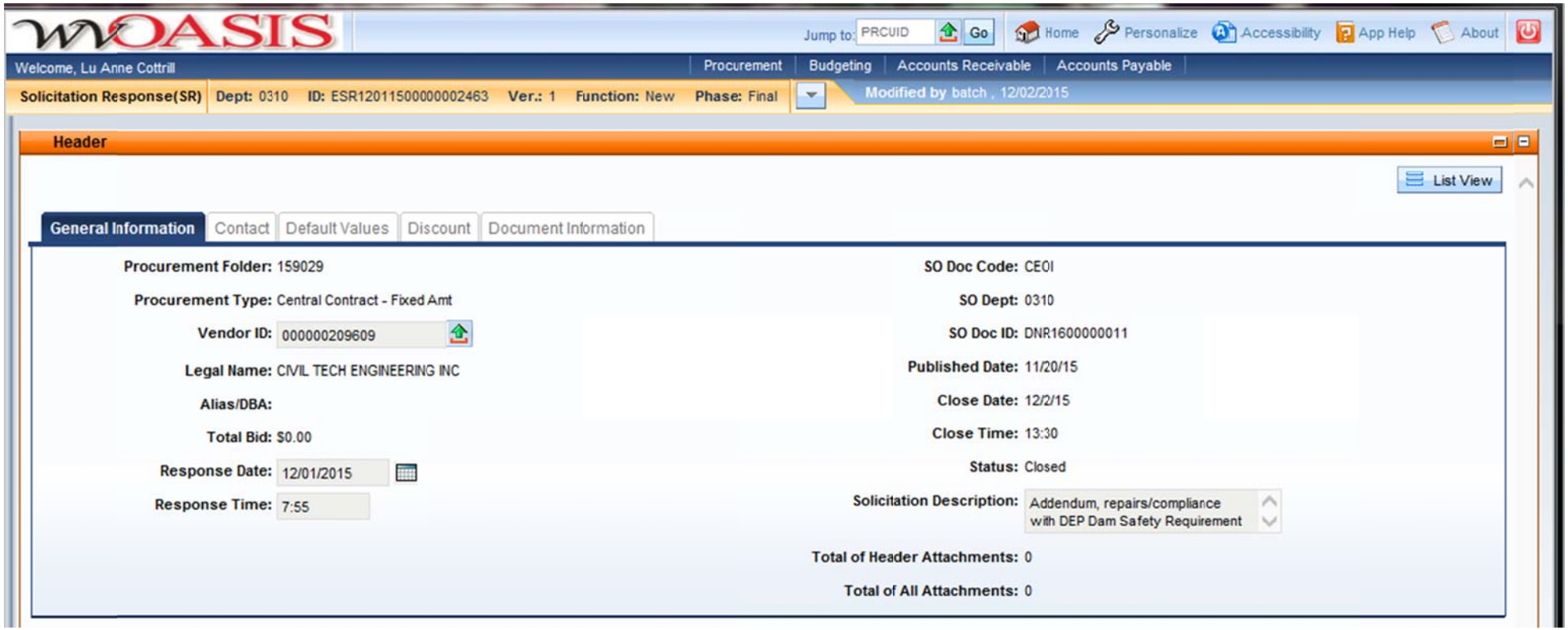
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.


WVOASIS
Jump to: PRCUID Go
Home
Personalize
Accessibility
App Help
About
Welcome, Lu Anne Cottrill
Procurement
Budgeting
Accounts Receivable
Accounts Payable
Solicitation Response(SR) Dept: 0310 ID: ESR12011500000002463 Ver.: 1 Function: New Phase: Final
Modified by batch , 12/02/2015
Header
List View
General Information
Contact
Default Values
Discount
Document Information
Procurement Folder: 159029
Procurement Type: Central Contract - Fixed Amt
Vendor ID: 000000209609
Legal Name: CIVIL TECH ENGINEERING INC
Alias/DBA:
Total Bid: $0.00
Response Date: 12/01/2015
Response Time: 7:55
SO Doc Code: CEOI
SO Dept: 0310
SO Doc ID: DNR1600000011
Published Date: 11/20/15
Close Date: 12/2/15
Close Time: 13:30
Status: Closed
Solicitation Description: Addendum, repairs/compliance with DEP Dam Safety Requirement
Total of Header Attachments: 0
Total of All Attachments: 0

Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder : 159029

Solicitation Description : Addendum, repairs/compliance with DEP Dam Safety Requirement

Proc Type : Central Contract - Fixed Amt

Date issued	Solicitation Closes	Solicitation No	Version
	2015-12-02 13:30:00	SR 0310 ESR12011500000002463	1

VENDOR

000000209609

CIVIL TECH ENGINEERING INC

FOR INFORMATION CONTACT THE BUYER

Guy Nisbet

(304) 558-2596
guy.l.nisbet@wv.gov

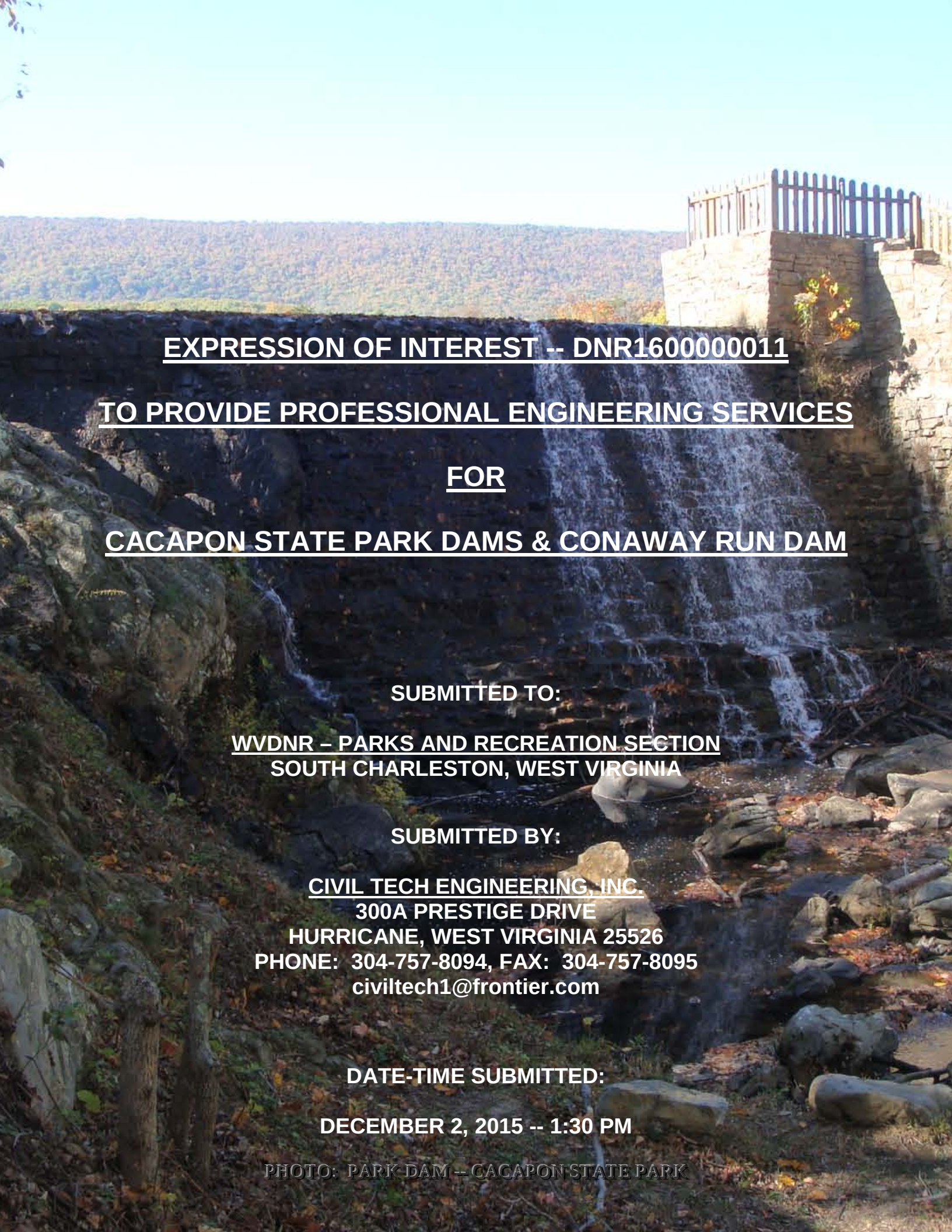
Signature X **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Architectural/Engineering Services				$0.00

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description : A/E services to design repairs necessary to bring Cacapon Resort State Park's upper and lower dams and the Conaway Wildlife Management Area's dam into compliance with DEP's Dam Safety Requirements.



EXPRESSION OF INTEREST -- DNR1600000011

TO PROVIDE PROFESSIONAL ENGINEERING SERVICES

FOR

CACAPON STATE PARK DAMS & CONAWAY RUN DAM

SUBMITTED TO:

WVDNR – PARKS AND RECREATION SECTION
SOUTH CHARLESTON, WEST VIRGINIA

SUBMITTED BY:

CIVIL TECH ENGINEERING, INC.
300A PRESTIGE DRIVE
HURRICANE, WEST VIRGINIA 25526
PHONE: 304-757-8094, FAX: 304-757-8095
civiltech1@frontier.com

DATE-TIME SUBMITTED:

DECEMBER 2, 2015 -- 1:30 PM

PHOTO: PARK DAM -- CACAPON STATE PARK

CIVIL TECH ENGINEERING, INC.
300A Prestige Drive
Hurricane, West Virginia 25526
Phone: 304-757-8094 Fax: 304-757-8095
civiltech1@frontier.com

December 2, 2015

Mr. Bradley S. Leslie, PE
WV Division of Natural Resources
Parks and Recreation Section
324 4th Avenue
South Charleston, West Virginia 25303

Subject: **Expression of Interest – DNR1600000011**
Cacapon Dam Modification Construction Phase Services - Cacapon State Park
Conaway Run Dam Modification – Conaway Run Wildlife Management Area
Civil Tech Proposal P15505

Dear Mr. Leslie:

CIVIL TECH ENGINEERING INC. is pleased to present this expression of interest and response to the subject RFQ. Please consider this letter as our formal request to be considered for the project.

As demonstrated by the enclosed "Expression of Interest", we are confident no other West Virginia engineering firm can match our qualifications and experience with dam rehabilitation, design, and construction. As discussed herein, we also have recent and pertinent experience with both Cacapon State Park Dams and Conaway Run Dam.

Our qualifications and experience is summarized below:

- **Civil Tech completed the design, permitting, and preparation of construction documents for modifications to Cacapon State Park Dams.** ***These modifications include the use of RCC. Our principal has experience inspecting and monitoring the placement of RCC at 6 dam rehabilitation projects in West Virginia. This specialized knowledge of RCC placement will be important to ensure the project is constructed in accordance with the design.***
- **All periodic inspections of Conaway Run Dam have been performed by Civil Tech since 2000.**
- **Successful completion of 48 dam rehabilitation and design projects throughout West Virginia. Refer to the State Map attached to this cover letter showing the locations of our projects.**
- **Construction Contract Administration provided on 38 Dam Modification Projects**
- 65 years combined experience with dam safety, design, and rehabilitation.
- 2010 Recipient of the WVDEP Environmental Excellence Award – Safe Dams Category.
- 2013 Berwind Dam Modification Project Designed by Civil Tech received the WVDEP Environmental Excellence Award – Safe Dams Category.
- Responsible for Periodic Inspections of 69 dams in West Virginia including all WVDNR Parks & Recreation and Wildlife Section Dams.
- Experience with innovative dam modification techniques including the use of Roller Compacted Concrete (RCC).
- Experience with dam break and risk assessment.
- Experience with design and permitting of dam declassification below jurisdiction.
- Complete understanding of dam rehabilitation requirements and regulations.
- Strong working relationship with the WVDEP Dam Safety Section.
- Strong working relationship with the WVDNR Parks and Recreation Section.
- Practical construction and contract administration experience.

CIVIL TECH ENGINEERING, INC.
300A Prestige Drive
Hurricane, West Virginia 25526
Phone: 304-757-8094 Fax: 304-757-8095
civiltech1@frontier.com

Cacapon State Park Dams Experience Summary:
Civil Tech was responsible for the design, permitting and preparation of construction drawings and specifications for modifications to the Cacapon State Park Dams in 2010. In addition we have performed all periodic inspections of Cacapon State Park Dams since 1998. Our firm was also responsible for repair of the drain gates for Cacapon Reservoir Dam. Certificates of approval and all permits have been obtained for modification of both Cacapon Dams. We believe this project is ready for construction. Our personnel have a comprehensive understanding of the approved design modifications at the dams that will translate to an efficient construction administration process.

Conaway Run Dam Experience Summary:
Civil Tech has performed all periodic inspections for Conaway Run Dam since 2000. Periodic inspection of this dam over the last 15 years has allowed our engineers to become familiar with the history of the dam, and deficiencies which will need to be corrected to obtain a Certificate of Approval for modification from the WVDEP Dam Safety Section. Our firm also developed lake bottom mapping of Conaway Run for the WVDNR - Wildlife Section in 2008 that will be useful in the design of modifications and dam break/risk assessment needed to evaluate the hazard rating and required design storm.

Based on experience with these dams and 48 other dams successfully rehabilitated/repaired in West Virginia, we believe Civil Tech is uniquely qualified to provide contract administration services and engineering design for this project.

We look forward to meeting with you and the selection committee to discuss our qualifications, experience, and an approach to the project.

Very truly yours,

CIVIL TECH ENGINEERING INC.

Mark E. Pennington MS, PE
Principal Engineer

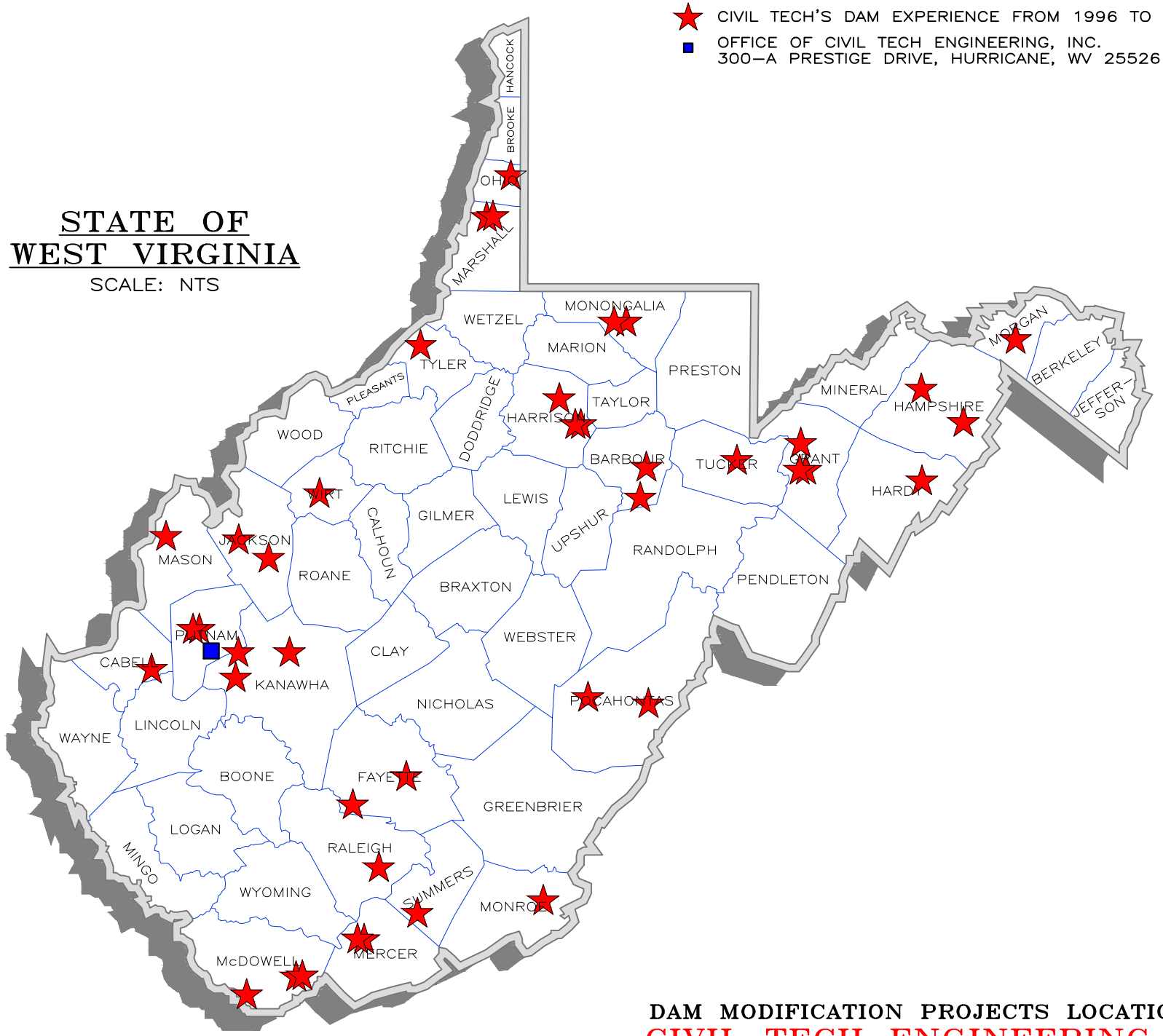

CIVIL TECH'S DAM EXPERIENCE FROM 1996 TO 6/01/15.
OFFICE OF CIVIL TECH ENGINEERING, INC.
300—A PRESTIGE DRIVE, HURRICANE, WV 25526
STATE OF
WEST VIRGINIA
SCALE: NTS
HANCOCK
BROOKE
OHIO
MARSHALL
WETZEL
MONONGALIA
MARION
TYLER
PRESTON
PLEASANTS
DODDRIDGE
TAYLOR
HARRISON
WOOD
RITCHIE
BARBOUR
TUCKER
GRANT
MINERAL
HAMPSHIRE
MORGAN
BERKELEY
JEFFERSON
HARDY
WIRT
GILMER
LEWIS
UPSHUR
RANDOLPH
PENDLETON
CALHOUN
JACKSON
MASON
ROANE
BRAXTON
PUTNAM
CLAY
WEBSTER
CABELL
KANAWHA
NICHOLAS
POCAHONTAS
WAYNE
LINCOLN
BOONE
FAYETTE
GREENBRIER
LOGAN
RALEIGH
MINGO
WYOMING
SUMMERS
MONROE
MERCER
McDOWELL
DAM MODIFICATION PROJECTS LOCATION MAP
CIVIL TECH ENGINEERING, INC.

TABLE OF CONTENTS

ILLUSTRATIONS

SECTION 1 - BACKGROUND

SECTION 2 - QUALIFICATIONS & EXPERIENCE

1. BACKGROUND

Based on information provided in the EOI, and our experience with the subject dams, we understand permitting and construction contract administration services are required for Cacapon State Park Dams. Complete design and permitting, as well as construction contract administration, is required at Conaway Run Dam.

2. QUALIFICATIONS AND EXPERIENCE

2A. Contract Administration and Design Team

Key Personnel: Mark E. Pennington MS, PE, PLS
Jennifer E. Pennington PE, PLS

Staff:
Mark E. Pennington PE - Principal in Charge
Jennifer E. Pennington PE - Principal in Charge
Tom Brown PE – Senior Engineer
Tom DiBacco Jr. - Project Engineer - Environmental
Robert Kessler - Senior Geologist
Charles Arthur Jr. – Senior Designer -- CADD/Survey/Inspection
H. Neal Craig – Designer -- CADD/Survey/Inspection
Hayward Phillips - Construction Manager (design review and construction monitoring)
William Ford – Inspector
Jody Flanagan – Inspector
Kenny Lowmiller - Inspector

This is the same design team responsible for all 48 of our past dam rehabilitation and construction contract administration projects. Our team knows how to put together a successful dam rehabilitation project and, stay on schedule and within budget throughout the design and construction process.

Resumes for key personnel and staff are presented in the illustrations section of this EOI.

2B. Description of Firms' Dam Safety Experience

1. **Dam Safety Experience:** Forty eight (48) Dam Modification and Repair Projects ranging in cost from $ 50,000 to $ 1,200,000 have been completed by our firm and principals.

   The locations of our dam projects in West Virginia are shown on the State map included in the Illustrations Section of this EOI. Civil Tech's dam experience is also summarized on Table 1 – Dam Project Experience Matrix. This table is also presented in the Illustrations Section of this EOI.

   As recognition for our dedication to the dam safety field and our excellent work, Civil Tech received the 2010 WVDEP Environmental Excellence Award – Safe Dam Category. 2010 was the first year this award had been offered and Civil Tech was the first recipient after being nominated by members of the Dam Safety Section.

   Also, the Berwind Dam Modification was performed by our company for Parks and Recreation and successfully completed in 2012. This project received the 2014 WVDEP Environmental Excellence Award – Safe Dam Category.

2. **Construction Contract Administration**: Our principal, Mark Pennington, has nearly 40 years' experience with dam construction and contract administration for dam modification projects. Mr. Pennington has been responsible for the contract administration for 38 dam modification projects.

3. **Dam Break and Risk Assessment:** Our engineers have experience with dam break and risk assessment necessary to reduce the hazard rating and the associated design storm. Where feasible, this technique can result in reduced measures necessary to bring a dam into compliance with the regulations and substantial cost savings. We used this technique at Seneca Dam in 1999 and were able to bring the dam into compliance and obtain a certificate of approval for a low construction cost of about $ 120,000.

4. **Innovative Rehabilitation Techniques:** Civil Tech specializes in the use of innovative techniques including the use of Roller Compacted Concrete (**RCC)** in dam rehabilitation. RCC used as dam overtopping protection provides an economical alternative to spillway improvement/enlargement using excavation techniques in steep terrain and, the use of RCC is readily accepted by Dam Safety. RCC overtopping

protection has been designed and approved for construction at Cacapon Park Dam and spillway armoring at Cacapon Reservoir Dam. We believe we are the only West Virginia firm with multiple project experience designing and inspecting RCC in dam rehabilitation.

5. **Access and Facility Improvements:** Our dam rehabilitation projects have resulted in facility improvements at State Park and Wildlife Management Areas including:

   - Access for Fishermen.
   - Boat Launching Ramps.
   - Access Roads.
   - Parking Facilities.
   - Walkways
   - Handicap Access.
   - Toilet facilities.

6. **Maintenance of Facility:** Our personnel are sensitive to the park setting and make every effort to complete our projects with minimal disruption of the facility. Our designs are practical and "planned to fit the site." Park use is always an important consideration when designing modifications for a project.

7. **Sample Drawings and Photographs:** Representative photographs and sample drawings illustrating our Dam Rehabilitation experience are included in the Illustrations Section of this EOI.

2C. Experience Obtaining Certificates of Approval

- **As mentioned Civil Tech has successfully completed 48 dam modification projects and we have a 100% success rate obtaining certificates of approval from the WVDEP Dam Safety Section.**

- Certificates of Approval have been obtained by Civil Tech on 32 Dam Modification/Repair projects since 1996. In addition, our principals were responsible for obtaining certificates of approval for 11 other dams while working for our former employer bringing the total number to 43**.**

- Our dam safety experience with certificates of approval includes; new dam construction, rehabilitation projects necessary to bring existing dams into

compliance with current Dam Safety regulations, deregulation of dams, flood damage repairs, reservoir enlargement (water supply) and emergency repairs.

Please refer to Table 1 – Dam Project Experience Matrix for a complete listing of dams and projects which have required a certificate of approval. Table 1 is presented in the Illustrations Section of this EOI.

2D. Project Approach and Communication

The principals of our firm have a strong working relationship with the WVDNR and the WVDEP Dam Safety section that we have developed over the last 38 years.

We have worked closely with all members of the Dam Safety Section on projects throughout the state. A state map showing the location of our projects is presented in the Illustrations Section of this EOI.

This vast experience allows our company to work with the agency as part of the project team, and develop plans and specifications which are practical and require very little, if any changes after Dam Safety completes its review.

During the construction contract administration process, our firm will continue to maintain close communication with the Owner and Dam Safety to ensure continued project quality.

Our approach to working with the WVDNR and the WVDEP - Dam Safety Section is summarized below:

- **Initial Meeting/Discussion:** New projects are discussed with Dam Safety, Park Management, and Parks and Recreation Engineering personnel prior to beginning work in order to develop an understanding of the history of the dam, agency and owner concerns, and details of the park use in order to develop a scope of work necessary to gain approval of the project with minimal disruption of park use.

- **File Review:** A complete review of records maintained by the Owner and Dam Safety is conducted by our engineer.

- **Ongoing Review and Consultation:** Results of investigation and engineering analysis are submitted to Dam Safety and the owner in pdf format by email as they

are developed in order to expedite the review process. This piece meal submittal procedure minimizes costly changes and delays once the project plans are complete and ready for formal submission to the agency and owner for review.

- **Reports:** Progress reports are prepared monthly and submitted by email correspondence to keep the WVDEP and owner informed of any issues which have arisen and the progress achieved during the month.

- **Regular Meetings with the Owner and Dam Safety:** Regular meetings are conducted throughout the design and construction process to discuss findings, consult with Dam Safety's Engineers, and obtain direction.

This approach has served us well. The projects submitted to Dam Safety have been reviewed and approved without significant changes to the plans and specifications. These projects have all been successfully completed and included surveying and mapping, engineering analysis, permit preparation, plans, specifications, narrative, contract administration, construction monitoring, certification, and as-built drawings.

A partial listing of recent dam modification projects is provided on Table 2 – Dam Modifications Experience Summary. Table 2 is presented in the Illustrations Section of this EOI. This table demonstrates our ability to complete projects within budget, and lists construction cost estimates, bid price, and actual construction costs for 10 representative projects to illustrate our ability to work within our budget and manage contractors to reduce the need for change orders and cost over-runs. Copies of the certificates of approval issued by Dam Safety for these projects can be provided upon request.

2E. Quality Control Procedures

Our policy is to perform all engineering services under the direct supervision of a registered professional engineer who is a principal of the firm.

All engineering work on this project will be performed with in-house personnel and equipment. This approach will allow us to closely control schedule, cost, and quality. This philosophy has served us well since the company was founded over 19 years ago and has allowed us to successfully complete nearly 2000 projects involving surveying and mapping, civil site design, environmental permitting, geotechnical, structural damage assessment, construction monitoring and testing, and construction contract administration.

We will not sacrifice quality for any reason. All work performed by Civil Tech goes through the following 3 step quality control procedure before it is accepted for submission to the Owner and Dam Safety:

1. **Technical and Scope Review by the Project Manager (principal of firm and registered professional engineer):** This review assures technical accuracy and that the design complies with standard practice, regulations, and meets the needs of the Owner.

2. **Practicality Review by the Construction Manager:** This review assures the design is practical and buildable.

3. **Owners Review:** The Owner will be given the opportunity to review design and construction documents before submission to Dam Safety.

2F. Subconsultants

All work will be performed in-house with the exception of drilling and soils laboratory testing services. We will use Triad Engineering of St. Albans, West Virginia for drilling and laboratory testing services. Should underwater video or investigation be required, we will utilize Underwater Services of Poca, West Virginia. The total cost of subcontracts should range between 5 and 10% of the engineering budget. No other subcontracts are anticipated.

2G. Budget and Schedule

Civil Tech has a history of completing dam safety and rehabilitation projects on time and within budget. All of our projects have been completed at or below the contract fee.

Engineering and Construction Cost Estimates are reviewed and compared to budget at each milestone (Phase) as follows:

- Schematic Design Phase
- Design Development Phase
- Construction Document Phase
- Bidding/Negotiation

- Construction*

*Contractor applications for payment are also reviewed and approved monthly and tabulated for comparison with the budget so that cost and cost over-runs are controlled. As-built drawings will be required for submission with monthly pay applications submitted by the contractor to verify costs and that the project is being constructed in accordance with the approved plans and specifications as the work is completed.

Because of our experience and knowledge of the Dam Safety regulations and dam design, we can typically complete the design of dam rehabilitation projects within 6 to 8 months or less.

Many of our dam related projects have been fast tracked due to funding and time constraints. The Thomas Dam Project completed in 2000 for the City of Thomas is one example of our capability to complete dam related projects in a quick, timely, and cost effective manner.

A discussion of our plan to complete the Cacapon and Conaway projects within budget and on time is provided below. Also, a brief description of the Thomas Project and others is provided below in order to illustrate our successful history completing projects on time and within budget.

Cacapon Dams Contract Administration

Based on our understanding of the project, and in accordance with the schedule included as part of the approved dam modification package prepared by our firm, we anticipate construction of the modifications can be completed within a 6 month period. We plan to prioritize the project to comply with the schedule. Our familiarity with the proposed design will aid in streamlining the bid process by allowing the pre-bid meeting and all other communication with the contractor awarded the project to be clear and concise. All questions and concerns can be addressed efficiently based on our intimate understanding of the design thereby minimizing delays and cost overruns. To facilitate contract administration we propose the following:

1. The project manager (Mark Pennington) will make routine site visits during construction and will provide ongoing consultation to address issues as they arise in order to enforce the project plans and specifications and avoid cost over-runs.
2. We will provide an experienced resident technician to provide full time construction monitoring to document construction and serve as our site

representative.

3. As-built drawings will be required for submission with monthly pay applications submitted by the contractor to verify costs and that the project is being constructed in accordance with the approved plans and specifications as the work is completed.
4. Priority attention to this project will reduce the risk of cost over-runs and improper construction so that the project can be certified at the completion of construction.

Conaway Run Dam Rehabilitation Design and Construction

Based on our knowledge of the dam gained during the periodic inspections performed by our firm since 2000, engineering services will be required to design/permit modifications and administer the construction contract.

We anticipate the design of modifications will include:

1. Topographic mapping and a hazard classification of the dam. This is an important first step that dictates the hydraulic requirements for the dam.
2. Subsurface investigation, stability and seepage analysis will be performed.
3. Evaluation of the principal spillway outlet pipe and riser
4. Preliminary design can be performed concurrently with the hazard analysis and/or while awaiting review of the same. Hazard analysis has been performed on 21 of our dam modification projects. This experience provides our firm a unique understanding of the requirements of the same.
5. Based on the results of the hazard analysis, design of modifications will be performed. The Owner and Dam Safety will be informed of all critical aspects of the design as we proceed to allow the final design documents to be prepared based on approval and input from the same.
6. This approach will result in a more efficient review process and minimal revisions.
7. Open and frequent communication with the Owner and Dam Safety during the design process will allow the project to be completed on time and within budget.
8. We approach our projects as if the Owner and Dam Safety are members of the project team. This approach serves to assure:

    - The project meets the Owners requirements,
    - No disruption of park use.
    - Compliance with the regulations,
    - Timely approval of modifications.

Experience Meeting Deadlines

Thomas Dam Modification Project:

In 1999, the City of Thomas was faced with a deficient, unsafe dam located in the environmentally sensitive North Fork of the Blackwater River.

Funding constraints imposed by HUD through the WV Development Office required the design and construction of this project be completed before December 31, 2000 or funding would be lost.

We were selected for the Thomas Project in the summer of 1999 and a contract was signed with the city on September 1 of that year.

Civil Tech completed the design by the end of 1999 (4 months), and filed the permit application with Dam Safety by February 1 of 2000.

Because we had worked closely with Dam Safety, the permit application was reviewed and a certificate of approval to proceed with construction was issued for the project before March 1, 2000 (6 months after startup).

The project was advertised and bid in accordance with HUD procedures and a contract was awarded.

Construction began in 2000 and was completed by October 30, 2000 in accordance with the funding deadline. The project was also completed under budget.

Winterplace Dam Modification Projects:

In August of 2002, our company was selected by Winterplace Ski Resort to expand their water supply dam by raising the dam and spillway system.

Since adequate water supply for snow making is critical to their resort, Winterplace had to have this modification complete and the dam filled and in service before ski season of 2003.

To accomplish this, the design had to be completed and submitted to dam safety so that construction could begin by March 1, 2003.

We were awarded this project on August 23, 2002 and agreed to complete the design and

submit the design to Dam Safety by December 15, 2002.

The dam safety permit application along with plans and specifications were completed on time and within budget.

The project was approved by Dam Safety and bid in February of 2003 in time for the construction season.

The project was not constructed due to cost and we later designed a reservoir enlargement project which increased the reservoir volume within the Winterplace budget.

WVDNR Dam Modification Projects: We have performed 25 dam modification projects for Parks & Recreation and Wildlife Resources Sections of the WVDNR. The reader should refer Table 1. All of these projects have been completed within budget and time constraints. The Berwind Dam Modification was most recently completed under budget and on time.

References who can speak about our ability to meet project deadlines are listed below:

1. Bradley S. Leslie, PE 304-558-2764
   WVDNR Parks & Recreation Section
2. Mayor Matt Quattro, 304-463-4360
   City of Thomas, WV
3. Terry Pfeiffer, 304-787-3221 ext 104
   Winterplace Ski Resort

2H. Dam Design and Construction -- Client and Reference List

West Virginia Division of Natural Resources
Parks and Recreation Section
Building 3, Room 719
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305-0662

Contact: Mr. Bradley S. Leslie PE
Phone: 304-558-2764

West Virginia Division of Natural Resources
Wildlife Resources Section

Capitol Complex
Building 3, Room 816
Charleston, West Virginia 25305

Contact: Mr. Zack Brown
Phone: 304-558-2771

City of Thomas
P.O. Box 248
Thomas, West Virginia 26292

Contact: Mayor Matt Quattro
Phone: 304-463-4360

New Winterplace LLC
c/o Bright Enterprises
P.O. Box 460
Summersville, West Virginia 26651

Contact: Terry Pfeiffer
Phone: 304-787-3221 ext 104

Dominion Generation
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, Virginia 23060

Contact: Mr. John Cima, PE, Manager Engineering - BOP Systems
Phone: 804-273-3045

City of Belington
Post Office Box 926
Belington, West Virginia 26250

Contact: Mr. Don Harris
Phone: 304-823-1611

FMC Corporation - Spring Hill Peroxide Plant

3200 McCorkle Avenue
South Charleston, WV 25303

Contact: Robert Peters
Phone: 304-746-1523

NewPage Corporation
300 Pratt Street
Luke, MD 21540

Contact: Sterlin Rebuck, PE
Phone: 301- 359-3311 Ext 3587

City of Bridgeport
City of Bridgeport
515 West Main Street
Bridgeport, WV 26330

Contact: Mr. Tom Brown, PE – City Engineer
Phone: 304-842-8204

Mt. Top PSD
Mt. Top PSD
P.O. Box 236
Mt. Storm, WV 26739

Contact: Ms. Diane Junkins
Phone: 304-693-7667

SECTION 3 - PROJECT GOALS & OBJECTIVES

3 – PROJECT GOALS AND OBJECTIVES

Cacapon State Park Dams:

3.1 Goal/Objective 1- Information review, dam experience, and close communication with the Owner and Dam Safety will allow us to develop plans that can be implemented efficiently and with minimal disruption to the park setting.

As discussed previously, our firm performed the design of the approved modifications and construction documents for these dams.

All permits have been obtained to allow construction to begin as soon as funding is available.

The drain gates at Reservoir Dam have been repaired and are now operable. These gates will be needed by Parks personnel to maintain the golf course irrigation system pump intakes and by the contractor when modifications are constructed. Use of the repaired drain gates will aid in minimizing disruption and the aesthetic appearance of the facility during and after construction is complete.

The work has been planned to allow repairs to be implemented at Reservoir Dam without draining the lake. Lake pool maintenance will prevent disruption in the use of the facility for golf course irrigation when construction is in progress.

At Park Dam, the modifications have been planned to avoid draining the lake and will maintain the aesthetic appearance of the dam which is an important feature of the park. When complete, the dam will virtually appear unchanged from its current configuration and appearance. Our familiarity with the dam and park personnel will be a major benefit to the park and the ongoing use of the facilities.

3.2 Goal/Objective 2 -Provide all the required services in a manner that is in accordance with the WVDNR needs and objectives as well as the current regulations. In addition, the goal is to design and complete the project within budget.

The design modifications prepared by our firm have been approved by the WVDEP-Dam Safety Section and all required permits have been obtained. The modifications have also been approved by the Owner and concur with the needs and objectives of the same.

Based on our understanding and familiarity with the project, contract administration will be performed by our firm with accuracy, efficiency, and with high priority placed on executing the project on time and within budget.

As discussed previously, our firm has a strong record of administrating dam rehabilitation construction projects within or below budget.

3.3 Goal/Objective 3 - Provide construction contract administration services in a competent and professional manner to ensure the project is constructed and performs as designed. **Considering our firm was responsible for the design of modifications to Cacapon Dams, we are uniquely qualified to achieve this goal.**

Our familiarity with all aspects of the design including the placement of RCC provides our firm with complete understanding of the construction requirements to ensure a successful project.

Construction phase services required will include:

a) Bidding assistance/Pre-Bid Meeting .
b) Project award.
c) Construction contract administration.
d) Construction Monitoring/Regular Site Visits and Full Time Inspection.
e) As-built plan preparation
f) Certification

Our attention to each step in the construction administration process outlined above will result in a successful project, and ultimately Dam Safety approval and Owner compliance with current Dam Safety Regulations.

This goal has been achieved for 48 dam modification projects successfully completed by our company and design team.

Conaway Run Dam:

3.4 Goal/Objective 1 - Information review and communication with the Owner to develop plans that can be implemented efficiently and with minimal disruption to the facility.

As mentioned, our firm has inspected this dam biennially since 2000 under contract with the WVDNR Parks and Recreation Section. Considering this, we are familiar with the dam, its history, and deficiencies thus allowing our firm to streamline the review process.

Our understanding of the dam and deficiencies will allow us to design modifications that minimize disruption to the facility and meet the needs of the Owner. Since Conaway Run Dam will involve complete design of modifications, our firms' working relationship with the Owner and Park personnel will prove invaluable to preparing a design that requires minimal revisions and changes. Known deficiencies at the dam include:

a) The hazard rating and associated design storm has not been determined.
b) The spillway system may be inadequate to pass the design storm without causing the dam to overtop.
c) The drain gate may not be operable.
d) The emergency spillway cut slope exhibits instability and the spillway channel lacks armoring to prevent erosion during operation.
e) Seepage is present and the embankment may not be stable in accordance with the regulations.
f) Cracking and erosion around the principal spillway outlet structure is present.

As outlined in the "Experience" section of this EOI, our firm has extensive knowledge of dam rehabilitation, and both standard as well as innovative repair options.

As an example, based on hazard analysis, Long Branch Dam at Pipestem State Park was reclassified to reduce the design storm and was economically modified by our firm to meet the design storm requirements with the simple addition of a short concrete flood wall on the crest of the dam. This modification was completed without draining the lake, within budget, and maintained trail access across the dam when the project was completed.

3.5 Goal/Objective 2 - Provide all the required services in a manner that is in accordance with the WVDNR needs and objectives as well as the current regulations. In addition, the goal is to design and complete the project within budget.

The goal for this project is to perform engineering necessary to design, permit and construct modifications to the dam in accordance with current Dam Safety regulations. These services are required in order to obtain a certificate of approval and bring the dam into compliance with the current Dam Safety regulations.

In addition, our design will improve the safety and long term functioning of the dam. The needs of the Owner concerning the recreation uses at the dam will also be incorporated in the design.

Our extensive experience and understanding of the design and permitting process for dam modification projects will allow us to design and execute the project within budget and on schedule. Engineering services required will include:

a) Topographic mapping.
b) Subsurface investigation.
c) Site Reconnaissance.
d) Underwater video of the riser and drain pipe.
e) Evaluation of the drain gate.
f) Hazard/Hydrologic/Hydraulic Analysis.
g) Seepage Analysis.
h) Stability Analysis
i) Project Narrative Preparation.
j) Permitting (Dam Safety, USACE, NPDES, SHPO, RTE)

Our experience outlined herein with dam rehabilitation projects illustrates our firms' ability to approach projects both logically and creatively resulting in Owner satisfaction and ultimately compliance with current Dam Safety Regulations.

3.6 Goal/Objective 3- Provide construction contract administration services in a competent and professional manner to ensure the project is constructed and performs as designed.

As outlined in our "Experience and Qualifications" section of the EOI, this goal will be

met by utilizing our highly qualified and experienced staff to administer the construction contract and provide the services listed below resulting in a successful project constructed as designed:

a) Bidding assistance.
b) Construction Phase Services.
c) As-built drawing preparation.
d) Certification.

ILLUSTRATIONS

TABLE 1 - DAM PROJECT EXPERIENCE MATRIX

BY: CIVIL TECH ENGINEERING INC.

