial Institutions
- ◆ Liaison to Legal Division & Expert Testimony
- ◆ Public Participation Programs



Public Works Consultation

- ◆ Underground Storage Tanks
- ◆ Sewage Collection, Pumping & Treatment Facilities
- ◆ Water Distribution, Supply, Storage, Treatment & Pumping Facilities
- ◆ Streets & Roads
- ◆ Stormwater Collection, Detention & Retention Facilities
- ◆ Solid Waste & Recycling
- ◆ Vehicles & Equipment
- ◆ Snow & Ice Removal
- ◆ Emergency - Crisis Planning
- ◆ Complaint Processing
- ◆ Construction Phase Engineering
- ◆ Survey
- ◆ GPS/GIS Plans

Advisory Consultation

- ◆ Governing Body
- ◆ Planning Board
- ◆ Board of Adjustment
- ◆ Board of Health
- ◆ Liaison to Municipal Departments, Boards & Commissions
- ◆ Liaison to County, State & Federal Agencies

Parks & Recreation

- ◆ Capital Inventory
- ◆ Park Maintenance Program
- ◆ Field Utilization Surveys

Municipal Engineering Services/ Public Works Management (cont.)

Street Management Program

- ♦ Pavement Management Programs
- ♦ Maintenance & Repair Programs
- ♦ Preparation of Street Cleaning Programs



Snow Plowing and Ice Control

- ♦ Comprehensive Snow Plowing Plans
- ♦ Ice Control Programs
- ♦ Equipment

Stormwater System Maintenance

- ♦ Cleaning Programs
- ♦ Routing Maintenance Programs
- ♦ Planning for Managing & Upgrading

Sanitary Sewer System Maintenance

- ♦ Routine Cleaning Programs
- ♦ TV Inspection
- ♦ Manpower Training

Fleet Management

- ♦ Planning that Addresses Ownership, Use, Maintenance, Repair & Replacement

Facility Management Programs

- ♦ Review Staff Capabilities Relative to Facility Maintenance, Upkeep & Cleaning

Capital Budgeting and Planning

- ♦ Review of Existing Capital Plans
- ♦ Preparation of Single or Multi-Year Capital Budgets
- ♦ Review of Financing Options

Public Works Management

- ♦ Perform Management Review of Existing Operations
- ♦ Prepare Plans for Staffing & Operational Improvements
- ♦ Budget Review & Recommendations



Pipeline Services

HMM has demonstrated experience in virtually all aspects of the natural gas transmission pipeline industry from routine operation and maintenance related matters to design and construction. The firm has successfully completed a wide variety of projects ranging from relatively small scopes of work through major multi-state construction projects. It is this understanding and our extensive resources that enable HMM to quickly and effectively respond to clients' needs, regardless of project size or scope. Our unique geographic office locations further enable us to quickly respond to the needs of the interstate natural gas pipeline industry. Our offices are located in the vicinity of many strategic pipeline hubs. HMM is unique in the industry in its ability to provide our clients with a wide variety of services including: surveying, planning, design, construction phase services and environmental compliance. As a result of our experience, we also understand the importance of close communication throughout any project undertaken.



Project Management

- ◆ Feasibility Studies
- ◆ Schedule Control
- ◆ Project Organization & Staffing
- ◆ Alignment & Progress Meetings
- ◆ Project Status Reports
- ◆ Scope Change Management

Pipeline Engineering

- ◆ Field Engineering
- ◆ Construction Work Space
- ◆ Route Selection & Realignment
- ◆ Horizontal Directional Drilling
- ◆ Road & Highway Crossings
- ◆ Wetland & Waterbody Crossings

Pipeline Surveying

- ◆ Preliminary Survey/Alignment
- ◆ Aerial Photography & GPS
- ◆ Topographic Surveys & Profiles
- ◆ Fee Property Surveys
- ◆ Existing Conditions Surveys
- ◆ Construction Re-Stake
- ◆ Record Plan Survey

Construction Services

- ◆ Construction Management
- ◆ Construction Engineering/Survey
- ◆ Resident Observation

Environmental/Cultural Resources

- ◆ Agency Consultation & Coordination
- ◆ Field Investigations & Surveys
- ◆ Wetland Delineation
- ◆ Endangered & Threatened Species
- ◆ Cultural Resources
- ◆ Erosion & Sediment Control
- ◆ Revegetation & Maintenance
- ◆ Wetland/Water Body Construction Procedures
- ◆ Stormwater Management Plans
- ◆ SPCC & Mitigation Plans
- ◆ Air Quality Monitoring & Permitting
- ◆ Federal, State & Local Permitting
- ◆ FERC Applications & Coordination



Pipeline Drafting

- ◆ Alignment Sheets
- ◆ Topographic Maps/Aerial Photographs
- ◆ Permit Application Drawings
- ◆ Land & Condemnation Plats
- ◆ Graphics & Presentation Drawings
- ◆ Record Plans

Operation and Maintenance Services

- ◆ Pipeline Location & Staking
- ◆ Anomaly & Dent Location
- ◆ Exposed Pipe Remediation
- ◆ Surveying, Drafting, Design, Engineering, Environmental & Permitting

[CCQQ – Attachment “B”]

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

OSR CONSULTANT QUALIFICATION QUESTIONNAIRE

Attachment "

PROJECT NAME Cheyenne Sales Company, Inc. O-11-83, S-2009-96 and O-2025-86		DATE (DAY, MONTH, YEAR) 04/09/13		FEIN 16-1006700																																									
1. FIRM NAME Hatch Mott MacDonald LLC		2. HOME OFFICE BUSINESS ADDRESS 27 Bleeker Street Milburn, NJ 07041		3. FORMER FIRM NAME Hatch Associates Consultants, Inc. (Est. 1955) Mott MacDonald Group (Est. 1902)																																									
4. HOME OFFICE TELEPHONE 973-379-3400	5. ESTABLISHED (YEAR) 1972	6. TYPE OWNERSHIP Individual <u>Corporation</u> Partnership <u>Joint-Venture</u>		6a. WV REGISTERED DBE (Disadvantaged Business Enterprise) YES <u>NO</u>																																									
7. PRIMARY OSR DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. OSR DESIGN PERSONNEL EACH OFFICE 2601 Cranberry Square, Morgantown, WV 26508, 304-212-4390, Timothy M. Rice, Area Manager/ Morgantown Office - 25																																													
8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM Richard L. Steinhart, PE, Senior Vice President		8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS Timothy M. Rice, Morgantown Area Office Manager (304)212-4390																																											
9. PERSONNEL BY DISCIPLINE																																													
<table border="0"> <tr> <td>— <u>28</u>ADMINISTRATIVE</td> <td>— <u>4</u>ECOLOGISTS</td> <td>— <u>3</u>LANDSCAPE ARCHITECTS</td> <td>— <u>89</u>STRUCTURAL ENGINEERS</td> </tr> <tr> <td>— <u>18</u>ARCHITECTS</td> <td>— <u>0</u>ECONOMISTS</td> <td>— <u>41</u>MECHANICAL ENGINEERS</td> <td>— <u>90</u>SURVEYORS</td> </tr> <tr> <td>— <u>3</u>BIOLOGIST</td> <td>— <u>46</u>ELECTRICAL ENGINEERS</td> <td>— <u>2</u>MINING ENGINEERS</td> <td>— <u>90</u>TRAFFIC ENGINEERS</td> </tr> <tr> <td>— <u>352</u>CADD OPERATORS</td> <td>— <u>79</u>ENVIRONMENTALISTS</td> <td>— <u>0</u>PHOTOGRAMMETRISTS</td> <td>— <u>916</u>OTHER</td> </tr> <tr> <td>— <u>5</u>CHEMICAL ENGINEERS</td> <td>— <u>26</u>ESTIMATORS</td> <td>— <u>15</u>PLANNERS:</td> <td></td> </tr> <tr> <td>— <u>264</u>CIVIL ENGINEERS</td> <td>— <u>27</u>GEOLOGISTS</td> <td>URBAN/REGIONAL</td> <td></td> </tr> <tr> <td>— <u>236</u>CONSTRUCTION</td> <td>— <u>0</u>HISTORIANS</td> <td>— <u>28</u>SANITARY ENGINEERS</td> <td></td> </tr> <tr> <td>INSPECTORS</td> <td>— <u>2</u>HYDROLOGISTS</td> <td>— <u>0</u>SOILS ENGINEERS</td> <td>— <u>2,393</u>TOTAL PERSONNEL</td> </tr> <tr> <td>— <u>29</u>DESIGNERS</td> <td></td> <td>— <u>0</u>SPECIFICATION</td> <td></td> </tr> <tr> <td>— <u>0</u>DRAFTSMEN</td> <td></td> <td>WRITERS</td> <td></td> </tr> </table>						— <u>28</u> ADMINISTRATIVE	— <u>4</u> ECOLOGISTS	— <u>3</u> LANDSCAPE ARCHITECTS	— <u>89</u> STRUCTURAL ENGINEERS	— <u>18</u> ARCHITECTS	— <u>0</u> ECONOMISTS	— <u>41</u> MECHANICAL ENGINEERS	— <u>90</u> SURVEYORS	— <u>3</u> BIOLOGIST	— <u>46</u> ELECTRICAL ENGINEERS	— <u>2</u> MINING ENGINEERS	— <u>90</u> TRAFFIC ENGINEERS	— <u>352</u> CADD OPERATORS	— <u>79</u> ENVIRONMENTALISTS	— <u>0</u> PHOTOGRAMMETRISTS	— <u>916</u> OTHER	— <u>5</u> CHEMICAL ENGINEERS	— <u>26</u> ESTIMATORS	— <u>15</u> PLANNERS:		— <u>264</u> CIVIL ENGINEERS	— <u>27</u> GEOLOGISTS	URBAN/REGIONAL		— <u>236</u> CONSTRUCTION	— <u>0</u> HISTORIANS	— <u>28</u> SANITARY ENGINEERS		INSPECTORS	— <u>2</u> HYDROLOGISTS	— <u>0</u> SOILS ENGINEERS	— <u>2,393</u> TOTAL PERSONNEL	— <u>29</u> DESIGNERS		— <u>0</u> SPECIFICATION		— <u>0</u> DRAFTSMEN		WRITERS	
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TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: <u>3</u> *RPES other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.																																													
Rich Steinhart is a WV-PE and is the "Engineer in Charge" for the Morgantown office. James Fetty and Bill Buckel are also WV-PE's in the Morgantown office. Gary Facemyer is a WV Registered Professional Engineer and is the Charleston, WV office manager.																																													
10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? € YES € NO N/A																																													

11. OUTSIDE KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "OSR Consultant Qualification Questionnaire".

NAME AND ADDRESS: Blue Mountain Aerial Mapping 11023 Mason Dixon Highway Burton, WV 26562	SPECIALTY: Aerial mapping	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS: Triad Engineering 4980 Teays Valley Road St. Albans, WV 25177	SPECIALTY: Geotechnical Drilling/Surveying	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS: Highland Engineering 1426 Memorial Drive Oakland, MD 21550	SPECIALTY: Surveying	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS: Pennsylvania Drilling Company 281 Route 30 Imperial, PA 15126	SPECIALTY: Geotechnical Drilling	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS: Test Boring Services, Inc. 142 Mong Road Scenery Hill, PA 15360	SPECIALTY: Geotechnical Drilling	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS: Sturm Environmental Services P.O. Box 650 Bridgeport, WV 26330-0650	SPECIALTY: Laboratory Analysis	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS: Industrial Lab Analysis, Inc. 65 - 36 th Street Wheeling, WV 26003	SPECIALTY: Laboratory Analysis	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No

12. A. Is your firm experienced in Special Reclamation Remediation/Mine Reclamation Engineering?

YES Description and Number of Projects: Several members of the WV office have a combined 100+ years of AML design experience. They also have completed over 300 AML design projects.

NO

B. Is your firm experienced in soil analysis and coal refuse analysis?

YES Description and Number of Projects: Our experienced staff routinely provides expertise to our mining and municipal clients for projects requiring reclamation or reprocessing. We have and continue to provide revegetation and reforestation (ARRI) design on AML, permitting, and municipal projects in West Virginia and surrounding states. HMM also has multiple staff with strong wetland delineation backgrounds and skills.

NO

C. Is your firm experienced in hydrology and hydraulics for handling mine water discharges on mining sites?

YES Description and Number of Projects: Our current projects include the study of hundreds of streams and drainage structures over a 1,400 square mile area in southwestern PA and north central WV. This work includes sampling, flow monitoring, modeling, mitigation, remediation, hydrologic and hydraulic analyses, and mapping. We have also performed mine pool risk evaluations.

NO

D. Does your firm produce its own aerial photography and development of contour mapping?

YES Description and Number of Projects:

NO- We subcontract the aerial photography; however, in-house we can provide GPS, surveying and development of the mapping as needed.

E. Is your firm experienced in design of highwall elimination, grading and material handling plans for land reclamation?

YES Description and Number of Projects: Our experienced staff has completed over 100 highwall elimination projects as well as numerous special handling projects such as refuse piles, burning refuse, toxic overburden, and deep mine fires throughout WV, PA, MD and OH. Our combined professional experience with mine reclamation among our design team members is over 100 years in all aspects of mining issues.

