

SEALED BID:

Canaan Valley Resort State Park Wastewater Improvements

BUYER:

**Guy Nisbet, Supervisor,
Department of Administration,
WV Purchasing Division**

SOLICITATION NO.:

CEOI No. 0310 DNR1900000001

SOLICITATION CLOSING DATE:

Friday, February 22, 2019

SOLICITATION CLOSING TIME:

1:30 p.m. EST

FAX NUMBER:

304-342-7823 (Dunn Engineers, Inc.)

RECEIVED
2019 FEB 22 AM 8:29
WV PURCHASING
DIVISION

TECHNICAL PROPOSAL [ENGINEERING SERVICES]

BID SUBMITTED BY DUNN ENGINEERS, INC.



DUNN ENGINEERS, INC.



Comminuter at Lodge (above), and, sand filters (below, center) and polishing pond (below, bottom) at Ski Area of the Canaan Valley Resort State Park; Photos by Dunn Engineers Inc., taken during 2016 project for the DNR to assess wastewater treatment facilities at the park (Report is in Appendix C of this proposal)



Vendor / Professional Engineers

DUNN ENGINEERS, INC.

400 South Ruffner Road

Charleston, WV 25314

Telephone: 304-342-3436

FAX: 304-342-7823

Email: dunneng@aol.com

Agency / Buyer:

Guy Nisbet, Buyer Supervisor

Department of Administration

WV Purchasing Division

Submittal Location:

Department of Administration

WV Purchasing Division

2019 Washington Street East

Charleston, WV 25305-0130

Date of Submittal: February 21, 2019

Re: Professional Engineering Services

Letter of Interest for Centralized

Expression of Interest (CEOI)

CEOI No. 0310 DNR1900000001

Description of Projects:

Provide Professional Engineering Services for:

Canaan Valley Resort State Park, 230 Main Lodge Rd, Davis, WV 26260

The Agency (DNR) desires Renovations to the Lodge Wastewater Plant and collection systems at Canaan Valley Resort State Park. The DNR operates the lodge and other facilities at Canaan Valley Resort State Park and desires to improve the operation of the wastewater treatment at various locations by combining and improving existing facilities and making other changes. The Lodge plant is of primary concern. It is a 1970s era extended aeration system designed for 100,000 gallons per day. The planned improvements may also include any other work necessary for, or related to, the park facilities, as well as any other necessary ancillary work; all located in Canaan Valley Resort State Park in Tucker County, W.Va.



DUNN ENGINEERS, INC.

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- 2) *PURCHASING AFFIDAVIT;*
- 3) *ADDENDUM ACKNOWLEDGEMENT FORMS SOLICITATION NO.: CEOI No. 0310 DNR1900000001*

C. ASSESSMENT PROJECT for the WV Division of Natural Resources / Canaan Valley Resort State Park by Dunn Engineers, Inc., completed 08-23-2016 ("Observations and Recommendations on Sewage Treatment Facilities at Canaan Valley Resort State Park").



DUNN ENGINEERS, INC.

LETTER OF INTEREST

February 21, 2019

WV Division of Natural Resources (DNR)
c/o WV Department of Administration, WV Purchasing Division

RE: Canaan Valley Resort State Park: Wastewater Improvements

Dear Mr. Nisbet,

We are pleased to present you with our Letter of Interest, Statement of Qualifications and Experience, and Project Goals and Objectives. We have prior experience assessing the wastewater facilities at Canaan Valley Resort State Park for the DNR and would be able to 'jump start' this project from the work already accomplished (see APPENDIX C to this proposal). We are prepared to meet for an interview at any time that is convenient to you to do an oral presentation in order to clarify our proposal for your satisfaction.

Dunn Engineers' core business is wastewater and water engineering. Dunn Engineers embraces new green technologies including technologies that have no surface water discharges, and technologies that have proven to improve performance and efficiency, reduce costs, and sustain the ecosystem and environment. We take great pride in our staff, their diverse knowledge, many years of experience, as well as the company's many project accomplishments. Our staff has over 350 years of combined experience in the planning, design, permitting, and construction administration of public wastewater and water utility projects.