December 2, 2015

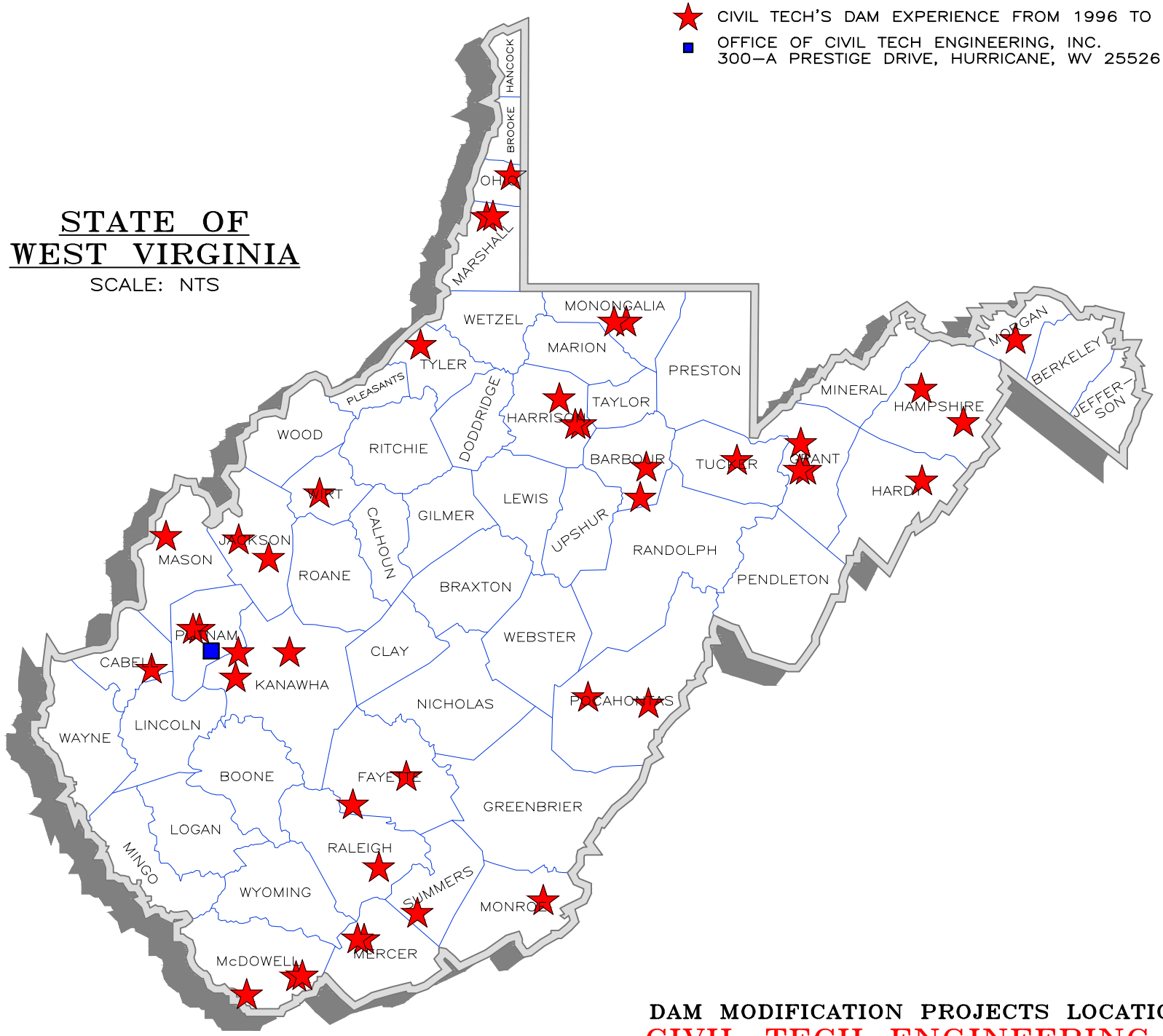
DAM	OWNER	APPLICATION TO MODIFY	MAINTENANCE & REPAIR PLAN	PROFESSIONAL SERVICES					COA REQUIRED	COA OBTAINED
				INSPECTION	HAZARD RATING	ENGINEERING	PERMITTING	CONTRACT ADMIN.		
1 Jimmy Lewis	WVDNR	X		X		X	X	X	X	X
2. Plum Orchard	WVDNR	X		X		X	X	X	X	X
3. Boley	WVDNR	X		X		X	X	X	X	X
4. Anawalt	WVDNR	X		X		X	X	X	X	X
5. Warden	WVDNR	X	X	X		X	X	X	X	X
6. Burches Run #1	WVDNR	X		X		X				
7. Castleman's Run	WVDNR	X		X		X	X	X	X	X
8. No. 1 Impoundment	Union Carbide	X	X	X		X	X	X	X	X
9. No. 2 Impoundment	Union Carbide	X		X		X	X	X	X	X
10. No. 3 Impoundment	Union Carbide	X				X	X	NOT CONST	X	X
11. Mill Creek Dam	Columbia Gas	X		X		X	X	X	X	X
12. Rollins 1 and 2	WVDNR		X	X		X	X	X	X	X
13. Seneca	WVDNR	X		X	X	X	X	X	X	X
14. Teter Creek	WVDNR	X		X	X	X	X	X	X	X
15. Wells Lock & Dam	WVDNR		X	X		X	X	X	X	X
16. Handley	WVDNR		X	X		X	X	X	NO	
17. Anawalt	WVDNR		X	X		X	X	X	X	X
18. Old Pond 11	WVDNR	X		X		X	X	X	X	X
19. Edwards Run	WVDNR		X	X		X			NO	
20. Culloden PSD	WVDNR	X		X	X	X	X	2016 CONST	X	X
21. Burches Run #2	WVDNR	X		X	X	X	X	X	X	X
22. Belington WS	CITY of BELINGTON	X		X	X	X	X	X	X	X
23. Cedar Lakes 1 and 2	DEPT. OF ED.		X	X	X	X		2016 CONST	X	UNDER REVIEW
24. Joyce Lake	Private Owner	X		X		X	X	X	X	X
25. Tailings Pond Dam	FMC	X		X		X	X	X	X	X
26. Thomas Concrete	CITY of THOMAS	X		X	X	X	X	X	X	X
27. Fly Ash Pond	FMC	X	X	X	X	X	X	X	X	X
28. Dickenson	FMC CLUB	X		X	X	X	X	2018 CONST	X	UNDER REVIEW
29. Brood Pond	FMC CLUB	X		X	X	X	X	2018 CONST	X	UNDER REVIEW
30. Winterplace #1	Private Owner	X	X	X	X	X	X	NOT CONST	X	X
31. Wilson	Private Owner	X	X	X	X	X	X	X	X	X
32. Moncove	WVDNR	X		X		X	X	X	X	X
33. Winterplace #2	Private Owner	X		X	X	X	X	X	X	X
34. Mason	WVDNR	X		X		X	X	X	X	X
35. Dixon	WVDNR	X		X		X	X	X	X	X
36. Deegan	City of Bridgeport	X		X		X	X	X	X	X
37. Hinkle	City of Bridgeport	X		X		X	X	X	X	X
38. Stoney River	Private Owner	X		X	X	X	X	X	X	X
39. Mill Run	Mt. Top PSD	X		X	X	X	X	X	X	X
40. Mt. Storm Flip Buck.	Dominion		X	X		X	X	X	X	X
41. Stoney R. Weir	Dominion					X	X	X	NO	
42. White	Private Owner	X		X	X	X	X	X	X	X
43. Berwind	WVDNR	X		X		X	X	X	X	X
44. Longbranch	WVDNR	X		X	X	X	X	X	X	X
45. Mt. Storm Gates	Dominion	X		X		X	X	X	X	X
46. Jimmy Lewis Pipe	WVDNR	X		X		X	X	X	X	X
47. Cacapon Reservoir	WVDNR	X		X	X	X	X	2016 CONST	X	X
48. Cacapon Park	WVDNR	X		X	X	X	X	2016 CONST	X	X

TABLE 2 -- DAM MODIFICATIONS EXPERIENCE SUMMARY - PARTIAL LISTING

BY: CIVIL TECH ENGINEERING INC.

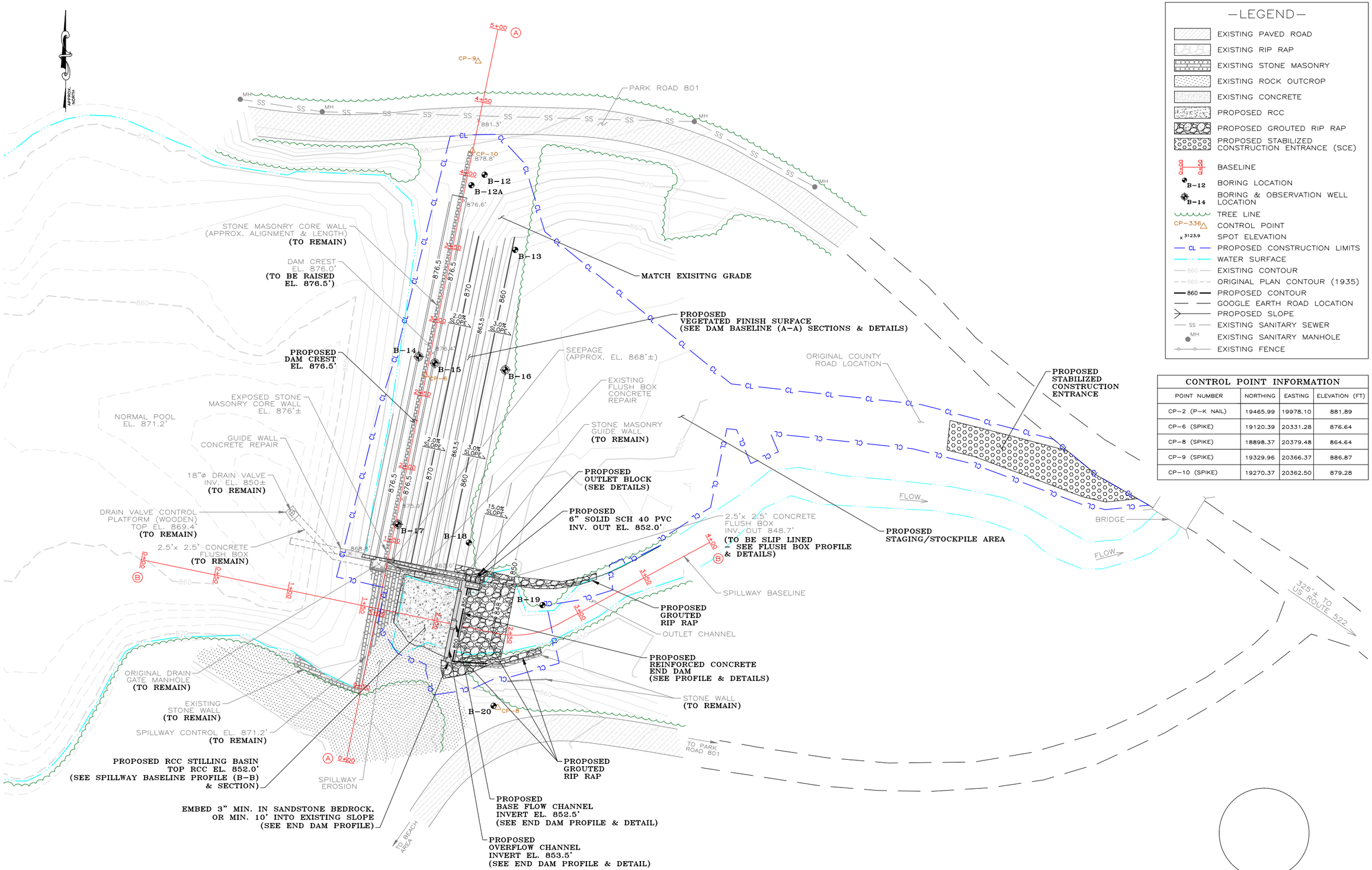
December 2, 2015

DAM /HAZARD RATING	OWNER	DAM SAFETY APPROVAL	ENGINEER'S CONSTRUCTION COST ESTIMATE ($)	BID PRICE ($)	ACTUAL CONSTRUCTION COST ($)
DEEGAN (ID#03322) CLASS 1 HAZARD RATING	CITY OF BRIDGEPORT	COA	$ 703,420.00	$ 502,350.00	$ 470,133.00
HINKLE DAM (ID#03328) CLASS 1 HAZARD RATING	CITY OF BRIDGEPORT	COA	$ 703,420.00	$ 502,350.00	$ 470,133.00
MILL RUN WS RESERVOIR (ID#02329) CLASS 2 HAZARD	MT. TOP PSD	COA	$ 191,925.00	$ 163,315.00	$ 167,988.00
JIMMY LEWIS DAM (ID#05521) CLASS 1 HAZARD RATING	WVDNR	COA	$ 252,540.00	$ 282,480.00	$ 282,480.00
LONGBRANCH DAM (ID#08903) CLASS 1 HAZARD RATING	WVDNR	COA	$ 222,370.00	$ 200,548.00	$ 200,548.00
BERWIND DAM (ID#04702) CLASS 1 HAZARD RATING	WVDNR	COA	$ 1,137,150.00	$ 1,013,000.00	$ 1,013,000.00
CULLODEN PSD DAM (ID#01101) REDUCTION BELOW JURISDICTION	WVDNR	COA	$ 643,328.00	NA	NA
CACAPON PARK DAM (ID#06503) CLASS 1 HAZARD RATING	WVDNR	COA	$ 561,150.00	NA	NA
CACAPON RESERVOIR (ID#06503) CLASS 1 HAZARD RATING	WVDNR	COA	$ 561,150.00	NA	NA
FLIP BUCKET STABILIZATION (ID#02301) CLASS 1 HAZARD	MT. STORM POWER STATION	LETTER	$ 532,450.00	$ 376,360.00	$ 411,992.00


CIVIL TECH'S DAM EXPERIENCE FROM 1996 TO 6/01/15.
OFFICE OF CIVIL TECH ENGINEERING, INC.
300—A PRESTIGE DRIVE, HURRICANE, WV 25526
STATE OF
WEST VIRGINIA
SCALE: NTS
HANCOCK
BROOKE
OHIO
MARSHALL
WETZEL
MONONGALIA
MARION
TYLER
PRESTON
PLEASANTS
DODDRIDGE
TAYLOR
HARRISON
WOOD
RITCHIE
BARBOUR
TUCKER
GRANT
MINERAL
HAMPSHIRE
MORGAN
BERKELEY
JEFFERSON
HARDY
WIRT
GILMER
LEWIS
UPSHUR
RANDOLPH
PENDLETON
CALHOUN
JACKSON
MASON
ROANE
BRAXTON
PUTNAM
CLAY
WEBSTER
CABELL
KANAWHA
NICHOLAS
POCAHONTAS
WAYNE
LINCOLN
BOONE
FAYETTE
GREENBRIER
LOGAN
RALEIGH
MINGO
WYOMING
SUMMERS
MONROE
MERCER
McDOWELL
DAM MODIFICATION PROJECTS LOCATION MAP
CIVIL TECH ENGINEERING, INC.

PARK DAM MODIFICATION (RCC), CACAPON STATE PARK

RESERVOIR DAM MODIFICATION, CACAPON STATE PARK



PROPOSED SITE PLAN

SCALE: 1" = 30'

—LEGEND—

- EXISTING PAVED ROAD
- EXISTING RIP RAP
- EXISTING STONE MASONRY
- EXISTING ROCK OUTCROP
- EXISTING CONCRETE
- PROPOSED RCC
- PROPOSED GROUTED RIP RAP
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE (SCE)
- BASELINE
- B-12 BORING LOCATION
- B-14 BORING & OBSERVATION WELL LOCATION
- TREE LINE
- CP-336 CONTROL POINT
- x 3123.9 SPOT ELEVATION
- CL PROPOSED CONSTRUCTION LIMITS
- WATER SURFACE
- 860 EXISTING CONTOUR
- 860 ORIGINAL PLAN CONTOUR (1935)
- 860 PROPOSED CONTOUR
- GOOGLE EARTH ROAD LOCATION
- PROPOSED SLOPE
- SS EXISTING SANITARY SEWER
- MH EXISTING SANITARY MANHOLE
- EXISTING FENCE

CONTROL POINT INFORMATION

POINT NUMBER	NORTHING	EASTING	ELEVATION (FT)
CP-2 (P-K NAIL)	19465.99	19978.10	881.89
CP-6 (SPIKE)	19120.39	20331.28	876.64
CP-8 (SPIKE)	18898.37	20379.48	864.64
CP-9 (SPIKE)	19329.96	20366.37	886.87
CP-10 (SPIKE)	19270.37	20362.50	879.28

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 902' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 809, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED JUNE 8, 1935.

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

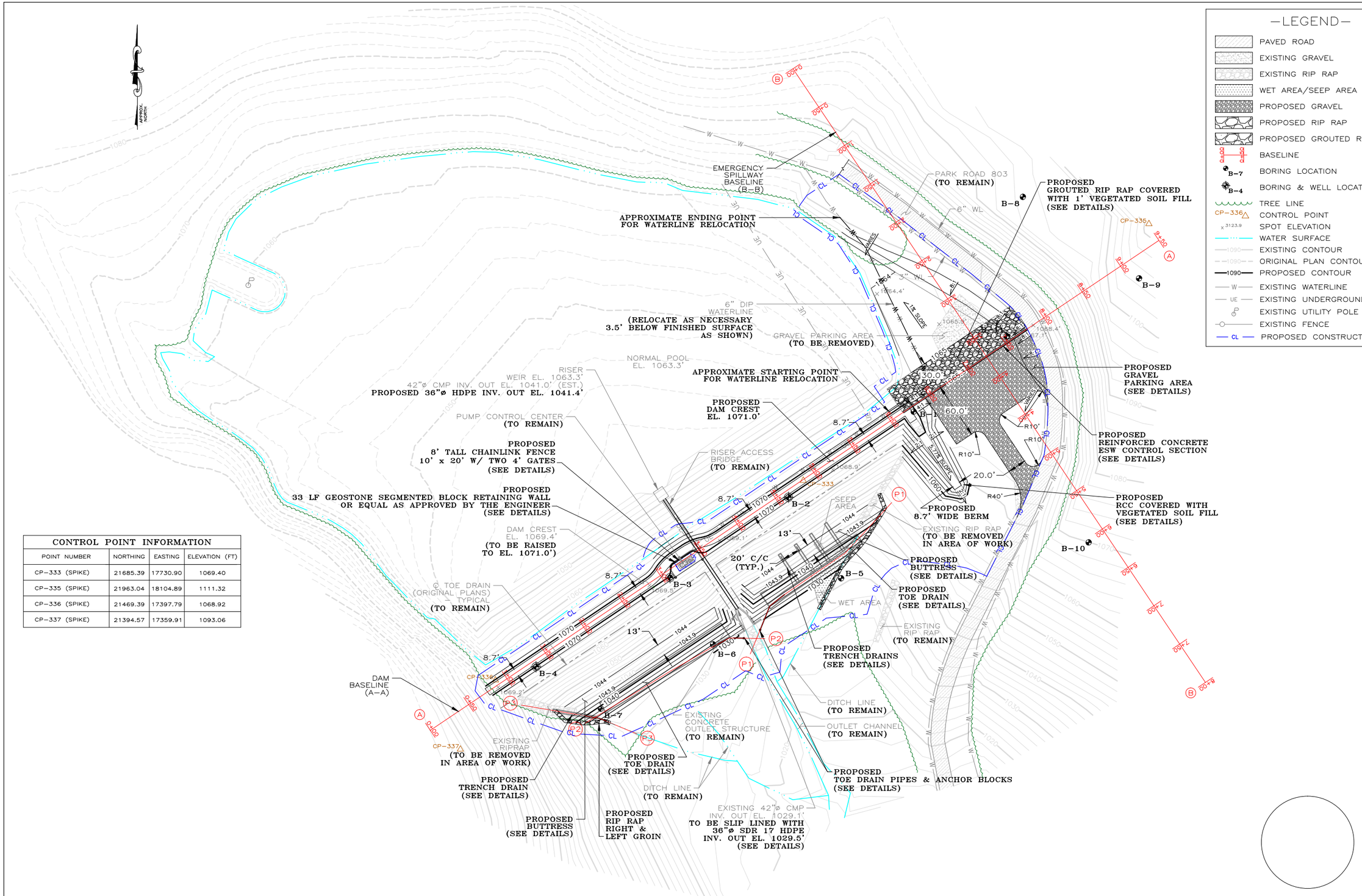
PROPOSED SITE PLAN
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

PROJECT NO.
10143

DRAWING NO.
25



—LEGEND—

- PAVED ROAD
- EXISTING GRAVEL
- EXISTING RIP RAP
- WET AREA/SEEP AREA
- PROPOSED GRAVEL
- PROPOSED RIP RAP
- PROPOSED GROUTED RIP RAP
- BASELINE
- BORING LOCATION
- BORING & WELL LOCATION
- TREE LINE
- CONTROL POINT
- SPOT ELEVATION
- WATER SURFACE
- EXISTING CONTOUR
- ORIGINAL PLAN CONTOUR (1935)
- PROPOSED CONTOUR
- EXISTING WATERLINE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UTILITY POLE
- EXISTING FENCE
- PROPOSED CONSTRUCTION LIMITS

CONTROL POINT INFORMATION

POINT NUMBER	NORTHING	EASTING	ELEVATION (FT)
CP–333 (SPIKE)	21685.39	17730.90	1069.40
CP–335 (SPIKE)	21963.04	18104.89	1111.32
CP–336 (SPIKE)	21469.39	17397.79	1068.92
CP–337 (SPIKE)	21394.57	17359.91	1093.06

−50 0 50 100 150

Scale: 1" = 50'

PROPOSED SITE PLAN

SCALE: 1" = 50'

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 902' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 809, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED MARCH 27, 1972.

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

DRAWN BY: HNC
CHECKED BY: WEP

PARKS & RECREATION
WVDNR

PROPOSED SITE PLAN
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11

PROJECT NO. 10143

DRAWING NO. 5

CONAWAY RUN DAM MODIFICATION, CONAWAY RUN WMA

MT. STORM FLIP BUCKET STABILIZATION (RCC), MT. STORM POWER STATION

THOMAS DAM MODIFICATION, THOMAS, WV

TETER CREEK DAM MODIFICATION, BARBOUR CO., WV

C:\AutoCAD Drawings\Submittal Drawings\Fig 6 99159 – Thomas Site Plan 11x17.dwg

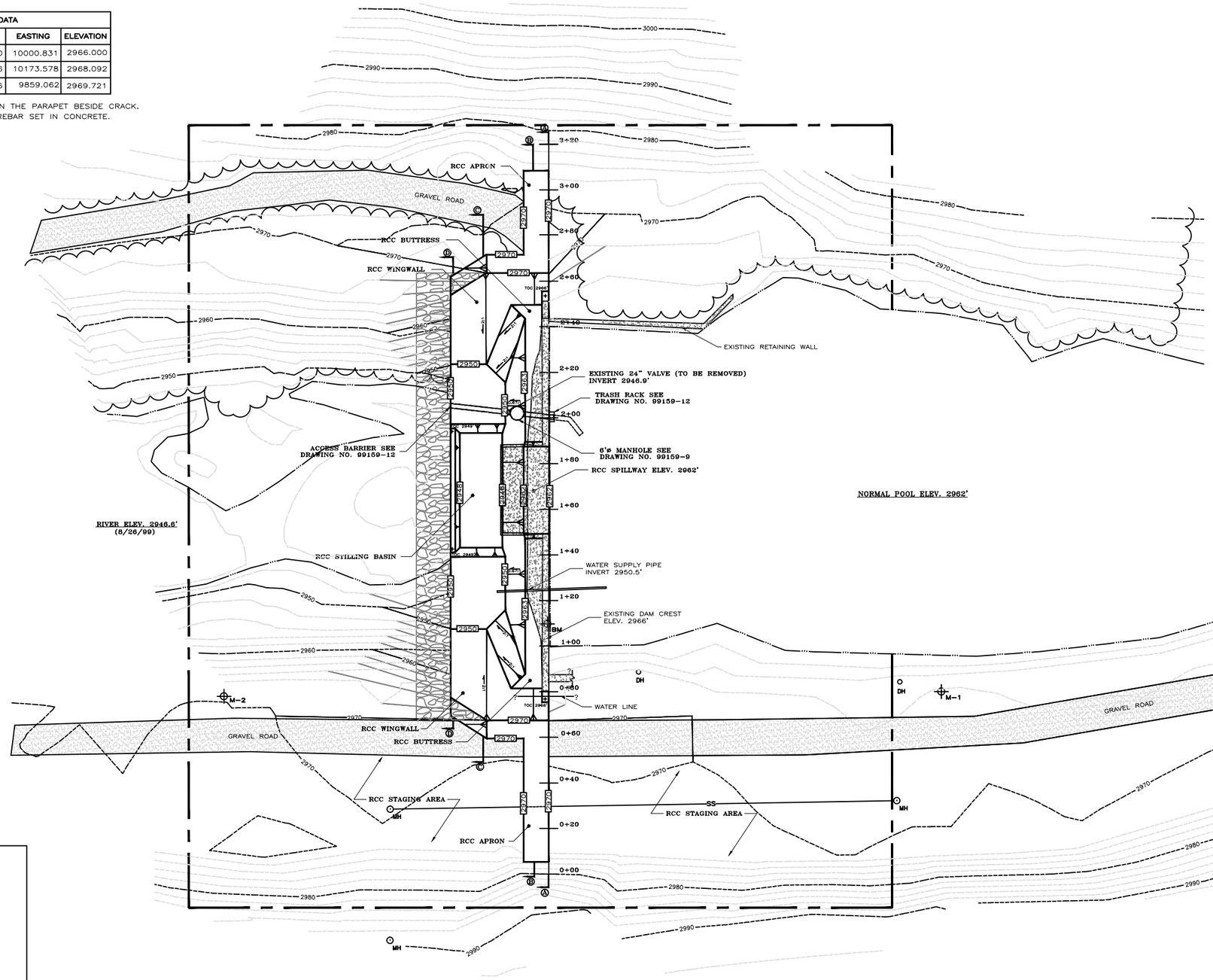
SURVEY DATA			
MONUMENTS	NORTHING	EASTING	ELEVATION
BM	10039.690	10000.831	2966.000
M–1	10009.986	10173.578	2968.092
M–2	10007.946	9859.062	2969.721

NOTE: BENCH MARK IS A "X" IN THE PARAPET BESIDE CRACK. MONUMENTS ARE 3/8" REBAR SET IN CONCRETE.

REVISIONS		
DATE	BY	DESCRIPTION

CONSTRUCTION SEQUENCE

1) Mobilize equipment, materials, and labor force to the site.
2) Install erosion and sediment control measures. See Drawing Number 99159–4 for details.
3) Slip line existing drain pipe with new HDPE pipe.
4) Install the new drain valve and manhole base.
5) Provide temporary piping from the new valve to the sediment sump.
6) Lower the lake level as required but no more than 10 feet.
7) Temporarily seal the upstream face of the dam in the area of the existing leaks by parging.
8) Excavate the base of the buttress, stilling basin, wings, and rip rap.
9) Place rock fill.
10) Haul and stockpile aggregate for the RCC.
11) Construct the downstream cut off wall.
12) Perform demolition as required to remove necessary parts of the dam and install the crest seal.
13) Install the crest seal.
14) Construct the RCC test pad.
15) Mix, transport, place, and compact the RCC in the stilling basin, wings, buttress, and the abutment apron and cut off wall.
16) Complete the valve and manhole.
17) Finish grade around the new dam structure.
18) Resurface the roadway.
19) Revegetate the site.
20) Demobilize.



—LEGEND—
- WATER SURFACE
- EXISTING CONTOUR
- RCC SURFACE
- FINISH CONTOUR
- CONSTRUCTION LIMITS
- RIP RAP
- M–1 SURVEY MONUMENT
- EXISTING DAM
- DH DRY HYDRANT
- MH SEWER MANHOLE
- TREE LINE

–50 0 50
Scale 1" = 50'

NOTE: 1) TOPOGRAPHIC MAPPING BASED ON FIELD SURVEY PERFORMED BY CIVIL TECH ENGINEERING INC. ON 8–26–99, 8–27–99, 9–23, AND 9–24–99.

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

SITE PLAN
PROPOSED MODIFICATIONS

THOMAS DAM MODIFICATIONS
THOMAS, WV

DRAWING NO.: 99159–6	DATE: JANUARY, 2000	SCALE: 1" = 50'
REVISED: BY:	CHECKED:	DRAWN BY: CDA CHECKED BY: MEP

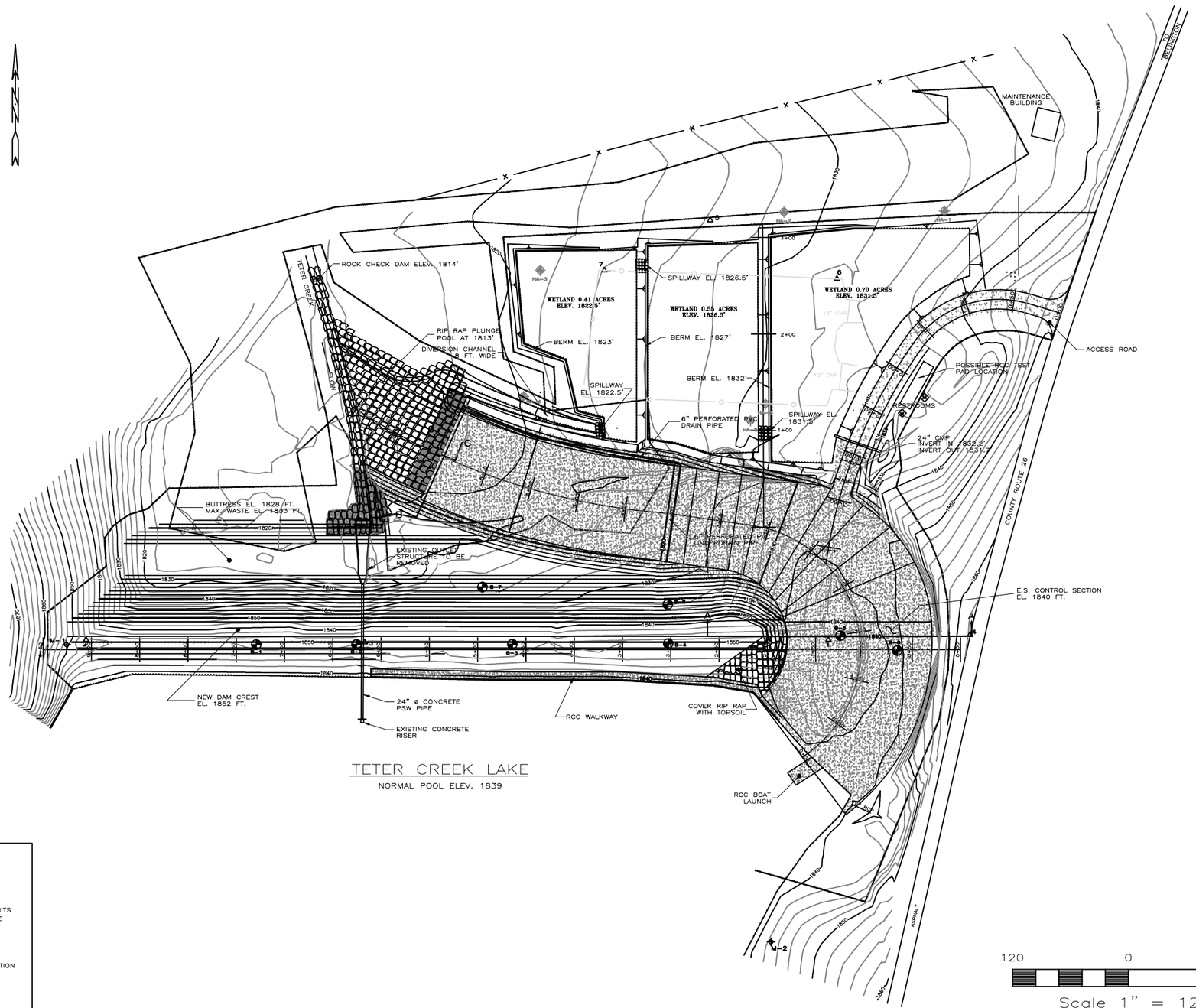
C:\AutoCAD Drawings\Submittal Drawings\Fig 7 98114 – Teter Site Plan 11x17.dwg

REVISIONS

DATE	BY	DESCRIPTION
2/22/00	RKM BDJ	ADDED PLUNGE POOL, RCC ON BEGINNING OF SPILLWAY, AND ADDED WETLAND.
3/16/00	BDJ	REMOVED BERM AND RIGHT CUT OFF WALL, AND ADDED RIP RAP.

SURVEY DATA			
CONTROL POINT	EASTING	NORTHING	ELEVATION
1	10000.000	10000.000	1846.990
2	9231.321	10000.084	1846.407
3	9519.762	9997.425	1846.647
4	10146.893	10005.343	1862.302
5	9877.703	10434.459	1826.188
6	10008.915	10373.994	1835.135
7	9767.961	10382.644	1826.185
M–1	9211.162	9995.140	1850.663
M–2	9940.742	9687.215	1844.266

NOTE: MONUMENTS ARE 1/2" REBAR



TETER CREEK LAKE

NORMAL POOL ELEV. 1839

—LEGEND—

- WATER SURFACE
- FENCE
- EXISTING CONTOUR
- FINISH GRADE
- CONSTRUCTION LIMITS
- EXISTING WETLAND LIMITS
- WOOD BOLLARD FENCE
- CONTROL POINT
- M–1 SURVEY MONUMENT
- B–1 BORING LOCATION
- HA–1 HAND AUGERING LOCATION
- RIP RAP
- GROUTED RIP RAP
- RCC
- BASESTONE

120 0 120

Scale 1" = 120'

NOTES:
1) REFER TO DRAWING NO. 98114–4 FOR PARKING LAYOUT, WALKWAY, AND BOAT RAMP INFORMATION.
2) SEE DRAWING NO. 98114–7 FOR SECTIONS A–A AND B–B.
3) E&S MEASURES SHOWN ON DRAWING NO. 98114–3.
4) SEE DRAWING NO. 98114–20 FOR SECTION C–C

CIVIL TECH ENGINEERING, INC.
ST. ALBANS, WEST VIRGINIA

SITE PLAN
PROPOSED MODIFICATIONS

TETER CREEK LAKE DAM
BARBOUR COUNTY, WEST VIRGINIA

DRAWING NO.: 98114–7	SCALE: 1" = 120'
DATE: APRIL 8, 1999	DRAWN BY: JCH, RKM CHECKED BY: MEP

BELINGTON DAM MODIFICATION, BELINGTON, WV

WILSON DAM MODIFICATION, HAMPSHIRE CO., WV

CIVIL TECH ENGINEERING INC. "Attention to Detail"

OLD ANAWALT DAM FLOOD DAMAGE REPAIR, MCDOWELL CO., WV

BAILEY DAM MODIFICATION, MONONGALIA CO., WV

LEMLEY DAM MODIFICATION, MONONGALIA CO., WV

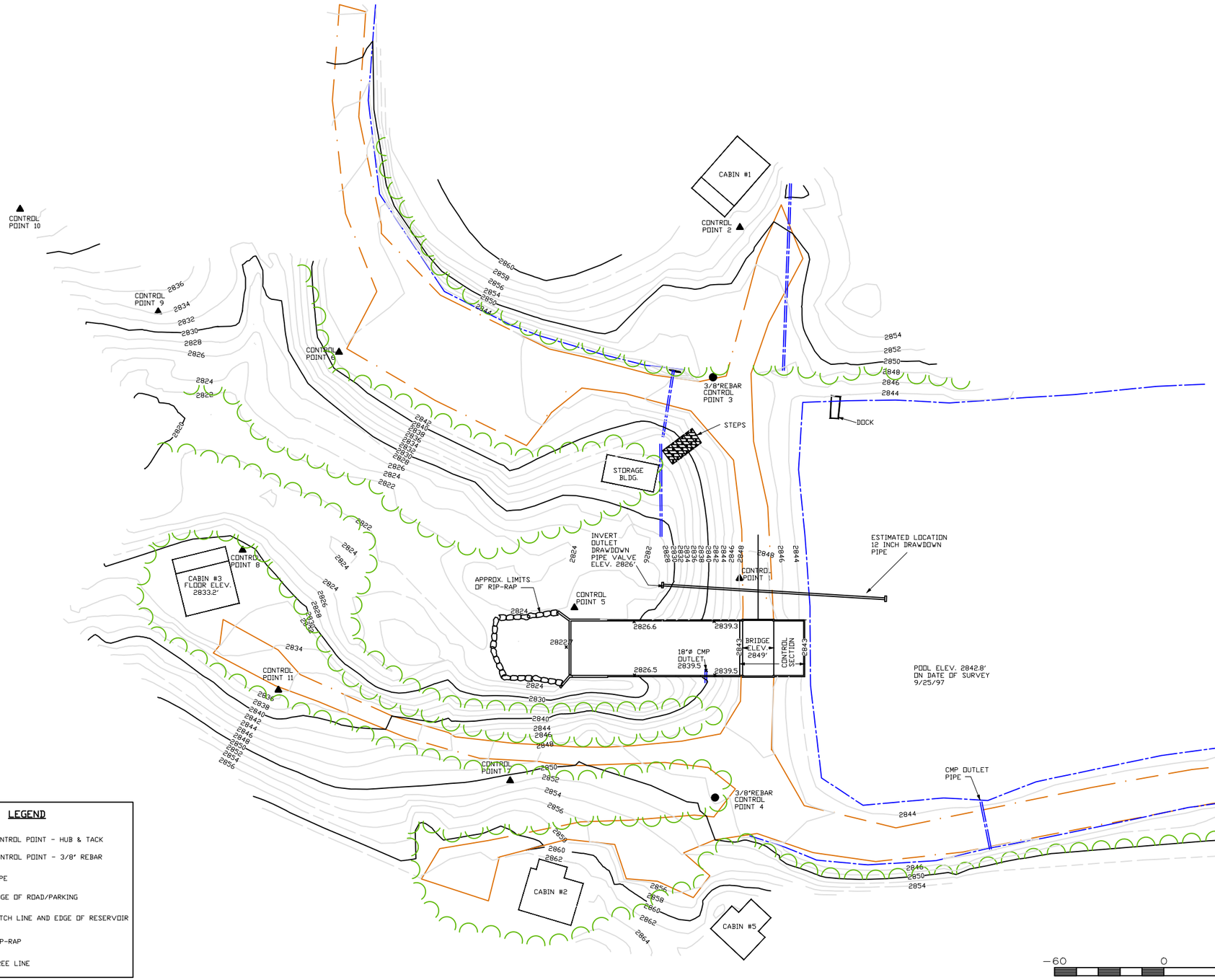
MONCOVE DAM MODIFICATION, MONROE CO., WV

SENECA DAM MODIFICATION, POCAHONTAS CO., WV

PLUM ORCHARD DAM MODIFICATION, FAYETTE CO., WV

C:\AutoCAD Drawings\Submittal Drawings\Fig 8 97165 – Seneca Site Plan 11x17.dwg

REVISIONS		
DATE	BY	DESCRIPTION



CONTROL POINT SUMMARY			
CONTROL POINT NO.	NORTHING	EASTING	ELEVATION (FT.)
NO. 1 (HUB&TACK)	10000.00	10000.00	2848.10
NO. 2 (HUB&TACK)	10192.80	10000.00	2855.01
NO. 3 (3/8"REBAR)	10110.45	9985.29	2846.60
NO. 4 (3/8"REBAR)	9879.14	9986.92	2847.55
NO. 5 (HUB&TACK)	9983.93	9909.21	2826.47
NO. 6 (HUB&TACK)	10124.14	9780.02	2843.52
NO. 7 (HUB&TACK)	9888.81	9874.29	2851.31
NO. 8 (HUB&TACK)	10015.62	9726.86	2830.93
NO. 9 (HUB&TACK)	10146.44	9680.52	2834.30
NO. 10 (HUB&TACK)	10202.83	9605.05	2845.61
NO. 11 (HUB&TACK)	9938.87	9746.80	2835.78

LEGEND

- CONTROL POINT – HUB & TACK
- CONTROL POINT – 3/8" REBAR
- PIPE
- EDGE OF ROAD/PARKING
- DITCH LINE AND EDGE OF RESERVOIR
- RIP-RAP
- TREE LINE

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

SITE PLAN

SENECA LAKE DAM
POCAHONTAS COUNTY, WV

DRAWING NO.: 97165–8	DATE: OCTOBER, 1997	SCALE: 1" = 60'
REVISED: BY:	CHECKED:	DRAWN BY: JEP CHECKED BY: MEP

JIMMY LEWIS DAM MODIFICATION, MERCER CO., WV

WARDEN LAKE DAM MODIFICATION, HARDY CO., WV

BERWIND DAM MODIFICATION (RCC), MCDOWELL COUNTY, WV

LONG BRANCH DAM MODIFICATION, PIPESTEAM STATE PARK

CONTROL POINT INFORMATION			
POINT NUMBER	NORTHING	EASTING	ELEVATION (FT)
CP-2 (HUB/TAC)	10113.08	10007.83	1657.87
CP-3 (SPIKE)	10173.78	10045.68	1684.25
CP-71 (SPIKE)	9882.00	9992.91	1656.48
CP-72 (SPIKE)	9725.40	9979.65	1705.58
CP-382 (SPIKE)	9889.40	9926.37	1648.51
CP-383 (HUB/TAC)	10000.00	10000.00	1657.08

BORING LOCATION INFORMATION			
BORING	NORTHING	EASTING	ELEV.
B-1B	10097.89	10002.52	1657.9
B-2B	10017.35	9973.69	1656.5
B-3B	10017.35	9992.54	1657.5
B-4B	10032.02	10118.25	1631.0
B-5B	9922.69	9989.58	1656.9
B-6B	9926.69	10026.67	1655.7
B-7B	9952.96	10119.74	1641.8
B-8B	9878.14	10001.30	1656.7
B-9B	9881.17	10126.47	1647.5
B-10B	10120.24	10258.78	1627.4

NOTE: MONITORING WELLS IN BORINGS B-1B, B-2B, B-3B, B-5B, & B-8B TO BE PRESERVED AND LOWERED TO NEW DAM CREST ELEVATION. – SEE DETAIL

APPROX. NORTH

BERWIND LAKE ROAD
CR-12/4
(TO REMAIN)

BERWIND LAKE ROAD
CR-12/4 / PARK HIGHWAY 801
INTERSECTION – 575± LF

PROPOSED
GROUTED RIP RAP

PROPOSED
SITE ACCESS

NOTE: SEE EXISTING SITE CONDITIONS FOR CONSTRUCTION ACCESS.