NO

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Rice, Timothy M. Project Director/Project Manager	YEARS OF OSR DESIGN EXPERIENCE: 25	YEARS OF OSR RELATED DESIGN EXPERIENCE: 34
Brief Explanation of Responsibilities Mr. Rice presently serves as Area Manager for the Hatch Mott MacDonald Morgantown, WV office. Mr. Rice is experienced in project management, coordination and supervision for permitting, design, drafting, surveying and drilling projects. His expertise is in reclamation design; mining permits; design of acid mine drainage abatement plans; water resources studies; pre/post mining surveys; hydraulic and hydrological analysis; pre-blast surveys; slope stability analysis; geotechnical design; Phase I environmental audits; storm water management analysis and design; civil site designs; and commercial and residential inspections. Mr. Rice has also received Levels I – IV of Natural Stream Channel Design Certification. He coordinated mitigation, remediation, and restoration projects for several clients in close proximity to the Morgantown office.		
EDUCATION (Degree, Year, Specialization) B.S., 1982 Civil Engineering Level I, II, III, and IV Natural Stream Design, 2004		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State) EIT, West Virginia	

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Law, Jeffrey L. Project Engineer/Project Manager	YEARS OF OSR DESIGN EXPERIENCE: 21	YEARS OF OSR RELATED DESIGN EXPERIENCE: 29
Brief Explanation of Responsibilities Mr. Law is a Project Engineer/Manager for Hatch Mott MacDonald. His experience includes design of AML reclamation plans, permit for 1,000-acre deep mine, barge loading facility, highway entrance permits, mine subsidence evaluations, impoundments, hydrology studies for refuse sites and public water supplies, and has designed storm water management plans for residential and commercial projects. His expertise is in mine subsidence remediation and design; mine facility layout and design; reclamation design; mining permits; design of acid mine drainage abatement plans; pre/post mining surveys; hydraulic and hydrological analysis; pre-blast surveys; slope stability analysis; geotechnical design; storm water management analysis and design; civil site designs; and commercial and residential inspections. Mr. Law has also conducted floodplain evaluations and construction inspection of commercial properties. Mr. Law has experience in project management, coordination and supervision for construction and design of various mining related projects.		
EDUCATION (Degree, Year, Specialization) B.S., 1983 Mining Engineering A.A., 1980 Mining Engineering		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)	

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Buckel, William D Project Engineer/Project Manager	2	10

Brief Explanation of Responsibilities

Mr. Buckel is a Project Manager at Hatch Mott MacDonald (HMM). Mr. Buckel's work experience has been primarily in the land surveying and civil engineering design areas. He has considerable experience in property, engineering and construction surveying, heavy construction administration, project engineering, inspection, and supervision. He also has some sewer, water, and surface mining design experience; AML project lay-out, supervision, and execution, including start-up, post audit and compliance assurance. He has also done various permitting and project designs for many construction, coal mining and energy clients. Mr. Buckel has been the owner of his own consulting firm for over 23 years and has also worked for different construction companies, an electric utility, mining companies and design firms as well, on projects of various sizes and types.

EDUCATION (Degree, Year, Specialization)

B.S., Civil Engineering, University of Maryland 1980, Geotechnical

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

ASCE, Past Chairman and state representative of the Western Chapter of the Maryland Society of surveyors, West Virginia Association of Land Surveyors

REGISTRATION (Type, Year, State)

PE, 1983, MD, PA, WV
LS, 1982, MD, WV

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Rogers, Richard M. Project Engineer/ Project Manager	8	12

Brief Explanation of Responsibilities

Mr. Rogers has experience in project management, coordination and supervision for construction and design of various mining and geotechnical related projects, including several AML projects. His experience includes management of one hundred plus geotechnical projects, including transportation, commercial development, public schools and a variety of public and private clients. His responsibilities have included schedule and cost control and overall submittal quality. He has managed field drilling activities, field classification of soil, rock, field and laboratory safety procedures, a laboratory testing program and geotechnical evaluations. Engineering evaluations include foundation recommendations, settlement analysis, slope stability analysis, earth pressure coefficients and report preparation. In addition, Mr. Rogers has served as Project Manager for several construction testing projects.

EDUCATION (Degree, Year, Specialization)

B.S., 1998, Chemical Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

REGISTRATION (Type, Year, State)

EIT, West Virginia

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)		
NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Fetty, James W Project Engineer (In-House Consultant)	YEARS OF OSR DESIGN EXPERIENCE: 3	YEARS OF OSR RELATED DESIGN EXPERIENCE: 23
Brief Explanation of Responsibilities Mr. Fetty's Background is in the Municipal Engineering field. He was the City Engineer for the City of Fairmont, West Virginia for 21 years. He has been a Project Manager for numerous water distribution, storm sewer and sanitary sewer system projects. He has experience in the design, preparation of plans and specifications and construction monitoring for water distribution, storm drainage and sanitary sewer collection system projects. Mr. Fetty is also an experienced Project Manager for multiple AML projects including Heather Run #4, Whispering Woods and Rupert to Rainelle recently.		
EDUCATION (Degree, Year, Specialization) B.S., 1982 Civil Engineering		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS National Society of Civil Engineers Water Environment Federation		REGISTRATION (Type, Year, State) PE, West Virginia & Pennsylvania
13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)		
NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Yurchick, Charles W. Project Geologist	YEARS OF OSR DESIGN EXPERIENCE: 8	YEARS OF OSR RELATED DESIGN EXPERIENCE: 33
Brief Explanation of Responsibilities Mr. Yurchick is experienced in project management, coordination and supervision of coal exploration projects, coal and non-coal surface and deep mine permitting activities, hydrologic studies pertaining to surface and under-ground mine activities, geologic and geo-technical drilling projects, natural and man-made slope failure and mine subsidence investigations, site development geo-technical evaluations, deep mining in-seam geologic disruption evaluations, bore hole grouting, under-ground mine grouting plans and drilling, management of field operations for exploration and geo-technical projects and property damage evaluations due to geologic hazards.		
EDUCATION (Degree, Year, Specialization) BS, Geo Sciences, The Pennsylvania State University, 1973		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS Society for Mining, Metallurgy and Exploration, SME of the AIME, Founding Registered Member of the Society for Mining, Metallurgy and Exploration, American Institute of Professional Geologists		REGISTRATION (Type, Year, State) Professional Geologist, 1995, PA Certified Professional Geologist- AIPG, CPG-5117

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Facemyer, Gary D. Professional Engineer Professional Surveyor	YEARS OF OSR DESIGN EXPERIENCE: 22	YEARS OF OSR RELATED DESIGN EXPERIENCE: 34

Brief Explanation of Responsibilities

Mr. Facemyer has been responsible for planning, design, permitting, construction management and construction of numerous abandoned mine land reclamation projects over a 20 year period. Projects included mine portal closures, high wall reduction or elimination, refuse piles, burning refuse, burning seams, landslides, stream restoration, drainage correction, acid mine drainage, water feasibility studies and water system designs.

This work also included Special Reclamation (bond forfeiture) assessment, water testing, and AMD treatment.

EDUCATION (Degree, Year, Specialization)

B. S. Civil Engineering WV Institute of Technology 1975

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Society of Civil Engineers – Past President WV
American Council of Engineering Companies – WV
WV Society of Professional Surveyors

REGISTRATION (Type, Year, State)

Professional Engineer, WV OH PA MD VA KY
Professional Surveyor, WV

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Steinhart, Richard Project Principal	YEARS OF OSR DESIGN EXPERIENCE: 6	YEARS OF OSR RELATED DESIGN EXPERIENCE: 6

Brief Explanation of Responsibilities

Mr. Steinhart has served as a Project Director and Principal Engineer for numerous mine reclamation projects for WVDEP-AML and WVDEP-EM Programs. He has an extensive background in the development and quality control of hydrologic and hydraulic dynamic computer models using various computer programs. He has significant experience with a full range of collection, detention, and treatment structures. He has managed projects for private, State, and Federal clients ranging from small, emergency projects upwards to multi-million dollar designs. Mr. Steinhart brings exceptional experience to all aspects of project management ranging from contacts, specifications, and design to personnel management and procurement.

EDUCATION (Degree, Year, Specialization)

M.S., Civil Engineering, 1995, Pennsylvania State University
B.S., Civil/Environmental Engineering, 1998, Pennsylvania State University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

PA Water Environment Association, Ohio Water Environment Association

REGISTRATION (Type, Year, State)

Professional Engineer, WV, PA, OH, KY, MD

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Roderick, Clayton K. Project Geologist/Project Manager	YEARS OF OSR DESIGN EXPERIENCE: 4	YEARS OF OSR RELATED DESIGN EXPERIENCE: 12

Brief Explanation of Responsibilities

Mr. Roderick is experienced in coordination and supervision of coal exploration projects, coal and non-coal surface and deep mine permitting activities, hydrologic studies pertaining to surface and under-ground mine activities, geologic and geo-technical drilling projects, management of field operations for exploration and geo-technical projects and property damage evaluations due to geologic hazards.

EDUCATION (Degree, Year, Specialization)
Earth Sciences, 1997, California University of Pennsylvania

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

REGISTRATION (Type, Year, State)

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Green, John L. Surveyor	YEARS OF OSR DESIGN EXPERIENCE: 1	YEARS OF OSR RELATED DESIGN EXPERIENCE: 33

Brief Explanation of Responsibilities

Mr. Green is a Registered Professional Surveyor with over 30 years of experience in the engineering industry in surveying or survey related capacities and as an engineering design technician. He is expertly qualified in most conventional types of surveying with some experience in newer non-conventional types such as GPS surveying. He is also expertly qualified in the right-of-way plan process.

EDUCATION (Degree, Year, Specialization)
Civil Engineering Technology, 1976

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
American Congress on Surveying & Mapping
West Virginia Society of Professional Surveyors
National Society of Professional Surveyors
CGIS/LIS Association

REGISTRATION (Type, Year, State)
Professional Surveyor, 1991, WV - 901

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)		
NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Reese, Jason S. CADD Designer	YEARS OF OSR DESIGN EXPERIENCE: 8	YEARS OF OSR RELATED DESIGN EXPERIENCE: 12
Brief Explanation of Responsibilities Mr. Reese serves as CADD Designer at Hatch Mott MacDonald. His past experience includes AML design projects for the State of West Virginia. He is also knowledgeable with various forms of mine permitting in West Virginia and Pennsylvania. Mr. Reese is familiar with basic surveying techniques, storm water design, hydraulic and hydrologic computations, erosion and sediment control plans, and 3D Modeling using ACADD.		
EDUCATION (Degree, Year, Specialization) CADD, 1998, Monongalia County Vocational Center		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS		REGISTRATION (Type, Year, State)
13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)		
NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Moore, Brian K. Project Engineer	YEARS OF OSR DESIGN EXPERIENCE: 1	YEARS OF OSR RELATED DESIGN EXPERIENCE: 8
Brief Explanation of Responsibilities Mr. Moore has served as a Project Engineer and Task Manager for various water and wastewater conveyance projects. He has an extensive background in the development and quality control of hydrologic and hydraulic dynamic computer models using various computer programs. He has also generated base maps and plan-profile sheets for various infrastructure projects using automated computer methodologies. Mr. Moore also has site design experience including drainage and parking facilities for several different facilities.		
EDUCATION (Degree, Year, Specialization) B.S., Civil/Environmental Engineering, 1998, Pennsylvania State University		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS		REGISTRATION (Type, Year, State)
		Professional Engineer, 2003, Ohio Professional Engineer, WV (Reciprocity in process)

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Chambers, Ricardo A. Engineer	YEARS OF OSR DESIGN EXPERIENCE: 2	YEARS OF OSR RELATED DESIGN EXPERIENCE: 4
Brief Explanation of Responsibilities Mr. Chambers joined Hatch Mott MacDonald in July of 2006 and is now working as an Engineer in the Morgantown office. His experience includes extensive fieldwork in environmental projects, data analysis and report compliances, groundwater monitoring, and hydrologic flow studies. He is proficient in operating numerous pieces of equipment including, but not limited to: a Trimble GeoXT GPS, a Marsh-McBirney Model T2000 Flow Meter and various other groundwater and surface water sampling instrumentation.		
EDUCATION (Degree, Year, Specialization) MS, 2006, Environmental Engineering BS, 2004, Civil Engineering AS, 1999, Mathematical Science		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers		REGISTRATION (Type, Year, State) EIT, West Virginia

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Cline, Jeremiah C. Engineer	YEARS OF OSR DESIGN EXPERIENCE: 4	YEARS OF OSR RELATED DESIGN EXPERIENCE: 6
Brief Explanation of Responsibilities Mr. Cline is experienced in ASTM Standard materials testing, construction and environmental inspection services, monitoring the many different physical parameters of streams, and GPS surveying. He is capable of making keen observations with respect to the effects of longwall mining to surface features above ground. At this time he is creating estimates for several large scale stream monitoring projects. Mr. Cline is also managing equipment and people in a dynamic schedule that he created to track all monitoring tasks for each of nearly 30 persons at 5 deep mine sites, on a daily basis. He has had several classes in natural stream design and stream restoration that includes Rosgen Level One – Fluvial Geomorphology for Engineers and other classes hosted by Canaan Valley Institute.		
EDUCATION (Degree, Year, Specialization) BS, 2003, Civil Engineering Rosgen Level 1 – Fluvial Geomorphology for Engineers Rosgen Level 2 – River Morphology and Applications Rosgen Level 3 – River Assessment and Monitoring		Natural Stream Design Construction Management Workshop Introduction to Stream Surveying 10-Hour OSHA Training Course in Construction Safety & Health
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS ASCE – WV Northern Branch (President)		REGISTRATION (Type, Year, State) EIT, West Virginia

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)		
NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Price, Bridget Engineer	YEARS OF OSR DESIGN EXPERIENCE: 4	YEARS OF OSR RELATED DESIGN EXPERIENCE: 8
Brief Explanation of Responsibilities Ms. Price serves as an engineer/designer at Hatch Mott MacDonald. Her past experience includes civil site design projects as well as mining and environmental permitting. She is knowledgeable with NPDES Storm Water Construction e-permitting, Individual Water Quality State 401 Certification permits, USACOE, Nationwide Permit compliance, Public Land permits and Highway Occupancy permits. Ms. Price is knowledgeable with basic hydraulic and hydrologic computations for drainage structures. She is also familiar with quantity estimates for materials, including earthwork volumetric computations, as well as specification writing. Bridget is very knowledgeable with AutoCADD Civil 3D and the associated design packages.		
EDUCATION (Degree, Year, Specialization) B.S., 2004, Civil Engineering Technology		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS		REGISTRATION (Type, Year, State)
13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR OSR PROJECT DESIGN (Furnish complete data but keep to essentials)		
NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
Goddard, Eric Wetland Scientist/Ecologist	YEARS OF OSR DESIGN EXPERIENCE: 3	YEARS OF OSR RELATED DESIGN EXPERIENCE: 4
Brief Explanation of Responsibilities Mr. Goddard is a field biologist involved in wetland identification and delineation, and ecological surveys. He has performed wetland delineations and/or ecological investigations throughout the Midwest and Mid-Atlantic and has field experience in the identification of aquatic plants and terrestrial wildlife.		
EDUCATION (Degree, Year, Specialization) MS, Biology, 2012 BS, Biology, 1998		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS Society of Wetland Scientist (SWS)		REGISTRATION (Type, Year, State)