When our client needs to accelerate a project, Dunn Engineers can deliver. This is where our size, experience, and knowledge of the regulatory agencies allow us to develop the most expeditious route to completion. Because we know that clients want completed projects, we can deliver by expediting projects to completion. We have a successful track record demonstrated by our lists of completed projects. Timely services are essential to building a responsible professional relationship.

We believe our diverse knowledge, staff and experience will provide the West Virginia Department of Natural Resources with a substantial reservoir of resources. Thank you for the opportunity to submit our Letter of Interest and Statement of Qualifications. Dunn Engineers, Inc. will provide you with the highest quality service for a competitive fee. If you have any additional questions or needs, please call us. We look forward to the opportunity to work with you.

Very truly yours,

DUNN ENGINEERS, INC.

F. Wayne Hypes, P.E., P.S.
President

1. LOCATION

a. Canaan Valley Resort State Park, in the mountains of Tucker County, West Virginia

Canaan Valley Resort State Park is described as "a four-season destination tucked into a high plateau in the Allegheny Mountains in an area known for its unique tundra-like wetlands. Canaan Valley is a major ski resort and one of West Virginia's largest state parks. It has a full-service lodge, cabins and campgrounds, has been named one of America's Best Parks by Arthur Frommer's magazine, and has been listed among the 50 Great Places to Stay by Washingtonian Magazine."

Dunn Engineers Inc. has worked on several projects in the counties surrounding or near Tucker County. Dunn is the engineer of record for the City of Keyser where we have just completed a total replacement of the City's wastewater treatment plant, and updated their water treatment plant and distribution system. We have completed engineering work for the City of Petersburg's water treatment plant, tanks and distribution system, and we are currently working for the City of Belington on a wastewater improvement project. All of these clients are in the same general area as Canaan Valley Resort State Park. In addition, DNR projects by Dunn are underway at Moncove Lake and Babcock State Parks, where we are working to improve wastewater treatment facilities, and at Lost River, Droop Mountain Battlefield, and Forks of Coal, on water system improvements. We are very familiar with the challenges of West Virginia terrain, and the unique nature and demands of designing projects in West Virginia State Parks.

2. BACKGROUND

a. PROJECT SPECIFICS

The Division of Natural Resources operates a lodge and other facilities at Canaan Valley Resort State Park at Davis in Tucker County, W.Va. The Agency (DNR) desires to improve the operation of the wastewater treatment system at various locations by combining and improving existing facilities and making other changes. The facility is extended aeration system that needs improvements and the collection system has significant inflow and infiltration (I&I) issues. The Lodge plant is of primary concern. It is a 1970's era extended aeration system designed for 100,000 gallons per day.

According to the DNR request for proposals, "The existing Canaan Valley Resort wastewater treatment facilities, serving the lodge and other areas in the park is in need of evaluation with an eye to improving, repairing, and / or replacing the wastewater treatment facilities, a 1970's era extended aeration system designed for 100,000 gpd."

AN ASSESSMENT COMPLETED IN 2016

We note that in 2016, at the request of the DNR, we conducted an assessment of the wastewater facilities for the Canaan Valley Resort and presented our findings to the DNR. We have attached them at APPENDIX C to this proposal. Because of that work, we are very familiar with the facilities at Canaan Valley Resort and could begin work quickly, only re-assessing for changes that may have occurred in the two intervening years.

GREEN TECHNOLOGY

Looking at alternatives for treatment that emphasize a green footprint would bring this state park into environmentally compliant and sound treatment processes. Non-point source discharge technology has allowed Dunn Engineers Inc. to funnel discharge in an appropriate and ecologically sound manner into the ground rather than into nearby streams, thus preventing unnecessary additional treatments to keep running waters clean.