BERWIND LAKE ROAD
PARK HIGHWAY 801
330± LF

OUTLET
CHANNEL
(TO REMAIN)

PRINCIPAL SPILLWAY
24"ø CONCRETE PIPE
INV. OUT EL. 1623.0'
(TO BE SLIP LINED AND EXTENDED
W/ 18"ø SDR 17 HDPE PIPE)
NEW INV. OUT EL. 1622.9'

CONCRETE
OUTLET STRUCTURE
(TO BE REMOVED)

PROPOSED
WVDOH WINGWALL
FOR 24"ø PIPE

PROPOSED
STILLING BASIN
EL. 1622.0'

PROPOSED
GROUTED RIP RAP
OUTLET CHANNEL

BERWIND LAKE ROAD
PARK HIGHWAY 801 / CR-12/4
INTERSECTION – 535± LF

BERWIND LAKE ROAD
PARK HIGHWAY 801
(TO REMAIN, PROTECT
FROM DAMAGE)

CONCRETE
CORE WALL
(TO REMAIN)

EXISTING DAM CREST
EL. 1656.0'
PROPOSED DAM CREST
EL. 1655.0'

NORMAL POOL
EL. 1646.0'

RISER
WEIR EL. 1646.0'
(TO REMAIN)

PROPOSED
RIP RAP 2' THICK MIN.
EMERGENCY SPILLWAY STATIONS
4+87.9 THRU 6+65
(SEE PROFILE &
TYPICAL CROSS-SECTION)

24"ø CMP
INV. EL. 1638.7'
INV. OUT EL. 1637.0'
(TO REMAIN)

PROPOSED
ROLLER COMPACTED
CONCRETE
(RCC) LIMITS

WALKING TRAIL
(TO REMAIN)

BERWIND LAKE ROAD
PARK HIGHWAY 801
(TO REMAIN, PROTECT
FROM DAMAGE)

EMERGENCY
SPILLWAY
(TO BE MODIFIED
AS SHOWN)

PROPOSED
REMOVE EXISTING GROUTED RIP RAP
FROM THE EMERGENCY SPILLWAY CHANNEL
AND REPLACE W/ NEW GROUTED RIP RAP
2' THICK MIN. (SEE PROFILE & CROSS-SECTIONS)

PROPOSED
RCC CUT-OFF WALL
(SEE SECTIONS & DETAILS)

NOTE: RANDOM FILL IN THIS
AREA MAY BE FIELD ADJUSTED
TO BALANCE CUT & FILL
VOLUMES AS APPROVED BY
THE ENGINEER. WASTE ACCESS
ROCK FILL IN THIS AREA.

PROPOSED
BASESTONE
(SEE ESW SECTIONS)

PROPOSED
REINFORCED CONCRETE CUT-OFF WALL
(SEE PROFILE & DETAILS)

EXISTING
CONTROL SECTION

PROPOSED
30' x 20' CONTROL SECTION
TOP EL. 1648.0'
(SEE PROFILES & DETAILS)

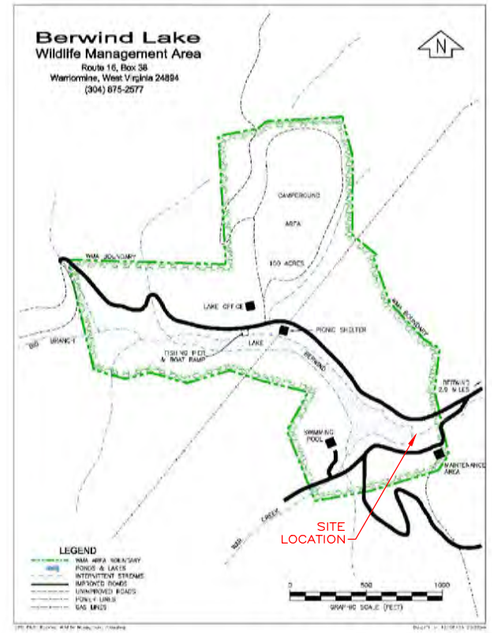
–30 0 30 60 90
Scale: 1" = 30'

PROPOSED SITE PLAN
SCALE: 1" = 30'

–LEGEND–

- PAVED ROAD
- EXISTING RIP RAP
- PROPOSED RIP RAP
- PROPOSED BASESTONE
- PROPOSED GROUTED RIP RAP
- BASELINE
- BORING LOCATION
- TREE LINE
- CONTROL POINT
- SPOT ELEVATION
- WATER SURFACE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED RCC LIMITS
- PROPOSED CONSTRUCTION LIMITS
- PROPOSED DETAILED CROSS-SECTIONS
- ADJUSTABLE RANDOM FILL – SEE NOTE

NOTE:
FINISH CONTOURS REPRESENT TOP OF RCC & DO NOT REFLECT VEGETATED SOIL COVER SHOWN ON THE CROSS-SECTIONS.



NOTE: MAP OBTAINED FROM http://www.berwindlake.com/BerwindLakeMap.pdf ON 1/27/2011.

BERWIND LAKE DAM LOCATION
N37° 15.532'
W81° 41.926'

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING FEBRUARY 25 2009 & APRIL 2, 2009.
2) USGS BM 158RHP = EL. 1655' LOCATED NEAR THE LAKE BRIDGE.
3) HORIZONTAL CONTROL IS ARBITRARY.

REVISIONS

ADDED RCC CUTOFF WALL & GROUTED RIP RAP APRON BETWEEN DAM BASELINE STATIONS 1+29.9 & 2+10.8.	4/11/2011	CDA
ADDED RIP RAP BETWEEN ESW STATIONS 4+87.9 & 6+65.	4/11/2011	CDA

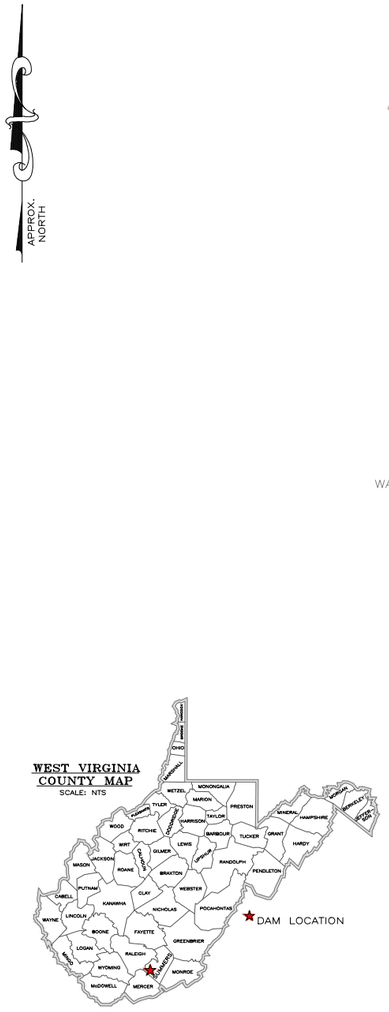
SCALE: AS SHOWN
DRAWN BY: HNC
CHECKED BY: MEP

WV PARKS & RECREATION
SOUTH CHARLESTON, WV

SITE PLAN
BERWIND LAKE DAM MODIFICATION
BERWIND WILDLIFE MANAGEMENT AREA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

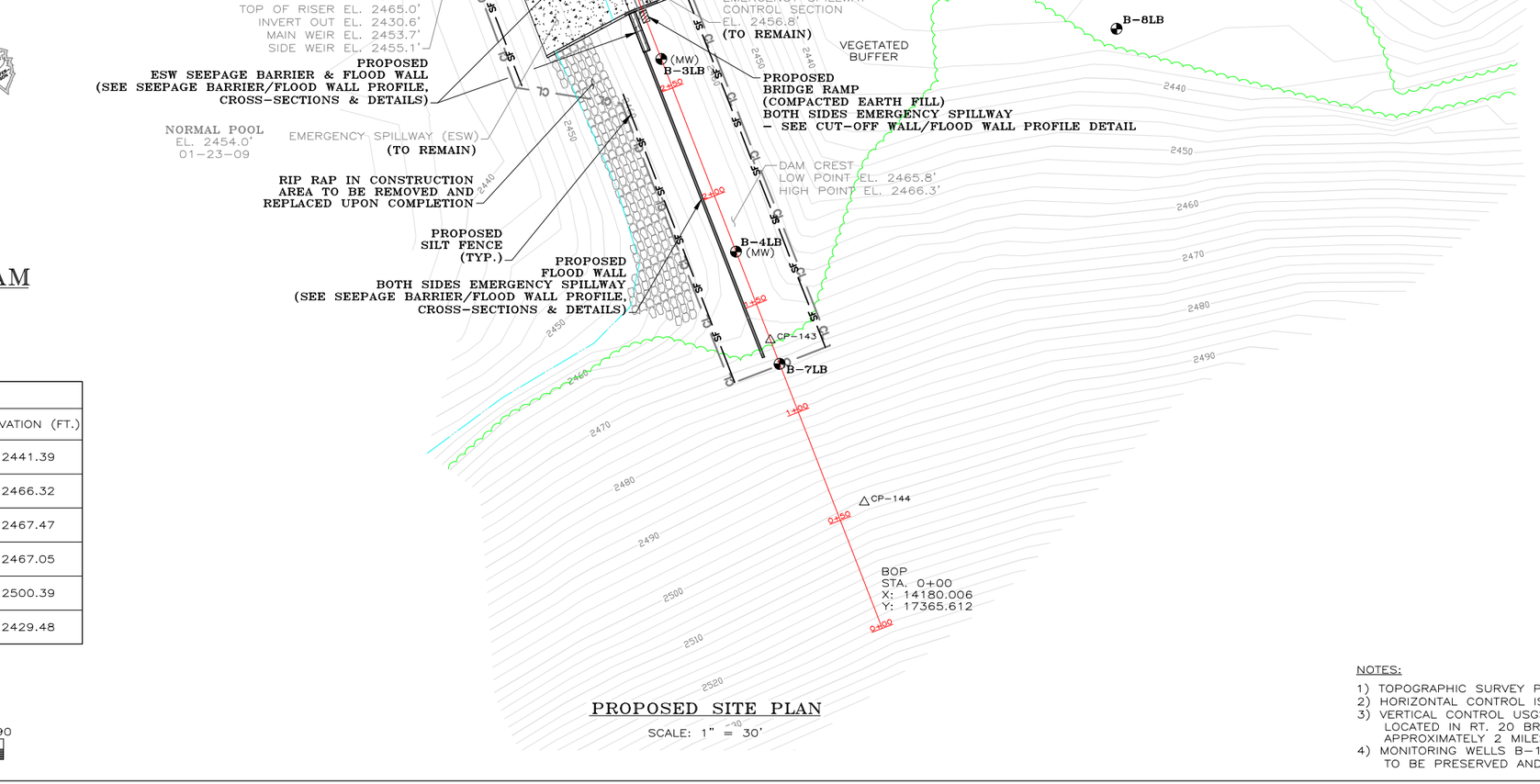
DATE
2/15/11
PROJECT NO.
08150
DRAWING NO.
2



PIPESTEM LAKE DAM LOCATION

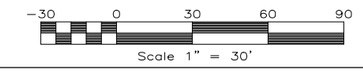
N37° 32.249'
W80° 58.836'

MONUMENT INFORMATION			
CONTROL POINT NO.	NORTHING	EASTING	ELEVATION (FT.)
CP-138 (SPIKE)	17927.01	14429.62	2441.39
CP-140 (SPIKE)	17736.00	14037.80	2466.32
CP-142 (PK)	17803.29	14010.04	2467.47
CP-143 (SPIKE)	17490.02	14131.72	2467.05
CP-144 (SPIKE)	17420.07	14172.25	2500.39
CP-456 (SPIKE)	17699.92	14214.80	2429.48



PROPOSED SITE PLAN

SCALE: 1" = 30'



NOTES:

1) TOPOGRAPHIC SURVEY PERFORMED BY CTE 01-23-2009.
2) HORIZONTAL CONTROL IS ARBITRARY.
3) VERTICAL CONTROL USGS BM NO. 247, EL. 2389.0' LOCATED IN RT. 20 BRIDGE CROSSING PIPESTEM CREEK APPROXIMATELY 2 MILES DOWNSTREAM OF DAM.
4) MONITORING WELLS B-1LB, B-2LB, B-3LB, & B-4LB TO BE PRESERVED AND RAISED (SEE DETAIL).

LEGEND

- ASPHALT ROAD
- CONCRETE SURFACE
- PROPOSED WASTE AREA
- PROPOSED RIP RAP
- EXISTING RIP RAP
- TREELINE
- CL — CONSTRUCTION LIMITS
- WATER SURFACE
- OE — OVERHEAD ELECTRIC
- 2500 — ORIGINAL CONTOUR
- UTILITY POLE
- CP-140 CONTROL POINT
- B-8LB BORING LOCATION
- B-1LB (MW) MONITORING WELL
- BASELINE
- SF — PROPOSED SILT FENCE
- 2500 — PROPOSED CONTOUR
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE (SCE)

REVISIONS

DESCRIPTION	BY	DATE

SCALE: 1" = 30'
DRAWN BY: HNC
CHECKED BY: MEP

WVDNR PARKS & RECREATIONS
CHARLESTON, WEST VIRGINIA

PROPOSED SITE PLAN
LONG BRANCH DAM
PIPESTEM STATE PARK

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 07/09/10
PROJECT NO. 08150
DRAWING NO. 2

RESUME OF MARK E. PENNINGTON
PRESIDENT – CIVIL TECH ENGINEERING INC.
11 - 19 - 15

EDUCATION:

B.S.C.E. - Civil Engineering - 1977 - West Virginia University
M.S.C.E. - Civil Engineering - 1985 - West Virginia College of Graduate Studies

PROFESSIONAL REGISTRATION:

Registered Professional Engineer - West Virginia, Ohio, and North Carolina
Professional Land Surveyor - West Virginia

EMPLOYMENT HISTORY:

Principal Engineer President	**-CIVIL TECH ENGINEERING, INC.** February 1996 to Present
Chief Engineer Vice President	**-Heeter Construction, Inc., Spencer, WV** February 1996 to April 1997
Principal Engineer Vice President	**-Triad Engineering, Inc., St. Albans, WV** September 1980 to February 1996
Staff Engineer	**-American Electric Power Service Corporation** Civil Engineering Laboratory - May 1977 thru July 1978 Ash Utilization & Research - August 1978 to Sept. 1980

PERTINENT EXPERIENCE:

General: Mr. Pennington is one of the founders and president of Civil Tech Engineering Inc. In this capacity, he is responsible for overall management of the company, business development, proposal preparation, and the direction/technical review of all engineering work produced by the company.

After graduation from college, Mr. Pennington worked as a staff engineer for American Electric Power. He initially performed various engineering tasks for the Civil Engineering Lab in New Haven, West Virginia. He later joined the ash utilization and research section where was involved with landfill design and testing. Mr. Pennington authored the “Fly Ash Structural Fill Inspection and Training Manual” dated February 15, 1979 which is still in use today in the AEP system. Recently, Mr. Pennington managed compaction testing at the John Amos Plant Quarrier Landfill under contract with AEP.

Prior to establishing Civil Tech Engineering, Mr. Pennington served as Branch Manager of the St. Albans Office of Triad Engineering, Inc. In this capacity, he supervised and coordinated all projects performed by the St. Albans Office and managed over 60 employees including; engineers, geologists, technicians, designers, draftsmen, environmental technicians, surveyors, drillers, marketing, and clerical personnel. Mr. Pennington's areas of expertise include: general civil design, dam design/rehabilitation/safety, abandoned mine lands reclamation, geotechnical engineering, hazardous and municipal waste design/permitting, hydraulics, hydrology, groundwater studies, laboratory testing, surveying and mapping, drilling, construction inspection/testing, and construction project/contract administration. Mr. Pennington also reviewed and approved mine permits for the Logan Office of Triad Engineering.

RESUME OF MARK E. PENNINGTON CONTINUED

Mr. Pennington has provided and directed engineering services on nearly 2000 projects since forming Civil Tech Engineering, Inc. These projects have been performed for clients including: WVDEP-AML, BRIM, Steel of West Virginia, FMC, WVDNR, WVDEP, Dominion Generation, Duke Energy, Huntington Area Development Authority, City of Belington, Culloden PSD, City of South Charleston, City of Thomas, City of Pennsboro, Cedar Lakes Conference Center, Middleport Terminals, Contractors, Architects, Private Home Owners, and insurance companies. Mr. Pennington has been responsible for a wide range of engineering projects and services including:

- Dam Inspection, Design, and Rehabilitation
- Surveying and Mapping
- Abandoned Mine Land Reclamation Projects
- Foundation Investigations for Industrial, Commercial, and Residential Structures
- Civil Design for Residential/Commercial Projects.
- Damage Investigation/Evaluation of Commercial/Residential Structures.
- Mine Subsidence Claims
- Municipal Landfill Design/Permitting
- Municipal Sewage Design and Permitting
- Water Line Extension
- Hazardous Waste Landfill Design/Permitting
- Groundwater Contamination Studies
- Stormwater Design and Control
- Erosion and Sediment Control Design and Permitting
- Construction Quality Control
- Construction Contract Administration

Civil Design, Municipal Sewage and Water Service: Mr. Pennington was the design engineer for a $ 3,000,000 sanitary sewer/storm water segregation project for the City of Thomas, West Virginia. He routinely assists the City of Thomas with the evaluation of storm water problems and has been responsible for the design and construction of a $ 750,000 storm water improvement project which was completed in 2006. Phase I of the sanitary sewer/stormwater segregation project for the City of Thomas was completed in 2009. Past experience with general civil engineering including utility and roadway infrastructure, site grading, storm water, and permitting has included large commercial and private projects such as Southridge Centre (100 acres), First Church of God (10 acres), Ridgeline Developments (100 acres), Dudley Farms (50 acres), and recent 2 acre developments for hotel sites in Mineral Wells, and Weirton, West Virginia. He was recently responsible for the design of a 1 ½ mile water service extension for the town of Douglas, West Virginia.

Dam Safety: Mr. Pennington is qualified in the field of dam safety, rehabilitation, and design. He is responsible for performing over 69 annual safety inspections for various dams and clients throughout West Virginia and surrounding states. Mr. Pennington has been responsible for the design of over 48 dam rehabilitation projects. His areas of expertise include the use of Roller Compacted Concrete (RCC) in the rehabilitation of dams. Mr. Pennington made a presentation at the ASCE fall technical conference in 1994 discussing the use of Roller Compacted Concrete as overtopping protection at the Anawalt Lake Dam. A partial list of typical dam design and rehabilitation projects for which Mr. Pennington has been responsible is provided below:

- Cacapon Park and Reservoir Dams, Cacapon State Park
- No. 2 Impoundment Dam Modification - Union Carbide, Sistersville, WV
- Anawalt Lake Dam (new construction) - WVDNR - McDowell Co, WV
- Warden Lake Dam Modification - WVDNR - Hardy Co., WV
- Seneca Lake Dam Modification - WVDNR - Pocahontas Co., WV
- Teter Creek Lake Dam Modifications - WVDNR - Barbour Co., WV
- Belington Water Supply Dam Modifications - City of Belington - Barbour Co., WV
- FMC Tailings Pond Dam Modifications - FMC Corp.- Bessemer City, NC
- Water Supply Dam Modifications - Culloden PSD - Culloden, WV
- Joyce Lake Dam Modifications - Joyce Properties - Clarksburg, WV
- Handley Dam - WVDNR - Pocahontas Co., WV
- Thomas Dam Rehabilitation - City of Thomas, WV
- Old Pond 11 - McClintic Wildlife Management Area
- Wells Lock and Dam Emergency Repairs, Elizabeth, WV
- Rollins Dam Emergency Repairs, Ripley, WV
- Handley Dam Modifications, Pocahontas County, WV
- Winterplace Dam, Raleigh County, WV
- Anawalt Flood Damage Repairs, McDowell County, WV
- Bailey and Lemley Dams, Monongalia County, WV
- Wilson Big Hollow Dam, Hampshire County, WV
- Burches Run Dam Height Reduction, Marshall County, WV
- Mt. Storm Power Station Dam, Grant County, WV
- Deegan and Hinkle Dam Modifications, Bridgeport, WV
- Mill Run Water Supply Dam, Mt. Top PSD, Mt. Storm, WV
- Canaan Valley Resort Water Supply Reservoir, Davis, WV

Construction: Mr. Pennington provided engineering and construction management services to Heeter Construction of Spencer, West Virginia in 1996 and 1997. He assisted Heeter with bidding, project management, and any technical problems requiring engineering expertise. During 1996 and early 1997 while with Heeter Construction, he served as the assistant project manager for the construction of a 10 million dollar flood control levee designed by the US Army Corps of Engineers for the City of Moorefield, West Virginia. Mr. Pennington has recently provided bidding and construction consultation as well as value engineering proposals, waste site design, and other engineering services for Heeter Construction.

US Army Corps of Engineers: While with Triad Engineering, Mr. Pennington managed the Huntington District Corps of Engineers indefinite delivery geotechnical contract for a period of 3 years. During this time, he was responsible for the design of Charleston Haddad Riverfront Park, certification of Pond 16 (a small dam designed by the COE at McClintic WMA), landslide investigations, seepage/stability analysis for flood levees, and numerous re-analysis investigations for dams including Dillon and Beech City Dams in the State of Ohio.

Mine Permitting/Surveying: While employed by Triad Engineering, Mr. Pennington was responsible for review and approval of mine permitting and surveying operations conducted in the Logan, West Virginia Office of Triad.

WVDEP-AML Experience: Mr. Pennington has been responsible for the completion of 21 AML projects for the WVDEP since 2008. These projects have ranged in size from under $ 250,000 to over $ 1,000,000.

RESUME OF MARK E. PENNINGTON CONTINUED

He was also responsible for all AML work produced by the St. Albans office of Triad Engineering prior to resigning from the company in early 1996. His work included proposal preparation, planning, direction, management, and performance of all engineering activity associated with Triad's AML contract. Mr. Pennington was responsible for the successful completion of approximately 137 projects during the period from 1990 to 1996. His expertise includes the abatement of mine related problems associated with subsidence, blasting, landslides, mine drainage, refuse fires, mine fires, mine shafts, drainage, impoundments, and groundwater/surface water pollution. Since leaving Triad and forming Civil Tech, he has also been responsible for the investigation of mine subsidence claims throughout West Virginia for the State Board of Risk and Insurance Management (BRIM) and various insurance companies including State Farm and Nationwide. Prior to working with the WVDEP - AML, he worked with the Office of Surface Mining on similar projects.

Insurance and BRIM Investigation: During Mr. Pennington's career, he has provided professional engineering services to insurance companies including State Farm, Nationwide, St. Paul, Westfield, Travelers, Allstate, Prudential, Hartford, and others. From 2002 to 2005, Mr. Pennington also investigated numerous mine subsidence claims for BRIM. Services provided to insurance companies have included examination/evaluation of damage to various structures including:

- Light Commercial Buildings
- Residential Houses
- Manufactured Houses
- Small Bridges
- Retaining/Basement Walls
- Pavements/parking lot surfaces
- Chimneys/fireplaces
- Municipal Concerns

Mr. Pennington is experienced in the assessment of damage caused by wind, flood, snow, erosion, fire, leaking utility lines, earth movement (problem clay soils, settlement, landslides, etc.), vehicle impact, structural defects/failure, and manufacturing defects (related to housing), blasting and subsidence related to mining.

RESUME OF JENNIFER E. PENNINGTON
PRINCIPAL ENGINEER
11-19-15

EDUCATION

BSCE - Civil Engineering - 1988 - University of Kentucky

CERTIFICATION/REGISTRATION

Registered Professional Engineer - West Virginia
Licensed Land Surveyor - West Virginia

EMPLOYMENT HISTORY

Principal Engineer	Civil Tech Engineering, Inc., St. Albans, WV March 1996 to Present
Senior Engineer	Triad Engineering, Inc., St. Albans, WV, 1988 to 1996

PERTINENT EXPERIENCE

Ms. Pennington has served as a team member and project manager on civil design and geotechnical projects involving dam modifications/design, abandoned mine land reclamation, subsurface investigation, and geotechnical analysis. She has been responsible for technical analysis and review of all dam and AML projects completed by Civil Tech since 2008. She was responsible for all dam design and rehabilitation projects, and projects performed for the Huntington District Corps of Engineers (HDCOE) while employed by Triad Engineering during 1988 - 1996. Work performed on those projects and current projects for which she is responsible at Civil Tech Engineering include:

- Geotechnical Investigation and Analysis
- Civil Design
- Hydrologic/hydraulic Analysis
- Stability Analysis using UTEXAS2, PCStable5, and HDCOE Hand Check Methods
- Seepage Analysis using graphical flow net and HDCOE mathematical methods
- Preparation of Project Narratives, Design Drawings, Specifications, Construction Schedules, Erosion and Sediment Control Plans, and Construction Cost Estimates.

Since the company was formed, Civil Tech Engineering has performed numerous dam safety inspections, dam breach analysis and risk assessments, geotechnical studies, and dam rehabilitation design projects. Civil Tech has also completed 21 AML projects since 2008. Ms. Pennington has been responsible for project management on these and many other large scale projects including geotechnical and foundation investigations. She is proficient in organizing and maintaining scheduling during the course of long term projects.

Ms. Pennington is responsible for technical review of all work produced by Civil Tech. In this capacity, she reviews and approves all work produced by the company including AML, civil design, and dam safety projects.

RESUME OF H. THOMAS BROWN
SENIOR ENGINEER

EDUCATION

BSCE – Civil Engineering – 1982 – West Virginia University

CERTIFICATION/REGISTRATION

Registered Professional Engineer – West Virginia
Professional Surveyor – West Virginia

EMPLOYMENT HISTORY

Senior Engineer	Civil Tech Engineering Inc. January 2009 to Present
Director of Community and Public Works	City of Bridgeport, WV 2004 to Present
Office Manager/Chief Estimator	Harmon Construction/WV Paving 1991-2004
Project Engineer	Advanced Surveys Inc. 1987-1991
Estimator	Trible Construction, Inc. 1986-1987
Estimator	Driggs Corporation 1986-1986
Chief Estimator	Maryaco, Inc. 1985-1986
Manager	CMX Industrial Ceramics 1984-1985
Estimator	Hopke Company, Inc. 1983-1984
Technician	Soil Conservation Service 1981-1983

RESUME OF H. THOMAS BROWN CONTINUED

PROFESSIONAL EXPERIENCE

Mr. Brown has nearly 40 years experience in the construction industry as an estimator, superintendent, and owner's representative. He has also been responsible for engineering design involving dams, utility infrastructure, storm drainage, roadways, parking lots, walls, earthwork, etc. In 2001 he served as project manager for the Teter Creek Dam Modification while employed by West Virginia Paving. The Teter Creek project involved approximately 20,000 of earth construction, drain pipe repair (slip lining), and 3000 CY of roller compacted concrete. As director of community and public works for the City of Bridgeport, his responsibilities include managing city departments, GIS, public works, public utilities, community development, and Parks & Recreation. As a project engineer for Civil Tech, Mr. Brown's responsibilities include construction contract management, engineering design, and preparation of construction specifications and cost estimates. In 2009 Mr. Brown was responsible for the administration of the construction contract for the Thomas Sewer-Stormwater Segregation project located in the City of Thomas. He was most recently responsible for preparation of specifications for the Thomas Mine Drain Blowout Project for AML and served as project manager for the Mt. Top PSD Dam Modification project. Mr. Brown also assisted with contract administration services during construction of the Berwind Dam and Long Branch Dam Modification projects.

RESUME OF CHARLES D. ARTHUR, Jr.
SENIOR DESIGNER/SURVEY PART CHIEF
05 - 27 - 15

EDUCATION:

June 2000 **Benjamin Franklin Career and Technical Education Center** Dunbar, WV
Computer-aided Drafting/1080 hours
Honor roll in computer drafting, experience with Microstation 95/SE, AutoCAD 2000, Windows 98 SE, 3D drawings, mechanical/architecture drawings, isometric/oblique drawings and orthographic projections

June 1997 **Benjamin Franklin Career and Technical Education Center** Dunbar, WV
Welding/1,320 hours
Honors included a second place finish in the State Welding Competition, Elkins, WV, April 1997 sponsored by the Vocational Industrial Clubs of America, Certificate of Recognition and experience with SMAW, GMAW, GTAW and TB

Dec 1993 **Richmond Technical Center** Richmond, VA
Welding/72 hours
Honor roll in welding, experience with SMAW, GMAW, GTAW and TB

June 1990 **Dunbar High School** Dunbar, WV
Diploma

EMPLOYMENT HISTORY

June 2000 to Present **Civil Tech Engineering, Inc.** Hurricane, WV
Senior Designer/Survey Party Chief
Responsible for preparation of design drawings using Autocad Civil3D software, survey party chief, and evaluation of mine maps and subsidence.

July 1999 to June 2000 **Custom Upholstery** St. Albans, WV
Helper/Deliverer Part Time
Experience keeping track of shop inventory and related sales, tearing down furniture to be upholstered and transporting furniture

Aug 1997 to June 1999 **American Commercial Barge Line** Jeffersonville, IN
Deck Hand
Experience rigging barges together, making locks, chipping, grinding, painting, working in close quarters and maintaining tug boats/chemical barges

Jan 1995 to Aug 1997 and **Pizza Hut Inc.** South Charleston, WV
Shift Manager

July 1989 to June 1993 Experience updating customer data, completing close of daily receipts, insuring that paperwork balances, operating computerized cash register and possessing exemplary customer and employee relations

RESUME OF CHARLES D. ARTHUR, Jr. Continued

June 1993 to Dec 1994 **First Choice Equipment** Ashland, VA
Mechanic
Experience maintaining tractor-trailers, various welding jobs, paint preparation and painting

PERTINENT EXPERIENCE:

Since joining Civil Tech in 2000, Mr. Arthur has been responsible for preparation of design drawings using Autocad for a variety of civil engineering, AML, mine subsidence claims, hotel site development, and dam modification projects. A partial list of projects including recent AML experience follows:

- Thomas (Sunrise Sanitation) Mine Drainage Project (DEP14171).
- Thomas Sunrise Sanitation Mine Blowout (Emergency Project).
- Prospect Valley Highwall #4 (DEP 14433).
- Winifrede (McFann) Portals (DEP 14479).
- Pines County Club (Ponds) Subsidence (DEP14633).
- Douglas Water Line Extension (DEP14951).
- Cambria Portals & Drainage Design (DEP 14845).
- Birds Creek Portals (DEP 15065).
- Nellis (Smith) Drainage (DEP15002).
- Zebb's Creek Highwall #2 (DEP14991).
- Hawkinberry Hollow Portals and Drainage (DEP 15220).
- Fairfield Inn and Suites, Weirton, WV
- Holiday Inn Express, Mineral Wells, WV
- Thomas Sunrise Sanitation Mine Drain
- Old Pond 11 Dam Rehabilitation
- Anawalt Flood Damage Repair
- Teter Creek Dam Modification
- Wells Lock and Dam Repair
- Wilson Big Hollow Dam
- Winterplace Dam Modification 1 and 2.
- Cedar Lakes Dam No. 2 Flood Damage Repair
- Bailey and Lemley Dam Modifications
- Deegan and Hinkle Dam Modifications
- Thomas Storm Water Improvements
- Thomas Sewer/Storm Water Segregation Project
- Amish Exchange
- Mine Subsidence and Insurance Investigations
- Landslide corrections
- Geotechnical Investigations

Mr. Arthur also serves as survey crew chief for survey control and topographic mapping projects for Civil Tech Engineering. During his employment he has also provided construction inspection and testing services for civil and dam modification projects and has inspected subsurface investigation projects for geotechnical projects.

Mr. Arthur is also certified by the State of West Virginia as a pre-blast inspector.

RESUME OF ROBERT R. KESSLER
GEOLOGIST
05 - 27 - 15

EDUCATION:

B.S. - Geology - 1965 - Ohio University
Post Graduate Work - 1965 to 1966 - Geology - Ohio University
B.S. - Mathematics - 1980 - University of Charleston

CERTIFICATIONS:

Certified Aggregate Inspector - WVDOH
Certified Concrete Inspector - WVDOH
Certificate of Completion - Wetland Training - WVDOH
Certificate of Completion - Techniques for Pavement Rehabilitation - WVDOH
Certificate of Completion - Aerial Photo Interpretation - WVDOH
Certificate of Completion - Alkali Silica Reactivity in Concrete - FHWA

EMPLOYMENT HISTORY:

Geologist - Civil Tech Engineering, Inc. 1996 – present
Responsible for all geologic studies/investigations.
Typical projects include mining subsidence investigations, Teter Creek Dam, Thomas Dam, Old Pond 11 Dam, and Seneca Dam.

Geologist - Aggregate Group, West Virginia Division of Highways
Group Leader August 1998 to Present, Materials Control Division

Division Reorganization

Geologist - All Materials Testing Sections & Roadway Analysis
Testing Group Leader West Virginia Division of Highways
April 1992 to August 1998, Materials Control Division

Division Reorganization

Geologist - West Virginia Department of Transportation
Technical Advisor January 1986 to April 1992, Materials Control Division

Division Reorganization

Geologist - Aggregate Section, West Virginia Department of Highways
Assistant Director May 1984 to January 1986, Materials Control Division

RESUME OF ROBERT KESSLER CONTINUED

Geologist Section Leader	-	Aggregate Section, West Virginia State Road Commission May 1969 to May 1984, Materials Control Division
Geologist	-	Aggregate Section, West Virginia State Road Commission July 1966 to May 1969, Materials Control Division

PERTINENT EXPERIENCE

Mr. Kessler has performed geologic study on eleven mine subsidence claims investigated by Civil Tech for BRIM since 1996. Geologic investigation has included review of available mining maps and the county geologic reports providing important information concerning mining history and geologic formations and mine subsidence potential.

In addition to his duties reviewing mine subsidence claims, Mr. Kessler has also been responsible for the geologic study and investigation for over 48 dam rehabilitation projects in West Virginia.

Mr. Kessler has an intimate knowledge of geologic formations in the state of West Virginia and has recently authored and published a book on the geology of the Kanawha Valley.

DNR1600000011-RFQ

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 159029

Doc Description: Dam repairs for compliance with DEP's Dam Safety Requirement

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2015-10-27	2015-12-02 13:30:00	CEOI 0310 DNR1600000011	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:
Civil Tech Engineering Inc.

300A Prestige Drive

Hurricane, WV 25526 Phone: 304-757-8094

FOR INFORMATION CONTACT THE BUYER
Guy Nisbet
(304) 558-2596
guy.l.nisbet@wv.gov

Signature X **FEIN #** 55-0757403 **DATE** December 2, 2015

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

Expression of Interest

The West Virginia Purchasing Division for the Agency, The West Virginia Division of Natural Resources (WVDNR) is soliciting CEOI responses from qualified firms to provide a contract to provide necessary engineering and other related professional services to design and provide construction contract administration services for the repairs necessary to bring Cacapon Resort State Park Upper and Lower Dams and well as Conaway Wildlife Management Area Dam in to compliance with DEP Dam Safety Requirements per the specifications and terms and conditions as attached.

INVOICE TO	SHIP TO
DIVISION OF NATURAL RESOURCES PARKS & RECREATION-PEM SECTION 324 4TH AVE SOUTH CHARLESTON WV 25305 US	STATE OF WEST VIRGINIA JOBSITE - SEE SPECIFICATIONS No City WV 99999 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Architectural/Engineering Services		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

A/E services to design repairs necessary to bring Cacapon Resort State Park's upper and lower dams and the Conaway Wildlife Management Area's dam into compliance with DEP's Dam Safety Requirements.

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

EXPRESSION OF INTEREST

Cacapon Resort State Park Dams
Conaway Run Wildlife Management Area Dam

TABLE OF CONTENTS:

SECTION ONE: GENERAL INFORMATION

1. **PURPOSE:** The Acquisition and Contract Administration Section of the Purchasing Division ("Purchasing Division") is soliciting Expression(s) of Interest ("EOI" or "Bids") for The Division of Natural Resources ("Agency"), from qualified firms to provide architectural/engineering services ("Vendors") as defined herein.

2. **PROJECT:** The mission or purpose of the project for which bids are being solicited is to provide necessary engineering and other related professional services to design and provide construction contract administration services to construct the repairs necessary to bring Cacapon Resort State Park Upper and Lower Dams and well as Conaway Wildlife Management Area Dam in to compliance with DEP Dam Safety Requirements ("Project").

3. **SCHEDULE OF EVENTS:**

Release of the EOI.....	10/27/2015
Firm's Written Questions Submission Deadline.	11/17/2015at 9:00AM. EST.
Addendum Issued	TBD
Expressions of Interest Opening Date.....	12/02/2015 at 1:30PM EST.
Estimated Date for Interviews (wk of ?).....	TBD

EXPRESSION OF INTEREST

Cacapon Resort State Park Dams
Conaway Run Wildlife Management Area Dam

SECTION TWO: INSTRUCTIONS TO VENDORS SUBMITTING BIDS

Instructions begin on the next page.

INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. **REVIEW DOCUMENTS THOROUGHLY:** The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. **MANDATORY TERMS:** The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. **PREBID MEETING:** The item identified below shall apply to this Solicitation.

   ☑ A pre-bid meeting will not be held prior to bid opening.

   ☐ A **NON-MANDATORY PRE-BID** meeting will be held at the following place and time:

   ☐ A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing. Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. **VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are non-binding. Submitted e-mails should have solicitation number in the subject line.

   Question Submission Deadline: Tuesday, November 17, 2015 at 9:00AM. EST.

   Submit Questions to: Dustin Spry
   2019 Washington Street, East
   Charleston, WV 25305
   Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)
   Email: Dustin.W.Spry@wv.gov

5. **VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

6. **BID SUBMISSION:** All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via wvOASIS, hand delivery, delivery by courier, or facsimile. The bid delivery address is:

   Department of Administration, Purchasing Division
   2019 Washington Street East
   Charleston, WV 25305-0130

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Purchasing Division.:

SEALED BID:
BUYER:
SOLICITATION NO.:
BID OPENING DATE:
BID OPENING TIME:
FAX NUMBER:

In the event that Vendor is responding to a request for proposal, and choses to respond in a manner other than by electronic submission through wvOASIS, the Vendor shall submit one original technical and one original cost proposal plus three (3) convenience copies of each to the Purchasing Division at the address shown above. Additionally, if Vendor does not submit its bid through wvOASIS, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: (This only applies to CRFP)

☐ Technical

☐ Cost

7. **BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time: Wednesday, December 2, 2015 at 1:30 PM. EST.
Bid Opening Location: Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

8. **ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. **BID FORMATTING:** Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

10. **ALTERNATES:** Any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

11. **EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

12. **COMMUNICATION LIMITATIONS:** In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

13. **REGISTRATION:** Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the $125 fee, if applicable.