FIELD EQUIPMENT

Sampling Equipment (water/solid)

Ponar Dredge (solids underwater)
Automatic Water Samplers
Hand Augers (soil)
EnCore™ Samplers
Disposable Field Filters, 0.45 micron
Bailers (disposable Polyethylene, PVC, Teflon)
Groundwater Pumps

Safety Equipment

Methanometers
O2, LEL, H2S, CO Meters
Hazmat Kit/Draeger Tubes
Tripod Confined Space Entry System
Personal Protective Equipment (PPE)
Hand Held Radios (5-mile)

General Equipment

Air Compressor (electric powered, 110V)
Digital Cameras
Electric 110V-220V Generator (gas powered)
Jar Test Apparatus
Settling Column
Field Kits (HACH)
Metering Pumps (0-500 ml/min)

Measuring Instruments

Marsh McBirney T2000 Flow Meters (open channel)
Fluorometer (water flow open channel)
Polysonics Flow Meter (closed pipe)
Water Level Recorders
Water Level Indicators (wells, tanks)
Intrinsically Safe Water Level Indicators (wells, tanks)
Interface Layer Probe (wells, tanks)
Recording Rain Gauges
pH/Conductivity/Temp Meters
pH/Temp Meters
ORP Meters
Specific Conductivity/Temp Meters
Photoionization Detector

Surveying Equipment

Portable Rangefinders
Brunton Compass
Total Station with Data Collector
Trimble GPS Units (+/- 1 meter accuracy)
GPS Submeter Units
GPS RTK (Portable Base + Rover & Complete Unit)

General Office

Microsoft Word
Microsoft Excel
Microsoft PowerPoint
Microsoft Project
Microsoft Outlook
Adobe CS2 Suite

Design and Modeling

AutoCAD 2010/2012
Autodesk Civil 3D 2010/2012 (civil/site)
MicroStation V8 XM
FlowMaster (flow design)
Hydro CAD (hydraulic modeling)
InfoWorks CS (hydraulic modeling)
TR-55 (watershed hydrology)
Hydraflow Hydrographs (hydraulic modeling)
InfoSewer (hydraulic analysis)
Culvert Master (culvert design)
Hydraflow Express (culvert design)
Hydraflow Storm Sewers
HEC-RAS (open channel modeling)
Blue Sky Development/Align DB (alignment sheet generation/utilities)

GIS and Database

ArcGIS (GIS mapping and database mgmt.)
SQLServer (database management)
Terrain Navigation Pro (USGS mapping)
Oracle (database management)
Microsoft Access (simple databases)

OFFICE EQUIPMENT

Oce TDS 450 B/W Plotter (high speed, wide format)
Oce TCS 500 Color Plotter (high speed, wide format)
Oce Wide Format Color Scanner

15. CUP T ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED DESIGN SERVICES COST	PERCENT COMPLETE
Hilderbrand Highwall Monongalia, WV	West Virginia Division of Environmental Protection	Reclamation Design, Mine Drainage, Portals	\$37,919.40	95%
Dale R. Trasher Gilmer County, WV	West Virginia Division of Environmental Protection	Reclamation Design, Mine Closures, Highwall Reduction, Regrade/Revegetation	\$49,248	95%
Winona Complex Fayette County, WV	West Virginia Division of Environmental Protection	Reclamation Design, Mine Closures, Highwall Reduction, Regrade/Revegetation	\$54,743	95%
Degasification Borehole for Pad Sites Marion & Monongalia County, WV	Confidential Coal Client	Engineering and Design of well pad sites, completion of the required environmental permit applications.	\$75,000	On-going
Stream Mitigation/ Restoration Project Southwestern, PA	Confidential Coal Client	Stream Mitigation and Restoration of approximately 50,000 lineal feet of stream affected by longwall mining.	\$4,000,000	On-going
Stream Monitoring Southwestern, PA	Confidential Coal Client	Stream monitoring of approximately 25,000 lineal feet of stream affected by longwall mining.	\$11,000,000	On-going

16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY
East Side Access , New York, NY	Program Management. Design review and expert advise on the tunnel design and construction including ventilation systems and other fire/life safety issues. LIRR service into Grand Central Terminal. The new line will utilize the partially completed 63rd Street tunnel and construct approximately 5,000 feet of new tunnel into Grand Central Terminal.	Long Island Rail Road 469 7th Ave., 11th Floor New York, New York 10018	2009	\$4,300,000	\$17,000
Market Street Elevated Reconstruction Project , Philadelphia, PA	The aerial structure on the west side of SEPTA's Blue Line is being rebuilt where the at-grade track begins. The project spans over two miles and will be accomplished while SEPTA continues to operate service on the line.	Southeastern Pennsylvania Transportation Authority (SEPTA) 1234 Market Street, 11th Floor Philadelphia, Pennsylvania 19107	2008	\$200,000 (fee)	\$20,000
Dulles Airport People Mover Tunnels , Virginia/Washington DC	Design of the people mover, baggage and tug tunnel, including mechanical and electrical systems, ventilation systems and fire/life safety for all tunnels on the project. Involves 50,000 ft of tunnels ranging from 18-ft diameter to 40-ft diameter constructed by NATM and TBM, running beneath the airport operating area.	Metropolitan Washington Airports Authority 1 Aviation Circle Washington, D.C. 20001-6000	2007	\$900,000	\$25,800

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD				
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	COMPLETED (YES OR NO)
Stream Mitigation/Restoration Project Southwestern, PA Stream mitigation and restoration of approximately 30,000 lineal feet of stream affected by longwall mining.	Confidential Coal Client	\$5,000,000	2012	On-going
Stream Monitoring Southwestern, PA Stream monitoring of approximately 125,000 lineal feet of stream affected by longwall mining.	Confidential Coal Client	\$4,600,000	2012	On-going
Pond Restoration and Sealing Project Mannington, WV Restoration and liner installation on pond affected by longwall mining.	Confidential Coal Client	\$30,730	2007	Yes
Pennsylvania and West Virginia Well Site Assessments Hatch Mott MacDonald (HMM) is providing environmental and Greenhouse Gas site audits for approximately 600 gas and oil wells in West Virginia and Pennsylvania. Deficiencies are being documented and remediation qualities are being estimated. All data collect is being electronically downloaded from the CartoPac field GPS unit to a GIS based data system.	Confidential Gas/Coal Client	\$308,000	2012	N/A
Crow's Nest Wash Plant Hatch Mott MacDonald (HMM) was retained by the client to develop a permit for the re-processing of coal waste products at a site in Westmoreland County, Pennsylvania. The site was part of an abandoned surface mine and coal waste pile.	Donald F. Dargie Palmer Management Group 13 Elm Street, Suite 300 Cohasset, MA 02025	\$300,000	2006	Yes
Lost Creek Flood Study Project involved performing a FEMA flood study to revise the floodplain boundaries along Lost Creek. Services included creation of a hydraulic model based on new survey data and completion of all necessary FEMA documentation to support the floodplain revision Lost Creek, WV	Harrison County Planning Commission 301 West Main Street Clarksburg, WV 26301	\$60,000 (fee)	2005	No
Harrison County Trail (McWhorter to Clarksburg) Preparation of design plans, specifications, and bid documents for the conversion of an abandoned 14-mile CSX Railroad grade to a hiking/biking trail. Services included stormwater drainage design; trail surface design; wetland delineation; and bridge decking/rehabilitation. Harrison County, WV	Harrison County Planning Commission 301 West Main Street Clarksburg, WV 26301	\$655,000	2006	Yes
Wheeling (15th Street) Mine Drainage Mine Drainage Remediation, Investigation and Design. Installation of deep mine drain and associated drainway in downtown Wheeling. Ohio County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$600,000	2012	Yes

Montana Mines Subsidence Subsidence Stabilization Plan. Grout Stabilization of 6 residences and 3 sinkhole features Marion County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$750,000	2011	Yes
Shinnston (Osborn) Subsidence Subsidence Stabilization Plan. Grout stabilization of single family structure. Harrison County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$90,000	2010	Yes
Barker Portals & Strip Reclamation Design, Mine Closures, Highwall Reduction, Regrade/Revegetation Barbour County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$1,100,000	2011	Yes
Heather Run No. 2 Reclamation Design, Mine Closures, Highwall Reduction, Regrade/Revegetation Preston County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$500,000	2011	Yes
Pendleton Creek Strip Reclamation Design, Natural Stream Channel Design, ARRI Reforestation Plan Tucker County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$750,000	2010	Yes
Rupert to Rainelle Feasibility Study Water Feasibility Study Greenbrier County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$2,000,600	2010	No
Whispering Woods Feasibility Study Water Feasibility Study Monongalia County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$1,500,000	2010	No

Pallotta Subsidence Subsidence Stabilization Plan. Grout stabilization of Apartment Complex in Fairmont Marion County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$175,000	2011	Yes
Bethlehem (Toothman) Subsidence Subsidence Stabilization Plan. Grout stabilization of single family residence. Harrison County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$100,000	2010	Yes
Douglas Avenue (Kingsland Mine Pool) Mine Pool Evaluation and Recommendations. Risk analysis study Allegheny County, MD	Maryland Department of Environment 1800 Washington Boulevard, Baltimore, MD 21230	N/A	N/A	No
De-gasification Borehole Pad Sites (Confidential Coal Client) Marion/Monongalia County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$50,000	2012	Yes
De-gasification Borehole Pad Sites (Confidential Coal Client) Monongalia County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$30,000	2011	Yes
U/C Pipeline (Confidential Coal Client) Monongalia County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$25,000	2011	Yes
Air Shaft Facility Site (9 South 5) Marion County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$50,000	2009	Yes

Intake Shaft (9 South 4) Marion Cc , WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$100,000	2012	No
Intake Shaft Site (18D) Marion County, WV	West Virginia Division of Environmental Protection 601 57th Street SE Charleston, WV 25304	\$25,000	2009	Yes
Storm Drainage & Flood Control Improvements Storm sewers, stream improvements, an earth dike & a pump station and installation of streamflow and rainfall gauging station equipment on the East and West Branches of the Rahway River. Services also included: Field Surveys, Wetlands Assessment, Hydrologic / Hydraulic Investigations, Cost Estimates, Cost Benefit Analysis, Flood Warning System, Flood Preparedness Plan. Essex County, NJ	Millburn Township 375 Millburn Avenue Millburn, NJ 07041	\$2,000	On-going	Yes
Norfolk Southern Heartland Corridor Project, Various Locations Inspection and evaluation of clearances, condition, and geotechnical characteristics for 30 railroad tunnels. Laser car measurements, geotechnical borings, liner samples, and visual inspections were used to establish the existing baseline conditions and to evaluate the potential for tunnel modifications to provide additional clearances.	Norfolk Southern James N. Carter 404.529.1408	\$180,000,000	2005	N/A

18. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM HAS BEEN A SUB-CONSULTANT TO OTHER FIRMS (INDICATE PHASE OF WORK FOR WHICH YOUR FIRM WAS RESPONSIBLE)

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST OF YOUR FIRM'S PORTION	YEAR	CONSTRUCTED (YES OR NO)	FIRM ASSOCIATED WITH
Columbus Crossover Taxiway, Port Columbus International Airport, Columbus, OH: Preliminary structural design engineering for the taxiway bridge(s) including an investigation of bridge types, structural systems, de-icing systems, costing and development of structural design considerations for final design.	Columbus Airport Authority 4600 International Gateway Columbus, OH 43219	\$30.87 M (Construction)	2006	Yes	RWA Associates

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Office of Special Reclamation.

Hatch Mott MacDonald's talented staff and years of experience in meeting deadlines and delivering a quality product has made us a leader in mining/ mining related field. ENR's April 2012 Top 500 Design Firm List has Hatch Mott MacDonald (HMM) listed as 35, up from 39 in 2011. Additionally our current staff has over 100 years of AML experience in six different states and gives us the knowledge and understanding of project management and cost control to complete this project on time and within budget. We recently expanded with the opening of our Charleston, WV office to better serve WVDEP-AML and southern West Virginia.

20. The foregoing is a statement of facts.

Date: April 9, 2013

Signature: _____



Title: Area Manager

Printed Name: Timothy M. Rice

[RPEM – Attachment “C”]



9 South No. 3 Air Shaft – Stream Mitigation

Location

Mannington District, Marion
County, West Virginia

Client

Confidential Mining Client

Project Type

Permitting

Services

Stream Mitigation

Duration

Start date: September 2008

End date: August 2009

Project Description

A confidential mining client planned to add a surface facility known as the 9 South No. 3 Air Shaft located in Mannington District, Marion County, West Virginia.

To construct the air shaft an Incidental Boundary Revision (IBR) application would have to be prepared and submitted to the West Virginia Department of Environmental Protection (WVDEP) for review and approval.

HMM Role

HMM was retained to provide permit related services for the preparation of the IBR application revision.

In addition to the IBR application, HMM prepared a United States Army Corps of Engineers (USACE) 404 permit, a WVDEP 401 permit and a WVDNR Stream Activities permit for the proposed stream impacts. A complete compensatory mitigation plan was prepared to account for permanent stream impacts resulting from several hundred feet of stream enclosure.

An off-site, but in-kind compensatory mitigation plan was developed for a comparable section of intermittent stream to that of the impact area. The mitigation plan utilized Natural Stream Design techniques, bio-engineering, riparian buffer restoration and upland reforestation.

As a condition of the WVDEP 401 permit, pre-impact stream channel conditions, including cross sections and a longitudinal profile, were surveyed and assessed. The pre-impact stream channel survey provides a reference condition for reclamation of the impacted site.

Highlights

- Natural Stream Design principles applied
- Bio-engineering technique used for bank stabilization and channel restoration
- Identified comparable stream reaches suitable for off-site, in-kind compensatory mitigation

Project Description

Hatch Mott MacDonald (HMM) has provided consulting services to various clients in association with the preparation of Coal Mining Activities Permit (CMAP) applications for the installation of air shaft facilities in Pennsylvania. HMM has also prepared Incidental Boundary Revision (IBR) applications for the installation of air shaft facilities in West Virginia.