Dunn Engineers has dealt with many different sized wastewater treatment facilities and completed a self-contained package plant facility for the Communities of Helen and Ury, part of the Crab Orchard - MacArthur Public Service District. Dunn Engineers is the engineer of record for the Crab-Orchard MacArthur PSD. Other small package plant facilities which Dunn has completed include the Town of Leon, the Pine Meadows Apartments (a private facility in Tornado), Mt. Zion PSD, and the Town of Cairo. Because the DNR may wish to consider alternative technologies and changes in the contributing waste source to obtain a treatment system that is both effective and economical, we especially want to describe our success with the Ury design for wastewater treatment, with its alternative 'green' technology. The Ury facility is described in detail on the below.

The Community of Ury facility is a small extended aeration package plant (this is a re-circulating sand filter treatment facility), a stand-alone facility capable of meeting all of the requirements of the PSD's NPDES permit. It consists of a 7,500 gallon aeration basin, with a 2,500 gallon digester, 64 square foot clarifier, and 480 gallon sump / chlorine tank; the sludge is hauled to a separate treatment facility in the PSD for de-watering and disposal. Components of the plant include influent and effluent (dosing pump stations along with force main, a subsurface effluent distribution system, and new collection system. The drip field associated with the package plant has a loading area of 215 feet long by 90 feet wide (18,900 square feet), that is dosed at a rate of 0.13 gallons per square foot per day. The drip field is designed for an average flow of 3,750 gpd and a peak flow of 7,500 gpd.



**Community of Ury Wastewater Treatment Facility
(part of Crab Orchard-MacArthur PSD)**

Green techniques, technology, and equipment in use at Ury are: Decentralized Sewer Systems; Non-Point Source Discharge Technology; and, Solar Powered Rechargeable Batteries.

This project for Dunn involves using solar panels to power solar-rechargeable batteries to send radio waves to run telemetry systems. This has allowed remote placements without cutting swaths through forests and over mountains, and without acquiring multiple rights of way for power lines in order to run the remote sites.

Non-point source discharge technology has allowed Dunn to funnel discharge in an appropriate and ecologically sound manner into the ground rather than into nearby streams, thus preventing unnecessary additional treatments to keep running waters clean. Construction complete.

3. QUALIFICATIONS AND EXPERIENCE

Introduction

Dunn Engineers, Inc. is a West Virginia based consulting engineering firm that was established in 1975. Since its formation, our firm has been involved in a wide variety of municipal projects, which have enabled our personnel to obtain the breadth and depth of experience needed to meet and exceed the expectations of our clients. Dunn Engineers, Inc. is ready to provide the West Virginia Department of Natural Resources (DNR) with all engineering expertise required for these projects.



Dunn Engineers, Inc. is located directly across the Kanawha River from the West Virginia State Capitol Complex.

Dunn has many years of experience in assessing the needs for an area to receive clean, potable water and right-sized sewage collection & treatment systems and water treatment & distribution systems. Dunn will make assessments and recommendations that are cost-effective and realistic. We will work with the DNR to arrive at the best possible plan of action. We are here to serve you with the best practices and most affordable methods available, delivered in a fast, expedient fashion - within budget and on time.

On the following pages, we list past projects successfully completed for similar wastewater systems throughout the State of West Virginia. Note that we provide information on the types of projects within those two categories. Separate projects of the types requested are also listed in more detail, including costs and specifications.

3. a. Staff qualifications (i.) and experience (ii.) in completing similar projects

3. a. i. Staff qualifications in completing similar projects

F. Wayne Hypes, P.E., P.S., President and Chief Engineer of Dunn Engineers, Inc.

Wayne will lead the team for the project. In addition, he is the firm's chief design engineer and project manager. Attends meetings with the Owner, Regional Planning & Development Councils, funding and regulatory agencies, directs field investigations, reviews findings and develops alternatives for evaluation; directs writing of facilities plans, including applications; directs design activities and serves as the project's technical expert for PSC proceedings; directs bidding, construction inspection and construction administration. Oversees project startup and closeout. Mr. Wayne Hypes' complete resume is attached at the end of this proposal. *Full résumé is found at APPENDIX A.*

Frederick Hypes, MSCE, P.E., P.S., Vice-President of Engineering, Dunn Engineers, Inc.