14. **UNIT PRICE:** Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

15. **PREFERENCE:** Vendor Preference may only be granted upon written request and only in accordance with the West Virginia Code § 5A-3-37 and the West Virginia Code of State Rules. A Vendor Preference Certificate form has been attached hereto to allow Vendor to apply for the preference. Vendor's failure to submit the Vendor Preference Certificate form with its bid will result in denial of Vendor Preference. Vendor Preference does not apply to construction projects.

16. **SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the

same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

17. **WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

18. **ELECTRONIC FILE ACCESS RESTRICTIONS:** Vendor must ensure that its submission in wvOASIS can be accessed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately opened and/or viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening if those documents are required with the bid.

EXPRESSION OF INTEREST

Cacapon Resort State Park Dams

Conaway Run Wildlife Management Area Dam

SECTION THREE: PROJECT SPECIFICATIONS

Location: Agency is located at 324 4th Ave, South Charleston, WV and the Project will be completed Cacapon Resort State Park, 818 Cacapon Lodge Drive, Berkeley Springs 25411 and Conaway Run Wildlife Management Area, 1224 Conaway Run Rd, Alma, 26320.

1. **Background:** The Division of Natural Resources operates the above referenced facilities at the above referenced locations. The existing dams at Cacapon Resort State Park have construction plans completed. However, funding was not available at the time the plans were completed for construction of the repairs at each Cacapon dam. The existing plans may need minor modifications prior to bidding and we will need construction contract administration services as well as all necessary permitting work. At Conaway Run Wildlife Management Area, no preliminary work has been completed. A full design and permitting service as well as construction contract administration will be necessary.

2. **Qualifications and Experience:** Vendors should provide information regarding its employees, such as staff qualifications and experience in completing similar projects; references; copies of any staff certifications or degrees applicable to this project; proposed staffing plan; descriptions of past projects completed entailing the location of the project, project manager name and contact information, type of project, and what the project goals and objectives where and how they were met.

2.1 In addition to the above, the Vendor should provide information regarding the following:

a. The successful firm or team should demonstrate a clear procedure for communication with the owner during all phases of the project.

b. The successful firm or team should demonstrate a history of projects that met the owner's budget and a clear plan to ensure this project can be constructed within the project budget. This plan should be described in detail.

c. The successful firm or team should demonstrate a history of projects that have been constructed in the time allotted in the contract documents and a clear plan to ensure this project will be constructed within the agreed construction period. This plan should be described in detail.

EXPRESSION OF INTEREST

Cacapon Resort State Park Dams
Conaway Run Wildlife Management Area Dam

d. The successful firm or team should demonstrate competent and acceptable experience in all expected professional disciplines necessary for the design and completion of the project.

3. **Project and Goals:** The project goals and objectives are:

3.1. Goal/Objective 1: Review existing plans and conditions as well as the operation of the park and evaluate while communicating effectively with the owner to determine a plan that can be implemented in a manner that will minimize disruption to concurrent operation of the facility and meet all objectives.

3.2. Goal/Objective 2: As a portion of this process outlined in Objective 1, provide all necessary services to design the facilities described in this EOI in a manner that is consistent with The Division of Natural Resources needs, objectives, current law, and current code; while following the plan to design and execute the project within the project budget.

3.3. Goal/Objective 3: Provide Construction Contract Administration Services with competent professionals that ensures the project is constructed and functions as designed.

4. **Oral Presentations (Agency Option):** The Agency has the option of requiring oral presentations of all Vendors participating in the EOI process. If this option is exercised, it would be listed in the Schedule of Events (Section 1.3) of this EOI. During oral presentations, Vendors may not alter or add to their submitted proposal, but only clarify information. A description of the materials and information to be presented is provided below:

4.1. Materials and Information Required at Oral Presentation:

The Vendor must be prepared to discuss and clarify required items submitted with the EOI as indicated in Section 2.

EXPRESSION OF INTEREST

Cacapon Resort State Park Dams
Conaway Run Wildlife Management Area Dam

SECTION FOUR: VENDOR PROPOSAL, EVALUATION, & AWARD

1. **Economy of Preparation:** EOI's should be prepared simply and economically, providing a straightforward, concise description of firm's abilities to satisfy the requirements and goals and objectives of the EOI. Emphasis should be placed on completeness and clarity of content. The response sections should be labeled for ease of evaluation.

2. **BIDS MUST NOT CONTAIN PRICE QUOTATIONS:** The State shall select the best value solution according to §5G-1-3 of the West Virginia State Code. In accordance with the Code requirements, no "price" or "fee" information is requested or permitted in the bid response.

3. **Evaluation and Award Process:** Expressions of Interest for projects estimated to cost $250,000 or more will be evaluated and awarded in accordance with West Virginia Code §5G-1-3. That Code section requires the following:

   3.1. **Required Elements of EOI Response:** The director of purchasing shall encourage such firms engaged in the lawful practice of the profession to submit an expression of interest, which shall include a statement of qualifications, and performance data and may include anticipated concepts and proposed methods of approach to the project.

   3.2. **Public Advertisement:** All EOI requests shall be announced by public notice published as a Class II legal advertisement in compliance with the provisions of West Virginia Code §59-3-1 et seq.

   3.3. **Selection Committee Evaluation & Negotiation:** A committee comprised of three to five representatives of the agency initiating the request shall:

      3.3.1. evaluate the statements of qualifications and performance data and other material submitted by the interested firms and select three firms which in their opinion are the best qualified to perform the desired service.

      3.3.2. conduct interviews with each firm selected and the conduct discussions regarding anticipated concepts and the proposed methods of approach to the assignment.

      3.3.3. rank in order of preference no less than three professional firms deemed to

be the most highly qualified to provide the services required, and shall commence scope of service and price negotiations with the highest qualified professional firm.

3.3.4. Should the agency be unable to negotiate a satisfactory contract with the professional firm considered to be the most qualified, at a fee determined to be fair and reasonable, price negotiations with the firm of second choice shall commence. Failing accord with the second most qualified professional firm, the committee shall undertake price negotiations with the third most qualified professional firm.

3.3.5. Should the agency be unable to negotiate a satisfactory contract with any of the selected professional firms, it shall select additional professional firms in order of their competence and qualifications and it shall continue negotiations in accordance with this section until an agreement is reached.

3.4. Vendor Ranking: All evaluation criteria is defined in the Procurement Specifications section and based on a 100 point total score. Points shall be assigned based upon the Vendor's response to the evaluation criteria as follows:

• Qualifications and experience	40 Points Possible
• Approach and methodology for meeting Goals and Objectives	40 Points Possible
• Oral Interview	20 Points Possible
Total	100 Points

EXPRESSION OF INTEREST

Cacapon Resort State Park Dams
Conaway Run Wildlife Management Area Dam

SECTION FIVE: TERMS AND CONDITIONS

Terms and conditions begin on the next page.

GENERAL TERMS AND CONDITIONS:

1. **CONTRACTUAL AGREEMENT:** Issuance of a Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. **DEFINITIONS:** As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

   2.1. **"Agency"** or **"Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

   2.2. **"Contract"** means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

   2.3. **"Director"** means the Director of the West Virginia Department of Administration, Purchasing Division.

   2.4. **"Purchasing Division"** means the West Virginia Department of Administration, Purchasing Division.

   2.5. **"Award Document"** means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

   2.6. **"Solicitation"** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

   2.7. **"State"** means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

   2.8. **"Vendor"** or **"Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. **CONTRACT TERM; RENEWAL; EXTENSION:** The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☑ **Term Contract**

Initial Contract Term: This Contract becomes effective on award and extends for a period of one (1) year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of this Contract is limited to three (3) successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed thirty six (36) months in total. Automatic renewal of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases. Attorney General approval may be required for vendor terms and conditions.

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within _____ days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion, the vendor agrees that maintenance, monitoring, or warranty services will be provided for one year thereafter with an additional _____ successive one year renewal periods or multiple renewal periods of less than one year provided that the multiple renewal periods do not exceed _____ months in total. Automatic renewal of this Contract is prohibited.

☐ **One Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Other:** See attached.

4. **NOTICE TO PROCEED:** Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. **QUANTITIES:** The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☐ **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☑ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. **PRICING:** The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

7. **EMERGENCY PURCHASES:** The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

8. **REQUIRED DOCUMENTS:** All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

☐ **BID BOND:** All Vendors shall furnish a bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

☐ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of _____. The performance bond must be received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

☐ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under $100,000. Personal or business checks are not acceptable.

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

☑ **INSURANCE:** The apparent successful Vendor shall furnish proof of the following insurance prior to Contract award and shall list the state as a certificate holder:

☑ **Commercial General Liability Insurance:** In the amount of $1,000,000.00 _____ or more.

☐ **Builders Risk Insurance:** In an amount equal to 100% of the amount of the Contract.

☑ WV State Supplementary conditions to AIA B101-2007

☐ Section 2.5 Consisting of:

☑ Professional Liability: $1,000,000.00

☑ Automobile Liability: $1,000,000.00

☑ Workers Comp: WV Statutory including WV Code 23-4-2(Mandolidis)

The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed above.

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

☐

☐

☐

☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

9. **WORKERS' COMPENSATION INSURANCE:** The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. **LITIGATION BOND:** The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or $5,000, whichever is greater. The entire amount of the hond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined tbat the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

11. **LIQUIDATED DAMAGES:** Vendor shall pay liquidated damages in the amount of _____ for _____.
This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy.

12. **ACCEPTANCE/REJECTION:** The State may accept or reject any bid in whole, or in part. Vendor's signature on its bid signifies acceptance of the terms and conditions contained in the Solicitation and Vendor agrees to be bound by the terms of the Contract, as reflected in the Award Document, upon receipt.

13. **FUNDING:** This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

14. **PAYMENT:** Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

15. **TAXES:** The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

16. **CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-7.16.2.

17. **TIME:** Time is of the essence with regard to all matters of time and performance in this Contract.

18. **APPLICABLE LAW:** This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

19. **COMPLIANCE:** Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable law.

20. **PREVAILING WAGE:** Vendor shall be responsible for ensuring compliance with prevailing wage requirements and determining when prevailing wage requirements are applicable.

21. **ARBITRATION:** Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

22. **MODIFICATIONS:** This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary, no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). No Change shall be implemented by the Vendor until such time as the Vendor receives an approved written change order from the Purchasing Division.

23. **WAIVER:** The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

24. **SUBSEQUENT FORMS:** The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

25. **ASSIGNMENT:** Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments. Notwithstanding the foregoing, Purchasing Division approval may or may not be required on certain agency delegated or exempt purchases.

26. **WARRANTY:** The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

27. **STATE EMPLOYEES:** State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

28. **BANKRUPTCY:** In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

29. **CONFIDENTIALITY:** The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents

to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/default.html.

30. **DISCLOSURE:** Vendor's response to the Solicitation and the resulting Contract are considered public documents and will be disclosed to the public in accordance with the laws, rules, and policies governing the West Virginia Purchasing Division. Those laws include, but are not limited to, the Freedom of Information Act found in West Virginia Code §§ 29B-1-1 et seq. and the competitive bidding laws found West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq.

If a Vendor considers any part of its bid to be exempt from public disclosure, Vendor must so indicate by specifically identifying the exempt information, identifying the exemption that applies, providing a detailed justification for the exemption, segregating the exempt information from the general bid information, and submitting the exempt information as part of its bid but in a segregated and clearly identifiable format. Failure to comply with the foregoing requirements will result in public disclosure of the Vendor's bid without further notice. A Vendor's act of marking all or nearly all of its bid as exempt is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor's act of marking a bid or any part thereof as "confidential" or "proprietary" is not sufficient to avoid disclosure and WILL NOT BE HONORED. A legend or other statement indicating that all or substantially all of the bid is exempt from disclosure is not sufficient to avoid disclosure and WILL NOT BE HONORED. Additionally, pricing or cost information will not be considered exempt from disclosure and requests to withhold publication of pricing or cost information WILL NOT BE HONORED.

Vendor will be required to defend any claimed exemption for nondisclosure in the event of an administrative or judicial challenge to the State's nondisclosure. Vendor must indemnify the State for any costs incurred related to any exemptions claimed by Vendor. Any questions regarding the applicability of the various public records laws should be addressed to your own legal counsel prior to bid submission.

31. **LICENSING:** In accordance with West Virginia Code of State Rules §148-1-6.1.7, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

32. **ANTITRUST:** In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States

and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

33. **VENDOR CERTIFICATIONS:** By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

34. **PURCHASING CARD ACCEPTANCE:** The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

☐ Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

35. **VENDOR RELATIONSHIP:** The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing. Vendor shall hold harmless the State, and shall provide the State and Agency with a defense

against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

36. **INDEMNIFICATION:** The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

37. **PURCHASING AFFIDAVIT:** In accordance with West Virginia Code § 5A-3-10a, all Vendors are required to sign, notarize, and submit the Purchasing Affidavit stating that neither the Vendor nor a related party owe a debt to the State in excess of $1,000. The affidavit must be submitted prior to award, but should be submitted with the Vendor's bid. A copy of the Purchasing Affidavit is included herewith.

38. **ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE:** This Contract may be utilized by and extends to other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"). This Contract shall be extended to the aforementioned Other Government Entities on the same prices, terms, and conditions as those offered and agreed to in this Contract. If the Vendor does not wish to extend the prices, terms, and conditions of its bid and subsequent contract to the Other Government Entities, the Vendor must clearly indicate such refusal in its bid. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

39. **CONFLICT OF INTEREST:** Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

40. **REPORTS:** Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☐ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.

41. **BACKGROUND CHECK:** In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

Aftcr the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision.

The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

42. **PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS:** Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.

b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making proeess. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

c. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars ($2,500.00), whichever is greater.

For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

d. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

43. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars ($50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products.

This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

ADDITIONAL TERMS AND CONDITIONS (Architectural and Engineering Contracts Only)

1. **PLAN AND DRAWING DISTRIBUTION:** All plans and drawings must be completed and available for distribution at least five business days prior to a scheduled pre-bid meeting for the construction or other work related to the plans and drawings.

2. **PROJECT ADDENDA REQUIREMENTS:** The Architect/Engineer and/or Agency shall be required to abide by the following schedule in issuing construction project addenda. The Architect/Engineer shall prepare any addendum materials for which it is responsible, and a list of all vendors that have obtained drawings and specifications for the project. The Architect/Engineer shall then send a copy of the addendum materials and the list of vendors to the State Agency for which the contract is issued to allow the Agency to make any necessary modifications. The addendum and list shall then be forwarded to the Purchasing Division buyer by the Agency. The Purchasing Division buyer shall send the addendum to all interested vendors and, if necessary, extend the bid opening date. Any addendum should be received by the Purchasing Division at least fourteen (14) days prior to the bid opening date.

3. **PRE-BID MEETING RESPONSIBILITIES:** The Architect/Engineer shall be available to attend any pre-bid meeting for the construction or other work resulting from the plans, drawings, or specifications prepared by the Architect/Engineer.

4. **AIA DOCUMENTS:** Contracts for architectural and engineering services will be governed by the AIA document B101-2007, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein when procured under Chapter 5G of the West Virginia Code.

5. **GREEN BUILDINGS MINIMUM ENERGY STANDARDS:** In accordance with West Virginia Code § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

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)

[X]	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.

Civil Tech Engineering Inc.

Company

Authorized Signature

December 2, 2015

Date

NOTE: This addendum acknowledgement 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 exceed 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: Civil Tech Engineering Inc.

Authorized Signature: _____ Date: November 23, 2015

State of WV

County of Putnam, to-wit:

Taken, subscribed, and sworn to before me this 23 day of November, 2015

My Commission expires 12-10-22, 20__.

AFFIX SEAL HERE

NOTARY PUBLIC _____

OFFICIAL SEAL
Notary Public, State of West Virginia
TYMIA MILBEE
City National Bank
106 Poplar Fork Rd.
South Point, WV 25570
My Commission Expires October 10, 2022

CERTIFICATIONAND SIGNATURE PAGE

By signing below, or submitting documentation through wvOASIS, 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, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Civil Tech Engineering Inc.

(Company)

(Authorized Signature) (Representative Name, Title)

Mark E. Pennington, President

(304-757-8094)(304-757-8095) - December 2, 2015

(Phone Number) (Fax Number) (Date)

ADDENDUM NO. 1

Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 159029

Doc Description: Addendum, repairs/compliance with DEP Dam Safety Requirement

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2015-11-20	2015-12-02 13:30:00	CEOI 0310 DNR1600000011	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Civil Tech Engineering Inc.
300A Prestige Drive
Hurricane, WV 25526
Phone: 304-757-8094

FOR INFORMATION CONTACT THE BUYER

Guy Nisbet
(304) 558-2596
guy.l.nisbet@wv.gov

Signature X [signature] **FEIN #** 55-0757403 **DATE** December 2, 1015

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

Addendum

Addendum No. 1 Issued to publish and distribute the attached information to the vendor community.
****

Expression of Interest

The West Virginia Purchasing Division for the Agency, The West Virginia Division of Natural Resources (WVDNR) is soliciting CEOI responses from qualified firms to provide a contract to provide necessary engineering and other related professional services to design and provide construction contract administration services for the repairs necessary to bring Cacapon Resort State Park Upper and Lower Dams and well as Conaway Wildlife Management Area Dam in to compliance with DEP Dam Safety Requirements per the specifications and terms and conditions as attached.

INVOICE TO	SHIP TO
DIVISION OF NATURAL RESOURCES PARKS & RECREATION-PEM SECTION 324 4TH AVE SOUTH CHARLESTON WV25305 US	STATE OF WEST VIRGINIA JOBSITE - SEE SPECIFICATIONS No City WV 99999 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Architectural/Engineering Services	0.00000	

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

A/E services to design repairs necessary to bring Cacapon Resort State Park's upper and lower dams and the Conaway Wildlife Management Area's dam into compliance with DEP's Dam Safety Requirements.

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

SOLICITATION NUMBER: CEOI DNR1600000011
Addendum Number: 01

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[✓] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[✓] Other

Description of Modification to Solicitation:

This addendum is issued to distribute and publish the following information to the vendor community:

1. Vendor submitted questions and agency's response.
2. DEP Inspection dated April 21, 2014.
3. Proposed modification drawing by Civil Tech Engineering dated December 30, 2011.
4. Dam inspection by Civil Tech Engineering dated March 2014.

No other changes.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

Vendor submitted questions and Agency responses

CEOI DNR1600000011 Dam Repairs for Compliance with DEP's Dam Safety Requirement (Cacapon & Conaway).
November 17, 2015

Q.1: Can the WVDNR make available the most recent dam inspection report for the Conaway Wildlife Management Area Dam prior to the EOI submittal?

A.1. The most recent inspection report for Conaway Run Dam is attached.

Q.2: Can the existing engineering design plans for the Cacapon Resort State Park Upper and Lower Dams be provided in ample time to be reviewed prior to EOI submittal?

A.2. The final plans are attached.

Q3: Is there ample funding to complete the construction of the 3 dams contained in this EOI? What are the sources of funding for the construction? Are federal funds being used for construction?

A.3. Funding is available at this time. Funding is to be provided by the Wildlife Section of the Division of Natural Resources.

Q. 4: What are the proposed construction schedules for the 3 dams contained in this EOI?

A.4. The schedule will be worked out with the individual facilities to eliminate or minimize conflicts with operation but it will be constructed as soon as is practical.

PERIODIC DAM INSPECTION (2014)
CONAWAY RUN DAM – ID#09501
TYLER COUNTY, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC. PROJECT NO. 14119

SUBMITTED TO:
WEST VIRGINIA DIVISION OF NATURAL RESOURCES
WILDLIFE RESOURCES SECTION
SOUTH CHARLESTON, WEST VIRGINIA

SUBMITTED BY:

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

MARCH 2014

TABLE OF CONTENTS

CIVIL TECH ENGINEERING, INC.
300A Prestige Drive
Hurricane, West Virginia 25526
Phone: 304-757-8094 Fax: 304-757-8095
civiltech1@frontier.com

Mr. Zack Brown
West Virginia Division of Natural Resources
Wildlife Resources Section
324 Fourth Avenue
South Charleston, West Virginia 25303

March 31, 2014

Subject: **Periodic Dam Inspection (2014)**
Conaway Run Dam - ID #09501
Tyler County, West Virginia
Civil Tech Engineering, Inc. Project No. 14119

Dear Mr. Brown:

As authorized, we have completed the subject inspection. The inspection was performed on March 24, 2014 with Aaron Tonkery with the WVDEP Dam Safety Section. A representative of the WVDNR did not attend. Our company also inspected this dam in August 2000, September 2003, September 2006, September, 2009, and March 2012. Please refer to reports on file with the WVDEP and Owner for the results of those inspections. This inspection report presents a general description of the dam and appurtenances, observations made during the inspection, and our conclusions and recommendations.

As part of our 2000 inspection, our engineers reviewed records for the dam available at the Fairmont and Charleston Offices of the WVDEP Dam Safety Section. We also discussed the dam with Wildlife personnel and reviewed correspondence pertaining to the dam and past inspection reports on file in the WVDNR office. Records on file indicate the dam was designed by the West Virginia Department of Natural Resources and, we understand the dam was approved for construction by the Public Service Commission of West Virginia in July of 1961. According to information obtained, the dam does not have a certificate of approval from the WVDEP Dam Safety Section. Also, a Phase I Inspection was not performed for this dam by the US Army Corps of Engineers in the 1970's since the dam was classified as "low hazard" at that

time. However, the WVDEP has currently assigned a Class 1 Hazard Rating to the structure. This hazard rating has not been verified by dam break analysis. As discussed herein, some readily observable features of the dam do not appear to have been constructed in accordance with the design drawings on file with the WVDEP.

Pertinent design information for the dam is summarized below:

1. Dam Height 40 feet,
2. Dam Length 450 feet
3. Lake Area 30 acres
4. Drainage Area 922 acres
5. Upstream slope 3:1
6. Downstream slope 2:1
7. Crest Elevation 1040 ft.
8. Normal Pool Elevation 1030 ft.
9. Crest width 16 feet.
10. A clay core extending to bedrock from elevation 1030 ft.
11. Rip rap on the upstream slope extending from the bench to 5 feet below normal pool.
12. Rip rap at the outlet of the principal spillway.
13. Rip rap at the outlet of the emergency spillway.
14. Concrete double chambered riser with a center weir wall and high level intakes in the sides and top. The riser includes a 24 inch square drain gate mounted in the weir wall.
15. 30 inch concrete principal spillway outlet pipe with three concrete anti-seep collars.
16. Concrete outlet structure
17. Trapezoidal emergency spillway in the left abutment. Minimum depth 7 feet and bottom width 35 feet.

Deficiencies identified in past inspection reports have included:

1. No trash racks on the riser.
2. Damage to the principal spillway outlet structure.
3. Erosion in the plunge pool area downstream of the principal spillway outlet.
4. Seepage along the right groin and left downstream toe.
5. Vegetation and trees in the principal spillway outlet channel and in the emergency spillway.
6. Reduced emergency spillway capacity due to soil debris collecting at the base of the slope

along the left side as a result of erosion. Soil slippage is occurring on the side of the emergency spillway.

7. No routine exercising of the drain gate.

Based on information contained in past inspection reports, the lake was drained in 1979 to investigate the seepage along the right abutment. No conclusion was presented about the seepage. However, the reports indicate the seepage did not dry up when the lake was drained which would indicate the right abutment seepage may be due to natural springs in this area and not seepage from the reservoir. The report on the seepage indicated no slippage occurred in the upstream slope of the embankment during drawdown. However, slips were noted to have occurred around the lake rim. A 1982 report noted possible slippage along the upstream slope and a sink hole in the left seepage area. We believe the inspector mistook the bench located along the upstream slope to be a slip. As will be discussed herein, a 5 foot wide bench is located along the entire length of the dam about 2 feet below the crest. We believe this bench represents the top of the rip rap placed on the upstream slope as erosion protection against wave action. As noted herein, no evidence of slippage was observed and no sink holes were observed in the left seepage area during this or our past inspections.

Dam Inspection Observations

The following observations were made during the inspection performed on March 24, 2014. At the time of our inspection, the lake pool was normal and the reservoir was clear. The weather was sunny and the air temperature was about 35° F. At the time of the last inspection, the dam and spillway were overgrown with tall grass, brush, and small trees. The dam had not been mowed for many years prior to that inspection. However, at the time of this inspection the dam was well mowed and in good condition. DNR personnel are to be commended for the effort to mow and maintain the dam and spillway. For clarity, we have included a sketch of the dam presented as Figure 1. *Left and right directions used in this report are considered facing downstream.*

Dam Embankment

Downstream: The downstream slope was well mowed and in good condition. See Photo No.s 1, 9, and 10. The slope was uniform with no evidence of instability. Seepage areas along the right groin and left dam toe were closely examined during this inspection. Refer to Figure 1. The wet area along the right groin, and marsh type vegetation associated with the same, begins

about 1/3 of the height of the dam down from the crest in this area. Similar to all past inspections, standing/flowing water and wet/soft soil conditions were noted in this area. See Photo No.s 9, 11, and 12 for views of this area. As noted in past inspection reports, this seepage area extends left into the adjacent embankment slope and downstream beyond the toe of the embankment to the outlet channel. Flow was moderate and clear on this date. This seepage condition appears normal for this dam and as discussed herein, the results of past studies suggest the source of this seepage is natural groundwater springs and not the reservoir.

The left seep area on the date of this inspection exhibited standing water and some vegetation common to wet areas. No flowing water was observed in the left seep area and, contrary to information provided in one of the past inspection reports reviewed, we did not observe a sink hole in this seepage area.

The right and left seeps have been noted in all of the past inspection reports. Similar to conditions observed during this and past inspections, the seepage does not appear to be a concern at this time. However, as recommended in our last inspection report, these areas should be kept closely mowed and monitored in the future as recommended herein.

Two holes were observed in the downstream embankment as shown on Figure 1 during our 2000 inspection. These holes appeared to be associated with groundhog activity. The holes were not observed during this inspection and are no longer a concern. However, as discussed in our past inspection reports, burrowing animals can cause substantial damage to a dam and should be removed as soon as they are discovered. Holes created by these animals should be filled as required.

Upstream: The portion of the upstream slope located between normal pool and the crest is uniform and does not show any evidence of slope instability or erosion due to wave action or surface water runoff from the dam. See Photo No.s 6 and 7. Similar to all of our past inspections, the bench located along the upstream side of the crest is well vegetated with grass and appears to have been mowed this past year. The slope between the pool and the bench is protected with rip rap which contains some brush and small trees. The rip rap appears to be in good condition. However, vegetation including grass, brush, and trees should be removed from the rip rap.

Dam Crest: The dam crest appeared to be relatively uniform with no apparent signs of subsidence. The crest has been mowed this year and was in good condition. See Photo No.s 1 and 8.

Principal Spillway

The principal spillway riser was examined from the upstream slope of the dam on this inspection date. See Photo No.s 6, 7, and 14. The drain gate was not exercised. No information is available pertaining to the condition of the gate, riser, or the last time the unit was exercised. No problems with the riser have been reported in past inspections. However, as noted in our past inspection reports, given the age of the riser/drain valve and potential problems with the same due to deterioration/corrosion, we suggest the WVDNR consider having a detailed inspection of the riser, outlet pipe, and drain gate performed to identify any problems, make repairs, and exercise the gate. This work may require lowering the reservoir and will most likely require the assistance of divers and remote video equipment. The trash racks, noted to be missing in past inspection reports, had been replaced prior to our 2003 inspection and were open and free of debris at the time of this inspection.

The principal spillway outlet pipe is reported to be 30 inches in diameter and was flowing approximately 2 to 3 inches deep at the outlet during our inspection. The pipe is reported to consist of concrete. However, this could not be confirmed based on our cursory examination of the outlet. Past inspection reports indicate the outlet end section of the pipe may be steel.

The drain pipe outlets into a concrete structure which includes wingwalls and an apron. The apron includes posts on the downstream end designed to accept screens for catching fish should the lake be drained. See Photo No.s 15 thru 23. The concrete appears to be in relatively good condition except for the following damage noted:

1. Inward tilt and diagonal cracking in the right wall. See Photo No.s 19 and 25.
2. Random diagonal cracking near the pipe outlet. See Photo No. 20.
3. Damage to the downstream end posts where undermining and erosion has occurred. The end posts along the right and left sides of the structure are cracked vertically at their connection to the right and left walls of the structure. The posts have been reinforced with steel plates bolted to the top of the structure. See Photo No. 24.

As can be seen in Photo No. 16, flow from the outlet structure has created a large plunge pool downstream of the structure. Erosion has occurred around the end of the outlet due to high velocity and this erosion has now undermined the left side of the structure. See Photo No.s 21 thru 23. As noted in past inspection reports, the structure does not appear to be effective in dissipating energy and controlling the velocity of the flow from the principal spillway pipe. Continued erosion around the end of the outlet structure will likely occur, particularly during high velocity flow conditions. The reader will recall the design drawings required rip rap to be placed in this area which does not appear to be present. As recommended herein and our past reports, we suggest the plunge pool be protected with rip rap to minimize additional erosion damage to the outlet structure. Due to undermining below the structure which has occurred, it will also be necessary to restore support for the structure and this may require concrete underpinning prior to placement of rip rap. <u>This work should be performed as soon as possible to avoid additional and more serious damage to the outlet structure.</u>

<u>Emergency Spillway</u>

The emergency spillway has been excavated within the left abutment in what appears to be soft, shale bedrock. See Photo No.s 1 thru 5. The spillway is trapezoidal in shape and has been constructed with relatively steep side slopes visually estimated to have been constructed at an angle of approximately 1.5:1 (horizontal to vertical). A berm along the right side of the spillway downstream appears to have been constructed to direct flow away from the embankment during operation. As can be seen in the photographs, the spillway is well vegetated and has been mowed during the past year.

Design information indicates the spillway was to have been constructed with a minimum bottom width of 35 feet and depth of 7 feet. As shown on Figure 1 and noted in past inspection reports, the width of the spillway ranges from 20 to 24 feet. It appears the spillway may have originally been constructed with a slightly wider bottom width. However, the width has been reduced and the capacity is restricted by sediment along the toe of the left side slope. Sediment has collected along the toe of the left slope as a result of erosion of the soft shale rock. During past inspections, slip areas were noted on the left side of the emergency spillway. Tall brush and grass present during past inspections prevented close examination of the channel side slope for evidence of slippage. Close examination during this inspection did not indicate soil slippage is a major problem at this time. However, the capacity of the spillway appears to be much less than the design capacity and therefore, it is important to keep the spillway clean and well maintained.

As recommended herein, small trees and brush should be kept mowed from the channel area side slopes at least to the crest level of the dam. In the past we have recommended excavation to remove sediment from the toe of the left slope in order to restore the spillway bottom to the design width of 35 feet. However, after examining the spillway without the tall grass and brush, we now believe the spillway may have been constructed narrower than plan. Although sediment buildup may have reduced the spillway width slightly, we do not believe the width of the spillway can be practically increased without causing additional and more serious soil slippage. Therefore, we do not recommend excavation to restore spillway width at this time. Measures required to stabilize this slope should be investigated and planned before this work is performed in the future. Rip rap was also shown on the design drawings in the steeper outlet area of the spillway. This rip rap was not observed and was apparently not constructed per plan. Therefore, channel erosion is likely if the spillway should operate.

Conclusions and Recommendations

Based on our visual inspection, the dam is well mowed and the condition of the structure is much improved since our last inspection. However, there are erosion concerns within the principal spillway outlet area as discussed herein that require immediate attention. The following deficiencies or maintenance concerns were noted:

1. Mowing of the entire embankment and the spillway should be performed at least 1 time per year and preferably 2 times per year. Woody vegetation should be removed from the rip rap along the upstream slope. Brush and small trees which grow in the spillway should be removed from the emergency spillway side slopes to the crest level of the dam.
2. The spillway slope should be monitored for evidence of new sediment buildup and slippage. If the channel should become more restricted, excavation of accumulated sediment due to erosion or slippage will be required. Considering the weathered nature of the rock exposed in the cut slope, periodic maintenance may be necessary to remove sediment which collects in the spillway in the future. Care should be taken when removing sediment to minimize disturbance to the toe of the slope due to slope instability concerns. The slippage present on the slope should be investigated and measures designed to stabilize this slope.
3. The seepage areas should be monitored for evidence of increased flow, muddy flow, boils, or heave. It is particularly important to inspect these areas during and following high lake pool levels. These areas should be kept closely mowed to allow routine

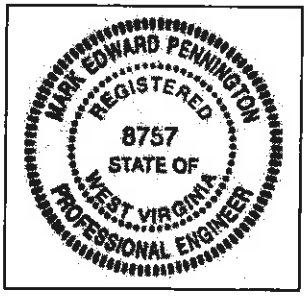
inspection.

4. Rip rap should be placed around the end of the principal spillway outlet structure to minimize erosion and additional damage to the concrete. Due to undermining which has occurred concrete underpinning will likely be necessary to restore support for the structure prior to placement of rip rap. Rip rap should also be placed in the emergency spillway per plan.
5. The condition of the riser and drain gate should be investigated and repairs made as required in order to exercise the same. However, the gate should not be exercised without investigation to verify operation and that obstructions are not present on the bottom which could prevent closing once the gate is open.
6. The embankment should be routinely inspected for burrowing animal activity. Burrowing animals discovered should be removed and their holes filled.
7. The owner should proceed with the investigation and modifications needed to obtain a certificate of approval from Dam Safety.

This report has been submitted to you by email in color pdf format. A color pdf copy of this report has also been forwarded to Mr. Delbert Shriver, Aaron Tonkery, Brian Long, and Anita Chapman with the WVDEP, Dam Safety Section. Paper copies of this report will not be submitted.

We trust this report satisfies your needs at this time. Attached is an inspection verification statement as required by the WVDEP, Dam Safety Section. If you have any questions or comments, or if we can provide additional assistance, please call.

Very truly yours,
CIVIL TECH ENGINEERING, INC.



Mark E. Pennington, M.S., P.E.
Principal Engineer

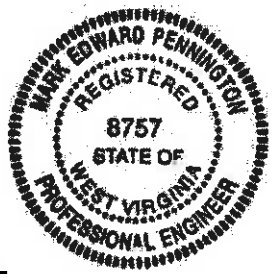
cc: Mr. Delbert Shriver, Aaron Tonkery, Brian Long, and Anita Chapman - WVDEP-Dam Safety

Conaway Run Dam Inspection (2014)
ID#09501
Civil Tech Project No. 14119

ENGINEER'S INSPECTION VERIFICATION STATEMENT

I hereby verify that I conducted a visual inspection of the Conaway Run Dam (ID# 09501) and its appurtenances on March 24, 2014. The attached report documents: 1) the current conditions observed; 2) any maintenance items necessary to prolong safe functioning of the dam; 3) any conditions observed during the inspection which indicate the dam has a serious problem* and; 4) any conditions that will not allow proper operation of the dam during normal or maximum reservoir water level conditions.

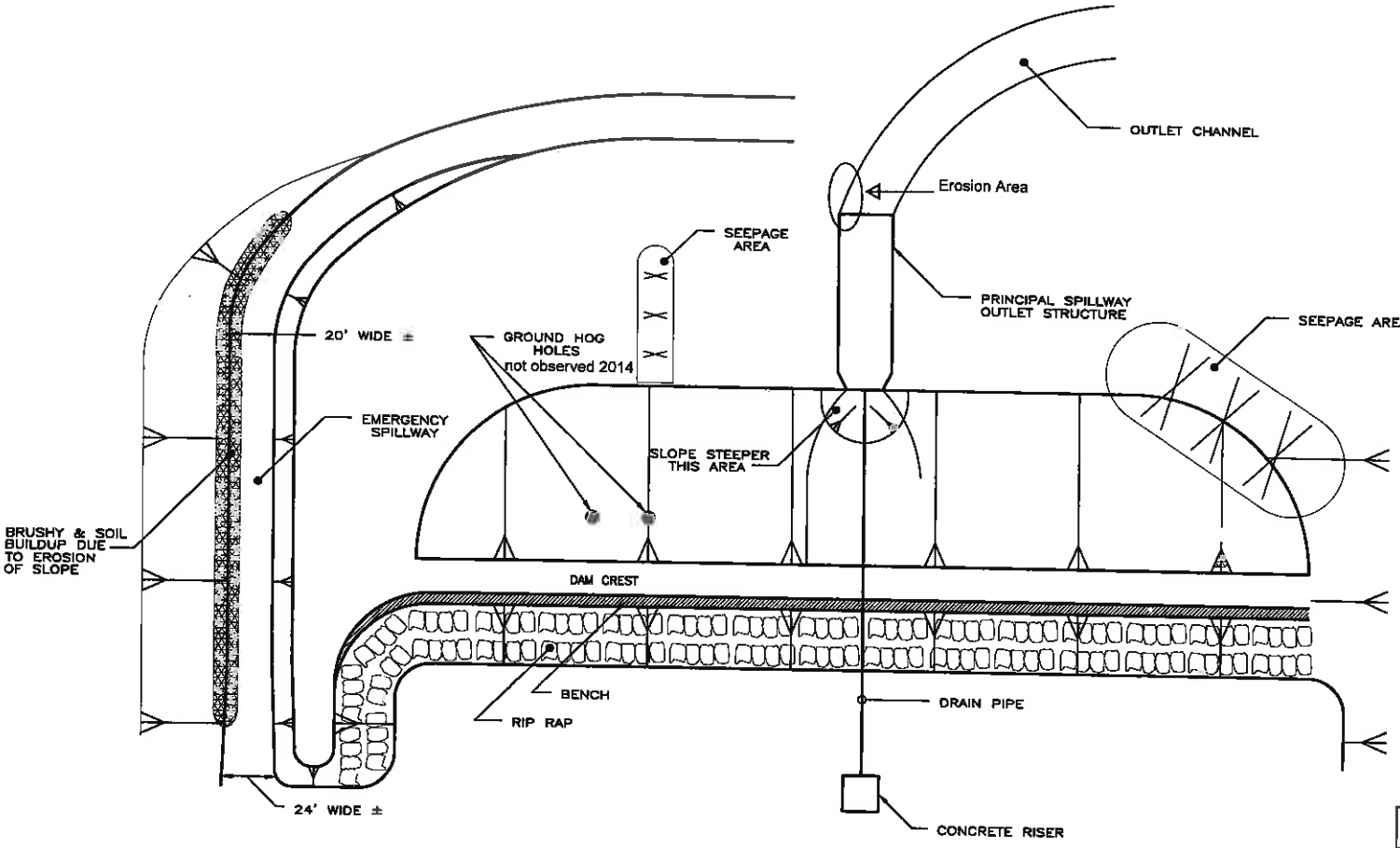
*as defined in Section 2.47 of the Dam Safety Rules



Mark E. Pennington WVRPE No. 8757

Date: March 31, 2014

Engineers Seal



2012 INSPECTION NOTE:
EXCEPT FOR THE CREST, THE DAM AND SPILLWAY IS COMPLETELY OVERGROWN WITH TALL GRASS, BRUSH, AND TREES.

FIGURE 1

CIVIL TECH ENGINEERING, INC. HURRICANE, WEST VIRGINIA
SITE PLAN SKETCH
CONAWAY RUN TYLER, WV

DRAWING NO.: 12128	DATE: MARCH, 2012	SCALE: NTS
REVISED: BY:	CHECKED:	DRAWN BY: CDA CHECKED BY: NEP

PHOTOGRAPHS

Photo No. 1: Overall view of dam.

Photo No. 4: ESW entrance.

Photo No. 2: Emergency spillway entrance.

Photo No. 5: ESW facing upstream.

Photo No. 3: Emergency spillway outlet.

Photo No. 6: Upstream slope facing right.

Photo No. 7: Upstream slope facing left.

Photo No. 10: Downstream slope facing left.

Photo No. 8: Dam crest facing right.

Photo No. 11: Right groin and seep area.

Photo No. 9: Downstream slope facing right.

Photo No. 12: Right groin.

Photo No. 13: Left seep area.