HMM Services

- Acts 67/68 Notification (PA)
- Public Notification
- Property Interests
- Pennsylvania Historical and Museum Commission Notification
- Pennsylvania Natural Diversity Inventory (PNDI) Notification
- Environmental Resources Mapping
- Geologic Structure Mapping
- Water Sampling
- Operation Plans
- Erosion and Sedimentation Control Plans
- Drainage Control Design
- Pond Design
- Treatment Systems
- Wetland Delineation
- Air Pollution and Noise Control
- Land Use and Reclamation Planning
- Highway Occupancy Permit
- Slope Stability Analysis
- Mitigation Investigations
- United States Army Corps of Engineers (USACE) 401/404 Permits (WV)
- West Virginia Department of Natural Resources (WVDNR) Stream Activity Permit

HMM Air Shaft Site Permit Projects:

Dana Mining Company of Pennsylvania, LLC – #4 West Eisenhower Air Shaft

Dana Mining Company contracted HMM to prepare a CMAP application to reopen an abandoned and sealed coal mine air shaft at the former Shannopin Mine Complex, located in Perry Township, Greene County, Pennsylvania, for the purpose of mining the Sewickley coal seam that overlies the Pittsburgh coal seam. The site comprises three acres and is now referred to as the #4 West Eisenhower Shaft site. The CMAP application has been approved and a permit has been issued by the California office of the PADEP.

Confidential Mining Client – Roberts Run Air Shaft Site

A confidential mining client contracted HMM to prepare a CMAP application to add surface acreage for a new air shaft facility known as the Roberts Run Air Shaft, located in Gilmore Township, Greene County, Pennsylvania. The CMAP application has been approved by the California office of the PADEP, but a revision to the application may be required if a property owner does not grant access.

Confidential Mining Client – 12 West Air Shaft Site

A confidential mining client contracted HMM to prepare a CMAP application to add surface acreage for a new air shaft facility known as the 12 West Air Shaft located in Gilmore Township, Greene County, Pennsylvania. HMM will also prepare a PennDOT Highway Occupancy Permit application and a USACE Stream Activity Permit application for any stream encroachment and/or relocation. The preparation of the CMAP application is currently underway.



Confidential Mining Client – 9 South No.3 Air Shaft Site

A confidential mining client contracted HMM to provide permit related services to apply for an IBR permit for a new air shaft facility known as the 9 South No. 3 Air Shaft, located in Mannington District, Marion County, West Virginia. In addition to the IBR, HMM prepared the USACE 401/404 and WVDNR Stream Activity permits that were needed to complete a proposed stream enclosure. The IBR application has been approved and the client is awaiting permit issuance from the Philippi office of the WVDEP.

Confidential Mining Client – 18-D Air Shaft Site

A confidential mining client contracted HMM to provide permit related services to apply for an IBR permit for a new air shaft facility known as the 18-D Air Shaft, located in Mannington District, Marion County, West Virginia. The IBR application has been approved and a permit issued by the Philippi office of the WVDEP.

Location

Mannington District, Marion
County, WV

Client

Confidential Mining Client

Project Type

Permitting

Services

Wetland Delineation
Geomorphic Assessment
Natural Stream Design
Watershed Restoration

Duration

Start date: September 2008
End date: August 2009

Construction Cost

\$

Construction

Completion Date

Project Description

A confidential mining client planned to add a surface facility known as the 9 South No. 3 Air Shaft located in Mannington District, Marion County, West Virginia. The proposed facility encompasses approximately 18 acres and includes an air shaft, erosion and sedimentation controls and all necessary support structures.



To construct the surface facility an Incidental Boundary Revision (IBR) application, a United States Army Corps of Engineers (USACE) 404 permit, a West Virginia Department of Environmental Protection (WVDEP) 401 permit, and a West Virginia Department of Natural Resources (WVDNR) stream activities permit. As a condition of the USACE 404 and the WVDEP 401 permit all aquatic resources within the projects boundaries delineated and a compensatory mitigation plan developed for unavoidable impacts to identified aquatic resources.

HMM Role

HMM was retained to provide all permit related services for the preparation of all required state and federal permits.

HMM utilized a multidisciplinary team of wetland and environmental scientists, geomorphologists, geologists, and engineers to delineate the aquatic resources within the project boundaries. As required by both federal and state permits wetlands were identified following USACE regulations, and stream channel longitudinal profiles and cross sections were surveyed. Potential environmental impacts to the identified aquatic resources were evaluated, and alternatives to impacts explored. HMM's multidisciplinary team of scientists identified an off-site mitigation location, and developed a comprehensive watershed and stream restoration plan to mitigate for unavoidable impacts to an intermittent stream at the proposed surface facility project site.

The comprehensive compensatory mitigation plan implemented a variety of restoration techniques, including Natural Stream Design principles, bio-engineering, as well as riparian zone restoration and upland reforestation. Over 900' of a high gradient mountain stream impacted by previous land use was redesigned to create a more natural and aesthetically pleasing pattern and profile, while simultaneously providing an ecological lift to watershed.

Highlights

- ♦ Identified potential stream and watershed mitigation sites through extensive field and aerial photograph reconnaissance
- ♦ Implemented Natural Stream Design principles to restore an adversely impacted stream
- ♦ Created in channel features using bio-engineering techniques
- ♦ Addressed the health and function of the stream using a watershed based approach

Sustainability

- ♦ Utilized on-site downed trees in the stream restoration plan to create large woody debris step pool features.
- ♦ Developed a riparian restoration and upland reforestation plan that used only native, locally available plant species.

Location

Gilmore Township, PA

Client

Confidential Mining Client

Project Type

Permitting

Services

Wetland Delineation
Benthic Surveys
Geomorphic Assessment
Flow Monitoring
Water Quality Sampling

Duration

Start date:

End date:

Construction Cost

\$

Construction

Completion Date

Project Description

A confidential mining client planned to add a surface facility known as the 12 West Air Shaft located in Gilmore Township, PA. The proposed facility encompasses approximately 40 acres and includes an air shaft, erosion and sedimentation controls, and all necessary support features.

To construct the air shaft and related support features a United States Army Corps of Engineers (USACE) Nationwide 50 Permit (NWP 50) and a Pennsylvania Department of Environmental Protection (PADEP) Coal Mining Activity Permit (CMAP) would have to be prepared and submitted for review and approval. As a component of both the NWP 50 and the CMAP all aquatic resources had to be delineated and pre-disturbance water quality and flow monitoring completed.

**HMM Role**

HMM was retained to provide all permit related services for the preparation of the USACE Nationwide 50 Permit and the PADEP Coal Mining Activity Permit.

HMM utilized wetland and environmental scientists, geomorphologists, geologists and engineers to delineate all aquatic resources within the proposed permit boundary and to monitor stream flow and water quality. Monitoring of stream flow and water quality was performed at fixed monitoring locations identified during preliminary site visits. Assessment of aquatic resources included wetland delineation, surveying of stream channel longitudinal profiles and cross sections, and a benthic macroinvertebrate survey. Potential environmental impacts to aquatic resources were also assessed.

HMM environmental staff coordinated with the USACE and PADEP to determine required compensation for unavoidable impacts to aquatic resources. Compensatory mitigation for impacts to streams involved the creation and enhancement of riparian zones adjacent to stream segments within the permit boundaries not affected by construction of the air shaft facility.

Highlights

- ♦ Streamlined the assessment and delineation of aquatic resources by utilizing highly qualified, multidisciplinary staff
- ♦ Evaluated compensatory mitigation options to provide optimal environmental benefit while controlling cost to the client



Location

Barbour County, WV

Client

West Virginia Department
of Environmental
Protection

Services

- Surveying
- Geotechnical Investigations
- Mapping
- Reclamation Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

On-going

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the reclamation of an abandoned surface mine in Barbour County, WV. Pre-1977 surface and deep mining activities have created an environmental impact on this site that is situated along the Tygart River. Approximately 6,000 lineal feet of highwall ranging in height from 30-45 feet was left un-reclaimed. Four deep mine portals were left un-scaled. Scattered coal refuse and mine spoil are contributing to the production of acid mine drainage (AMD) on this site. This AMD is discharging directly into the Tygart River.

HMM's work included all design documents necessary for construction and the project specific Corps of Engineers permits. The abandoned mine entries were sealed utilizing dry mine seals, wet mine seals, and bat gates. Drainage channels were designed to safely carry surface water as well as mine discharges utilizing limestone drains and channels as a form of treatment. A wetland is being designed to intercept and treat some of the AMD being generated on-site. All disturbed areas will be soil covered and revegetated.



Location

Harrison County, WV

Client

West Virginia Department
of Environmental
Protection

Services

- Surveying
- Geotechnical Investigations
- Mapping
- Mine Stabilization Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the stabilization of a shallow, abandoned deep mine in Harrison County, WV.

This project was performed under the WVDEP-Emergency Program and consisted of a single family residence which had experienced subsidence damages. Multiple sinkhole features had appeared in the surrounding lawn area and adjacent properties. The abandoned Pittsburgh coal workings were located approximately 35 feet beneath the structure. HMM provided the initial site assessment, historical data search, geotechnical investigation, and developed a grout stabilization plan. HMM prepared design plans, construction specifications, engineers estimate, and a pre-bid meeting was performed. This fast tracked project was delivered to client within two weeks of initial contact and notification of emergency.

Construction required by this design included in excess of 500 feet of vertical and angled injection borings and the placement of approximately 500 cubic yards of grout. Site restoration and revegetation was also performed. Construction estimate was approximately \$75,000.00.



Project Description

Hatch Mott MacDonald (HMM) has provided consulting services to a Confidential Gas Client in association with the production and transmission of Marcellus Gas.

HMM Services

- Pipeline Route Selection
- Wetland Determinations/Delineations
- Benthic Studies
- Well Pad Engineering & Design
- Slope Stability Analysis
- Access Road Engineering & Design
- USACOE Permitting (401/404)
- Highway Occupancy Permits (HOP)
- Site Selection of Fresh Water Impoundments
- Impoundment Engineering & Design
- Cost Estimation

HMM Projects:**Weekley Well Pad Site & Fresh Water Impoundment**

HMM performed wetland determination/delineation on a proposed well pad located in Wetzel County, West Virginia. HMM was also called in to perform a slope stability analysis on the proposed location. A complete subsurface investigation and analysis was performed on the site. The well pad site is currently under construction by the client. HMM also engineered and designed a 12.2 million gallon fresh water impoundment in the vicinity of the well pad location to support multiple well sites.

Buddy CPF Site

HMM performed the engineering and design of a compressor pad and associated access road. The access road included a bridge replacement that required notification and permitting through the USACOE. Services on this project also included wetland determinations, aerial mapping, property line verification and surveying, and pipeline route selection assistance.

Mills–Wetzel & Maury Fresh Water Impoundments

HMM was contracted to provide site selection assistance for two separate fresh water impoundment locations. Multiple potential sites were evaluated based on topography, wetland existence, and engineering logistics. Two sites were ultimately chosen for fresh water impoundment locations. HMM also performed the engineering and design of the two impoundment sites that measured 8 and 10 million gallons, respectively.

Nice & Potts Drill Pad Sites

HMM performed the initial site selection assistance, which included a wetland determination at the proposed pad locations and the associated access roads. Wetland delineations were performed at any found wetland location. HMM coordinated completion of aerial mapping and subsurface investigations at both sites. HMM also provided engineering and design for both well pad sites and their associated access roads.

Oddfellows Site

HMM will provide wetland determinations/delineations and engineering & design for the proposed construction of a well pad site and associated 1.5 mile access road and a 10 million gallon fresh water impoundment. HMM is also providing all necessary permitting associated with the site.

Future Well Sites

HMM is currently providing initial site reconnaissance and selection assistance on all of the client's projected 2011 well sites in West Virginia and Pennsylvania. Our services will include site evaluation, construction costs, and permitting along with final engineering & design.

Location

Washington and Greene
Counties, PA

Client

Confidential Mining Client

Project Type

Market/Discipline area

Services

- Stream Data Collection and Management
- GIS and GPS Data Collection
- Landowner Contacts
- Area Logistics
- Project Scheduling
- Secure Information Exchange
- Integrated Web-based Project

Duration

2003-present

Construction Cost

\$4,000,000 annually

Project Description

This confidential coal mining client is among the nation's top energy companies. They mine more high-Btu bituminous coal than any other producer in the United States, and is the nation's leader in underground coal mining. The client has operations located throughout major US coal-producing regions. They are the largest producer of coal bed methane in the US. For 140 years, the client and its predecessor companies have been industry leaders in production, profitability, safety, and environmental stewardship. Hatch Mott MacDonald (HMM) is currently assisting this client in managing, and developing an extensive study of the streams that overlie longwall coal mines. The study involves studying and documenting the streams' flow; geomorphology, hydrology and noting any changes in streams or the surrounding ecosystem. The accurate and consistent collection of the data is critical to the integrity and quality of the study. The end result is a significant amount of field data that accurately portrays the streams and watersheds of the mining surface areas.

HMM Role

Hatch Mott MacDonald (HMM) is currently assisting the client in managing, and developing an extensive study of the streams that overlie longwall coal mines. The study involves studying and documenting the streams' flow; geomorphology, hydrology and noting any changes in streams or the surrounding ecosystem. The accurate and consistent collection of the data is critical to the integrity and quality of the study. The end result is a significant amount of field data that accurately portrays the streams and watersheds of the mining surface areas.

Project Highlights

- ♦ **Project Development** – The project development was undertaken by client and HMM teams. The data collection and entry as well as data management are critical to the success of the study. Additional areas of development include
 - Stream data collection techniques and equipment evaluation
 - GIS and GPS data collection and organization
 - Landowner contacts and area logistics
 - Project Scheduling and Information Exchange
 - Web based access to data
- ♦ **Data Collection** – Work included setting up flow monitoring stations along designated sections of streams within the study areas being long-wall mined. Over 600 different flow-monitoring stations and more than 144 miles per month of stream morphology are uploaded into Trimble Geo XH sub-foot GPS units and traversed every month. These units were then used to navigate to each individual site of study. Once sites were located, stream flow measurements, water samples and digital photos were taken. Any changes along the length of stream in the geologic rock structures, stream channel conditions or stream flow were documented photographed, and filmed and entered into the GPS. The stream flow measurements were taken using a Marsh-McBirney Flo-mate 2000. All flow-monitoring sites are monitored monthly at a minimum and daily on a maximum basis. All field data collected is entered into a large data base where the data can be queried and printed for the clients at any given time for regulatory agencies, historical record, or research for expansion in new permit areas.
- ♦ **Landowner Contacts and Logistics** – Managing the landowner contacts, issues, and incidents is essential to the continuity and success of the project. HMM coordinated this activity with the client's land agents and many other consultants being used by the client.
- ♦ **Project Scheduling and Information Exchange** – All HMM field teams and other field teams are scheduled using an open web based system developed by HMM called File Share. Mapping, documents and data can be shared and exchanged using the File Share system.
- ♦ **Web Based Access to Data** – HMM assisted the Client in developing an extensive web based data access system.