Fred Hypes is vice-president of engineering. Acts as Project Manager and assists other Project Engineers with report writing, facility design and interaction with funding and regulatory agencies. Attends meetings for the project engineer and acts as project engineer when required. Fred worked for the West Virginia Department of Environmental Protection for twenty years; he was the Engineering Section Leader of the Construction Assistance Branch. For the last six years with DEP, Fred was the voting DEP member on the IJDC. As the result, Fred saw and reviewed every application that came before the IJDC for funding. Fred is the premier application writer in West Virginia. In addition, he has extensive knowledge of all possible funding sources, the decision makers there, and what funding package will work best for each client. Mr. Fred Hypes' complete resume is attached at the end of this proposal. *Full résumé is found at APPENDIX A.*

Eric Hartwell, MSCE, P.E., Engineer, Dunn Engineers, Inc.

Eric Hartwell is a specialist in hydraulic engineering. He is a senior design engineer: Performs detailed calculations for wastewater, water and storm water projects. In addition, Eric manages numerous projects through construction and facility startup and also provides assistance to clients on various permitting and regulatory compliance issues. Mr. Eric Hartwell's complete resume is attached at the end of this proposal. *Full résumé is found at APPENDIX A.*

Jessica E. Hypes, Head of CADD / Design Department; Engineering Technician, Dunn Engineers, Inc.

Jessie Hypes is the head of the Dunn Engineers CADD / Design Department. She has three draftsmen and a CADD technician working for her department who will focus on the Division of Natural Resources' (DNR's) project. With over 35 years of experience in drafting, and up to date skills utilizing the most current technology, Ms. Hypes and her team will bring skilled workmanship and excellence to the project. Her team includes wastewater and water plant and system designers who work with the project engineer(s) to design treatment plants, collection and distribution systems; and, System Design Specialists who design, along with the calculation engineer, all of the pipelines required for the project. The team develops all construction drawings for the entire project.

Edward G. Garbett, II, Engineering Technician and Permit Specialist, Dunn Engineers, Inc.

Ed Garbett is a permit specialist, working with all the various government departments for required permits for construction and rehabilitation projects. Mr. Garbett has fifteen years of experience with Dunn Engineers as a specialist in research and acquisition of easements / rights of way. In addition, Mr. Garbett does cost estimates for construction projects.

3. a. ii. Staff experience in completing similar projects

ENGINEERING EXPERIENCE IN THE CANAAN VALLEY RESORT AREA

- Dunn Engineers Inc. is the engineer of record for the City of Belington where we are just beginning the process of wastewater treatment improvements.
- Dunn Engineers Inc. is the engineer of record for the City of Keyser having designed and currently overseeing construction of upgrades to their wastewater treatment plant; and updated their water treatment and collection system.
- Dunn Engineers Inc. is the engineer of record for the DNR at Lost River State Park, working to improve their water treatment facilities.

ENGINEERING PROJECTS FOR DIVISION OF NATURAL RESOURCES (DNR)

- Dunn Engineers Inc. **wastewater improvement projects** are underway at Babcock State Park and Moncove Lake State Park (noted above).
- Dunn Engineers Inc. **water improvement projects** are underway at Droop Mountain Battlefield State Park, Lost River State Park, and Forks of Coal.

F. Wayne Hypes, P.E., P.S.

CURRENT *SIMILAR* WASTEWATER PROJECTS:

- Town of Worthington (Wastewater Treatment Plant upgrades);
- Town of Cairo (Sewer Manhole and Pumping Station Replacement);
- Town of Oceana (Wastewater Treatment Plant Upgrade);

COMPLETED *SIMILAR* WASTEWATER PROJECTS:

- Dingess Run PSD (Wastewater Collection System);
- Town of Worthington (Wastewater Treatment Plant);
- Spring Heights (Wastewater Treatment Plant upgrade; DEP Compliance)

Frederick L. Hypes, P.E., P.S.