Photo No. 16: PSW outlet structure and plunge pool.

Photo No. 14: Riser.

Photo No. 17: PSW outlet structure and plunge pool.

Photo No. 15: PSW outlet structure and channel.

Photo No. 18: Pipe outlet.

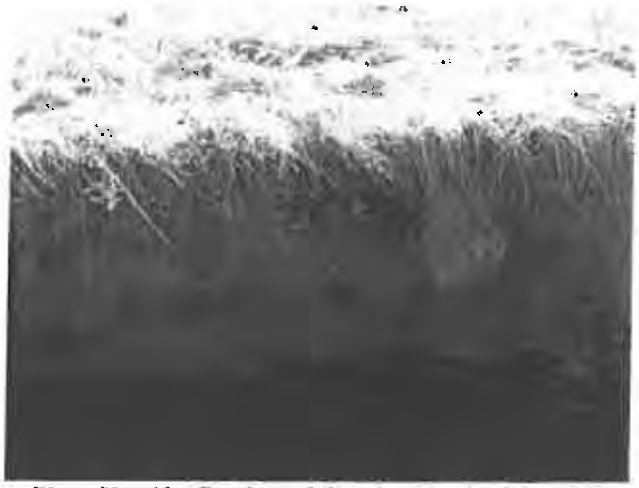


Photo No. 19: Cracks and deterioration in right wall.

Photo No. 22: Erosion adjacent to the outlet structure.

Photo No. 20: Hairline cracks around the pipe outlet.

Photo No. 23: Close-up of erosion and undermining.

Photo No. 21: Erosion in plunge pool at end of outlet structure.

Photo No. 24: Steel plate repair.

Photo No. 25: Right wall tilt.

west virginia department of environmental protection

Environmental Enforcement – Dam Safety
2031 Pleasant Valley Road, Suite 1
Fairmont, WV 26554
(304) 368-2000 Fax: (304) 368-3953

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

April 21, 2014

Mr. Curtis Taylor
WVDNR – Wildlife
324 4th Avenue
Building 74 Room 305
South Charleston, WV 25303

RE: Conaway Run Dam (ID# 09501)
Tyler County, WV
2014 Periodic Inspection

Dear Mr. Taylor:

The dam referenced above was inspected by WVDEP-Dam Safety on March 24, 2014 under the authority of the Dam Control Act (Ch. 22-14-4). A copy of the inspection report is enclosed. The purpose of the inspection was to observe the general condition of the dam to determine any maintenance issues or other areas of concern at the structure.

Instructions to bring the dam into compliance and maintenance recommendations based on the inspection are listed in the report. If you have any questions, or need additional information concerning this letter, please contact me at (304) 368-2000, Ext. 3711.

Sincerely,
WVDEP-DAM SAFETY

Aaron P. Tonkery, PE
Dam Safety Engineer

Enclosures (1) – Conaway Run Dam Inspection Report – 03/24/2014

cc: Brian Long, EE/DSS-Program Manager

DS–3
10/13

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER and WASTE MANAGEMENT
ENVIRONMENTAL ENFORCEMENT / DAM SAFETY

DAM INSPECTION REPORT

Site Name: Conaway Run Dam **County:** Tyler **ID#:** 09501
Owner of Dam: WVDNR-Wildlife **Date:** 03/24/2014 **Time:** ~3:30 PM

Purpose of Inspection:
- ☒ General Visual Safety Inspection
- ☐ Construction Activities Inspection
- ☐ Undocumented Dam Investigation (Attach DS-3C "Detailed Dam Information" & "Undocumented Dam" Forms)
- ☐ Additional Information/Detailed Dam Inspection (Attach DS-3B "Detailed Dam Information" Form)
- ☐ Other Purpose, Specified:

Weather Conditions: ~35°F/Sunny **Photographs Taken At Site:** ☒ Yes ☐ No

Dam Safety Personnel on Site: Aaron Tonkery, PE

Contact(s) at Dam Site: Mark Pennington, PE – Civil Tech Engineering, Inc.

Certificate of Approval: ☐ Yes, What Hazard Class? _____
☒ None
☐ N/A
☐ Unknown
☐ Pending Review
[NO CERTIFICATE OF APPROVAL]

Present Downstream Hazard Class: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ Unknown **[ASSUMED AS HC 1]**

Monitoring & Emergency Action Plan: ☒ Last Approved Date: 02/07/2000 **[EAP is PAST DUE]**
☐ None ☐ N/A ☐ Unknown ☐ Pending Review

Maintenance Plan: ☐ Approved, Date: **[MAINTENANCE PLAN is DUE]**
☒ None ☐ N/A ☐ Unknown ☐ Pending Review

Reservoir Level: ☒ Near Normal Pool ☐ Drained ☐ N/A, Reason:
☐ Above Normal Pool, Freeboard Remaining:

U.S. Army Corps of Engineers National Inventory of Dams (NID) Condition: **POOR**
State and Federal Agency Manual (April 2008)

Satisfactory: No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the applicable regulatory criteria or tolerable risk guidelines.

Fair: No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency. Risk may be in the range to take further action.

Poor: A dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary. Poor may also be used when uncertainties exist as to critical analysis parameters which identify a potential dam safety deficiency. Further investigations and studies are necessary.

Unsatisfactory: A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution.

Comments: *The dam has known deficiencies, such as cracking and undermining of the principal spillway outlet structure, slips within the auxiliary spillway, and unknown hydraulic & slope stability parameters. The dam does not have a Certificate of Approval from WVDEP-DS.*

General Observations/Discussion: The Conaway Run dam is situated across Conaway Run, a tributary of Middle Island Creek, a direct tributary of the Ohio River. The dam is located adjacent to County Route 48, approximately 0.8 miles from the intersection with State Route 18 near Centerville, Tyler County, WV. According to WVDEP-Dam Safety records, the dam is approximately 40 feet in height with a normal storage volume near 428 acre-feet and a maximum volume of 868 acre-feet.

The dam appears to be much better maintained than observed during the 2012 inspection performed by WVDEP-Dam Safety. These excellent maintenance efforts permit for a more thorough investigation of the structure than previous visits have allowed.

I. UPSTREAM & DOWNSTREAM SLOPES and CREST:

UPSTREAM SLOPE:

The upstream slope appeared in good condition with no sign of undulations or instability noted. Some woody vegetation and brush was present within the riprap portion of the slope. No indication of wave erosion was observed along the shoreline.

CREST:

The crest appeared uniform and even with no signs of depression areas, cracking, or other irregularities. No sign of misalignment was noted along the upstream or downstream edge of the crest.

DOWNSTREAM SLOPE:

The downstream slope appeared in good condition with no slips or other signs of instability detected. Some brush and woody vegetation was noted within 25 feet of the structure. No animal burrows were observed.

The two seepage areas identified in previous inspections were easily recognized. The seep located in the right groin is situated in close proximity to the normal pool elevation and has previously been tested and found not to be related to flow through the embankment. The flow from this seep is conveyed along the groin to the toe area where site conditions promote collection of the water and subsequent saturation. The second seep is located on the left side of the structure at the toe and encompasses an expansive area. No measureable flow was observed; however the area included several pockets of standing, clear water.

II. PRINCIPAL/AUXILIARY SPILLWAYS AND DOWNSTREAM CHANNEL

PRINCIPAL SPILLWAY:

The visible portion of the principal spillway (PSW) intake riser appeared in good condition with no signs of significant deterioration. The access ladder seems to have been damaged as evidenced by its leaning. The trash racks appeared mainly free of debris. The steel outlet pipe appeared to be approximately 30 inches in diameter and had approximately 2 inches of flow depth during this site visit.

The concrete outlet structure showed signs of cracking and deterioration along the wing walls. The right wing wall was noted leaning inward. Slotted concrete posts located at the end of the training walls are cracked and braced to the structure by metal plates. These posts are assumed to be used as part of a system to trap fish upon lowering of the reservoir. Significant erosion and undermining efforts were observed around the outlet structure and sides of the plunge pool.

AUXILIARY SPILLWAY:

Initial effort has been made to remove excessive woody vegetation and brush from the auxiliary spillway (ASW) channel. As noted in previous inspections, the slip located along the left side slope does not seem to have progressed since the previous inspection and appears mainly stabilized by vegetated cover. It is not immediately known whether the spillway channel was constructed as designed and is able to safely pass design storm requirements according to the Dam Safety Rule. Some vehicle rutting was observed along the channel bottom.

DOWNSTREAM CHANNEL:

Downstream conditions appear to be normal and flowing freely.

III. AREAS NOT OBSERVED/INSPECTED DURING THIS SITE INVESTIGATION:

1. Interior/submerged exterior portion of the PSW concrete riser.
2. Interior section of the PSW outlet pipe.
3. Reservoir drain gate valve/components.

RECOMMENDATIONS TO OWNER:

1) According to Dam Safety records, the dam does not have a Certificate of Approval and therefore is not in compliance with the Dam Safety Act. Retain a licensed engineer to prepare and submit an application with supporting documentation (plans, specifications, etc.) in order to repair/modify the dam to bring it into compliance.

2) Pursuant to Dam Safety Rule (47CSR34) Subsection 15.7, prepare and submit a Monitoring and Emergency Action Plan (EAP) to WVDEP-Dam Safety for review and approval.

3) Per Dam Safety Rule Subsection 16.1.b, prepare and submit a Maintenance Plan for the dam.

4) Continue improved maintenance efforts at the dam site.

5) Remove all woody vegetation and excessive brush on and within 25-feet of the dam structure. The ASW should be maintained to the elevation of the dam crest or berm, as appropriate.

6) Monitor the structure for animal activity. Repair all burrows found and remove animals from the site.

7) Monitor the seepage areas on the downstream slope for any unexplained increase in flow and/or turbid properties. Such conditions could indicate internal erosion of the embankment and should be reported immediately to WVDEP-Dam Safety.

8) Provide positive drainage away from the embankment in order to help reduce/eliminate saturation of the slope and toe area from the seepage originating in the right groin.

9) Provide proper stabilization to reduce erosion and undermining efforts around and below the PSW outlet structure.

10) Repair vehicle ruts in the ASW channel. Prevent unauthorized vehicle access and limit maintenance traffic to dry periods.

11) Inspect the PSW intake riser and outlet pipe when conditions allow.

INSPECTED BY:

Aaron P. Tonkery, PE
Dam Safety Engineer

DAM INSPECTION REPORT
Conaway Run Dam, Tyler County, ID# 09501
Date: 3/24/2014

SITE PHOTOGRAPHS

Photo 1	Upstream Slope.

Photo 2	Upstream Slope looking South.

Photo 3	Upstream Slope looking South.

Photo 4	Upstream Slope from Right Abutment.

Photo 5	Dam Crest from Right Abutment.

Photo 6	Dam Crest looking South.

DAM INSPECTION REPORT
Conaway Run Dam, Tyler County, ID# 09501
Date: 3/24/2014

Photo 7	Downstream Slope looking South.

Photo 8	Downstream Slope from ASW Berm.

Photo 9	Downstream Slope/Left Side – Seepage Area.

Photo 10	Downstream Slope – Right Groin from Crest.

Photo 11	Downstream Slope – Right Groin from Toe.

Photo 12	PSW Intake Riser.

Photo 13	PSW Intake Riser.

Photo 14	PSW Outlet Control Structure.

Photo 15	PSW Outlet Pipe.

Photo 16	Cracking along Right Wing Wall of PSW Outlet Structure.

Photo 17	PSW Outlet Structure / Downstream Area.

Photo 18	Outlet End of PSW Outlet Structure.

Photo 19	Erosion of Plunge Pool.

Photo 20	Erosion around Left Wing Wall of PSW Outlet Structure.

Photo 21	ASW Entrance Channel.

Photo 22	Downstream View of ASW Channel.

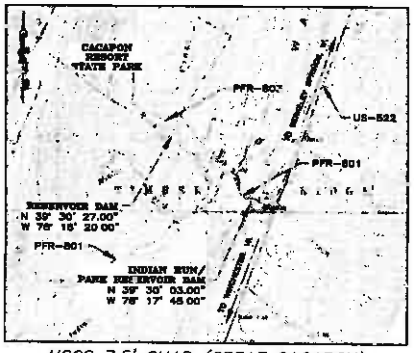
Photo 23	Upstream View of ASW Channel.

Photo 24	Slip Area along Cut Slope of ASW Channel.

PROPOSED
DAM MODIFICATIONS
CACAPON STATE PARK
MORGAN COUNTY, WEST VIRGINIA

WV PARKS & RECREATION
CHARLESTON, WEST VIRGINIA

VICINITY MAP



USGS 7.5' QUAD (GREAT CACAPON)

RESERVOIR DAM
INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	SITE LOCATION INDEX
2	EXISTING SITE CONDITIONS
3	BASELINE LAYOUT PLAN
4	TEMPORARY EROSION & SEDIMENT CONTROL MEASURES
5	PROPOSED SITE PLAN
6	BASELINE A-A PROFILE & SECTIONS 1+00 - 1+50
7	BASELINE A-A SECTIONS 2+00 - 3+00
8	BASELINE A-A SECTIONS 4+00 - 4+40
9	BASELINE A-A SECTIONS 4+50 - 4+50
10	BASELINE A-A SECTIONS 4+80 - 5+30
11	BASELINE B-B PROFILE & SECTIONS 2+00 - 2+44.3
12	BASELINE B-B SECTIONS 2+50 - 3+00
13	BASELINE B-B SECTIONS 3+25 - 3+50
14	BASELINE B-B SECTIONS 3+70.7 - 3+89
15	BASELINE B-B SECTIONS 4+00 - 4+50
16	BASELINE B-B SECTIONS 4+75.7 - 5+00
17	PRINCIPAL SPILLWAY PIPE PROFILE & DETAILS
18	TOE & GRAIN DRAIN PROFILES
19	MISCELLANEOUS DETAILS
20	MISCELLANEOUS DETAILS

PARK DAM
INDEX TO SHEETS

SHEET NO.	DESCRIPTION
21	EXISTING SITE CONDITIONS
23	BASELINE LAYOUT PLAN
23	TEMPORARY EROSION & SEDIMENT CONTROL MEASURES
24	PROPOSED TOP RCC SITE PLAN
25	PROPOSED SITE PLAN
26	DAM BASELINE A-A PROFILE & STA. 1+32.9
27	DAM BASELINE A-A STA. 1+50 - 2+00
28	DAM BASELINE A-A STA. 2+50 - 3+00
29	DAM BASELINE A-A STA. 3+50 - 4+00
30	ESW BASELINE B-B PROFILE & STA. 1+50
31	ESW BASELINE B-B STA. 2+00 - 2+11.4
32	ESW BASELINE B-B STA. 2+50 - 3+00
33	MISCELLANEOUS DETAILS
34	MISCELLANEOUS DETAILS
35	TEMPORARY EROSION & SEDIMENT CONTROL DETAILS

LOCATION MAP

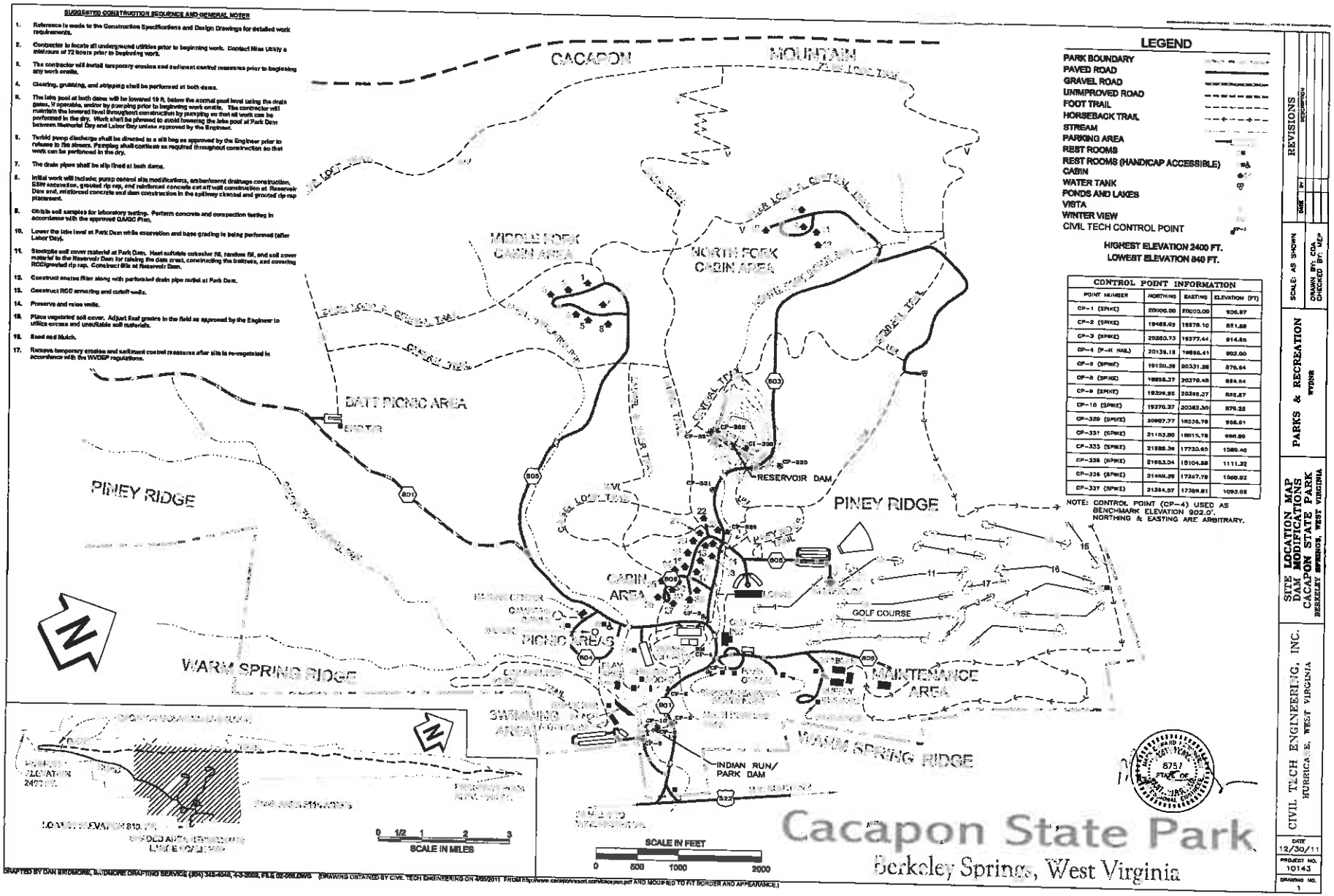
COUNTY HIGHWAY MAP, 1" = 1 MI.

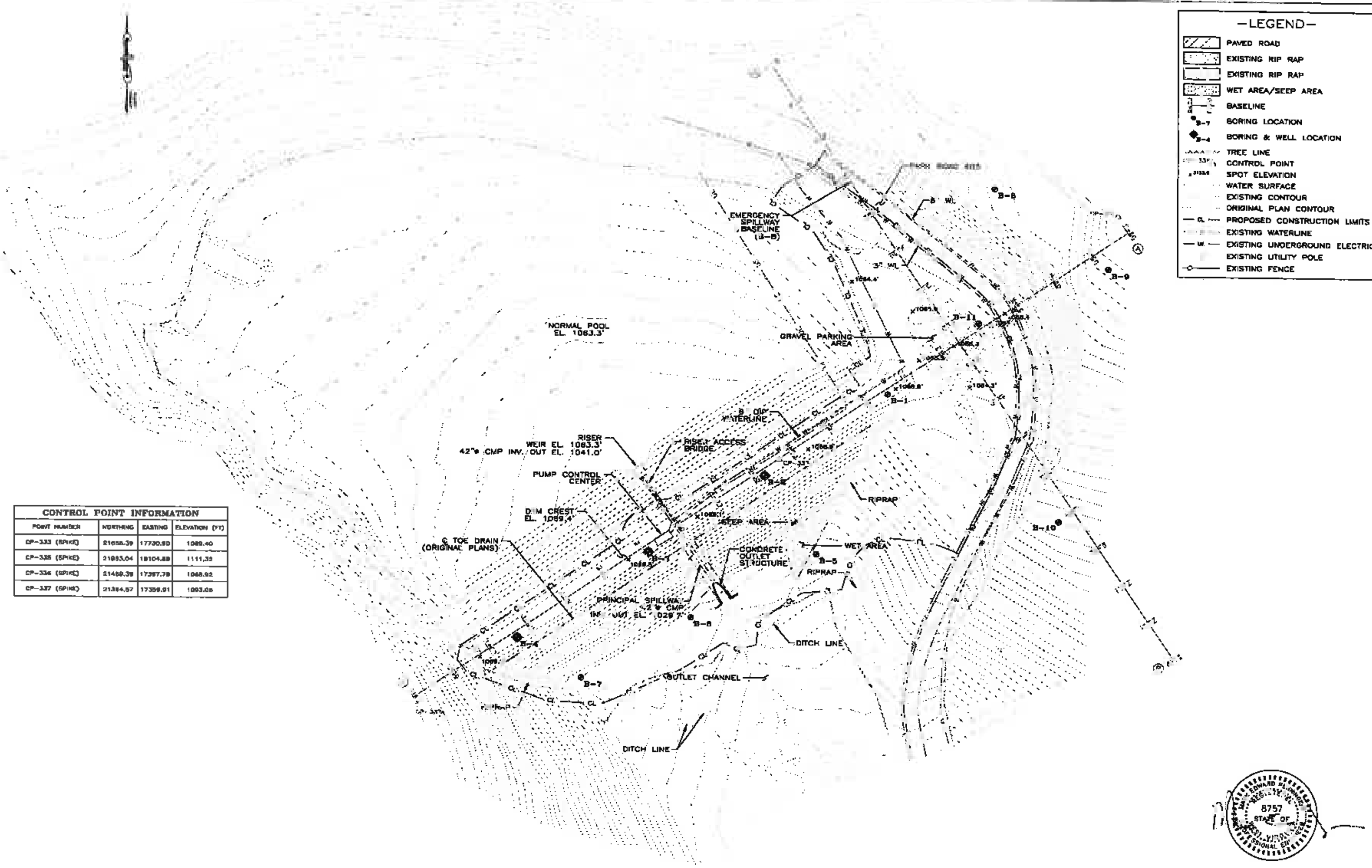
CIVIL TECH ENGINEERING, INC.
300-A PRESTIGE DRIVE
HURRICANE, WEST VIRGINIA 25526
(304) 757-8094
FAX (304) 757-8095

L757 STATE OF

MARK E. PENNINGTON RPE NO. 8757

12.30.2011
DATE


SUGGESTED CONSTRUCTION SEQUENCE AND GENERAL NOTES
1. Reference is made to the Construction Specifications and Design Drawings for detailed work requirements.
2. Contractor to locate all underground utilities prior to beginning work. Contact Miss Utility a minimum of 72 hours prior to beginning work.
3. The contractor will install temporary erosion and sediment control measures prior to beginning any work onsite.
4. Clearing, grubbing, and stripping shall be performed at both dams.
5. The lake pool at both dams will be lowered 10 ft. below the normal pool level using the drain gates, if operable, and/or by pumping prior to beginning work onsite. The contractor will maintain the lowered level throughout construction by pumping so that all work can be performed in the dry. Work shall be planned to avoid lowering the lake pool at Park Dam between Memorial Day and Labor Day unless approved by the Engineer.
6. Turbid pump discharge shall be directed to a silt bag as approved by the Engineer prior to release to the stream. Pumping shall continue as required throughout construction so that work can be performed in the dry.
7. The drain pipes shall be slip lined at both dams.
8. Initial work will include: pump control site modifications, embankment drainage construction, ESW excavation, grouted rip rap, and reinforced concrete cut off wall construction at Reservoir Dam and, reinforced concrete end dam construction in the spillway channel and grouted rip rap placement.
9. Obtain soil samples for laboratory testing. Perform concrete and compaction testing in accordance with the approved QA/QC Plan.
10. Lower the lake level at Park Dam while excavation and base grading is being performed (after Labor Day).
11. Stockpile soil cover material at Park Dam. Haul suitable cohesive fill, random fill, and soil cover material to the Reservoir Dam for raising the dam crest, constructing the buttress, and covering RCC/grouted rip rap. Construct ells at Reservoir Dam.
12. Construct cofferdam along with perforated drain pipe outlet at Park Dam.
13. Construct RCC armoring and cutoff walls.
14. Preserve and raise wells.
15. Place vegetated soil cover. Adjust final grades in the field as approved by the Engineer to utilize excess and unsuitable soil materials.
16. Seed and Mulch.
17. Remove temporary erosion and sediment control measures after site is re-vegetated in accordance with the WVDEP regulations.
CACAPON MOUNTAIN
MIDDLE FORK CABIN AREA
NORTH FORK CABIN AREA
BATT PICNIC AREA
PINEY RIDGE
CABIN AREA
PICNIC AREAS
GOLF COURSE
MAINTENANCE AREA
SWIMMING AREA
WARM SPRING RIDGE
RESERVOIR DAM
INDIAN RUN/ PARK DAM
SCALE IN MILES
SCALE IN FEET
LEGEND
PARK BOUNDARY
PAVED ROAD
GRAVEL ROAD
UNIMPROVED ROAD
FOOT TRAIL
HORSEBACK TRAIL
STREAM
PARKING AREA
REST ROOMS
REST ROOMS (HANDICAP ACCESSIBLE)
CABIN
WATER TANK
PONDS AND LAKES
VISTA
WINTER VIEW
CIVIL TECH CONTROL POINT
HIGHEST ELEVATION 2400 FT.
LOWEST ELEVATION 840 FT.
CONTROL POINT INFORMATION
POINT NUMBER | NORTHING | EASTING | ELEVATION (FT)
CP-1 (SPIKE) | 20000.00 | 20000.00 | 906.97
CP-2 (SPIKE) | 19468.93 | 19878.10 | 881.88
CP-3 (SPIKE) | 20280.73 | 19377.44 | 914.85
CP-4 (P-K NAIL) | 20136.18 | 19886.41 | 902.00
CP-5 (SPIKE) | 19120.39 | 20331.28 | 876.64
CP-6 (SPIKE) | 19898.37 | 20379.48 | 884.84
CP-9 (SPIKE) | 19329.85 | 20388.37 | 886.87
CP-10 (SPIKE) | 19270.37 | 20582.50 | 879.28
CP-329 (SPIKE) | 20897.77 | 19536.79 | 966.01
CP-331 (SPIKE) | 21103.80 | 18815.78 | 996.89
CP-335 (SPIKE) | 21888.36 | 17730.60 | 1089.40
CP-336 (SPIKE) | 21953.04 | 16104.88 | 1111.32
CP-336 (SPIKE) | 21466.29 | 17287.78 | 1068.82
CP-337 (SPIKE) | 21384.57 | 17389.81 | 1093.08
NOTE: CONTROL POINT (CP-4) USED AS BENCHMARK ELEVATION 902.0'. NORTHING & EASTING ARE ARBITRARY.
Cacapon State Park
Berkeley Springs, West Virginia
DRAFTED BY DAN BRIDMORE, BALDWIN DRAFTING SERVICE (304) 345-4048, 4-3-2008, FILE 02-08B.DWG (DRAWING OBTAINED BY CIVIL TECH ENGINEERING ON 4/8/2011 FROM http://www.cacaponresort.com/docs/pool.pdf AND MODIFIED TO FIT BORDER AND APPEARANCE.)
REVISIONS
DATE | BY | DESCRIPTION
SCALE: AS SHOWN
DRAWN BY: CDA
CHECKED BY: JMP
PARKS & RECREATION
WVDNR
SITE LOCATION MAP
DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA
DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 1



CONTROL POINT INFORMATION			
POINT NUMBER	NORTHING	EASTING	ELEVATION (FT)
CP-333 (SPIKE)	21658.39	17730.90	1089.40
CP-335 (SPIKE)	21983.04	18104.88	1111.32
CP-336 (SPIKE)	21480.38	17397.78	1068.92
CP-337 (SPIKE)	21384.57	17358.91	1093.08

-50 0 50 100 150
Scale: 1" = 50'

EXISTING SITE CONDITIONS

SCALE: 1" = 50'

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 902' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 809. USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED MARCH 27, 1972.

REVISIONS
DATE | BY | DESCRIPTION

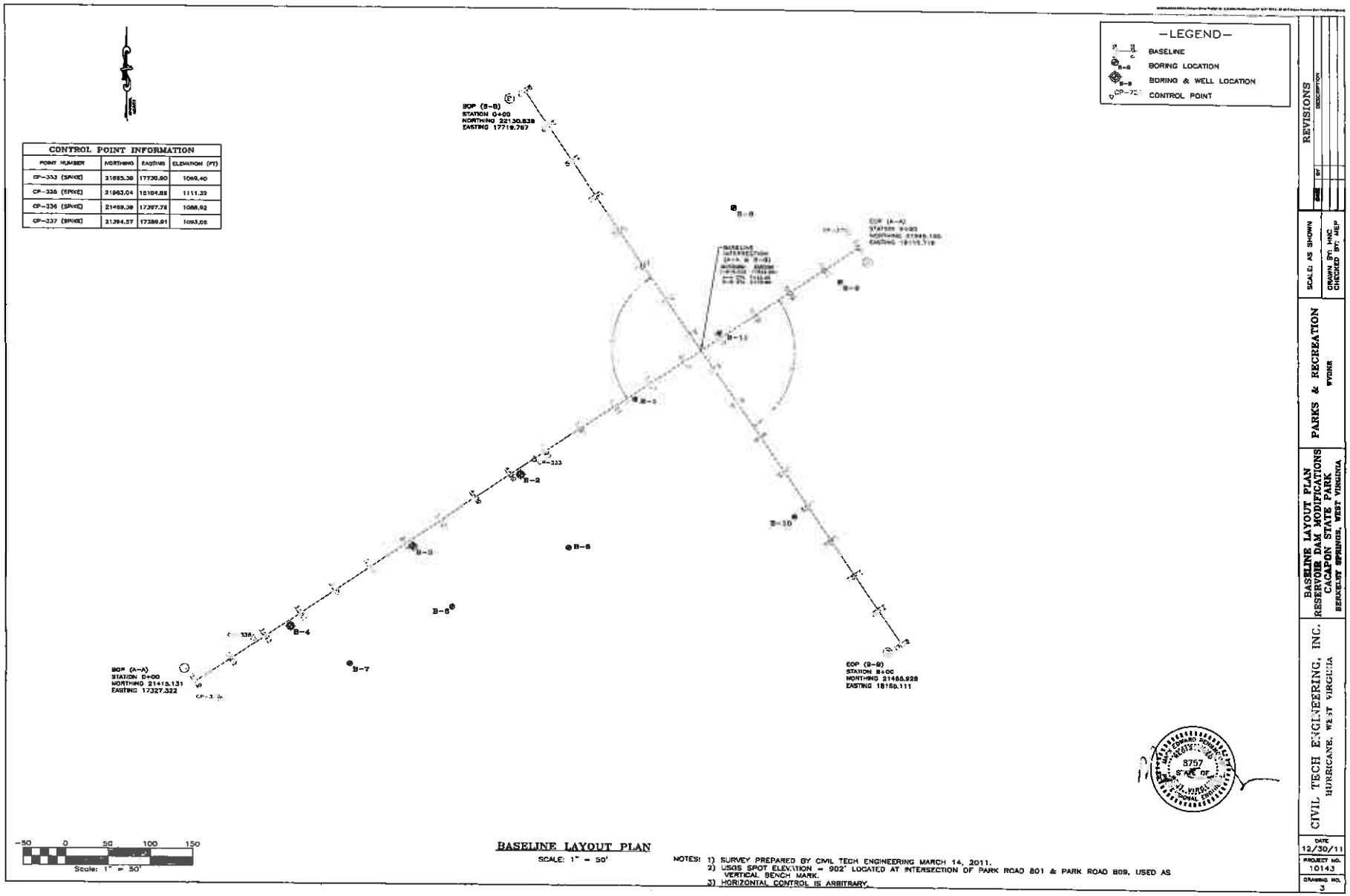
SCALE: AS SHOWN
DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

EXISTING SITE CONDITIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 2



BASELINE LAYOUT PLAN

SCALE: 1" = 50'

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 902' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 809, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.

REVISIONS

NO.	BY	DESCRIPTION

SCALE: AS SHOWN

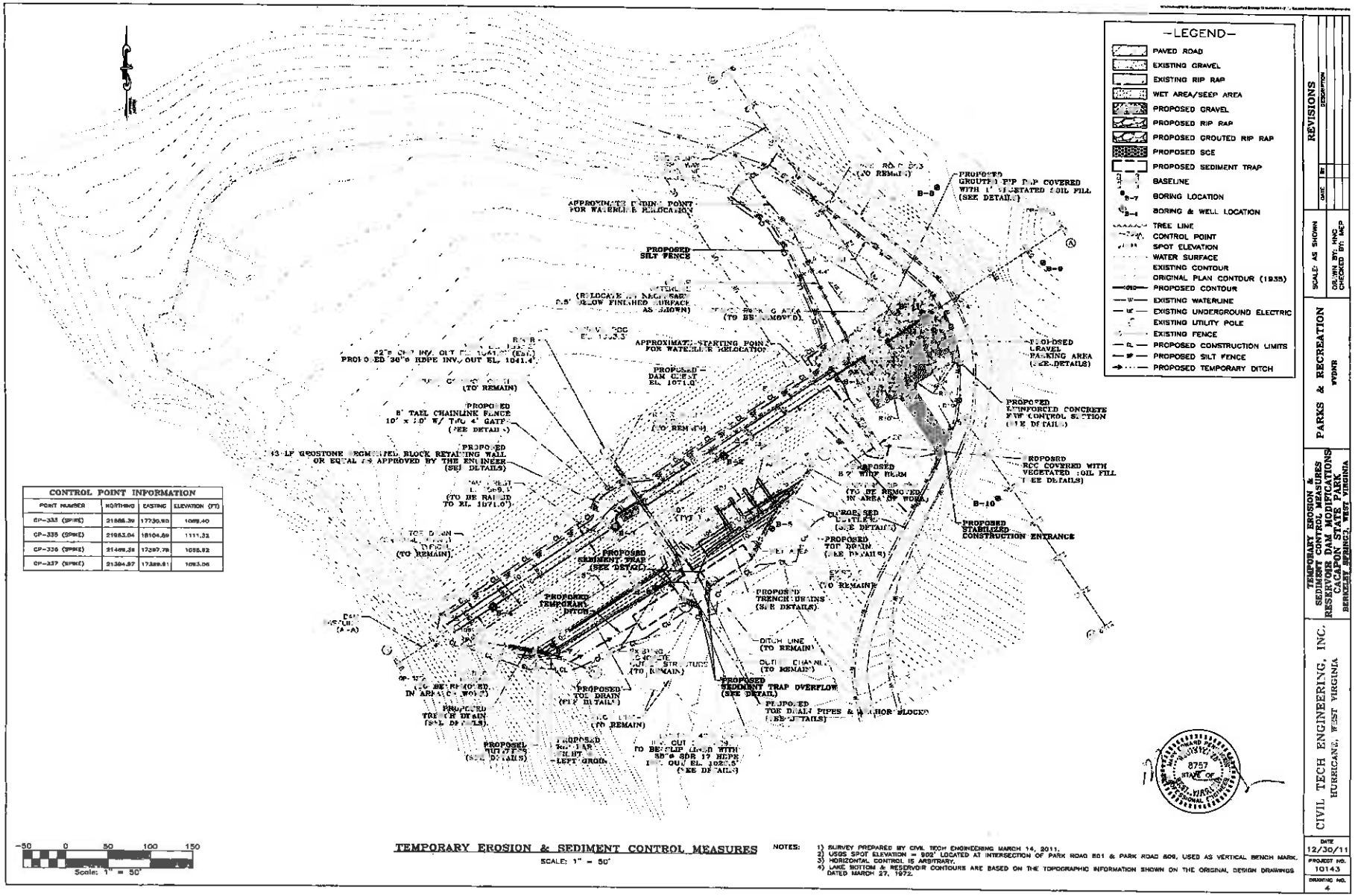
DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

BASELINE LAYOUT PLAN
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 3



TEMPORARY EROSION & SEDIMENT CONTROL MEASURES

SCALE: 1" = 50'

NOTES:

1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 802' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 809, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED MARCH 27, 1972.

8757 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

REVISIONS

DATE	BY	DESCRIPTION

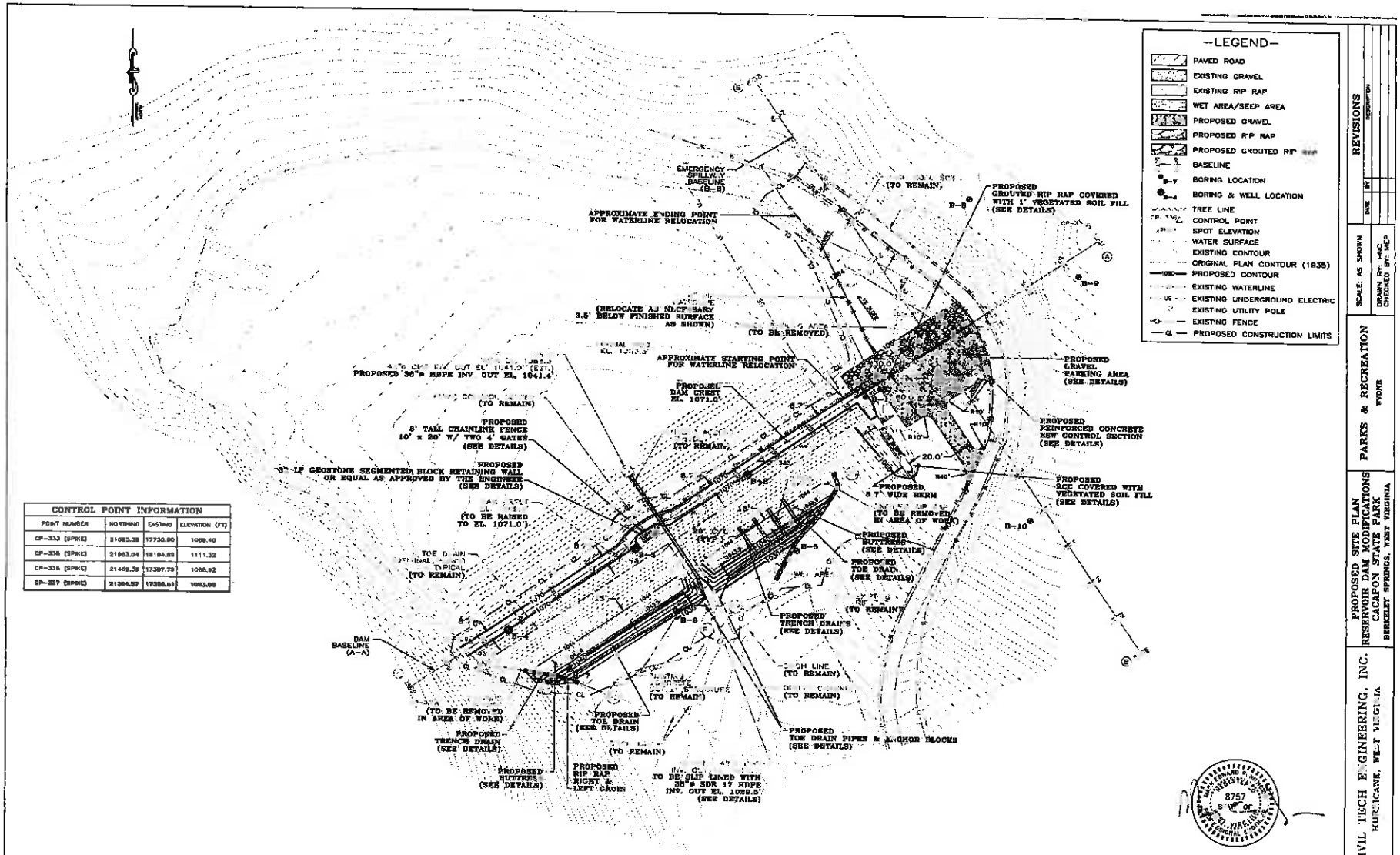
SCALE: AS SHOWN
DRAWN BY: HNC
CHECKED BY: MCP

PARKS & RECREATION
WVDNR

TEMPORARY EROSION & SEDIMENT CONTROL MEASURES
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 4



PROPOSED SITE PLAN
SCALE: 1" = 50'

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 902' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 809, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED MARCH 27, 1972.