Location

Bayard, WV

Client

Confidential Mining
Client

Project Type

Hydraulic Analysis

Services

Hydraulic Analysis Study

Duration

September 2004 –
February 2005

Project Description

The client had an inactive mine site where they were operating a treatment plant to treat acid mine drainage. During large storm events, the steep slopes of the site caused rapid increases in the flow conveyed through the onsite drainage network. These increases in flow resulted in sudden spikes in the flow rates entering the treatment plant. This project was conducted to provide an evaluation of alternatives for reducing the peak flow rates during storm events that would allow the treatment plant to maintain operation within a preferred flow range during.

**HMM Role**

HMM was tasked with performing a hydraulic and hydrologic study of the site and providing specific alternatives for reducing peak flows at the treatment plant. These alternatives included additional detention basins and the application of real time controls to better utilize storage available within the existing drainage network. HMM also provided supplementary services including collecting the necessary flow monitoring and rainfall data to calibrate the hydraulic model. In addition, HMM provided survey services of the various drainage paths throughout the site that forms the basis of the hydraulic model.

Highlights

- Performed GPS surveying of open drainage channels and various culverts throughout the site
- Collected flow monitoring data using both weirs (open channel) and area-velocity meters (culverts) in an aggressive chemical environment.
- Utilized the calibrated hydraulic model to evaluate various alternatives to reduce peak flows entering the treatment plant in addition to reducing the overall operational costs of the plant.



Location

Westmoreland, PA

ClientCrow's Nest Synfuels,
L.P.**Services**

- PADEP Permit
- MSHA Permit
- Erosion and Sediment Control Plan
- Mapping
- Surveying
- Surface and Groundwater Monitoring
- Annual Certification
- Reclamation Plan
- Closure Permits
- Construction Monitoring
- Channel Design
- Construction Inspection

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to develop a permit for the re-processing of coal waste products at a site in Westmoreland County, Pennsylvania. The site was part of an abandoned surface mine and coal waste pile.

Work included all design and permitting associated with the initial opening of this facility. HMM was also retained to monitor the operations and perform quarterly certifications. Annual renewals, modifications and compliance was also part of HMM's duties. The project was successfully followed through the reclamation and bond release stages of all state and federal regulatory agencies.





Location

Gilmer County, WV

Client

West Virginia Department
of Environmental
Protection

Services

- Surveying
- Geotechnical Investigations
- Mapping
- Reclamation Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

On-going

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the reclamation of an abandoned surface mine in Gilmer County, WV. This area consisted of approximately 2,700 linear feet of highwall ranging in height from 25-30 feet., two collapsed portals with mine drainage, remains of a 12'W x 10'H x 85'L coal load out, 5 mine cars, and miscellaneous trash. The highwall was mostly vertical and unvegetated with large pieces of overhanging rock that are actively slipping from the face. Four mine cars were underwater and the collapsed mine portals were submerged due to beavers building dams on the bench. The portals were the source of mine drainage flowing from the site.

HMM's work included the preparation of design documents that included the regrading of the area to eliminate or reduce the highwall and associated impounded water, reestablishing original contours, and reconnecting drainways that have been interrupted by mining activities. The design also included installing wet mine seals at the two portal locations that will direct the drainage safely off site. The dilapidated, unstable coal load out structure and the abandoned mine cars were razed and properly disposed of. A revegetation plan was established to ensure revegetation of all disturbed areas of the project.

HMM assisted the WVDEP with all necessary permitting requirements, regulatory meetings, the pre-bid meeting, the pre-construction meeting, and quality assurance during construction.



Location

Monongalia County, WV

ClientWest Virginia Department
of Environmental
Protection**Services**

- Surveying
- Geotechnical Investigations
- Mapping
- Reclamation Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the reclamation of an abandoned surface mine in Monongalia County, WV. This abandoned mine land reclamation project consisted of three separate sites.

The first site included two dilapidated, unsafe coal tipple structures and the remains of a coal load out structure that were designed to be demolished and removed from the site. The site also included three sections of abandoned, unsafe highwall, four open mine portals, and approximately five acres of coal refuse material. The site was designed to be regraded such that the highwall areas were eliminated and original contours were reestablished. The mine portals were closed through installation of dry seals, wet seals, and bat gate seals, depending on the conditions of each portal. The refuse was regraded, covered, and amended to promote vegetation.

The second site consisted of approximately 2,500 feet of highwall. The highwall face ranged from vertical with overhanging rocks to sloughed in and vegetated. An existing local high school is located less than 500 feet from the top of the highwall. The site also include seven open mine portals. HMM's design consisted of eliminating the dangerous highwall and reestablishing the original contours. The mine portal locations were sealed using dry, wet, and bat gate mine seals where appropriate.

The third site consisted of the stabilization of a roadway and utility corridor that had been impacted due to the subsidence of the underground mine workings. HMM was responsible for geotechnical investigation, additional mapping to augment the provided aerial mapping, and the preparation of a stabilization design, bid plans and specifications, engineers estimate, and construction services for all three sites.

HMM's work included all design documents necessary for construction and the project specific Corps of Engineers permits. The abandoned mine entries were sealed utilizing dry mine seals, wet mine seals, and bat gates. The area was regraded to eliminate surface irregularities and provide positive drainage. Drainage channels were designed to safely carry surface water as well as mine discharges utilizing limestone drains and channels as a form of alkaline treatment. All disturbed areas will be soil covered and revegetated.



Location
Marion County, WV

Client
West Virginia Department
of Environmental
Protection

Services

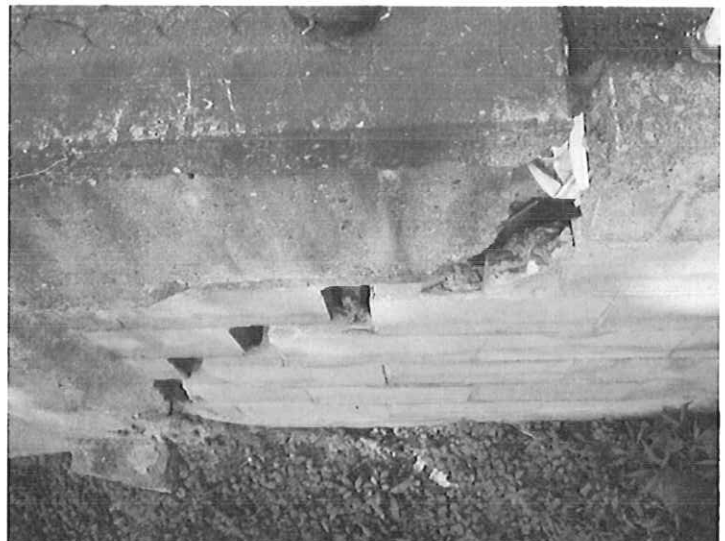
- Surveying
- Geotechnical Investigations
- Mapping
- Grout Stabilization Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the stabilization of an abandoned, deep surface mine in Marion County, WV. This project was performed under the WVDEP- Emergency Program and was completed within two weeks of initial notification.

This project involved the subsidence investigation and stabilization of a multi-unit apartment complex in downtown Fairmont, WV. An abandoned deep mine in the Pittsburgh coal seam was causing damage to the structure and had caused numerous water main leaks in the past. A previous geotechnical study had been performed and the drilling information was used to develop a stabilization plan. HMM was responsible for a site review, mapping, historical records search, development of a stabilization plan, bid plans and specifications, and a pre-bid meeting. Traffic control and pavement protection plans were part of this project.

Construction estimates included in excess of 1,500 linear feet of drilling and the placement of 900 cubic yards of grout. Estimated cost of project was \$225,000.00.



Harrison County Trail – McWhorter to Clarksburg Trail

Location

Harrison County, WV

Client

Harrison County

Services

- Stormwater Drainage Design
- Trail Head/Parking Layout
- Precast Arch Culvert Design
- Bridge Rehabilitation
- Construction Contract Administration
- Construction Inspection

Reference

Terry Schulte, Executive
Director
304-624-8690

Project Description

Hatch Mott MacDonald was retained by the Harrison County Commissioners to prepare design plans, specifications, and bid documents for the conversion of the abandoned 14-mile CSX Railroad grade to a hiking/biking trail.

Work included digitizing existing railroad right-of-way maps into AutoCAD format; evaluation of existing drainage structures; design of drainage rehabilitation; design of new drainage structures; trail surface design; preparation of clearing, grubbing, and tree pruning specifications; design of trail entrances, gates and fencing; design of access barriers (to prevent unauthorized motor vehicles from gaining entry to the trail); wetland delineation; and bridge decking/rehabilitation.

HMM will also perform the construction inspection and construction management of the project. This work will include full-time inspection; evaluation of contractor performance and work product, and approval of contractor invoices. The project was completed in the Fall of 2003.





Location

Preston County, WV

Client

West Virginia Department
of Environmental
Protection

Services

- Surveying
- Geotechnical Investigations
- Mapping
- Reclamation Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the reclamation of an abandoned surface mine in Preston County, WV. Pre-1977 surface and deep mining activities are creating an environmental impact on the headwaters of Heather Run. Sixteen (16) deep mine entries were left unscaled. Of these entries, only 6 are partially collapsed. Some entries are situated such that surface water drainage is allowed to enter the abandoned mine. Others are discharging acid mine drainage (AMD) at an approximate rate of 200 gpm. This AMD discharge is of poor quality, pH 2.6 and Fe > 10 mg/L. Also, approximately 2,000 linear feet of highwall was left abandoned; coal refuse and spoil was left un-covered, and scattered mine debris was left on the site. This site is generating AMD and discharging directly into Heather Run, a tributary of the Cheat River.

HMM's work included all design documents necessary for construction and the project specific Corps of Engineers permits. The abandoned mine entries were sealed utilizing dry mine seals, wet mine seals, and bat gates. The area was regraded to eliminate surface irregularities and provide positive drainage. Drainage channels were designed to safely carry surface water as well as mine discharges utilizing limestone drains and channels as a form of alkaline treatment. All disturbed areas will be soil covered and revegetated.



Location

Somerset County, PA

Client

Hoffman Mining
Company

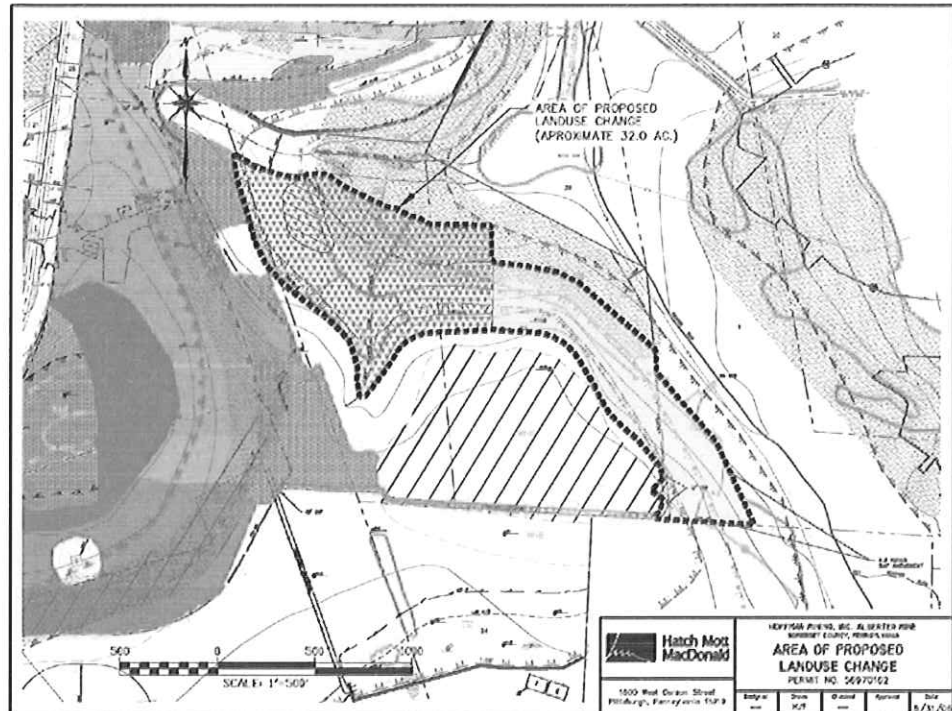
Services

- PADEP Permit
- Erosion and Sediment Control Plan
- Mapping
- Surveying
- Surface and Groundwater Monitoring
- Annual Certifications
- Reclamation Plan
- Closure Permits
- Construction Monitoring
- Channel Design
- Construction Inspection
- Bond Release

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to develop a surface mine permit for a site in Somerset County, Pennsylvania. The site included several land use changes.

Work included all design and permitting associated with the initial opening of this surface mine. HMM was also retained to monitor the operations, perform quarterly certifications, annual renewals, modifications, and compliance. The project was successfully followed through the reclamation and bond release stages of all state and federal regulatory agencies.



Impoundment Mitigation and Restoration Project

Location
Wetzel County, WV

Client
Confidential Coal Client

Services

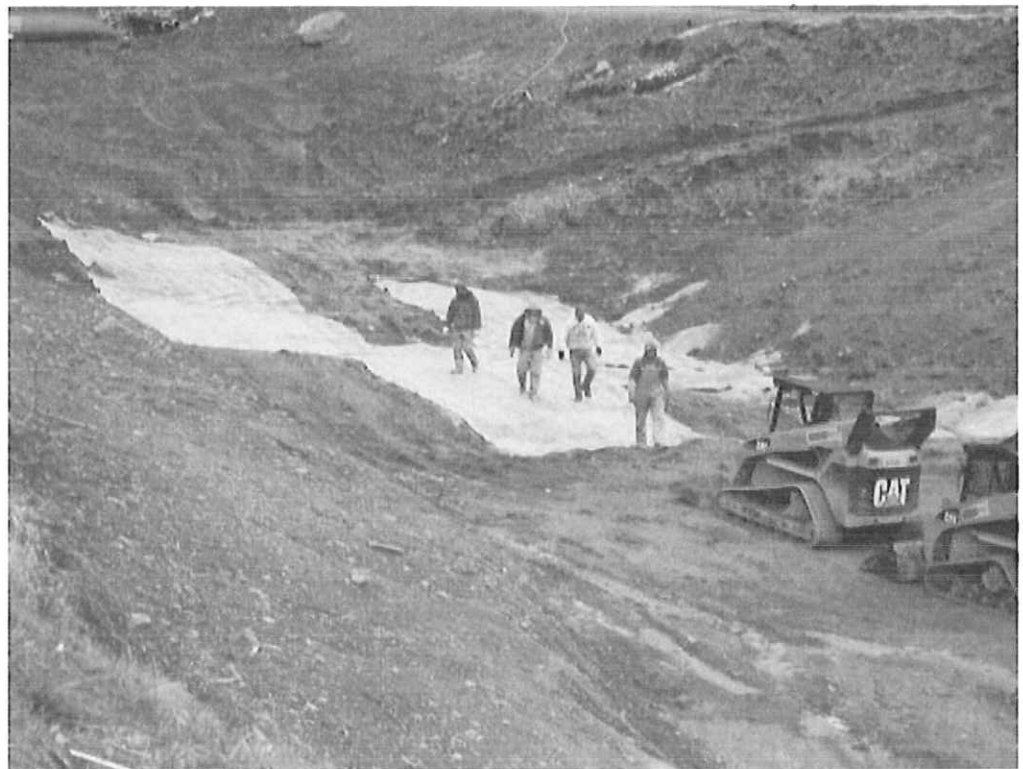
- Grout Injection Work Plans
- Subsurface Investigation
- Surveying
- Utility camera survey
- GIS Mapping
- Liner Design
- Cost Analysis
- Construction Inspection

Project Description

Hatch Mott MacDonald (HMM) was retained by a private coal client to assist in the mitigation and remediation of an existing private impoundment that had been affected by longwall mining.

Work included investigation of subsurface data, groundwater monitoring, hydrologic modeling, and flow loss analysis. HMM developed a combination grout injection plan and geosynthetic liner design. This grout injection plan consisted of a shallow, low-pressure injection of a mixture of Portland cement and bentonite to seal fractures and reduce water loss. The geosynthetic liner design utilized an impermeable bentonite mat at select locations within the pond bottom. A utility camera was used to observe infiltration and leakage of the pipe principal spillway.

HMM performed the construction inspection and construction management of the project. This work included full-time inspection, evaluation of contractor performance and work product, and approval of contractor quantities.



Location

Allegany County, MD

Client

Maryland Department of
Environment, Bureau of
Mines

Services

- Surveying
- Geotechnical
Investigations
- Mapping
- Hydrologic Study
- Engineering Analysis
and Failure Prediction
- Study
Recommendations
- Engineering Cost
Estimate

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide an engineering assessment of the existing conditions of a flooded, abandoned deep mine and its potential public safety concerns in Allegany County, MD.

This project involved the evaluation of the Kingsland deep mine located in Allegany County along Douglas Avenue in Lonaconing, Maryland for the potential of an uncontrolled discharge (blowout). The area had been extensively deep mined within the Pittsburgh coal seam. A recent "blowout" on the Tyson (Sewickley) seam, located above the Pittsburgh seam, prompted this investigation. HMM utilized subsurface investigations, field reconnaissance, surveying, and a review of the mining history to prepare a report of our findings. This report included an evaluation of the existing conditions, a risk assessment, the probable impacts of a blowout, potential methods to control a blowout, and recommendations for additional immediate action.

HMM's work included an extensive historical review of the available mine workings records, development of a detailed comprehensive map depicting all known workings and intersections, field reconnaissance, water quality analysis, flow studies, and the installation of two permanent piezometers for mine pool studies. Study included breach analysis and damage predictions.





Private Coal Client – Marion County, WV Mine

The project consisted of the construction of a water supply pipeline along an existing 5-mile surface beltline conveyor system associated with an existing deep mine. A function of the water supply will be to provide fire and dust suppression associated with the beltline system. Hatch Mott MacDonald was contracted to provide the permitting services for this project. Specific permit services are detailed below.

Private Coal Client – Greene County, PA & Monongalia County, WV

This project consisted of Coal Mining Activities Permit (CMAP) Revision to include the construction of an 8,300 linear foot pipeline. This pipeline will be utilized to transfer mine water to an underground injection point. This project was located in both Pennsylvania and West Virginia, which required multiple permits in both states. Specific permit services are detailed below.



Permit-Related Services Required on Above Projects:

Bureau of Historic Preservation (BHP) notification – PA
State Historic Preservation Office (SHPO) notification – WV
Pennsylvania Natural Diversity Inventory (PNDI) – (Endangered Species) notification/search/report – PA
Land Inquiries – (Endangered Species) notification/search/report – WV
Submittals to the Pennsylvania Department of Conservation and Natural Resources (DCNR), the Pennsylvania Fish & Boat Commission, and Pennsylvania Game Commission.
Submittals to the West Virginia Department of Natural Resources
Pennsylvania Acts 67 & 68 – municipal and county notifications
Municipal and county zoning permits, as required.
General Permits – through regional office – waterway crossings, road crossings, etc.
Wetlands assessments

Location

Harrison County, WV

Client

Harrison County
Commission, WV

Project Type

Flood Modeling/Mapping

Services

Site Characterization
Hydrologic/Hydraulic
Evaluations

Duration

July 2004 - March 2005

Project Description

The Lost Creek Floodplain Investigation provided the Harrison County Commission with detailed floodplain information for Lost Creek between the Town of Lost Creek corporate limit and Lost Creek's downstream confluence with the West Fork River. Prior to this investigation, Lost Creek was characterized as approximate Zone A on the Harrison County, WV (Unincorporated Areas) Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs). A final report was prepared for the Harrison County Planning Commission with all necessary documentation and analysis to support a revision to the Flood Insurance Rate Map for the Town of Lost Creek, WV.

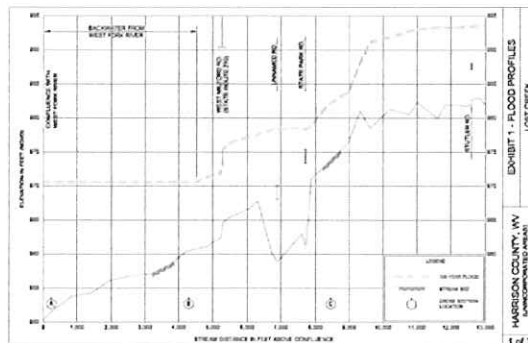
HMM Role

Site Characterization - HMM prepared the detailed flood hazard mapping for Lost Creek by conducting field investigations and performing detailed hydraulic evaluations within the project study area. A combination of traditional land surveying and GPS surveying were used to identify cross sections of Lost Creek at set intervals. HMM combined the new cross section survey data with USGS DEM data to create a new Triangular Irregular Network (TIN) in ArcView. Cross sections were automatically extracted from the GIS TIN using HEC-GeoRAS and imported into HEC-RAS for performing the hydrologic and hydraulic evaluations.

Hydrologic/Hydraulic Evaluations - HMM used HEC-RAS to establish the peak flow for the 100-year storm using current US Geological Survey (USGS) regression equations for rural watersheds. The resulting floodplain and floodway boundaries for the 100-year storm event were mapped on digital topographic maps overlaid with color aerial photographs. A water surface profile was established for the 100-year storm for the establishment of Base Flow Elevations along Lost Creek.


Project Highlights

- ◆ Development of hydrologic/hydraulic models
- ◆ Site characterization and delineation of Waterway flood elevation
- ◆ Deterioration of floodway boundaries and development of Flood Insurance Rate Map updates.



**Location**

Marion County, WV

Client

West Virginia Department
of Environmental
Protection

Services

- Surveying
- Geotechnical Investigations
- Mapping
- Grout Stabilization Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the stabilization of an abandoned deep mine in Marion County, WV.

This project included the stabilization of six residential structures and several garages. There were also three sinkhole features that were stabilized using geosynthetics and aggregate. HMM was responsible for geotechnical investigation, additional mapping to augment the provided aerial mapping provided, and the preparation of a stabilization design, bid plans and specifications, engineers estimate, and construction services. The sinkholes were stabilized using encapsulated aggregate plugs.

The work performed under this design included approximately 7800 linear feet of vertical and angled injection borings, placement of 5000 cubic yards of grout material, installation of 3 encapsulated aggregate plugs, site restoration, and revegetation. The engineers estimate for this project was \$1.1M.

Location

Tucker County, Thomas,
WV

Client

West Virginia Department
of Environmental
Protection

Services

- Surveying
- Geotechnical
Investigations
- Mapping
- Reclamation Plan
- Natural Stream Design
- ARRI Reforestation
- Construction Plans and
Details
- Construction
Specifications
- Engineering Cost
Estimate

Completed

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the reclamation of an abandoned surface mine in Tucker County, WV. Pre-law mining activities intercepted Pendleton Creek and has forced the stream flow to be directed into an abandoned deep mine complex that lies under the community of Thomas, WV. The introduction of this flow is causing deterioration of the coal pillars that support the mine roof and is also generating acid mine drainage (AMD) on the waters of the Blackwater River. Portions of the un-reclaimed surface mine are also generating AMD throughout the project site.

Pendleton Creek is a pristine, Tier III stream which flows southward for less than 2 miles before entering Pendleton Lake in Blackwater Falls State Park. Blackwater Falls is one of the most popular of West Virginia's thirty-four state parks, with Pendleton Lake being one of its many attractions. This lake is used for recreation by thousands of visitors each summer, and much of the land between the project's construction limits and the lake is U.S Fish and Wildlife designated wetlands.

HMM's work included all design documents necessary for construction and the project specific Corps of Engineers permits. Portions of the highwall were reclaimed to provide positive drainage of surface waters. Two separate streams were designed utilizing natural stream design techniques and geosynthetic liners to control losses and maintain stability. Regrading was proposed for selected portions of the abandoned surface mine to reduce the impact of AMD. All disturbed areas were revegetated using ARRI reforestation procedures and native species. The Pendleton Creek Strip project has been selected as the "Excellence in Reforestation" regional award winner for 2011. Also, the Pendleton Creek project has been nominated for the Office of Surface Mining National Reclamation Award, to be determined in the fall of 2012





Location

Greenbrier County, WV

Client

West Virginia Department of
Environmental Protection –
Office of Abandoned Mine
Lands & Reclamation

Project Type

Water

Services

Feasibility Study

Duration

Start date: January 2010

End date: July 2010

Project Description

Hatch Mott MacDonald (HMM) conducted a water supply feasibility study for an area along Route 60 in Greenbrier County, West Virginia between the towns of Rainelle and Rupert. The study focused on determining what affect pre-1977 mining activities may have had on the private water wells used by residents in the study area. The study area included approximately 500 homes and businesses located along the Meadow River. The mining of multiple coal seams was researched and evaluated to determine potential impacts to the private water supplies of residents within the study area.

HMM Role

HMM was selected by the West Virginia Department of Environmental Protection – Office of Abandoned Mine Lands & Reclamation to provide engineering services necessary to conduct a water supply feasibility study in Greenbrier County, WV.

Highlights

The project had many challenges and opportunities including:

- ♦ Review of mining, geologic and hydrogeologic records
- ♦ Prepare maps of study area
- ♦ Collect and analyze water samples from private water wells
- ♦ Interview residents on the adequacy of their water source
- ♦ GPS of well locations
- ♦ Plotting of sample data on Piper Diagram

Location

Harrison County, WV

Client

West Virginia Department
of Environmental
Protection

Services

- Surveying
- Geotechnical Investigations
- Mapping
- Stabilization Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the stabilization of an abandoned deep mine in Harrison County, WV.

This project was performed under the WVDEP-Emergency Program and consisted of a single family residence which had experienced subsidence damages. The abandoned Pittsburgh coal workings were located approximately 40 feet beneath the structure. HMM provided the initial site assessment, historical data search, geotechnical investigation, and developed a grout stabilization plan. Design plans, construction specifications, engineers estimate, and a pre-bid meeting were performed. This fast tracked project was delivered to client within two weeks of initial contact and notification of emergency.

HMM's work included all design documents necessary for construction. Work included approximately 650 linear feet of vertical and angled injection borings and the placement of 700 cubic yards of grout. Engineers estimate was in excess of \$150,000.00.



Location

Washington and Greenc
Counties, PA

Client

Confidential Mining Client

Project Type

Market/Discipline area

Services

- Stream Flow Analysis
- System Design and Review
- GIS and GPS Data Collection
- Route Selection
- System Mapping
- Well Studies
- Augmentation Oversight
- System Automation

Duration

2007-present

Design/Oversight Cost

\$250,000 annually

Project Description

This confidential coal mining client is among the nation's top energy companies. Hatch Mott MacDonald (HMM) is currently assisting this client in managing, and developing an extensive study of the streams that overlie longwall coal mines. The study involves studying and documenting the streams' flow; geomorphology, hydrology and noting any changes in streams or the surrounding ecosystem. In conjunction with these studies, HMM has a developed mitigation strategy to address any adverse impacts to the streams by mining activities. A key component of these activities is the ability to temporarily augment stream flows. The ability to collect and distribute surface and groundwater supplies to problematic areas is paramount to the success of the remediation efforts.

HMM Role

Hatch Mott MacDonald (HMM) is currently assisting the client in designing, developing, monitoring, and maintaining an extensive network of augmentation systems supplying water throughout multiple mines. Our responsibilities involve identifying problem areas, locating water sources, sizing systems, route selection, monitoring outfalls and quantity, study of drawdown and reserves, and providing detailed operational reporting on daily basis. We are currently involved with client to automate these systems with PLC control systems.