REVISIONS
NO. | DESCRIPTION | DATE | BY

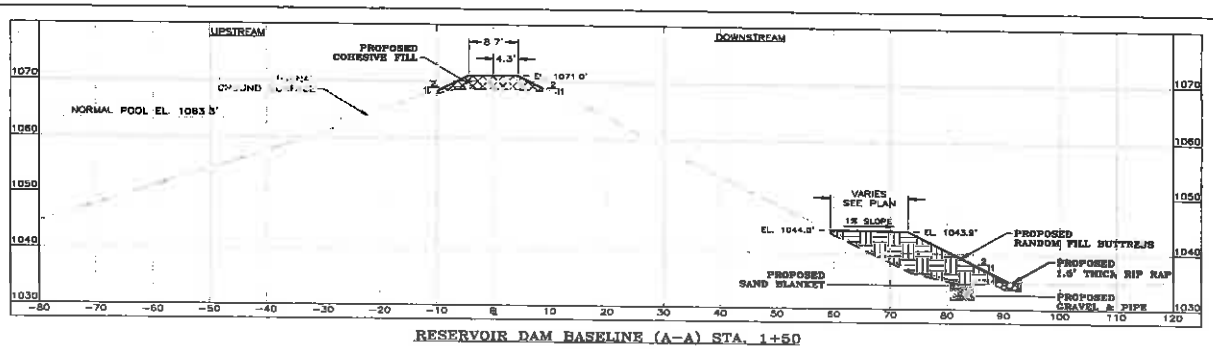
SCALE: AS SHOWN
DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

PROPOSED SITE PLAN
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

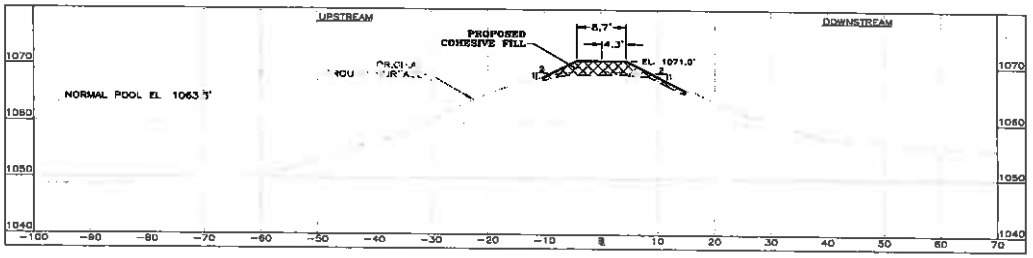
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 5



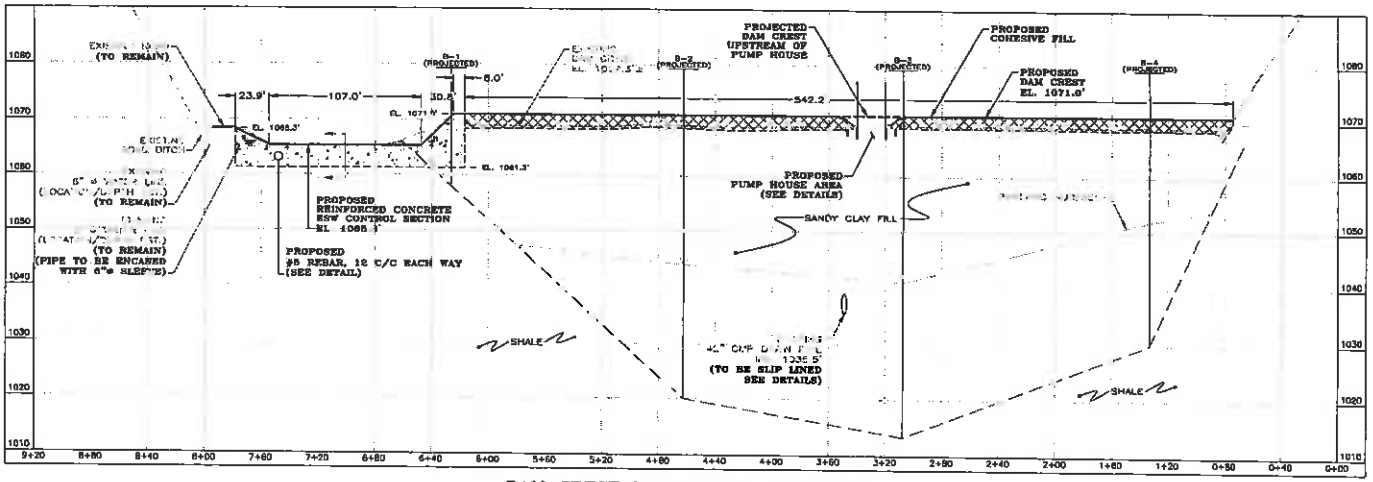
RESERVOIR DAM BASELINE (A–A) STA. 1+50

SCALE: 1" = 10'



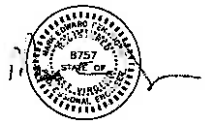
RESERVOIR DAM BASELINE (A–A) STA. 1+00

SCALE: 1" = 10'



DAM CREST BASELINE A–A PROFILE

SCALE: V: 1" = 10', H: 1" = 40'



REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

DRAWN BY: HNG
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

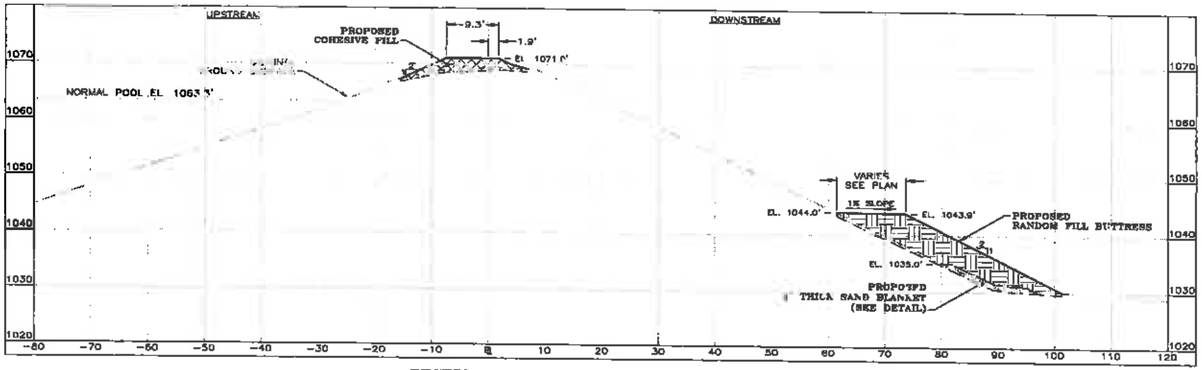
DAM BASELINE A–A PROFILE & SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

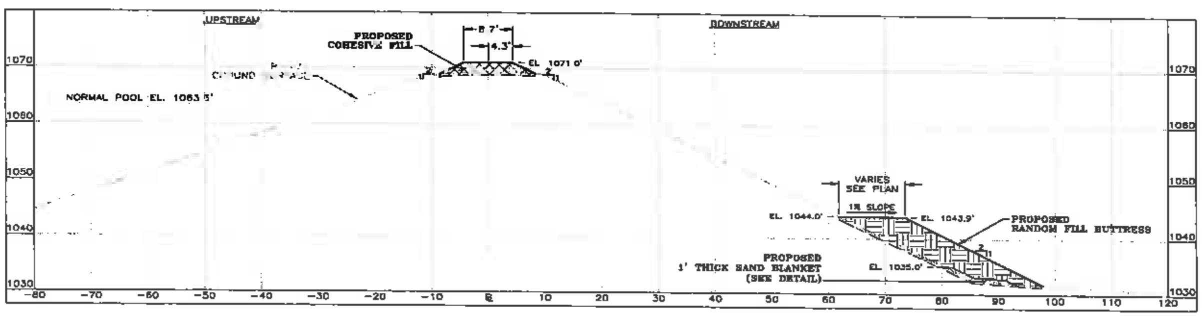
PROJECT NO.
10143

DRAWING NO.
6



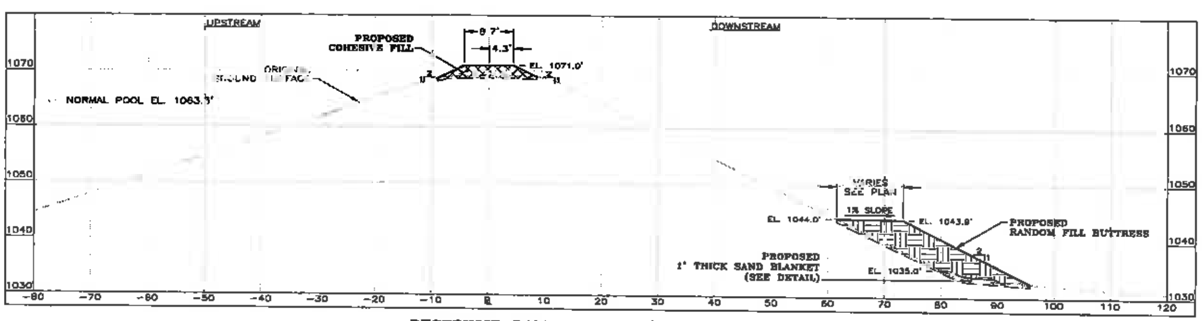
RESERVOIR DAM BASELINE (A–A) STA. 3+00

SCALE: 1" = 10'



RESERVOIR DAM BASELINE (A–A) STA. 2+50

SCALE: 1" = 10'



RESERVOIR DAM BASELINE (A–A) STA. 2+00

SCALE: 1" = 10'

REVISIONS

SCALE: AS SHOWN

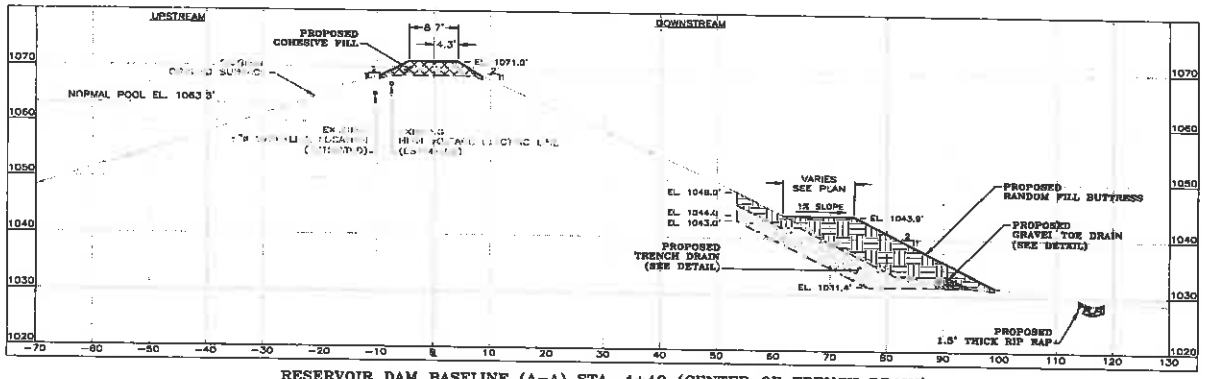
DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

DAM BASELINE A–A SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

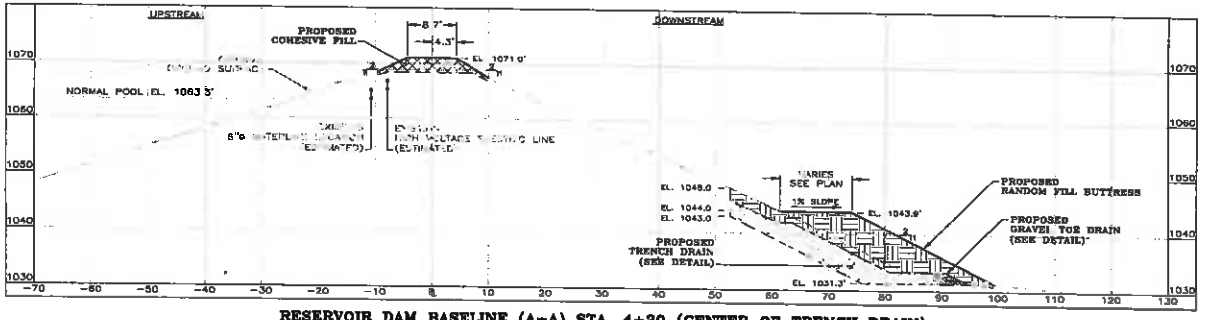
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 7



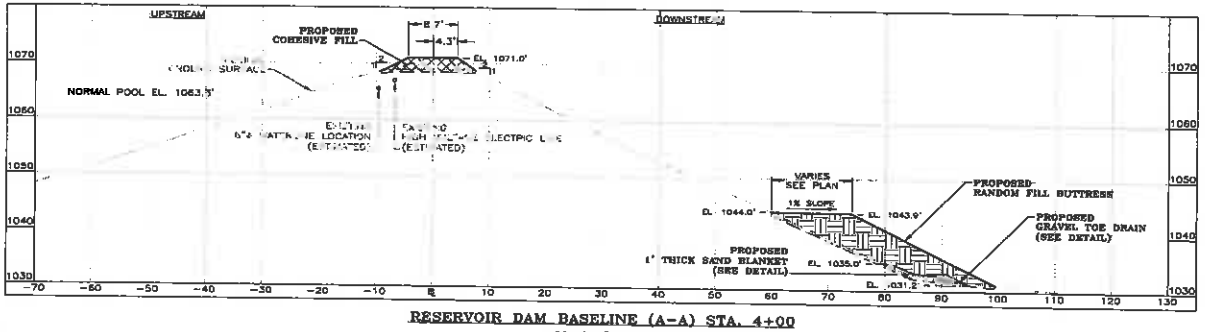
RESERVOIR DAM BASELINE (A-A) STA. 4+40 (CENTER OF TRENCH DRAIN)

SCALE: 1" = 10'



RESERVOIR DAM BASELINE (A-A) STA. 4+20 (CENTER OF TRENCH DRAIN)

SCALE: 1" = 10'



RESERVOIR DAM BASELINE (A-A) STA. 4+00

SCALE: 1" = 10'

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

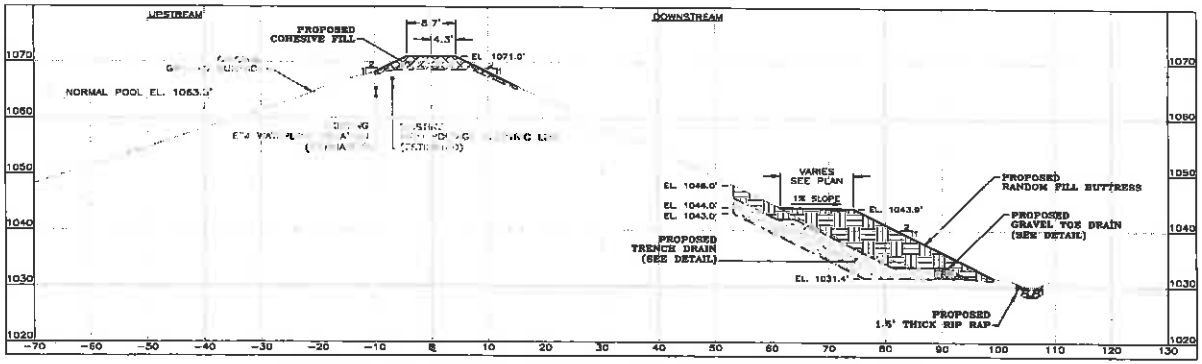
DRAWN BY: HNG
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

DAM BASELINE A-A SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

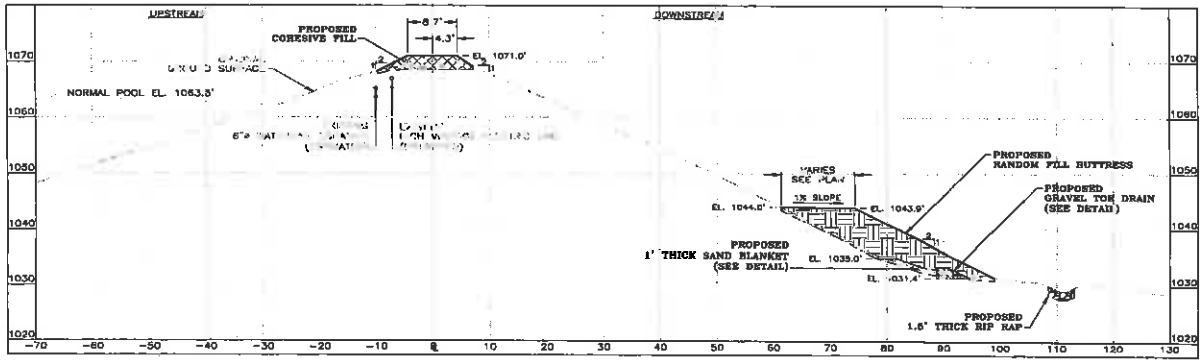
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 8



RESERVOIR DAM BASELINE (A-A) STA. 4+60 (CENTER OF TRENCH DRAIN)

SCALE: 1" = 10'



RESERVOIR DAM BASELINE (A-A) STA. 4+50

SCALE: 1" = 10'

REVISIONS

NO.	BY	DESCRIPTION

SCALE: AS SHOWN

DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

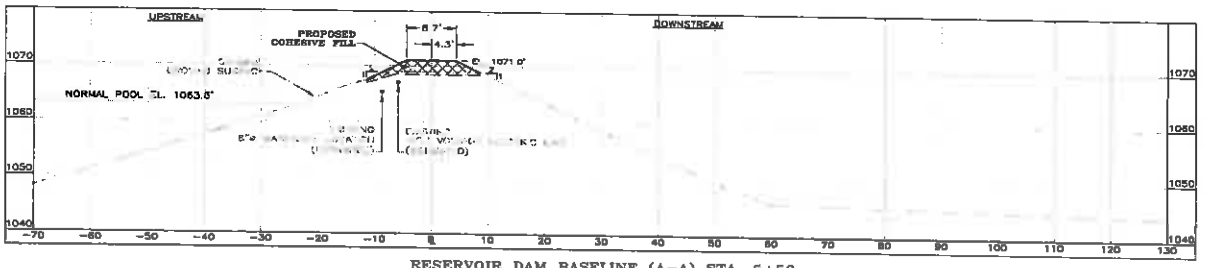
DAM BASELINE A-A SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

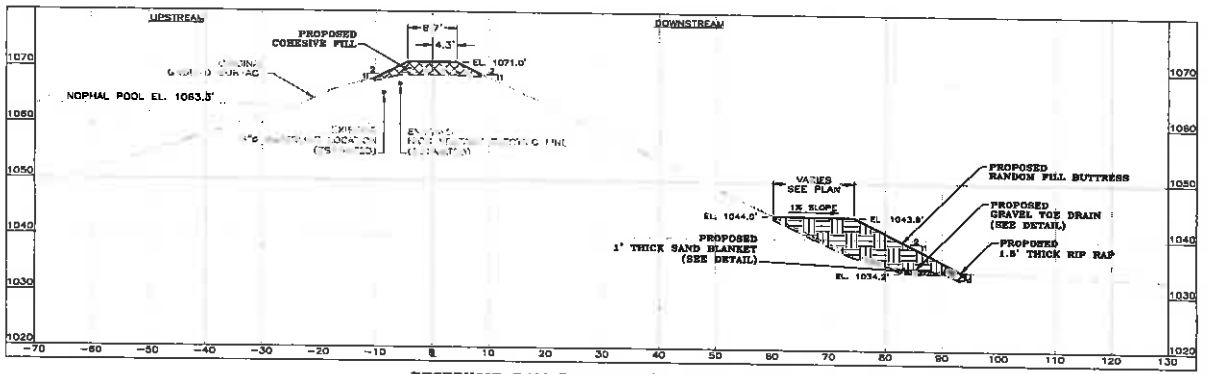
PROJECT NO.
10143

DRAWING NO.
9



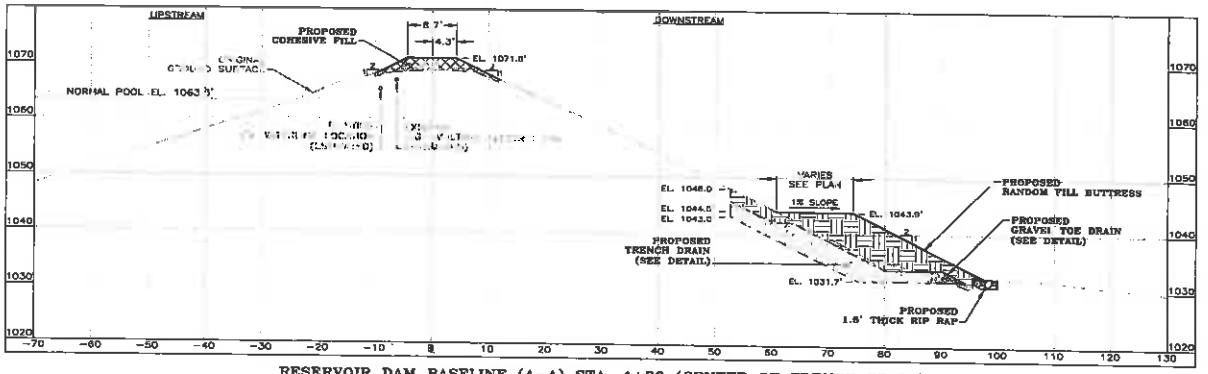
RESERVOIR DAM BASELINE (A-A) STA. 5+50

SCALE: 1" = 10'



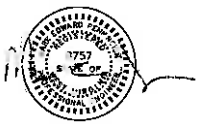
RESERVOIR DAM BASELINE (A-A) STA. 5+00

SCALE: 1" = 10'



RESERVOIR DAM BASELINE (A-A) STA. 4+80 (CENTER OF TRENCH DRAIN)

SCALE: 1" = 10'



REVISIONS

NO.	BY	DESCRIPTION

SCALE: AS SHOWN

DRAWN BY: HNC
CHECKED BY: MCP

PARKS & RECREATION
WVDNR

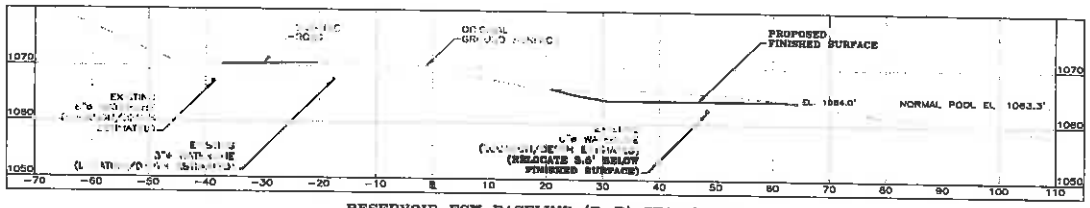
DAM BASELINE A-A SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

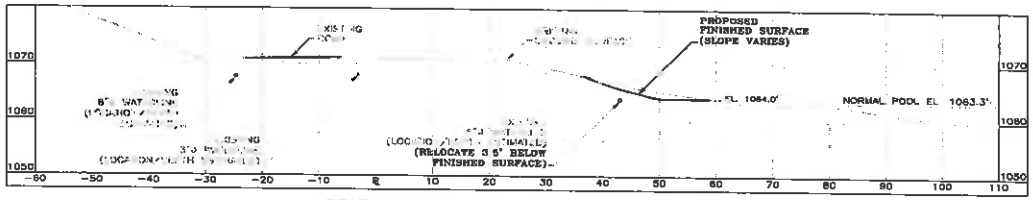
PROJECT NO.
10143

DRAWING NO.
10



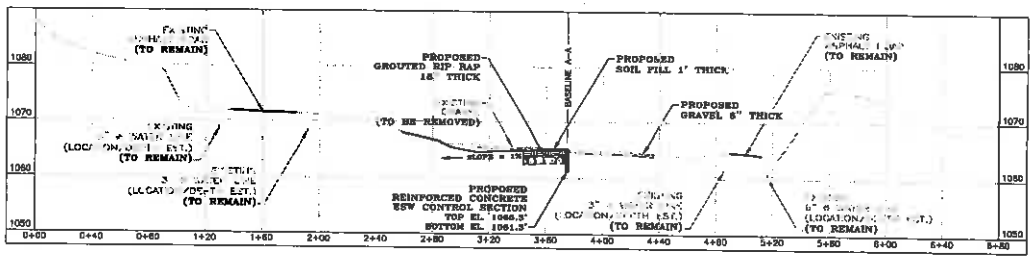
RESERVOIR ESW BASELINE (B–B) STA. 2+44.3

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B–B) STA. 2+00

SCALE: 1" = 10'



ESW BASELINE B–B PROFILE

SCALE: V: 1" = 10', H: 1" = 40'

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

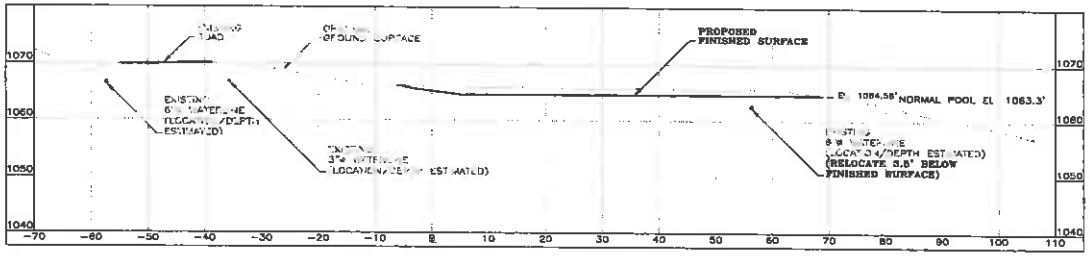
DRAWN BY: HNG
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

ESW BASELINE B–B PROFILE & SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

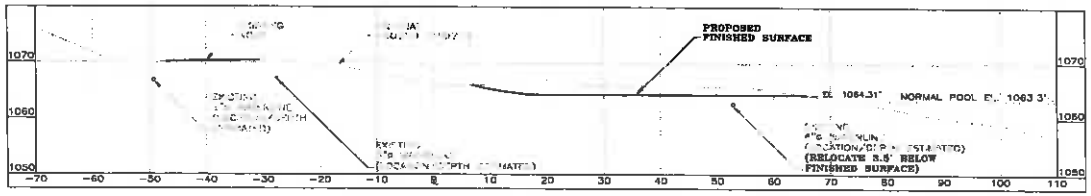
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 11



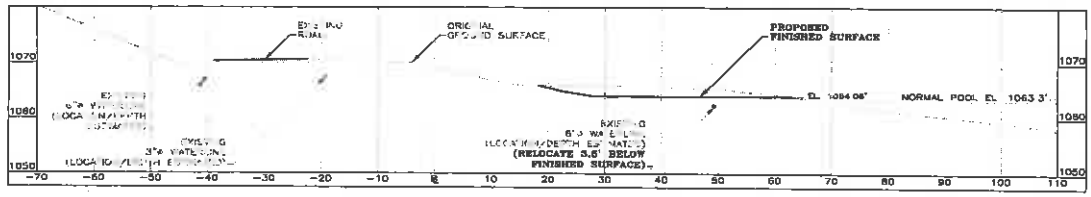
RESERVOIR ESW BASELINE (B-B) STA. 3+00

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B-B) STA. 2+75

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B-B) STA. 2+50

SCALE: 1" = 10'

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

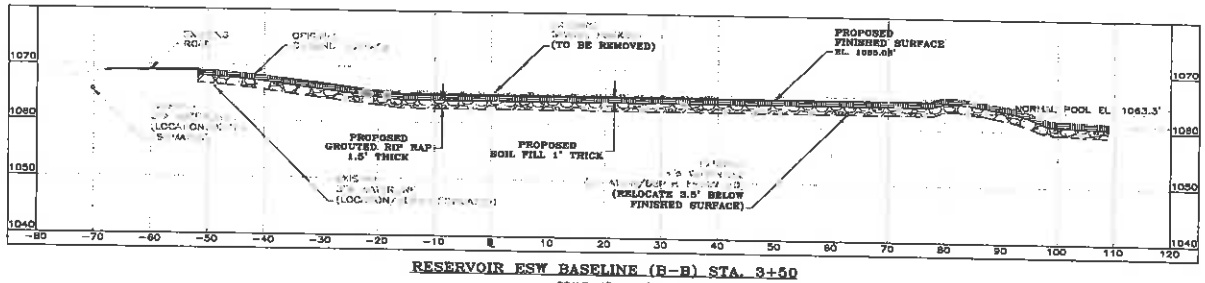
ESW BASELINE B-B SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

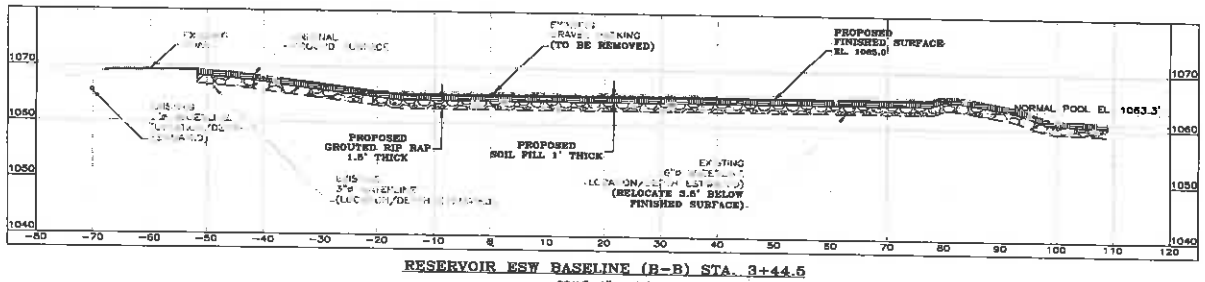
PROJECT NO.
10143

DRAWING NO.
12



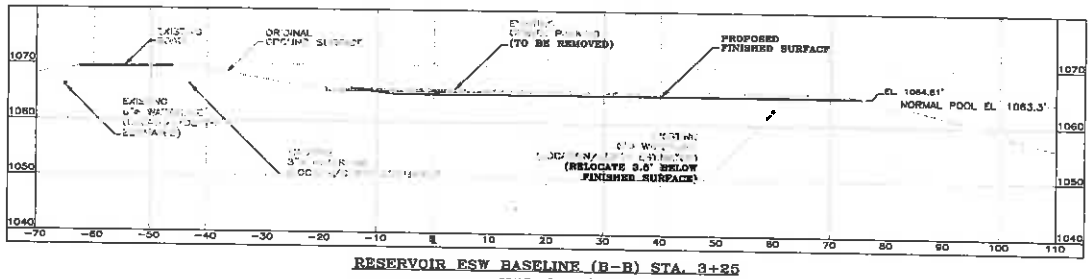
RESERVOIR ESW BASELINE (B-B) STA. 3+50

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B-B) STA. 3+44.5

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B-B) STA. 3+25

SCALE: 1" = 10'

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE: AS SHOWN

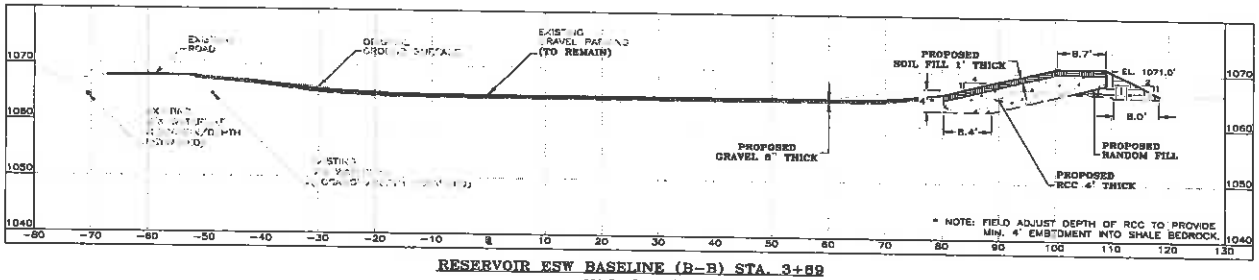
DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

ESW BASELINE B-B SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

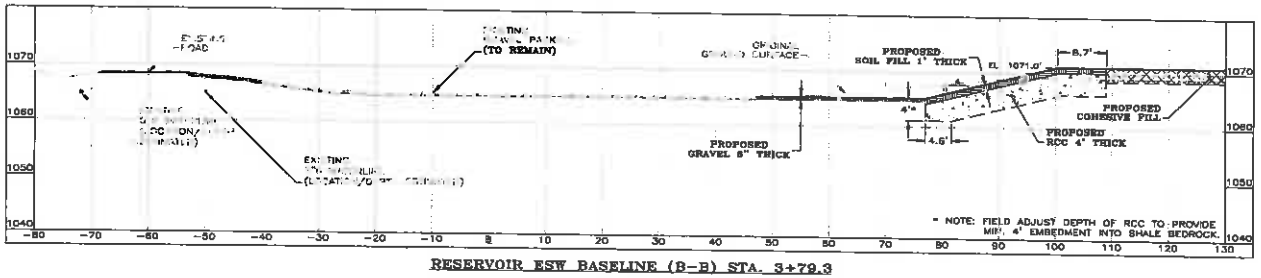
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11
PROJECT NO.
1043
DRAWING NO.
13



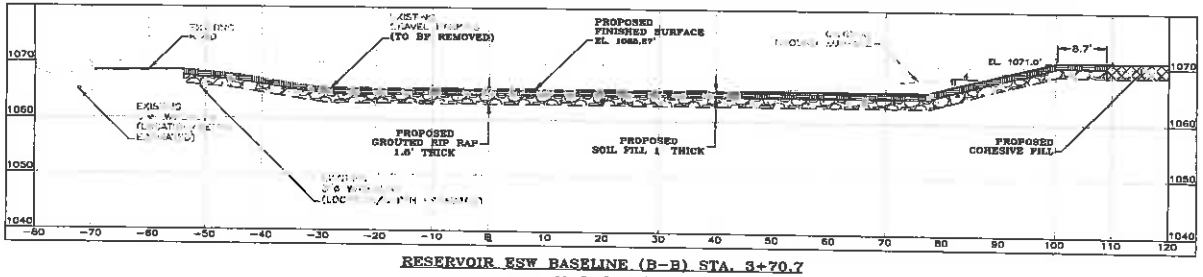
RESERVOIR ESW BASELINE (B-B) STA. 3+69

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B-B) STA. 3+79.3

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B-B) STA. 3+70.7

SCALE: 1" = 10'

8757

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

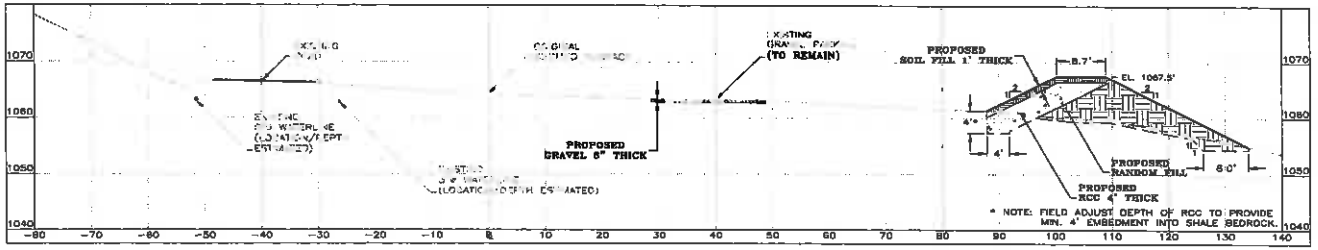
ESW BASELINE B-B SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

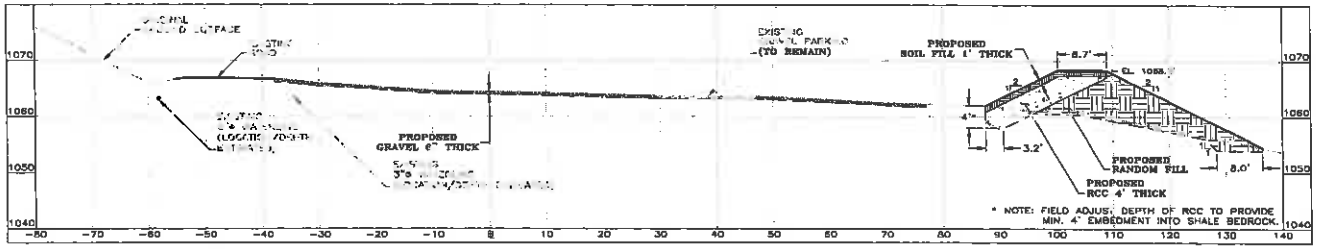
PROJECT NO.
10143

DRAWING NO.
14



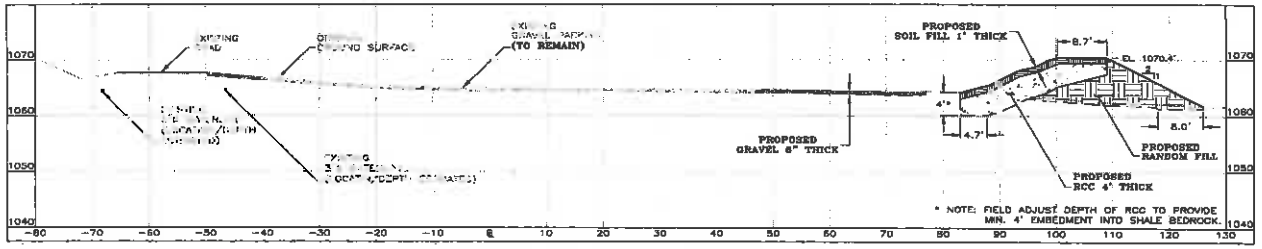
RESERVOIR ESW BASELINE (B–B) STA. 4+50

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B–B) STA. 4+36

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B–B) STA. 4+00

SCALE: 1" = 10'

REVISIONS

DESCRIPTION	BY	DATE

SCALE: AS SHOWN

DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

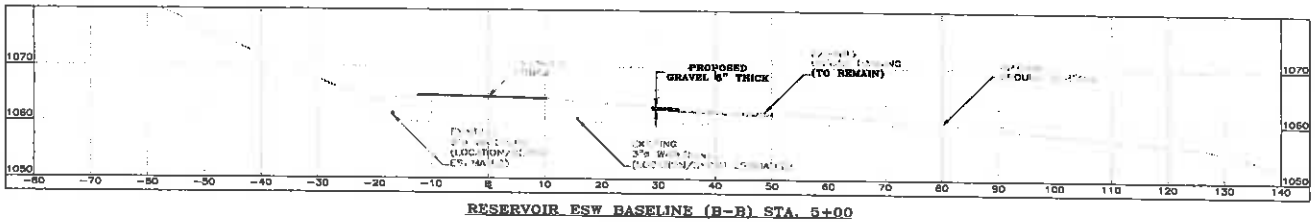
ESW BASELINE B–B SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

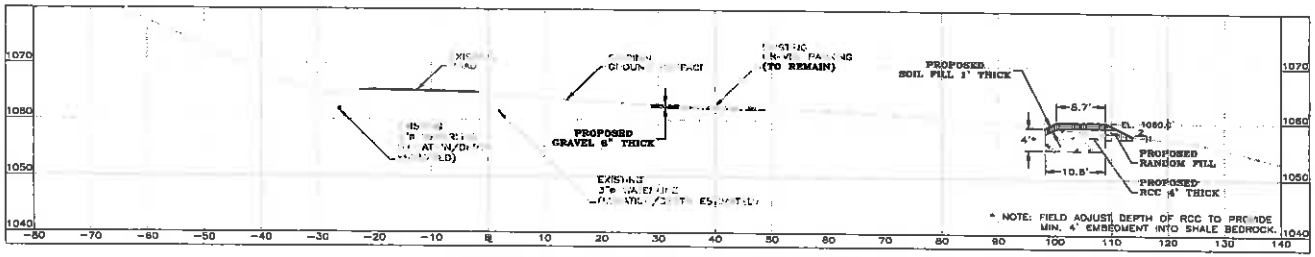
PROJECT NO.
10143

DRAWING NO.
15



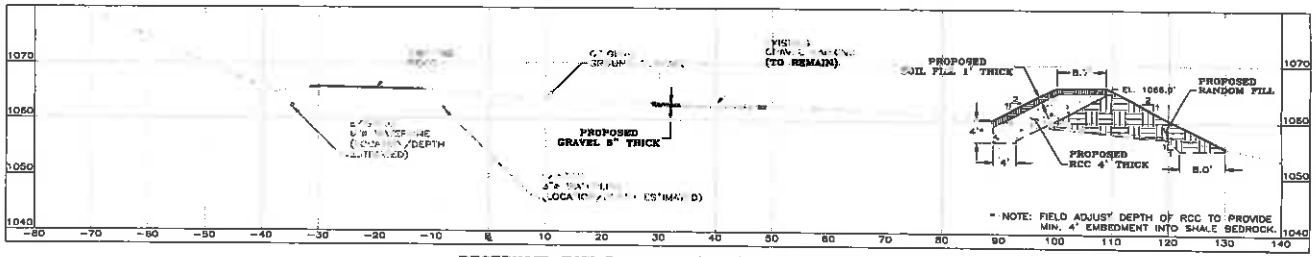
RESERVOIR ESW BASELINE (B-B) STA. 5+00

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B-B) STA. 4+87.7

SCALE: 1" = 10'