Project Highlights

- ♦ **Project Development** – The project development was initiated in January 2007 and has continually grown to the current size of over 200,000 linear feet of PVC pipeline ranging from 2" to 10" in diameter and having more than 140 valved outfalls.
- ♦ **Stream Flow Analysis** – Work included setting up flow monitoring stations along designated sections of streams within the study areas being long-wall mined. Over 600 different flow-monitoring stations and more than 144 miles per month of stream morphology are uploaded into Trimble Geo XH sub-foot GPS units and traversed every month. These units were then used to navigate to each individual site of study. Once sites were located, stream flow measurements, water samples and digital photos were taken. Any changes along the length of stream in the geologic rock structures, stream channel conditions or stream flow were documented photographed, and filmed and entered into the GPS. The stream flow measurements were taken using a Marsh-McBirney Flo-mate 2000. All flow-monitoring sites are monitored monthly at a minimum and daily on a maximum basis. All field data collected is entered into a large data base where the data can be queried and printed for the clients at any given time for regulatory agencies, historical record, or research for expansion in new permit areas.
- ♦ **System Design and Review** – Includes pipe sizing based on identification of future flow needs and pump selection to provide adequate pressures to meet the site conditions. Often the systems must be designed for portable power sources.
- ♦ **GIS and GPS Data Collection** – All system components are continually located and updated using GPS devices and current system mapping is maintained for web-based shared access.
- ♦ **Route Selection** –HMM assists client with GIS analysis of system requirements and field GPS units are used to locate pipeline routes.
- ♦ **System Mapping** – Continual modification and updating is needed to operate system. Stream needs are variable and systems are designed so augmentation location can be quickly added or deleted based on need.
- ♦ **Well Studies** – Static water levels are continually monitored and placed in database. In addition, water quality analysis is performed to prevent stream degradation.
- ♦ **Augmentation Oversight** – Outfalls are monitored and reported on regular basis.
- ♦ **System Automation** – currently working with client to provide PLC control system that will allow web based control of multiple systems from central control room.

Location

Greene and Washington
Counties, PA

Client

Confidential Coal Client

Services

- Augmentation Work Plans
- Grout Injection Work Plans
- Subsurface Investigation Plans
- Stream Surveying
- Flow Monitoring
- Surface and Groundwater Monitoring
- GIS Mapping
- Hydrologic Modeling
- Channel Design
- Report Preparation
- Construction Inspection

Duration

On-going

Project Description

Hatch Mott MacDonald (HMM) was retained by a private coal client to assist in the mitigation and remediation of over 13,000 lineal feet of streams that have been affected by longwall mining.

Work includes surface and groundwater monitoring, hydrologic modeling, and subsurface investigations to determine minimum base flows for development of augmentation plans. Geologic conditions assessments are used to prepare mitigation plans and develop a grout injection design for remediating the loss segments of the affected streams. This grout injection design consists of a shallow, low-pressure injection of portland and bentonite to seal fractures and reduce water loss. Stream surveying of the remediation sites and control streams was used to establish a stable stream geometry that would effectively carry bankfull flows. Trimble GPS units and GIS software were used to develop maps showing the flow advancement downstream as construction progressed.

HMM performs the construction inspection and construction management of the project. This work includes full-time inspection, evaluation of contractor performance and work product, and approval of contractor quantities.



**Location**

Monongalia County, WV

Client

West Virginia Department of
Environmental Protection –
Office of Abandoned Mine
Lands & Reclamation

Project Type

Water

Services

Feasibility Study

Duration

Start date: January 2010

End date: July 2010

Project Description

Hatch Mott MacDonald (HMM) conducted a water supply feasibility study for the Whispering Woods Community in Monongalia County. The study focused on determining what affect pre-1977 mining activities may have had on the private water wells used by residents in the study area. This study area was comprised of two subdivisions linked by a county roadway. Both surface and deep mining had occurred within the watershed during both pre and post 1977 SMRCA laws which dictate available funding sources.

HMM Role

HMM was selected by the West Virginia Department of Environmental Protection – Office of Abandoned Mine Lands & Reclamation to provide engineering services necessary to conduct a water supply study for a location in Monongalia County, WV.

Highlights

The project has many challenges and opportunities including:

- ♦ Review of mining, geologic and hydrogeologic records
- ♦ Prepare maps of study area
- ♦ Collect and analyze water samples from private water wells
- ♦ Interview residents on the adequacy of their water source
- ♦ GPS of well locations
- ♦ Plotting of sample data on Piper Diagram

Location

Fayette County, WV

ClientWest Virginia Department
of Environmental
Protection**Services**

- Surveying
- Geotechnical Investigations
- Mapping
- Reclamation Plan
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

Project Description

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the reclamation of an abandoned surface mine and coal loadout facility in Fayette County, WV. Pre-1977 surface and deep mining activities created an environmental impact along Keeney Creek. Steep refuse slopes were encroaching on the stream and threatening to cause blockage. Outcrops were unvegetated and allowing toxic runoff to occur. Design included stabilizing the streambanks along Keeney Creek, regrading steep outcrops to a stable configuration, designing stable drainage structures to eliminate erosion, and revegetating the impacted area. The loadout area was regraded to provide positive drainage, divert runoff away from potentially toxic areas, and revegetate. Four bat gates were installed in the mine openings along the highwall located above these areas.

HMM's work included all design documents necessary for construction and the project specific Corps of Engineers permits.





Hatch Mott
MacDonald

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OSR and RELATED PROJECT EXPERIENCE MATRIX - ATTACHMENT C

PROJECT	TYPE	STATE	Experience Basis C=Corp. P=Personal	Additional Info Provided in Section (3)	PROJECT EXPERIENCE REQUIREMENTS																PRIMARY STAFF PARTICIPATION/CAPACITY												M=Management P=Professional	
					Forfeited (F) / Abandoned (A) Mine Reclamation	Forfeited (F) / Abandoned (A) Deep Mine Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/Eval.	Remining Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation/Mitigation/Replacement	Construction Inspection/Management	Water Treatment	Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	NPDES/ Stormwater Preparation.	TIMOTHY RICE	JEFF LAW	GARY FACEMYER	JAMES FETTY, P.E.	CHUCK YURCHICK	RICH ROGERS	DAVE VANERO	JASON REESE	BILL BUCKEL, P.E.	CLAYTON RODERICK	BRIDGET PRICE			
WVDEP- HILDERBRAND HIGHWALL	AML RECLAMATION	WV	C		A		X	X					X				X			PM	P			P		P	P	PM			P			
WVDEP - WINONA COMPLEX	AML RECLAMATION	WV	C	X	A		X	X					X				X			PM	P	PM		P		P	P	P			P			
WVDEP - DALE R. TRASHER	AML RECLAMATION	WV	C	X	A								X							PM		P			PM	P	P	P			P			
WVDEP - WHEELING (15TH STREET)	AML AMD	WV	C					X					X							PM	PM		PM	P		P	P				P			
WVDEP - DOTSON TIPPLE	AML RECLAMATION	WV	C	X	A	A	X	X					X			X		X		PM	P		P	PM		P	P				P			
WVDEP - MONTANA MINES SUBSIDENCE	AML RECLAMATION	WV	C	X							X		X					X		PM	PM		P	P	P	P	P				P			
WVDEP - PENDLETON CREEK STRIP	AML RECLAMATION	WV	C	X	A	A	X	X					X				X	X		PM	PM		PM	P	PM	P	P							
WVDEP - HEATHER RUN #2	AML RECLAMATION	WV	C	X	A	A	X	X					X		X	X	X	X		PM	PM		PM	P	PM	P	P				P			
WVDEP - BARKER PORTALS AND STRIP	AML RECLAMATION	WV	C	X	A	A	X	X					X		X	X	X	X		PM	PM	PM	PM	P	PM	P	P				P			
WVDEP - WHISPERING WOODS FEASIBILITY STUDY	AML RECLAMATION	WV	C	X				X						X						PM	P	PM	P	P	P					P				
WVDEP - RUPERT TO RAINELLE FEASIBILITY STUDY	AML RECLAMATION	WV	C	X				X						X						PM	P	PM	P	P	P					P				
WVDEP - SHINNISTON (OSBOURNE) SUBSIDENCE	AML RECLAMATION	WV	C	X							X		X							PM	PM										P			
WVDEP - BETHLEHEM (TOOTHMAN) SUBSIDENCE	AML RECLAMATION	WV	C	X							X		X					X		PM	PM		P	P	P	P					P			
WVDEP - PALLOTTA SUBSIDENCE	AML RECLAMATION	WV	C	X							X		X					X		PM	PM			P	P		P				P			
MBOM - KINGSLAND MINE POOL	AML RECLAMATION	MD	C	X				X					X					X		PM	P			PM		P				P				
STREAM MONITORING	MINING	PA	C	X				X						X			X			PM	PM			P	PM					PM	P			
CROW'S NEST WASH PLANT	PERMIT REVISION	PA	C	X		A		X					X	X	X					PM										PM				
HOFFMAN MINING	PERMIT REVISION	PA	C	X				X					X							PM										PM				
LAUREL RUN MINE	PERMIT REISSUANCE	WV	C	X									X							PM														
LOVERIDGE MINE #22	PERMIT RENEWAL	WV	C										X					X		PM				P						PM	P			
ISLAND CREEK MINE	NPDES REISSUE	WV	C					X					X						X		P									PM	P			
ISLAND CREEK MINE	PERMIT RENEWAL	WV	C					X					X										PM		M					PM	P			
ISLAND CREEK MINE	PERMIT RENEWAL	WV	C					X					X									PM	P	M						PM	P			
ROBINSON RUN MINE	PERMIT RENEWAL	WV	C										X											P						PM				
LOVERIDGE MINE #22	PERMIT RENEWAL	WV	C					X					X	X					X	PM				P		P				PM	P			
PRIME NO. 1 MINE	PERMIT APPLICATION-CMAP	PA	C					X					X	X		X				PM	P			P						PM				
4-WEST DEEP MINE	PERMIT APPLICATION-CMAP	PA	C			A		X						X		X			X	PM	P		P	P						PM	P			
ROBINSON RUN MINE	STREAM ACTIVITY-PLC	WV	C					X					X	X		X			X	PM										PM				
ROBINSON RUN MINE	PERMIT APPLICATION-401	WV	C					X					X	X		X			X	PM			P	P						PM	P			
LOVERIDGE MINE #22	IBR #58	WV	C					X					X	X		X			X	PM			P	P						PM	P			
BLACKSVILLE NO. 2 MINE	PERMIT APPLICATION-CMAP	PA	C					X					X						X	PM			P	P						PM	P			
LOVERIDGE MINE #22	PERMIT REISSUANCE	WV	C					X					X	X		X				PM			P	P						PM	P			
SHANNOPIN DOCK SITE	PERMIT APPLICATION-SMP	PA	C		A		X	X	X				X	X	X	X	X		X	PM	P		P	P						PM	P			
LAUREL RUN MINE	PERMIT REVISION	WV	C										X			X			X	PM					M					PM	P			
LAUREL RUN MINE	UIC PERMIT	WV	C					X					X			X			X	PM				P						PM	P			
MORGANTOWN POOL OPERATION	UIC PERMIT	WV	C					X					X						X	PM				P						PM	P			
DILSWORTH MINE	PERMIT REV. APPLICATION-LUC	PA	C										X							PM			P							PM				
ISLAND CREEK MINE	BOND RELEASE	WV	C										X							PM			P		M					PM	P			
ISLAND CREEK MINE	BOND RELEASE	WV	C										X			X				PM			P		M					PM	P			
LOVERIDGE MINE #22- 9 SOUTH NO. 3	IBR #61	WV	C	X				X					X	X	X	X			X	PM			P	P						PM	P			
REFUSE DUMP NO. 4-COAL REFUSE DISP.SITE	CMAP REVISION	PA	C	X	A			X	X		X	X	X	X				X	X	PM	P		P	P		P	P			PM	P			
LAUREL RUN MINE	IBR/ LUC	WV	C										X							PM						P				PM	P			
NAILLER MINE NO. 79	NPDES REISSUE	WV	C										X							PM					M					PM	P			
ISLAND CREEK MINE	IBR #6-IBR	WV	C										X						X	PM	P		P	P	M					PM	P			
MABLE HILL SURFACE MINE	SMP	PA	C		A	A		X	X		X		X	X	X				X	PM	P		P	P		P				PM	P			
LOVERIDGE MINE 22	USACE INDIVIDUAL	WV	C								X		X							PM						P				PM	P			
LOVERIDGE MINE 22	401 APPLICATION	WV	C					X			X		X	X					X	PM			P	P		P				PM	P			
BLACKSVILLE NO. 2 MINE	PERMIT RENEWAL- ART 3	WV	C										X							PM			P	P						PM	P			
FOUR STATES MINE NO. 20	PERMIT RENEWAL- ART 3	WV	C										X						X	PM			P	P						PM	P			
BLACKSVILLE NO. 1 MINE	IBR #1	WV	C										X			X			X	PM			P	P	M					PM	P			
BLACKSVILLE NO. 1 MINE	IBR	PA	C										X			X			X	PM			P	P						PM	P			
LOVERIDGE- IBR#62- DEGAS	IBR	WV	C										X							PM			P							PM	P			
KUHNTOWN PORTAL	NPDES- RENEWAL	PA	C									X	X	X		X			X	PM				M						PM	P			
BLACKSVILLE NO. 2 MINE	CMAP	PA	C										X			X			X	PM				P						PM	P			