RESERVOIR ESW BASELINE (B-B) STA. 4+75.7

SCALE: 1" = 10'

REVISIONS

DATE	BY	DESCRIPTION

SCALE: AS SHOWN

DRAWN BY: HNC

CHECKED BY: MEP

PARKS & RECREATION

WVDNR

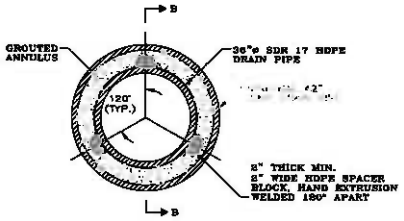
ESW BASELINE B-B SECTIONS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

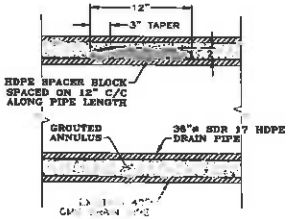
DATE 12/30/11

PROJECT NO. 10143

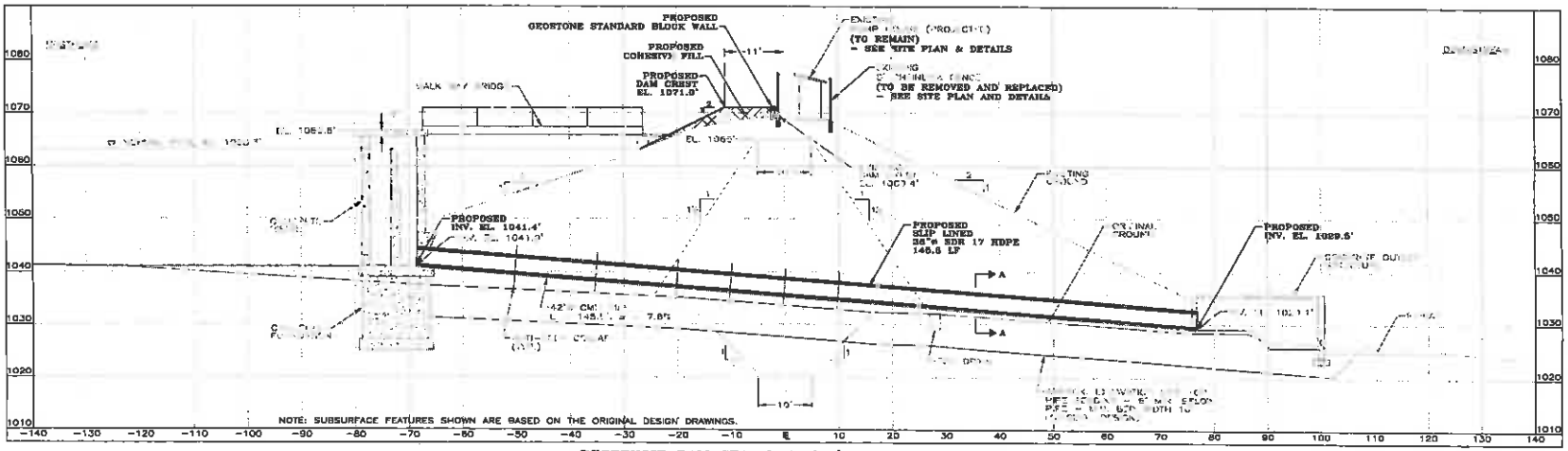
DRAWING NO. 16



SECTION A–A
TYPICAL SLIP LINE DETAIL
SCALE: NTS



SECTION B–B
TYPICAL SLIP LINE DETAIL
SCALE: NTS



RESERVOIR DAM STA. 3+49.32/PSW PIPE PROFILE
SCALE: 1" = 10'

REVISIONS

DESCRIPTION	BY	DATE

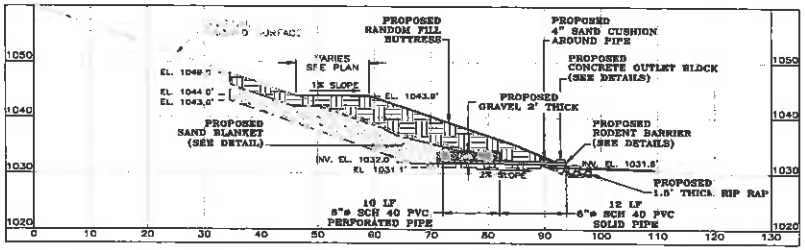
SCALE: AS SHOWN
DRAWN BY: MHD
CHECKED BY: MEP

PARKS & RECREATION
OWNER

PSW PIPE PROFILE & DETAILS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

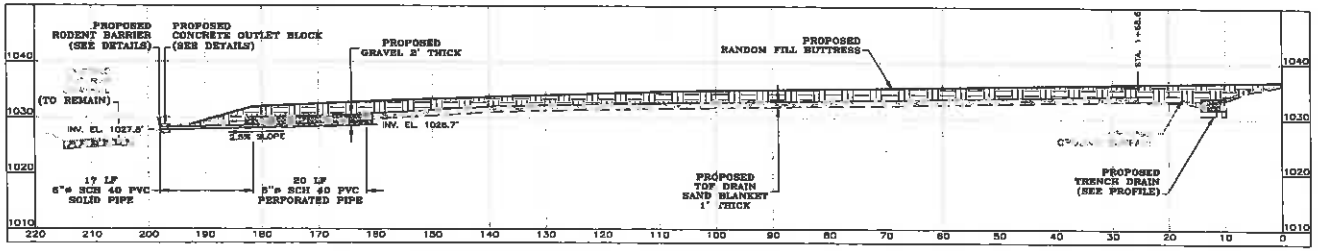
CIVIL TECH ENGINEERING, INC.
HORLICK, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 17



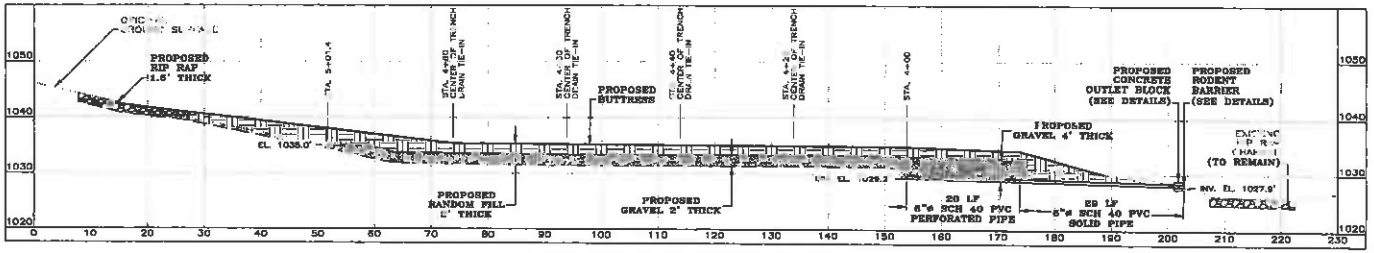
RIGHT GROIN TRENCH DRAIN PROFILE (P3-P3)

SCALE: 1" = 10'



RIGHT SAND BLANKET & TOE DRAIN PROFILE (P2-P2)

SCALE: 1" = 10'



LEFT TOE DRAIN PROFILE (P1-P1)

SCALE: 1" = 10'

8757 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

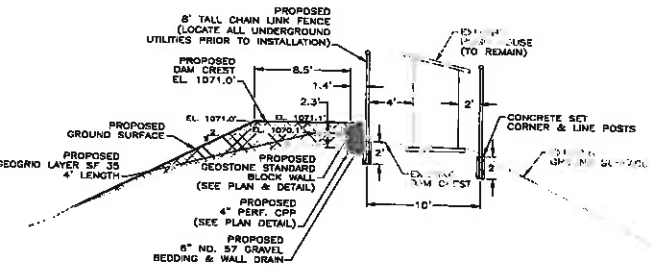
DRAWN BY: HNC
CHECKED BY: MGP

PARKS & RECREATION
WVDNR

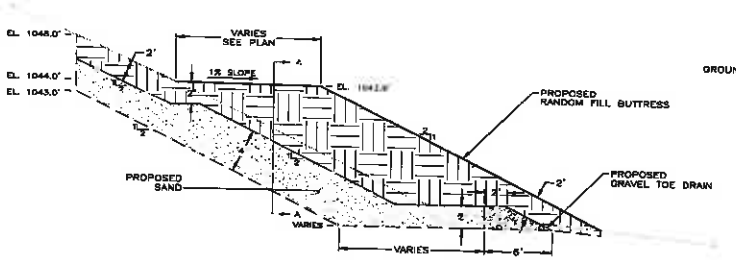
TOE & GROIN DRAIN PROFILES
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

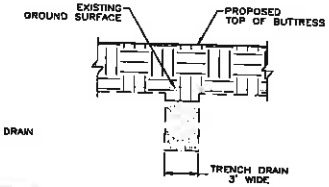
DATE 12/30/11
PROJECT No. 10143
DRAWING No. 18



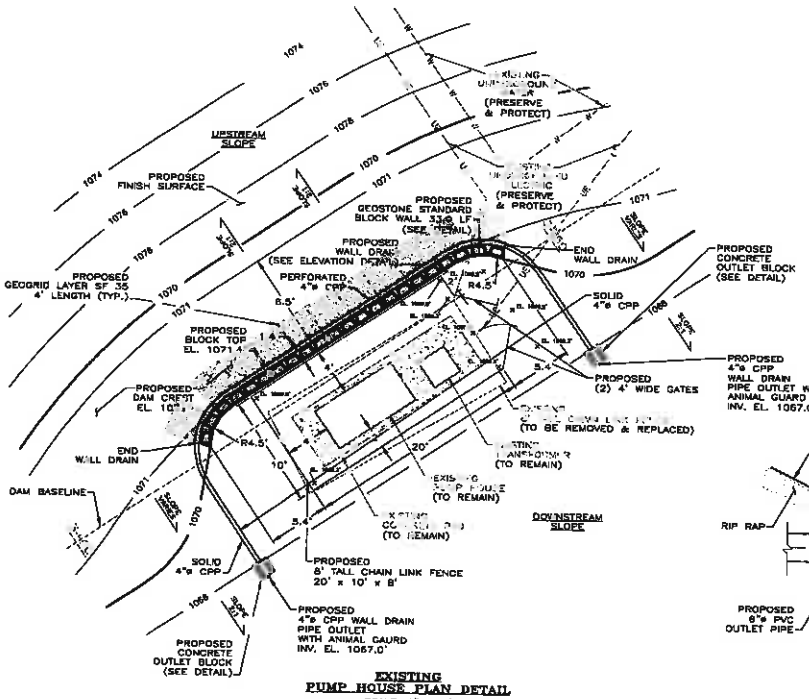
EXISTING
PUMP HOUSE ELEVATION DETAIL
SCALE: 1" = 5'



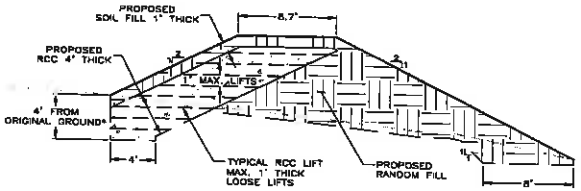
TRENCH DRAIN DETAIL
SCALE: 1" = 5'



TRENCH DRAIN DETAIL (A-A)
SCALE: 1" = 5'

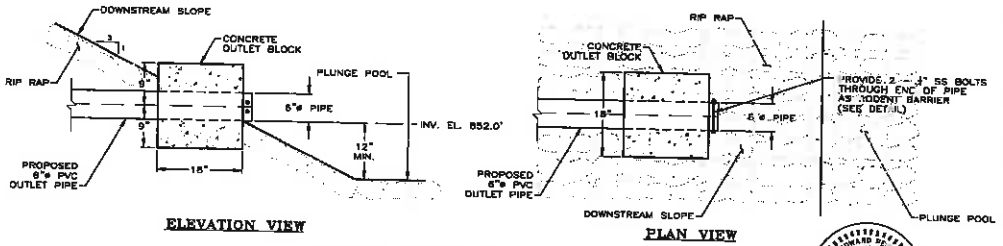


EXISTING
PUMP HOUSE PLAN DETAIL
SCALE: 1" = 5'



TYPICAL ESW BERM & RCC LIFT DETAIL
SCALE: 1" = 5'

* NOTE: FIELD ADJUST DEPTH OF RCC TO PROVIDE MIN. 4' EMBEDMENT INTO SHALE BEDROCK.



ELEVATION VIEW

PLAN VIEW

CONCRETE OUTLET BLOCK DETAILS
SCALE: NTS

REVISIONS

DATE	BY	DESCRIPTION

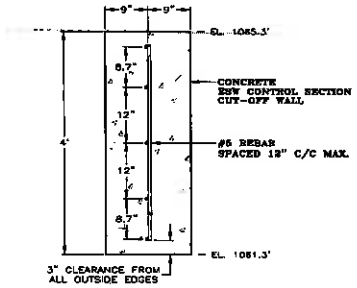
SCALE: AS SHOWN
DRAWN BY: JWC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

MISCELLANEOUS DETAILS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

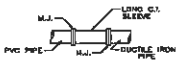
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 19



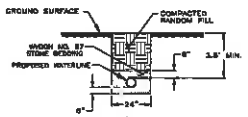
TYPICAL CUT-OFF WALL SECTION

SCALE: 1" = 4'



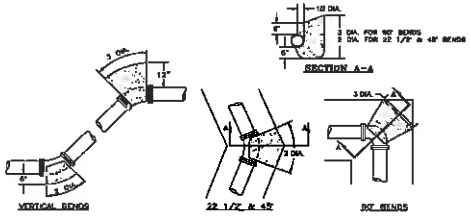
TRANSITION DETAIL

SCALE: NTS



PIPE BEDDING/BACKFILL DETAIL

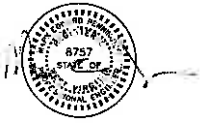
SCALE: NTS

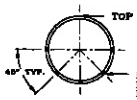


CONCRETE THRUST BLOCK & ANCHOR WEIGHTS

SCALE: NTS

WATERLINE PIPE RELOCATION DETAILS





NOTE: INSTALL SOLID PVC CAP AT END OF PERFORATED PIPE.

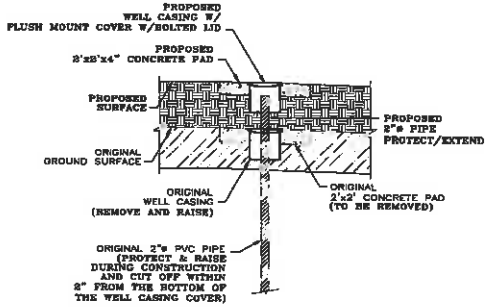
PERFORATED GRAVEL DRAIN PIPE DETAIL

SCALE: 1" = 1'

ELEVATION VIEW PLAN VIEW

RODENT BARRIER DETAIL

SCALE: 1" = 1'



OBSERVATION WELL RAISING DETAIL

SCALE: NTS

REVISIONS

NO.	DATE	DESCRIPTION

SCALE: AS SHOWN

DRAWN BY: HNC
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

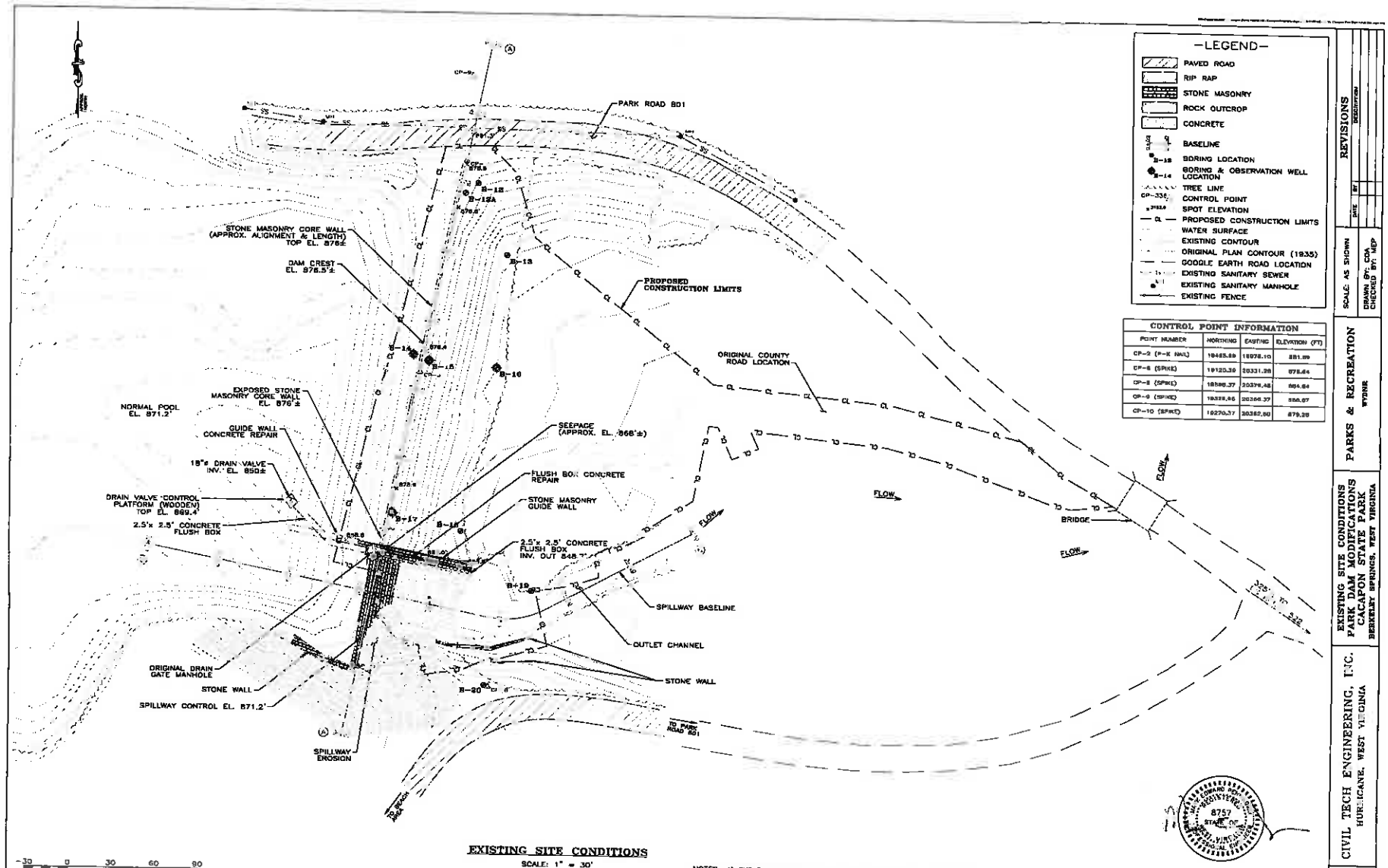
MISCELLANEOUS DETAILS
RESERVOIR DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HUNTINGTON, WEST VIRGINIA

DATE
10/06/11

PROJECT NO.
10143

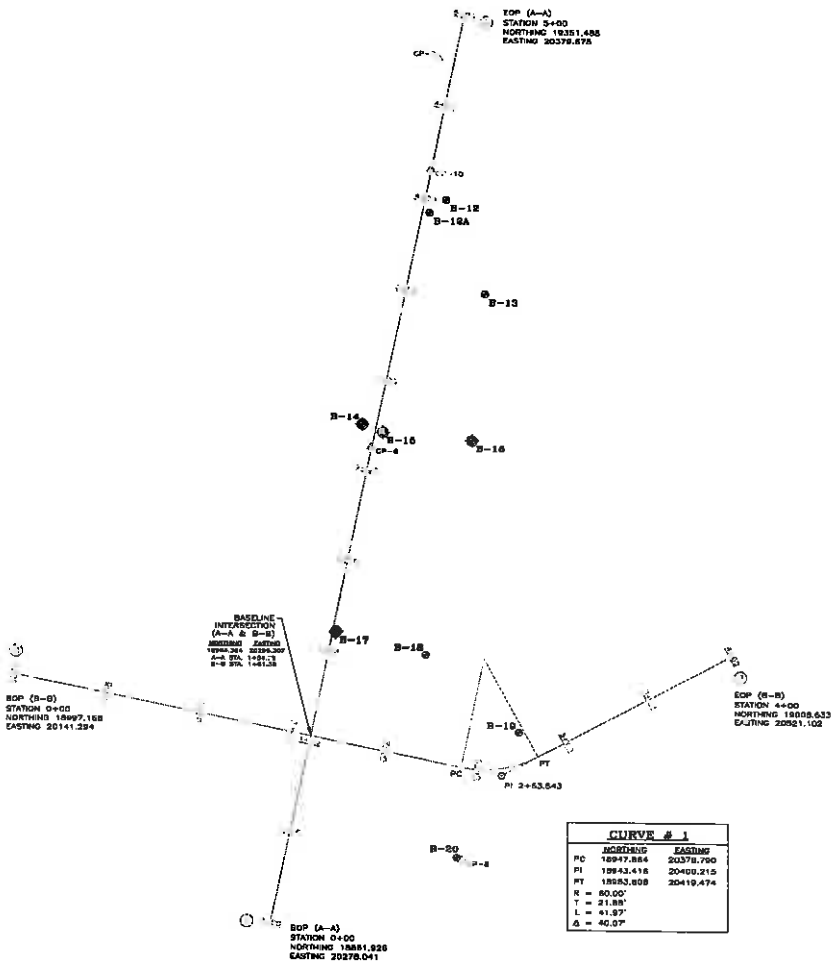
DRAWING NO.
20



EXISTING SITE CONDITIONS

SCALE: 1" = 30'

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 602' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 808, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED JUNE 8, 1935.



—LEGEND—

- BASELINE
- B-18 BORING LOCATION
- B-14 BORING & OBSERVATION WELL LOCATION
- CP-7 CONTROL POINT

CONTROL POINT INFORMATION

POINT NUMBER	NORTHING	EASTING	ELEVATION (FT)
CP-2 (P-K NAIL)	19405.89	19978.10	881.89
CP-6 (SPIKE)	19120.39	20331.29	878.84
CP-8 (SPIKE)	18998.37	20378.45	884.84
CP-9 (SPIKE)	19328.98	20368.37	886.87
CP-10 (SPIKE)	19270.37	20362.50	879.28

CURVE # 1

	NORTHING	EASTING
PC	18947.864	20378.790
PI	18943.416	20400.215
PT	18883.808	20419.474
R =	60.00'	
T =	21.88'	
L =	41.97'	
Δ =	40.07°	

BASELINE LAYOUT PLAN

SCALE: 1" = 30'

-30 0 30 60 90

Scale: 1" = 30'

NOTES: 1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 902' LOCATED AT INTERSECTION OF PARK ROAD 601 & PARK ROAD 608, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.

8757 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

REVISIONS

DATE	BY	DESCRIPTION

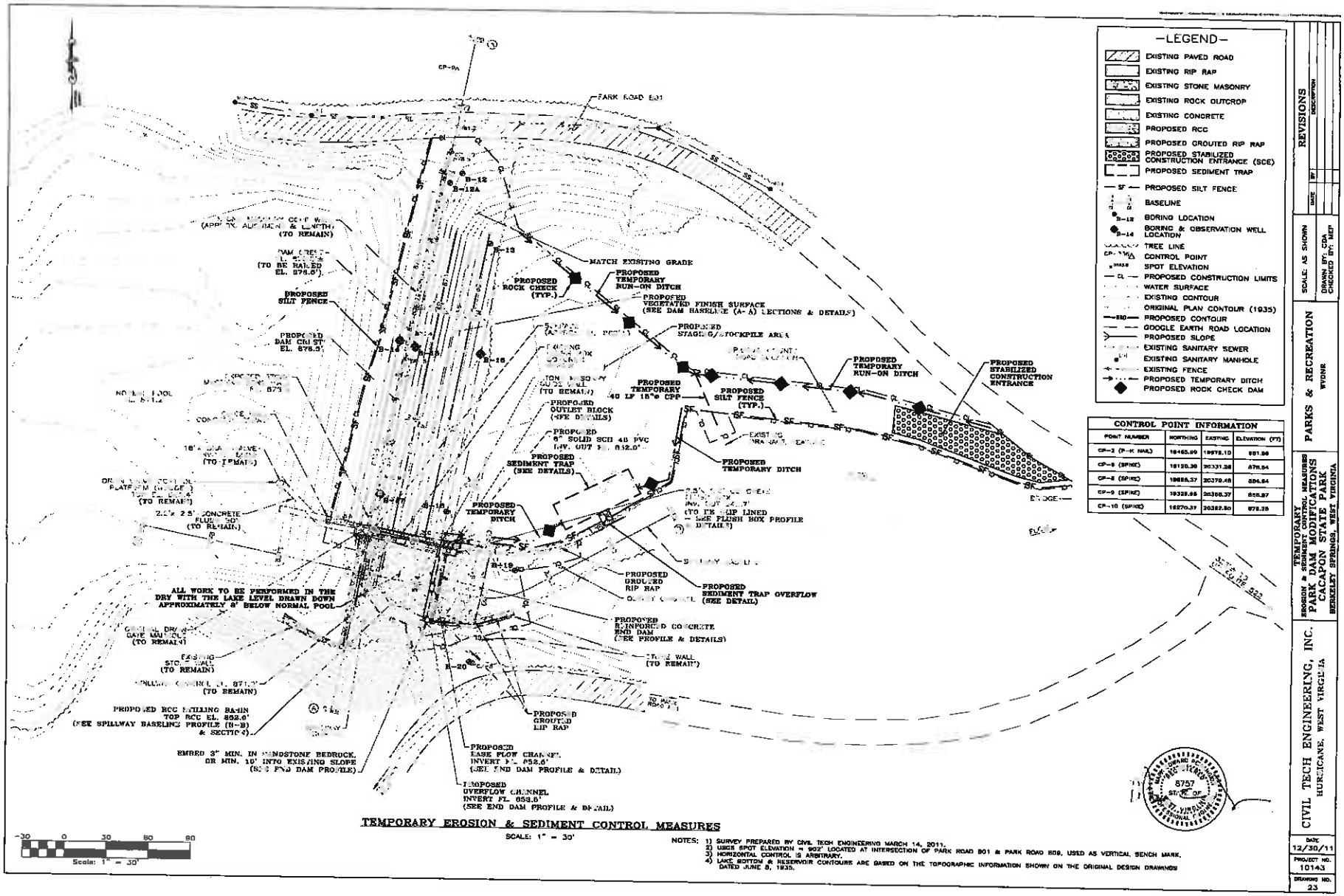
SCALE: AS SHOWN
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

BASELINE LAYOUT PLAN
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 22



TEMPORARY EROSION & SEDIMENT CONTROL MEASURES

SCALE: 1" = 30'

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USES SPOT ELEVATION = 902' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 808, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED JUNE 8, 1935.

REVISIONS

NO.	DESCRIPTION	DATE	BY

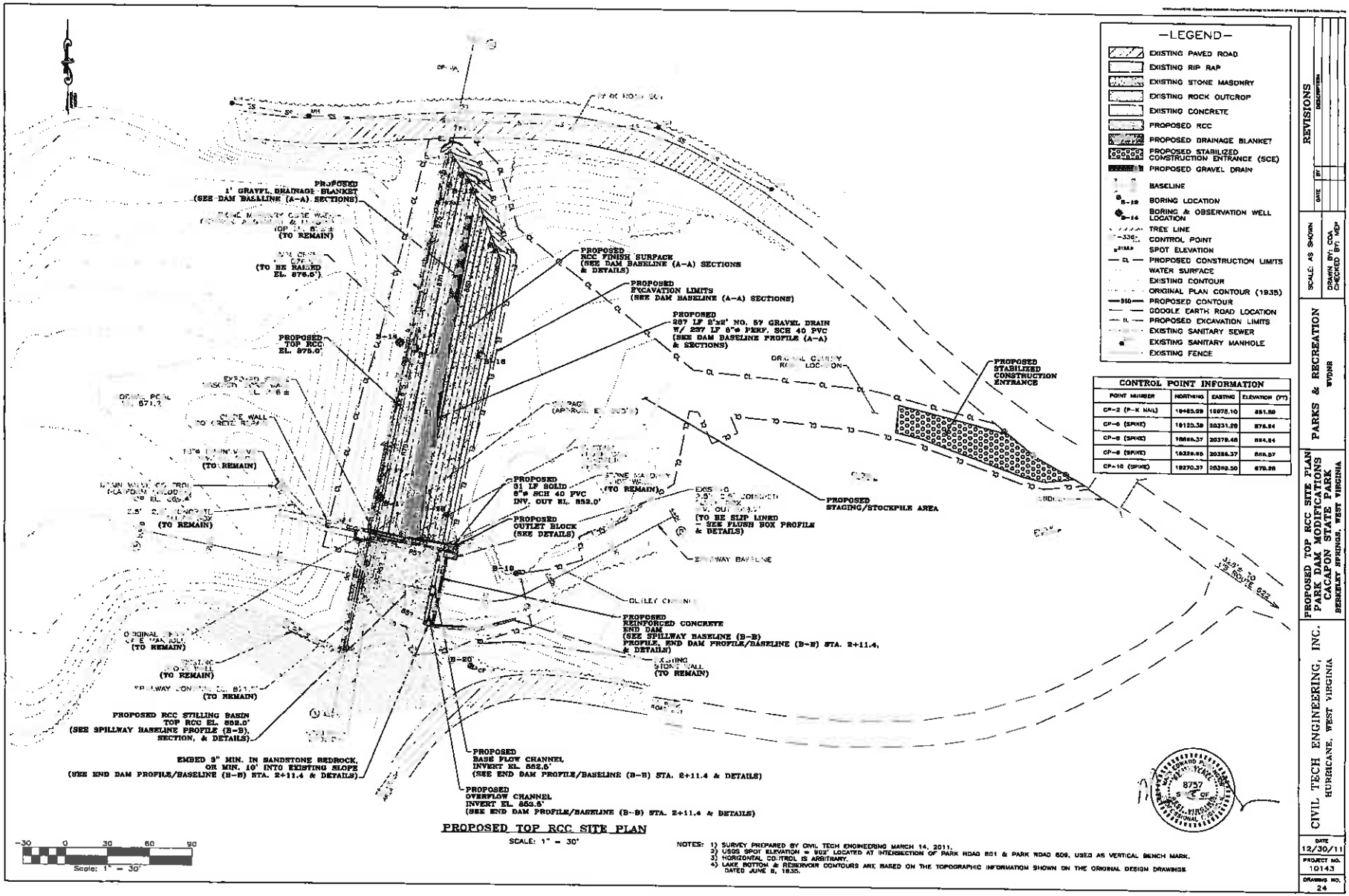
SCALE: AS SHOWN
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WYOMING

TEMPORARY EROSION & SEDIMENT CONTROL MEASURES
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE: 12/30/11
PROJECT NO.: 10143
DRAWING NO.: 23



PROPOSED TOP RCC SITE PLAN

SCALE: 1" = 30'

NOTES:
1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 902' LOCATED AT INTERSECTION OF PARK ROAD 601 & PARK ROAD 609, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED JUNE 8, 1935.

REVISIONS
DESCRIPTION | DATE | BY

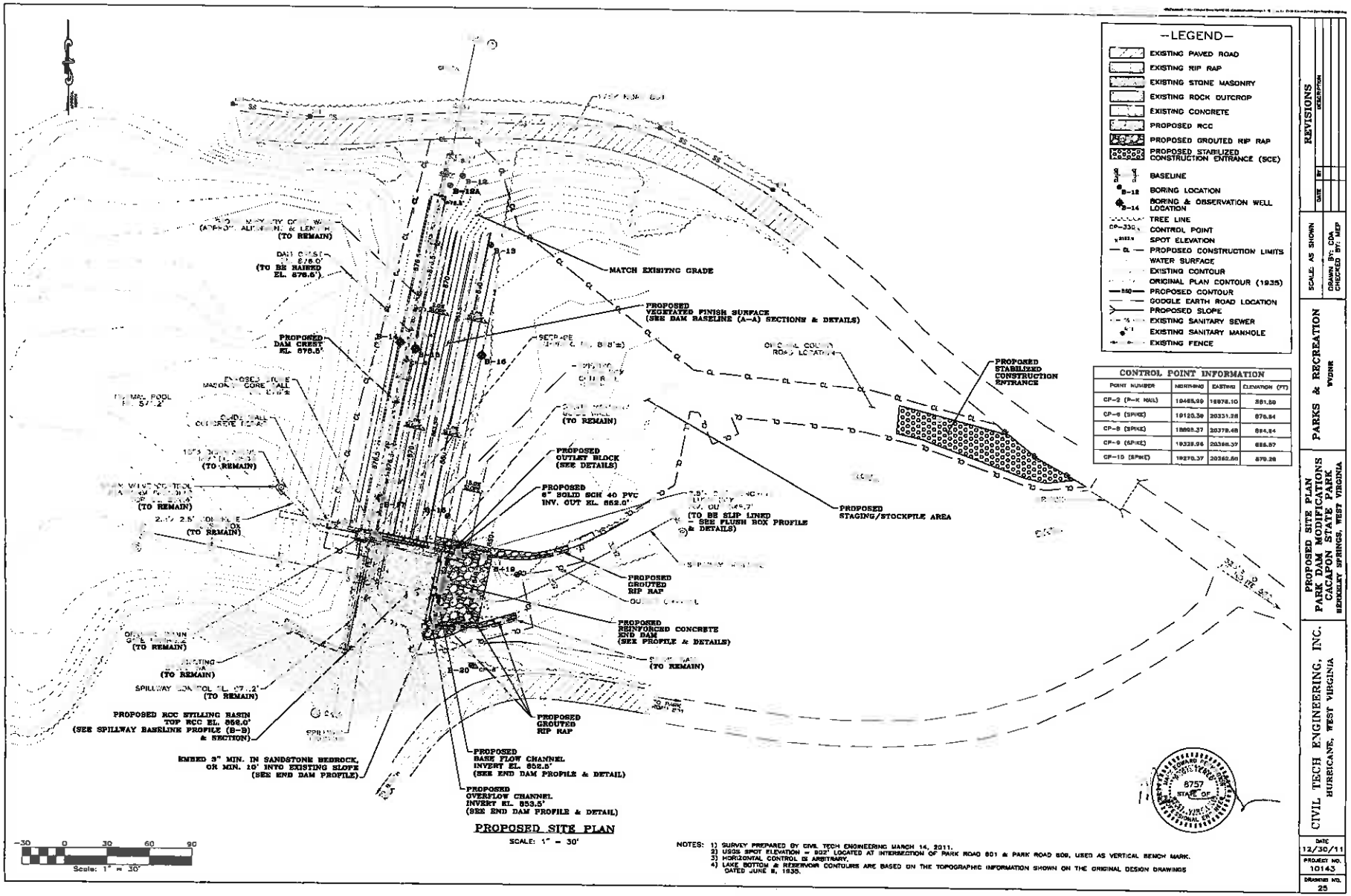
SCALE: AS SHOWN
DRAWN BY: CDA
CHECKED BY: MEP

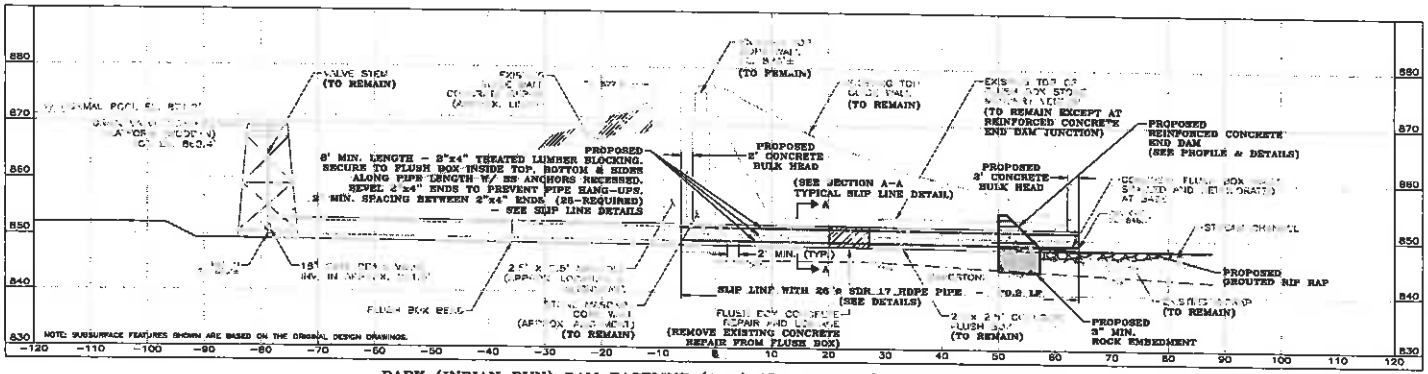
PARKS & RECREATION
WVDNR

PROPOSED TOP RCC SITE PLAN
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

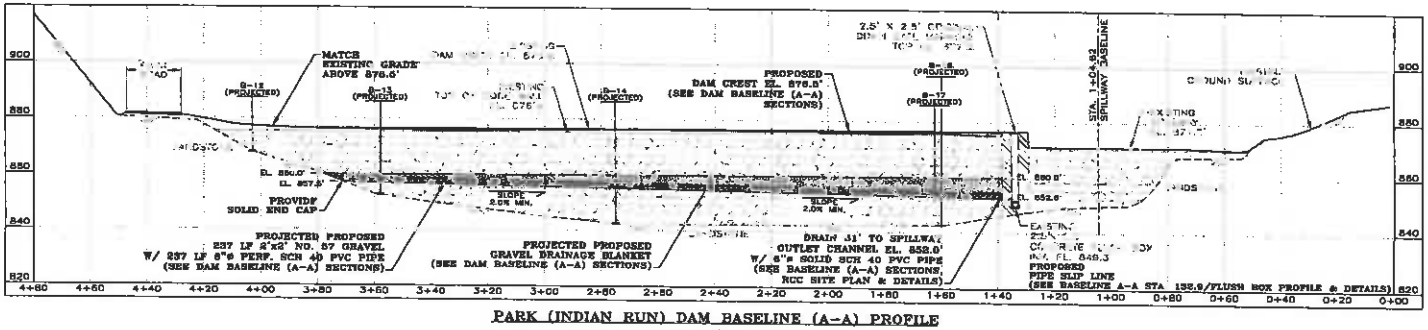
DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 24