OSR and RELATED PROJECT EXPERIENCE MATRIX - ATTACHMENT C

PROJECT	TYPE	STATE	Experience Basis C=Corp. P=Personal	Additional Info Provided in Section (3)	PROJECT EXPERIENCE REQUIREMENTS															PRIMARY STAFF PARTICIPATION/CAPACITY											
					Forfeited (F) / Abandoned (A) Mine Reclamation	Forfeited (F) / Abandoned (A) Deep Mine Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/Eval.	Remining Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation/Mitigation/Replacement	Construction Inspection Management	Water Treatment	Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	NPDES/ Stormwater Preparation	TIMOTHY RICE	JEFF LAW	GARY FACEMYER	JAMES FETTY, P.E.	CHUCK YURCHICK	RICH ROGERS	DAVE YANERO	JASON REESE	BILL BUCKEL, P.E.	CLAYTON RODERICK	BRIDGET PRICE
BLACKSVILLE NO. 1 MINE- HENKINS	REVISION NO. 1	WV	C										X	X					X	PM			P	P		P			PM		
BLACKSVILLE NO. 2 MINE-ROBERTS RUN	CMAP	PA	C					X					X	X	X				X	PM	P		P	P		P	P		PM	P	
ROBENA SURFACE MINE	SURFACE MINE PERMIT	PA	C					X	X				X	X	X			X	X	PM	P		P	P		P	P		PM	P	
BLACKSVILLE NO. 1 MINE	STREAM ACTIVITY-WVDEP 401	WV	C										X					X		PM				P		P		PM			
12-WEST AIR SHAFT SITE	STREAM REPORT-USACE INDIV.	PA	C	X									X	X				X		PM			P	P		P		PM			
ALPINE MINE	UIC REISSUANCE	WV	C					X					X				X		X	PM								PM	P		
BLACKSVILLE NO. 2 MINE	UIC REISSUANCE	WV	C					X					X				X		X	PM								PM	P		
REVAK SURFACE MINE	PERMIT REVISION	PA	C										X		X					PM			PM					PM			
REVISION CONOSL	INCIDENTAL BOUNDARY REV. #2	WV	C										X						X	PM								PM	P		
REVISION CONOSL	INCIDENTAL BOUNDARY REV. #5	WV	C										X						X	PM								PM	P		
BLACKSVILLE NO. 2 MINE- 13 DEGAS	CMAP	PA	C										X	X						PM				P		P	P	PM	P		
LOVERIDGE MINE NO. 22	IBR #65	WV	C					X					X	X					X	PM			P	P		P		PM	P		
ROCK DUST BOREHOLES SITE	SURFACE ACTIVITY SITE- UNDGRO.	PA	C					X					X	X						PM				P			P	PM	P		
ROCK DUST BOREHOLES SITE- RESUB.	CMAP	PA	C					X					X	X						PM				P			P	PM	P		
13 WEST- USACE MITIGATION REPORT	WETLAND MITIGATION REPORT	PA	C					X					X	X					X	PM				P		P	P	PM	P		
13 WEST- CMAP	CMAP	PA	C					X					X	X					X	PM			P	P		P	P	PM	P		
CHECK SURFACE MINE	SURFACE MINE PERMIT	PA	C					X					X	X					X	PM	P		P	P		P	P	PM	P		
IBR # 13 - SEAL MONITORING BOREHOLES	IBR	WV	C					X					X							PM						P	P	PM	P		
STONE QUARRY LNC SITE	AGGREGATE PERMIT	PA	C					X	X				X	X					X	PM	P		P	PM		P	P	PM	P		
STERBUTZEL GFCC SITE	RECLAMATION PROJECT	PA	C		A	A		X	X		X	X							X	PM				P		P	P	PM			
SUPPORT CAN HOLE SITE	CMAP	PA	C					X					X							PM				P		P		PM	P		
LOVERIDGE NO. 22 MINE	401 APPLICATION-WVDEP	WV	C					X					X	X				X		PM				P		P		PM	P		
LOVERIDGE NO. 22 MINE	USACE INDIVIDUAL	WV	C					X					X					X		PM				P		P		PM	P		
LOVERIDGE NO. 22 MINE	IBR	WV	C					X					X					X		PM				P		P		PM	P		
LOVERIDGE NO. 22 MINE	IBR # 66	WV	C					X					X					X		PM					P			PM	P		
LOVERIDGE NO. 22 MINE	USACE INDIVIDUAL	WV	C					X					X					X		PM				P		P		PM	P		
WEAVER SURFACE MINE	SMA PERMIT APPLICATION	WV	C					X					X	X				X		PM	P			P		P		PM	P		
WEAVER SURFACE MINE	NPDES APPLICATION	WV	C					X					X	X				X		PM	P			P			P	PM	P		
BLACKSVILLE NO. 2 MINE, SUPPORT CAN	CMAP	PA	C					X	X				X	X						PM				P		P		PM	P		
LOVERIDGE NO. 22 MINE	IBR	WV	C					X					X					X		PM					P			PM	P		
BLACKSVILLE NO. 2 MINE	CMAP	PA	C					X	X				X					X		PM				P		P		PM	P		
STREAM MITIGATION	MINING	PA	C	X				X					X	X		X		X		PM	PM			P	PM	P		PM	P		
LOST CREEK FLOOD STUDY	FLOOD STUDY	WV	C	X				X																					P		
HARRISON COUNTY TRAIL	MISC	WV	C	X				X					X							P			PM		PM				P		
NORTH BRANCH DRAINAGE STUDY	RECLAMATION	WV	C	X				X						X				X										PM	P		
POND MITIGATION	SUBSIDENCE	WV	C	X				X					X	X						PM	PM			P	PM	P		PM			
KEMPTON MINE DRAINAGE	AML AMD	MD	P			A		X					X			X		X		PM	PM										
SHALLMAR DOSER	AML AMD	MD	P			A		X					X			X		X		PM	PM										
JACKSON MOUNTAIN MINE FIRE	AML FIRE	MD	P			A	A	X		X			X		X			X		PM	PM				P						
SPRUCE HOLLOW FLOOD MITIGATION	AML FLOOD STUDY	MD	P					X					X							PM	PM					P					
MILLER ROAD SUBSIDENCE	AML LANDSLIDE	MD	P								X		X					X		PM	PM										
OAK HILL LANDSLIDE	AML LANDSLIDE	MD	P					X					X					X		PM	PM					P					
BROKEN HART REFUSE	AML RECLAMATION	MD	P			A		X	X				X					X		PM	PM					P					
OCEAN GOB PILE	AML RECLAMATION	MD	P			A		X	X				X					X		PM	PM										
PORTER ROAD SUBSIDENCE	AML SUBSIDENCE	MD	P								X					X		X		PM	PM					P					
MIDLOTHIAN & SHAFT ROAD SUBSIDENCE	AML SUBSIDENCE	MD	P				X				X		X					X		PM	PM					P					
TASTE FREEZ SUBSIDENCE	AML SUBSIDENCE	MD	P								X		X					X		PM	PM					P					
FRONTZ / FOLLY MINE FIRE	AML FIRE	OH	P			A	A	X		X			X		X			X		PM	PM										
BLUE BELL MINING REFUSE FIRE	AML FIRE	OH	P			A	A	X		X			X		X			X		PM	PM										
ENOCH TOWNSHIP IMPOUNDMENT	AML IMPOUNDMENT	OH	P			A		X					X					X		PM	PM										
PAULINE MINE IMPOUNDMENT	AML IMPOUNDMENT	OH	P			A		X					X					X		PM	PM										
CHICKWAN LANDSLIDE	AML LANDSLIDE	OH	P			A		X					X		X			X		PM	PM										
Z & H LANDSLIDE	AML LANDSLIDE	OH	P			A		X					X		X			X		PM	PM										
WASHINGTON STREET SUBSIDENCE	AML LANDSLIDE	OH	P			A							X					X		PM	PM										
NELAN ROAD SUBSIDENCE	AML LANDSLIDE	OH	P										X					X		PM	PM										

OSR and RELATED PROJECT EXPERIENCE MATRIX - ATTACHMENT C

PROJECT	TYPE	STATE	Experience Basis C=Corp. P=Personal	Additional Info Provided in Section (3)	PROJECT EXPERIENCE REQUIREMENTS																	PRIMARY STAFF PARTICIPATION/CAPACITY												M=Management P=Professional	
					Forfeited (F) / Abandoned (A) Mine Reclamation	Forfeited (F) / Abandoned (A) Deep Mine Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/Eval.	Remining Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation/Mitigation/ Replacement	Construction Inspection/Management	Water Treatment	Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	NPDES/ Stormwater Preparation	TIMOTHY RICE	JEFF LAW	GARY FACEWYER	JAMES FETTY, P.E.	CHUCK YURCHICK	RICH ROGERS	DAVE YANERO	JASON REESE	BILL BUCKEL, P.E.	CLAYTON RODERICK	BRIDGET PRICE				
BULL RUN RESTORATION	AML RECLAMATION	OH	P		A			X					X						X		PM	PM													
ELLESMERE AVE. SUBSIDENCE I,II,II, & IV	AML SUBSIDENCE	OH	P								X				X				X		PM	PM													
EL CAMINO SUBSIDENCE	AML SUBSIDENCE	OH	P								X				X				X		PM	PM													
VAN ATTA SUBSIDENCE	AML SUBSIDENCE	OH	P								X				X				X		PM	PM													
ST RT. 646 SUBSIDENCE	AML SUBSIDENCE	OH	P								X				X				X		PM	PM													
RUSSELL JOKI REFUSE	AML RECLAMATION	PA	P		A			X					X						X		PM	PM						P							
BLACKWATER (OSM APPALACHIAN REGIONAL AWARD)	AML AMD	WV	P					X					X			X					PM	PM													
SHALLAMAR DOSER	AML AMD	WV	P													X					PM	PM						P							
ALLEN AMD	AML AMD	WV	P		A	A	X	X					X	X									PM												
UPSHUR COUNTY RT. 10/15 AMD	AML AMD	WV	P		A	A	X	X					X	X										PM											
BLUE PENNANT MINE FIRE	AML FIRE	WV	P		A	A	X	X	X	X			X					X		X		PM	PM												
RED HOLLOW BURNING REFUSE	AML FIRE	WV	P		A	A		X	X	X			X				X		X		PM	PM													
AMIGO REFUSE	AML FIRE	WV	P		A	A		X	X	X			X						X		PM	PM													
SPRING BRANCH BURNING REFUSE	AML FIRE	WV	P			A	X	X					X						X				PM												
LOWER BURNING CREEK REFUSE	AML FIRE	WV	P			A	X	X					X						X				PM												
JAMISON BURNING REFUSE	AML FIRE	WV	P		A	A		X		X			X		X				X		PM	PM													
AMIGO SMOKELESS IMPOUNDMENT	AML IMPOUNDMENT	WV	P		A	A	X	X	X				X				X	X	X		PM	PM													
TAYLOR CREEK IMPOUNDMENT (OSM NATIONAL AWARD)	AML IMPOUNDMENT	WV	P		A	A	X	X	X	X			X				X	X	X		PM	PM													
WHEATLEY BRANCH LANDSLIDE	AML LANDSLIDE	WV	P			A	X	X					X				X		X		PM	PM				P	P	P							
OHIO AVENUE	AML LANDSLIDE	WV	P					X			X		X						X		PM	PM			P										
ROBINSON RUN LANDSLIDE	AML LANDSLIDE	WV	P		A	A		X					X				X		X		PM	PM													
STEALEY AVENUE SUBSIDENCE	AML LANDSLIDE	WV	P								X		X						X		PM	PM													
TUNNELTON GOB	AML RECLAMATION	WV	P		A	A	X	X	X				X		X		X	X	X		PM	PM													
SLAB CAMP RUN	AML RECLAMATION	WV	P		A	A	X	X					X				X	X	X		PM	PM						P							
SOVERN RUN	AML RECLAMATION	WV	P		A	A	X	X					X						X		PM	PM													
FORD'S RUN REFUSE	AML RECLAMATION	WV	P		A	A	X	X	X			X	X				X	X	X		PM	PM													
NORTH FORK REFUSE	AML RECLAMATION	WV	P		A	A		X					X								PM	PM													
DILLAN CREEK	AML RECLAMATION	WV	P		A	A	X	X					X			X			X		PM	PM													
AUSTEN HIGHWALL	AML RECLAMATION	WV	P		A	A	X	X					X					X	X		PM	PM													
SLAB FORK MINE DUMP	AML RECLAMATION	WV	P		A	A	X	X	X				X		X	X	X	X	X		PM	PM													
EDNA REFUSE	AML RECLAMATION	WV	P		A	A	X	X	X			X	X				X		X		PM	PM													
PINEY CREEK	AML RECLAMATION	WV	P		A	A	X	X	X				X				X		X		PM	PM													
ALDERSON BRANCH	AML RECLAMATION	WV	P		A	A		X					X				X	X			PM	PM													
EVERETTVILLE	AML RECLAMATION	WV	P		A	A	X	X	X				X				X	X	X		PM	PM													
MCCOMAS REFUSE	AML RECLAMATION	WV	P		A	A		X	X				X						X		PM	PM													
PIERCE REFUSE	AML RECLAMATION	WV	P									X	X								PM	PM													
FISH RUN	AML RECLAMATION	WV	P									X	X								PM	PM													
LAMAR REFUSE	AML RECLAMATION	WV	P		A	A	X	X	X				X				X		X		PM	PM													
INDIAN RIDGE	AML RECLAMATION	WV	P		A	A	X	X	X				X				X		X		PM	PM													
DAVY BRANCH	AML RECLAMATION	WV	P		A	A	X	X	X	X			X				X		X		PM	PM													
ECKMAN REFUSE	AML RECLAMATION	WV	P		A	A	X	X	X				X				X		X		PM	PM													
HORSEPEN RIDGE	AML RECLAMATION	WV	P		A	A	X	X					X						X		PM	PM													
JENKINS JONES	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
STONECOAL CREEK	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
BLACK WOLFE REFUSE	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
TURNER DOUGLAS COMPLEX	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
BUFFALO CREEK NO. 5 REFUSE	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
HELEN REFUSE PILE	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
TUPPERS CREEK LANDSLIDE	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
LINGER CLOGGED STREAM	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
HIGHLAND AVENUE DRAINAGE	AML RECLAMATION	WV	P			A	X	X					X						X				PM												
THOMAS NORTHEAST	AML SUBSIDENCE	WV	P					X			X		X						X		PM	PM			P										
THOMAS PHASE II	AML SUBSIDENCE	WV	P								X		X								PM	PM			P	P	P								
THOMAS PHASE I SUBSIDENCE	AML SUBSIDENCE	WV	P		A	A	X	X				X	X						X		PM	PM			P		P								
GLENWOOD HILLS SUBSIDENCE	AML SUBSIDENCE	WV	P								X		X						X		PM	PM			P										

OSR and RELATED PROJECT EXPERIENCE MATRIX - ATTACHMENT C

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DECKERS CREEK	AML WATER STUDY	WV	P				X							X		X		X			PM	PM					P							
BIRCH RIVER PSD	AML WATER STUDY	WV	P											X									PM											
SPRING FORK	AML WATER STUDY	WV	P											X									PM											
WIDEN	AML WATER STUDY	WV	P											X									PM											
TOWN RUN AREA	AML WATER STUDY	WV	P											X									PM											
ELK CITY	AML WATER STUDY	WV	P											X									PM											
SANDERSON/DUTCH RIDGE	AML WATER STUDY	WV												X									PM											