–LEGEND–
EXISTING PAVED ROAD
EXISTING RIP RAP
EXISTING STONE MASONRY
EXISTING ROCK OUTCROP
EXISTING CONCRETE
PROPOSED RCC
PROPOSED GROUTED RIP RAP
PROPOSED STABILIZED CONSTRUCTION ENTRANCE (SCE)
BASELINE
B-12 BORING LOCATION
B-14 BORING & OBSERVATION WELL LOCATION
TREE LINE
CP-332 CONTROL POINT
SPOT ELEVATION
PROPOSED CONSTRUCTION LIMITS
WATER SURFACE
EXISTING CONTOUR
ORIGINAL PLAN CONTOUR (1935)
PROPOSED CONTOUR
GOOGLE EARTH ROAD LOCATION
PROPOSED SLOPE
EXISTING SANITARY SEWER
EXISTING SANITARY MANHOLE
EXISTING FENCE
CONTROL POINT INFORMATION
POINT NUMBER | NORTHING | EASTING | ELEVATION (FT)
CP-2 (P-K NAIL) | 19485.99 | 19978.10 | 581.59
CP-6 (SPIKE) | 19125.39 | 20331.38 | 576.84
CP-8 (SPIKE) | 18868.37 | 20378.68 | 584.64
CP-9 (SPIKE) | 19328.96 | 20386.39 | 588.87
CP-10 (SPIKE) | 19270.37 | 20362.86 | 579.28
MATCH EXISTING GRADE
PROPOSED VEGETATED FINISH SURFACE (SEE DAM BASELINE (A–A) SECTIONS & DETAILS)
PROPOSED DAM CREST EL. 576.5'
PROPOSED STABILIZED CONSTRUCTION ENTRANCE
PROPOSED STAGING/STOCKPILE AREA
PROPOSED OUTLET BLOCK (SEE DETAILS)
PROPOSED 6" SOLID SCH 40 PVC INV. OUT EL. 562.0'
(TO BE SLIP LINED – SEE PLUSH BOX PROFILE & DETAILS)
PROPOSED GROUTED RIP RAP
PROPOSED REINFORCED CONCRETE END DAM (SEE PROFILE & DETAILS)
PROPOSED RCC STILLING BASIN TOP RCC EL. 568.0' (SEE SPILLWAY BASELINE PROFILE (S–S) & SECTION)
EMBED 3" MIN. IN SANDSTONE BEDROCK, OR MIN. 10' INTO EXISTING SLOPE (SEE END DAM PROFILE)
PROPOSED BASE FLOW CHANNEL INVERT EL. 562.5' (SEE END DAM PROFILE & DETAIL)
PROPOSED OVERFLOW CHANNEL INVERT EL. 553.5' (SEE END DAM PROFILE & DETAIL)
(TO REMAIN)
(TO BE RAISED EL. 576.5')
PROPOSED SITE PLAN
SCALE: 1" = 30'
–30 0 30 60 90
Scale: 1" = 30'
NOTES: 1) SURVEY PREPARED BY CIVIL TECH ENGINEERING MARCH 14, 2011.
2) USGS SPOT ELEVATION = 932' LOCATED AT INTERSECTION OF PARK ROAD 801 & PARK ROAD 808, USED AS VERTICAL BENCH MARK.
3) HORIZONTAL CONTROL IS ARBITRARY.
4) LAKE BOTTOM & RESERVOIR CONTOURS ARE BASED ON THE TOPOGRAPHIC INFORMATION SHOWN ON THE ORIGINAL DESIGN DRAWINGS DATED JUNE 8, 1935.
8757 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
REVISIONS
DESCRIPTION
DATE
BY
SCALE: AS SHOWN
DRAWN BY: CDA
CHECKED BY: MEP
PARKS & RECREATION
WVDNR
PROPOSED SITE PLAN
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA
DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 25



PARK (INDIAN RUN) DAM BASELINE (A-A) STA. 1+32.9/FLUSH BOX PROFILE

SCALE: 1" = 10'



PARK (INDIAN RUN) DAM BASELINE (A-A) PROFILE

SCALE: 1" = 20'

REVISIONS

NO.	DESCRIPTION	BY	DATE

SCALE: AS SHOWN

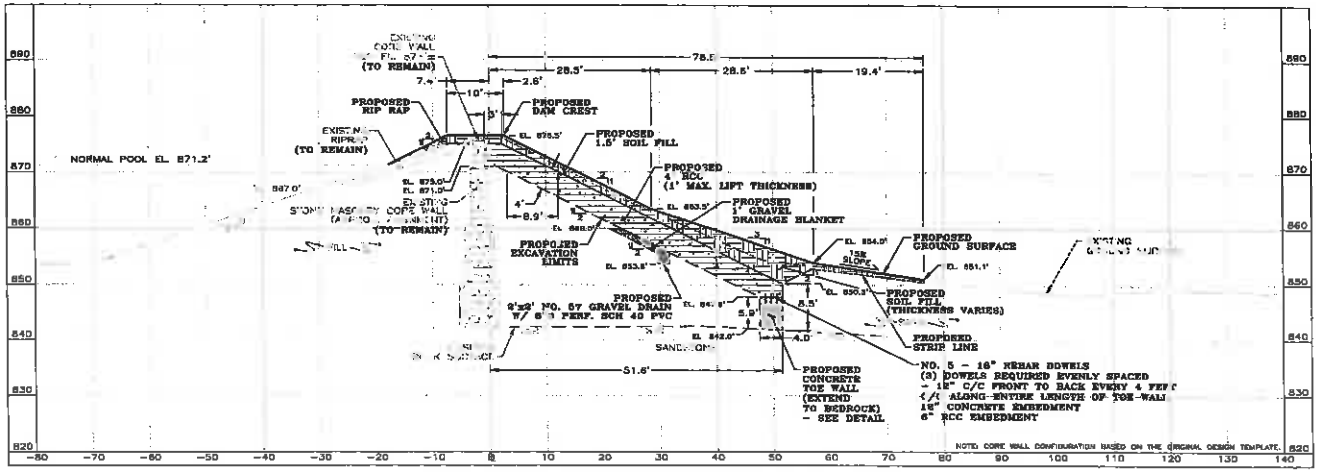
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

DAM BASELINE A-A PROFILE & STA. 1+32.9 FLUSH BOX PROFILE & DETAILS
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

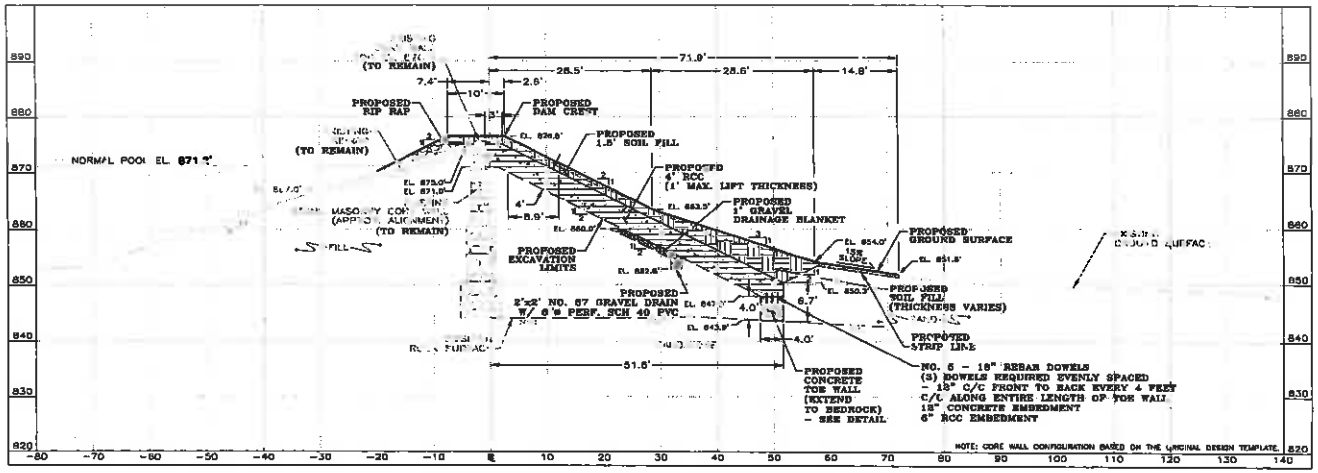
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 26



PARK (INDIAN RUN) DAM BASELINE (A–A) STA. 2+00

SCALE: 1" = 10'



PARK (INDIAN RUN) DAM BASELINE (A–A) STA. 1+50

SCALE: 1" = 10'

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

DRAWN BY: CRA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

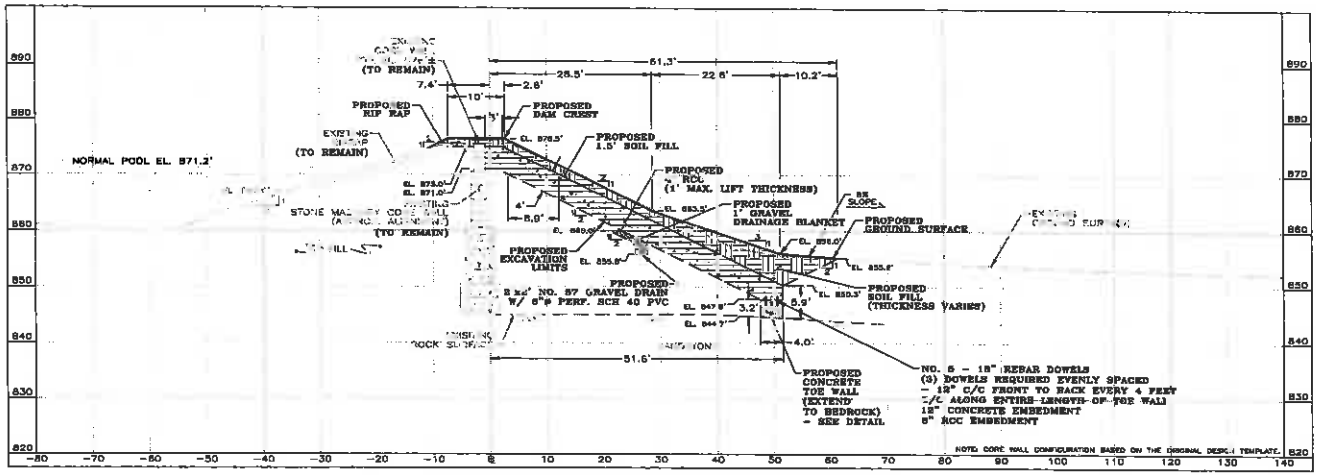
DAM BASELINE A-A SECTIONS
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

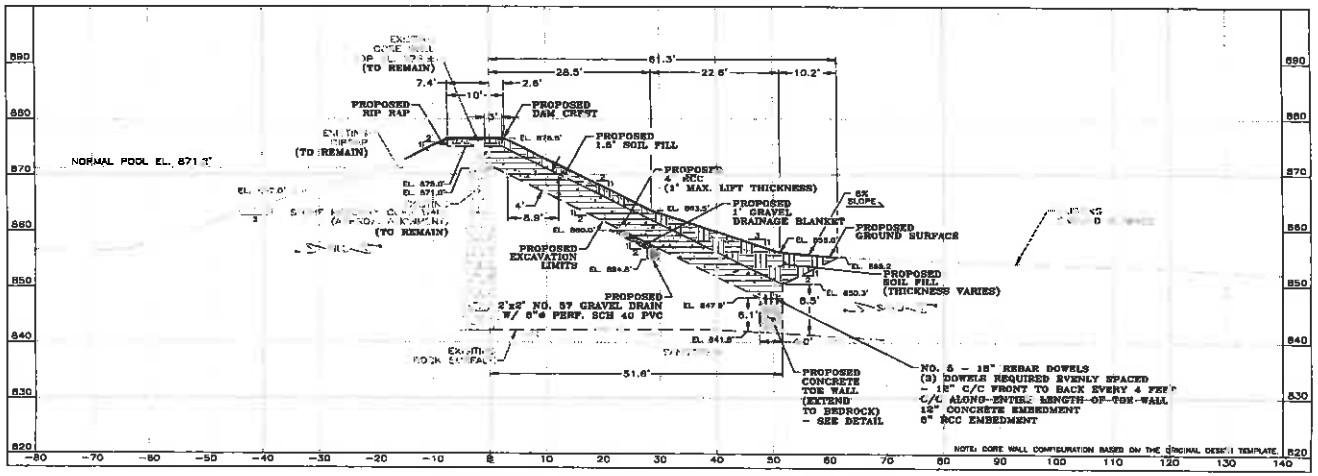
PROJECT NO.
10143

DRAWING NO.
27



PARK (INDIAN RUN) DAM BASELINE (A-A) STA. 3+00

SCALE: 1" = 10'



PARK (INDIAN RUN) DAM BASELINE (A-A) STA. 2+50

SCALE: 1" = 10'

REVISIONS

DESCRIPTION	BY

SCALE: AS SHOWN

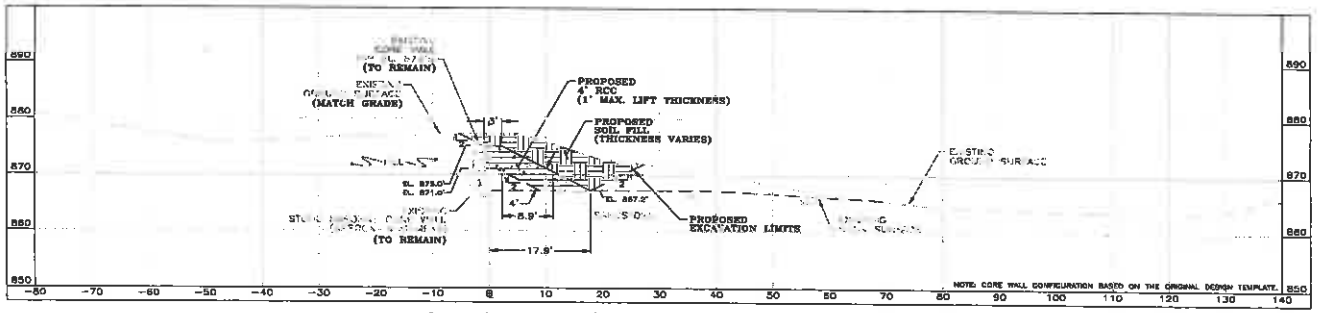
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

DAM BASELINE A-A SECTIONS
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

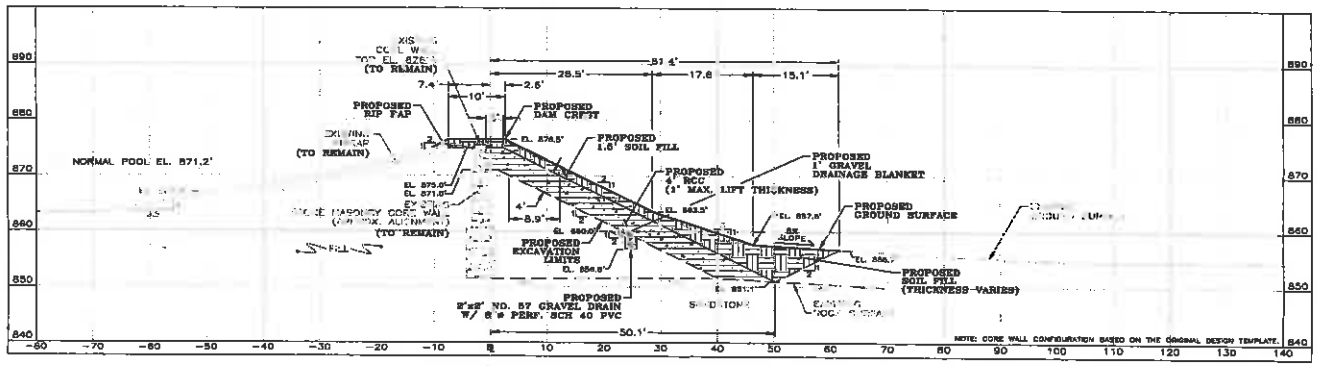
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 28



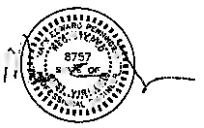
PARK (INDIAN RUN) DAM BASELINE (A–A) STA. 4+00

SCALE: 1" = 10'



PARK (INDIAN RUN) DAM BASELINE (A–A) STA. 3+50

SCALE: 1" = 10'



REVISIONS

NO.	DATE	DESCRIPTION

SCALE: AS SHOWN

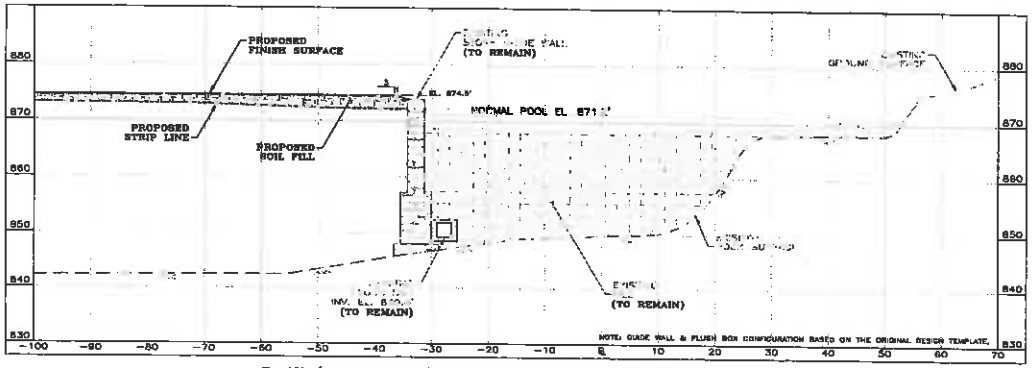
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

DAM BASELINE A–A SECTIONS
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

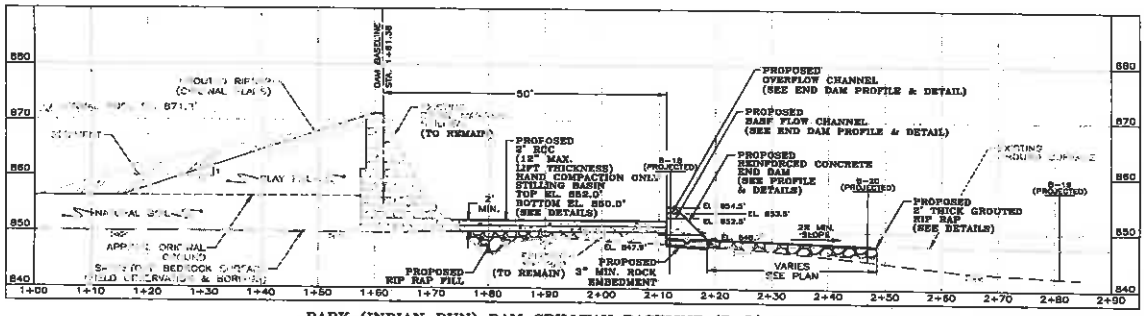
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11
PROJECT NO.
10143
DRAWING NO.
28



PARK (INDIAN RUN) SPILLWAY BASELINE (B–B) STA.. 1+50

SCALE: 1" = 10'



PARK (INDIAN RUN) DAM SPILLWAY BASELINE (B–B) PROFILE

SCALE: 1" = 10'

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

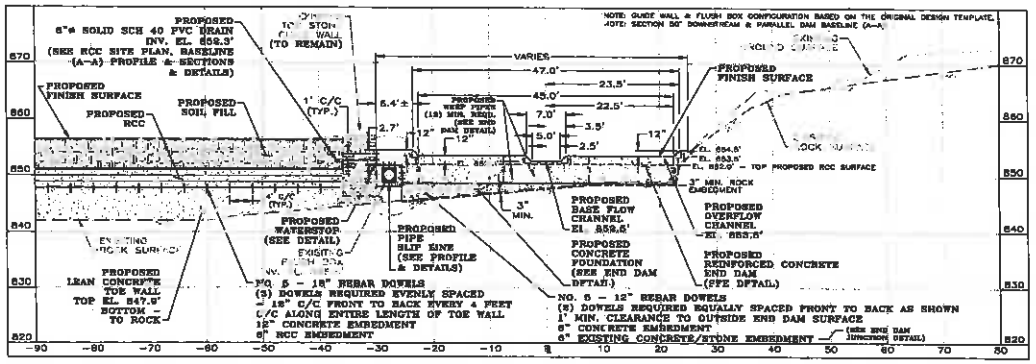
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

NEW BASELINE B-B PROFILE & SECTION
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

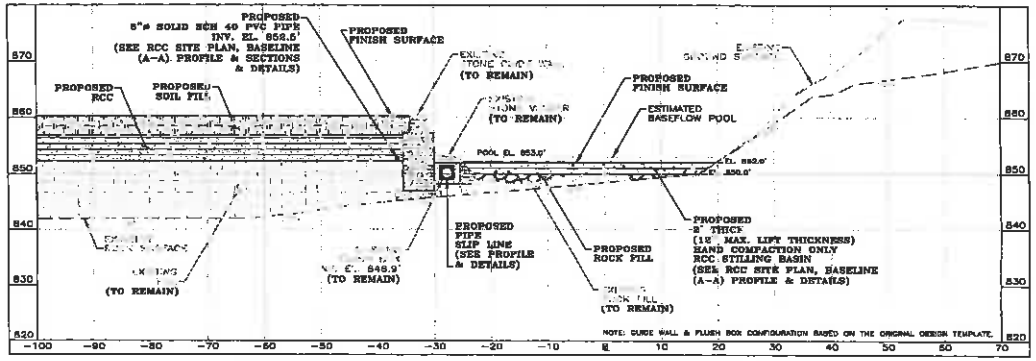
DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 30



PARK (INDIAN RUN) DAM SPILLWAY BASELINE (B-B) STA. 2+11.4/RCC STILLING BASIN END DAM PROFILE

SCALE: 1" = 10'

NOTE: 1) CONSTRUCTION JOINTS TO BE EQUALLY SPACED 15' APART AS SHOWN ON THE PROFILE - 4 REQUIRED
2) WATERSTOP ALL CONSTRUCTION JOINTS
VINYLEX PVC RIBBON - INSTALL BY MANUFACTURER'S RECOMMENDATIONS.



PARK (INDIAN RUN) DAM SPILLWAY BASELINE (B-B) STA. 2+00

SCALE: 1" = 10'

REVISIONS

DESCRIPTION	DATE	BY

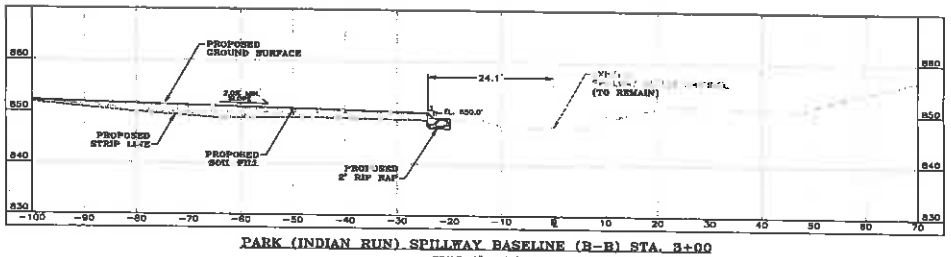
SCALE: AS SHOWN
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WYOMING

EST BASELINE B-B SECTIONS
PARK DAM MODIFICATIONS
CAMPAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

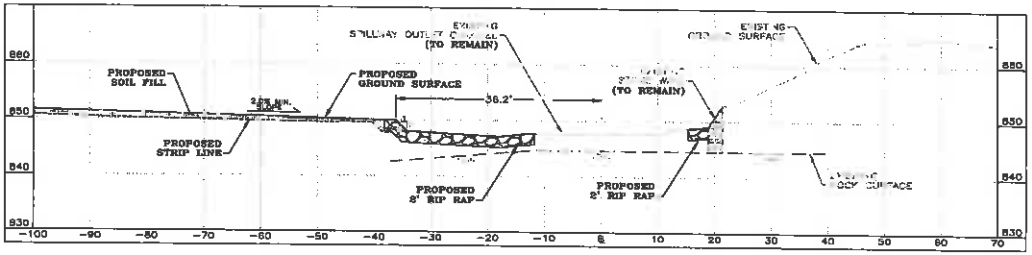
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 31



PARK (INDIAN RUN) SPILLWAY BASELINE (B-B) STA. 3+00

SCALE: 1" = 10'



PARK (INDIAN RUN) SPILLWAY BASELINE (B-B) STA. 2+50

SCALE: 1" = 10'

8757
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

REVISIONS

DATE	

SCALE: AS SHOWN

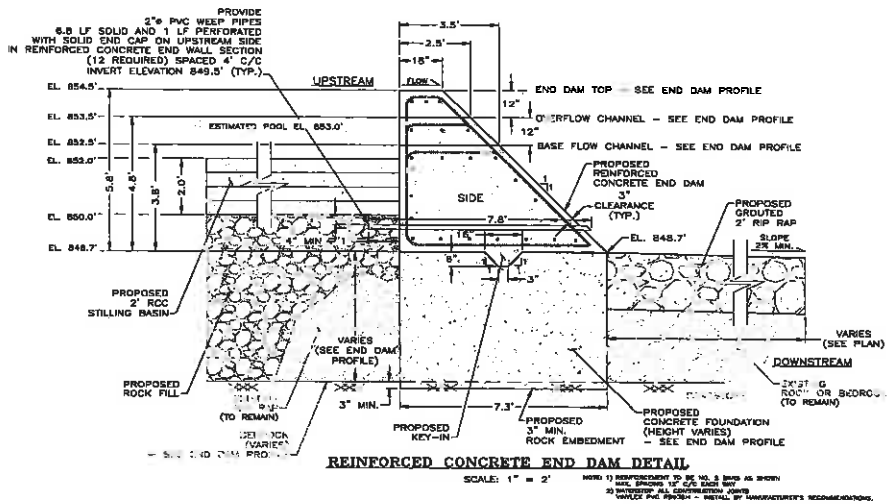
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

ESW BASELINE B-B SECTIONS
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

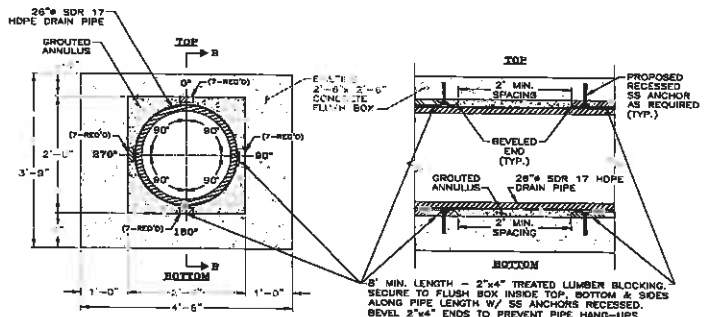
CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11
PROJECT NO.
10143
DRAWING NO.
32



REINFORCED CONCRETE END DAM DETAIL

SCALE: 1" = 2'



8' MIN. LENGTH - 2"x4" TREATED LUMBER BLOCKING. SECURE TO FLUSH BOX INSIDE TOP, BOTTOM & SIDES ALONG PIPE LENGTH W/ SS ANCHORS RECESSED. BEVEL 2"x4" ENDS TO PREVENT PIPE HANG-UPS. 2' MIN. SPACING BETWEEN 2"x4" ENDS. (28-REQUIRED) - SEE NOTES

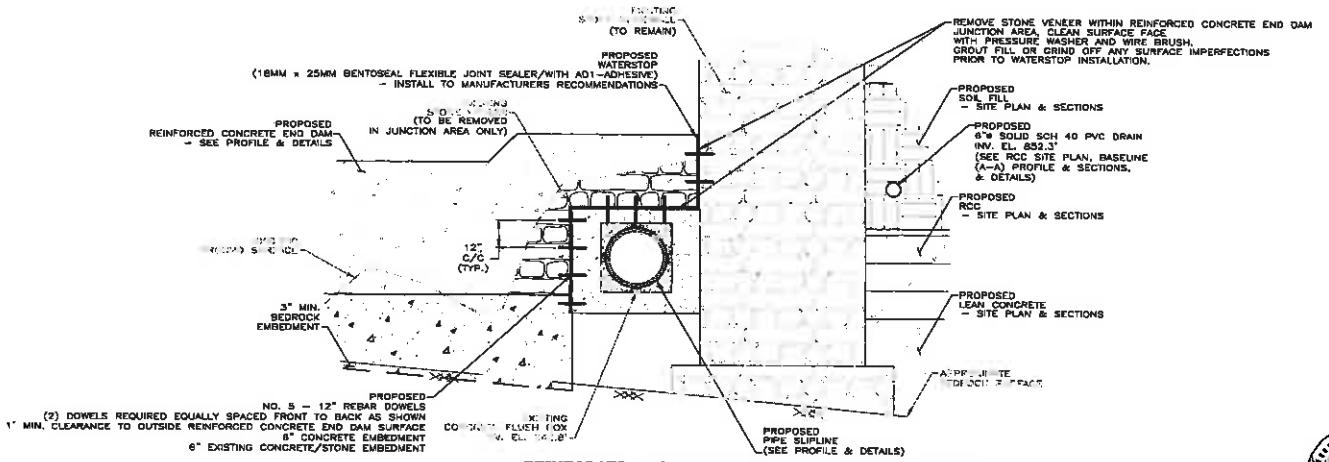
SECTION A-A
TYPICAL SLIP LINE DETAIL

SCALE: 1" = 10'

SECTION B-B
TYPICAL SLIP LINE DETAIL

SCALE: 1" = 10'

NOTES: (1) REMOVE ALL ROCKS, EXISTING CONCRETE REPAIR & DEBRIS FROM EXISTING CONCRETE FLUSH BOX PRIOR TO SLIP LINING.
(2) PROVIDE BLOCKING AS SHOWN TO MAINTAIN VERTICAL & HORIZONTAL ALIGNMENT & PREVENT FLOTATION OF THE NEW SLIP LINE PIPE DURING GROUTING.
(3) BLOCKING TO STOP 3' FROM INLET AND OUTLET ENDS TO PROVIDE A SOLID CONCRETE BULKHEAD.



REINFORCED CONCRETE END DAM JUNCTION DETAIL

SCALE: 1" = 2'

8757
STATE OF
PROFESSIONAL ENGINEER

REVISIONS

DESCRIPTION	DATE	BY

SCALE: AS SHOWN

DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

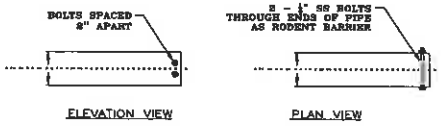
MISCELLANEOUS DETAILS
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE
12/30/11

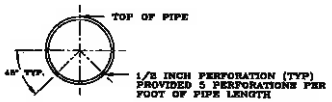
PROJECT NO.
10143

DRAWING NO.
33



RODENT BARRIER DETAIL

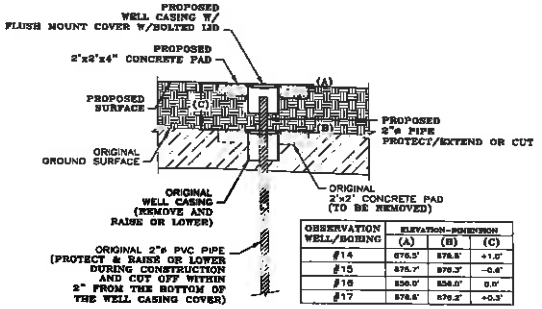
SCALE: 1" = 1'



NOTE: INSTALL SOLID PVC CAP AT END OF PERFORATED PIPE.

PERFORATED GRAVEL DRAIN PIPE DETAIL

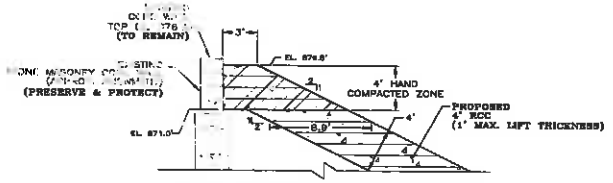
SCALE: 1" = 1'



OBSERVATION WELL/BORING	ELEVATION-DIMENSION (A)	(B)	(C)
#14	876.5'	875.5'	+1.0'
#15	875.7'	870.3'	-0.6'
#16	856.0'	856.0'	0.0'
#17	876.8'	876.2'	+0.3'

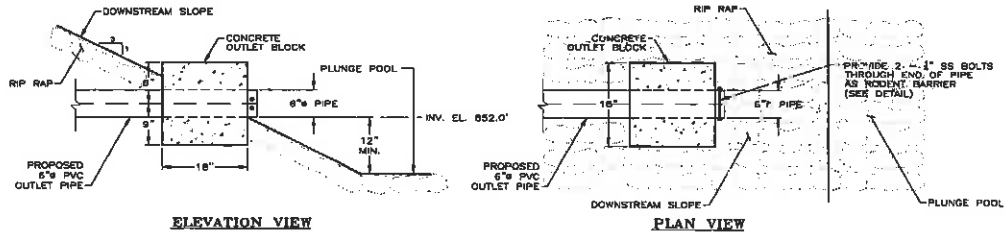
OBSERVATION WELL RAISING OR LOWERING DETAIL

SCALE: NTS



RCC CREST LIFT DETAIL

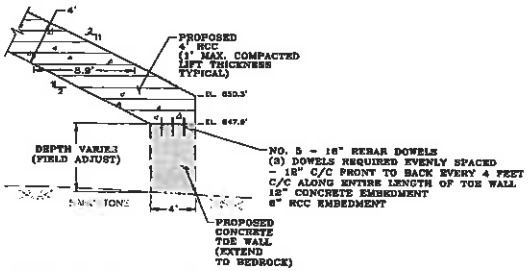
SCALE: NTS



ELEVATION VIEW PLAN VIEW

CONCRETE OUTLET BLOCK DETAILS

SCALE: NTS



RCC TOE WALL & SLOPE LIFT DETAIL

SCALE: NTS

8757 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

REVISIONS

NO.	BY	DESCRIPTION

SCALE: AS SHOWN

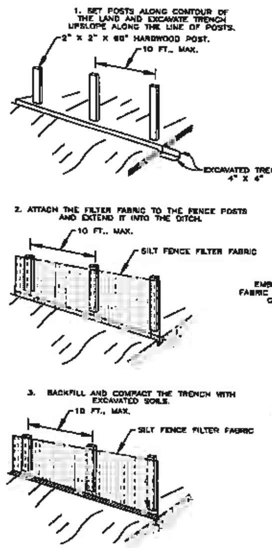
DRAWN BY: CDA CHECKED BY: MEP

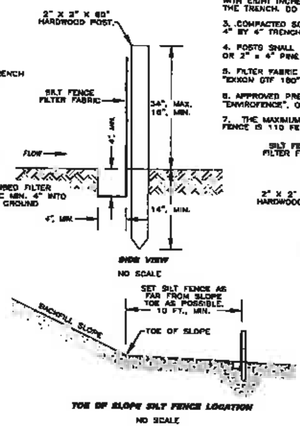
PARKS & RECREATION WORK

MISCELLANEOUS DETAILS
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

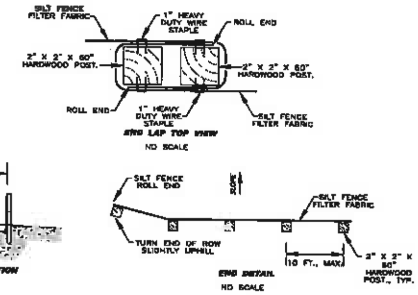
DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 34





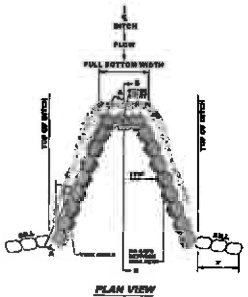
SILT FENCE NOTES:

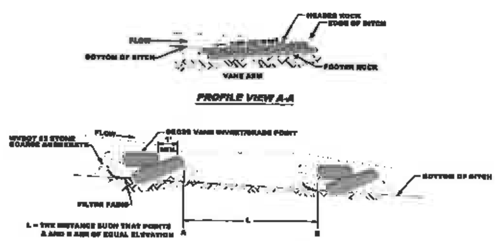
1. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO ALIGNMENT LENGTH TO AVOID JOINTS. WHERE JOINTS ARE UNAVOIDABLE, THE FABRIC SHALL BE SPLICED TOGETHER AT A SUPPORT POST BY TWISTING THE POST OF EACH RUN AROUND EACH OTHER.
2. FILTER FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE SUPPORT POSTS USING ONE INCH, MINIMUM, LONG HEAVY-DUTY WIRE STAPLES OR TIE WIRES WITH EIGHT INCHES, MINIMUM, OF FABRIC EXTENDED INTO THE TRENCH. DO NOT STAPLE FABRIC TO TREES.
3. COMPACTED SOIL BACKFILL SHALL BE PLACED IN THE 4" BY 4" TRENCH ATOP THE EXTENDED FABRIC.
4. POSTS SHALL BE CONSTRUCTED OF 2" X 2" HARDWOOD OR 2" x 4" PINE BY 60" LONG.
5. FILTER FABRIC SHALL BE NON-WOVEN "MIRAFI 100X", "EXXON GTF 180" OR EQUAL.
6. APPROVED PREFABRICATED UNITS INCLUDE "GEOFAB", "ENVIROFENCE", OR APPROVED EQUAL.
7. THE MAXIMUM RUN OF SLOPE ABOVE A ROW OF SILT FENCE IS 110 FEET.



SILT FENCE DETAILS

NOT TO SCALE





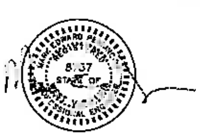
VANE ARM LENGTH ___ [illegible] FT
INVERT WIDTH ___ VARIES
VANE ARM SLOPE ___ [illegible]
VANE ANGLE ___ [illegible]

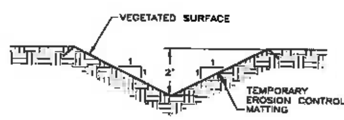
NOTES FOR STRUCTURES:

1. STRUCTURE ROCK MUST BE AT LEAST [illegible] IN LEAST DIMENSION.
2. INSTALL FILTER FABRIC FOR DRAINAGE BEGINNING AT THE MIDDLE OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF SIX FEET.
3. TRENCH BELOW THE BED FOR FOOTER ROCKS AND PLACE FILL ON UPSTREAM SIDE OF VANE ARM, BETWEEN THE ARM AND TOP OF DITCH.
4. CONSTRUCT FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
5. USE [illegible] STONE TO FILL GAPS ON UPSTREAM SIDE OF BOULDERS, AND CLASS A STONE TO FILL GAPS ON UPSTREAM SIDE.
6. L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION.
7. PROVIDE SILL WITH FOOTER ROCK OR OTHER APPROVED ANCHORAGE.
8. TRAPEZOIDAL DITCH SHOWN. MODIFY TO SUIT V DITCH.

ROCK CHECK DAM DETAILS

NOT TO SCALE

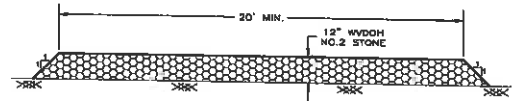




TEMPORARY DITCH (RUN-ON)

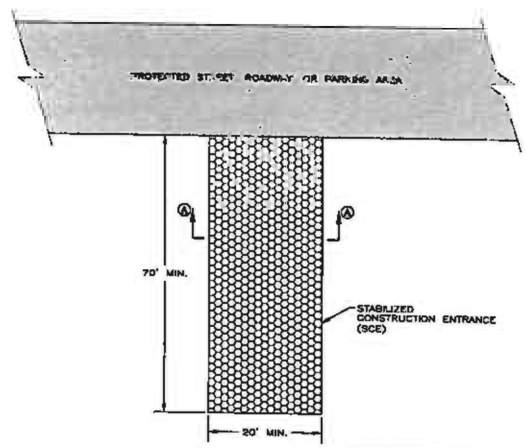
NOT TO SCALE

NOTE: MINIMUM SLOPE=1%
MAXIMUM SLOPE=5%



STABILIZED CONSTRUCTION ENTRANCE - (SCE) DETAIL SECTION A-A

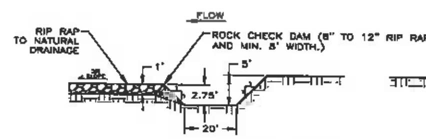
SCALE: NTS



*SCE-1 – CHOKE WITH CRUSHER-RUN STONE TO AID IN LOCAL VEHICLE TRAFFIC. AS DIRECTED BY THE WVDEP.

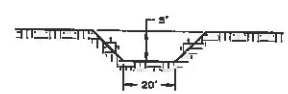
STABILIZED CONSTRUCTION ENTRANCE - (SCE) DETAIL PLAN

SCALE: NTS



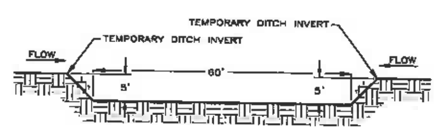
TYPICAL SEDIMENT TRAP OVERFLOW - SECTION

NOT TO SCALE



TYPICAL SEDIMENT TRAP - SECTION

NOT TO SCALE



TYPICAL SEDIMENT TRAP - PROFILE

NOT TO SCALE

NOTE: THE SEDIMENT TRAP WILL BE CONSTRUCTED AS SHOWN AND MAINTAINED TO PROVIDE ½ OF THE VOLUME IN DRY STORAGE & ½ OF THE VOLUME IN WET STORAGE.

REVISIONS		
DATE	BY	DESCRIPTION

SCALE: AS SHOWN
DRAWN BY: CDA
CHECKED BY: MEP

PARKS & RECREATION
WVDNR

TEMPORARY
EROSION & SEDIMENT CONTROL DETAILS
PARK DAM MODIFICATIONS
CACAPON STATE PARK
BERKELEY SPRINGS, WEST VIRGINIA

CIVIL TECH ENGINEERING, INC.
HURRICANE, WEST VIRGINIA

DATE 12/30/11
PROJECT NO. 10143
DRAWING NO. 35

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: _____

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)

[X]	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.

Civil Tech Engineering Inc.
Company

Authorized Signature

December 2, 2015
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012