CURRENT *SIMILAR* WASTEWATER PROJECTS:

- Town of Auburn (Sewer System Treatment and Collection);

COMPLETED *SIMILAR* WASTEWATER PROJECTS:

- Crab Orchard - MacArthur PSD (Town of Ury, Wastewater System);
- Town of Leon (Sewer System & Wastewater Treatment Plant);
- Braxton County Senior Citizen Center (Sewage Treatment Plant Upgrade);
- Town of Wardensville (Sewer System Improvements)

Eric T. Hartwell, MSCE, P.E.

CURRENT *SIMILAR* WASTEWATER PROJECTS:

- City of Ronceverte (Wastewater Treatment Plant);
- Town of Cedar Grove (Sewer System Rehabilitation)

COMPLETED *SIMILAR* WASTEWATER PROJECTS:

- Town of Cedar Grove (Long-Term Control Plan; Sewer System Revitalization)

3. b. References (for Dunn Engineers, Inc.)

Honorable Edward Kuca, Jr., Mayor
City of Benwood
430 Main Street
Benwood, WV 26031
(304) 232-4320

Don Hatfield, Recorder
Town of Chesapeake
12404 MacCorkle Avenue
Chesapeake, WV 25315
Phone (304) 949-1496

Reba Mohler, City Manager
City of Ronceverte
200 West Main Street, City Hall
Ronceverte, WV 24970
(304) 647-5455

Norma Cogar,
*(formerly General Manager
of Nettie Leivasy Public Service
District)*
Chief Operator,
City of Richwood
6 White Avenue
Richwood, WV 26261
(304) 644-6155 (cell)

Kay Ashworth
PSD Board Member
Greater St. Albans Public Service
District
508 4th Street
P.O. Box 687
St. Albans, WV 25177
Cell (304) 437-5801

Honorable Ann Walker, Mayor
Town of Hillsboro
P.O. Box 88
21 Firehouse Street
Hillsboro, WV 24946
(304) 653-4005

Honorable Gary Haugh, Mayor
Town of Cairo
P.O. Box 162 (285 Main Street)
Cairo, WV 26337
Phone: (304) 628-3843

Crystal Hayes (Adkins),
General Manager
Clay-Roane Public Service District
P.O. Box 8, Prociuous, WV 25164
(304) 548-5209

Kimberley D. Benson
City Clerk and Treasurer
City of Ravenswood
212 Walnut Street,
Ravenswood, WV 26164
(304) 273-2621

Honorable Bruce Riffle, Mayor
Town of Leon
P. O. Box 22
Leon, WV 25123
(304) 812-7381

3. c. Staff certifications or degrees applicable to these projects

F. Wayne Hypes: President, Chief Project Engineer: over 35 years of experience in planning, design and construction environmental projects. **Education: Bachelor of Science,** Mining Engineering Technology, West Virginia Institute of Technology, 1982; **Associate of Science,**; (Surveying), West Virginia Institute of Technology, 1983; **Registrations: Registered Professional Engineer; Registered Professional Surveyor; Professional Associations;** Water Environment Federation; Association of Consulting Engineers; Rural Water Association

Frederick L. Hypes: Vice-President of Engineering, Project Engineer: over 39 years' experience in planning, design and construction environmental projects; Former Chief Engineer for the West Virginia Department of Environmental Protection, Construction Assistance Programs for 15 years. **Education: Bachelor of Science (Civil Engineering),** West Virginia Institute of Technology, 1979; **Master of Science (Civil Engineering),** West Virginia College of Graduate Studies, 1985; **Registrations: Registered Professional Engineer; Registered Professional Surveyor; Professional Associations:** Water Environment Federation: National Society of Professional Engineers

Eric T. Hartwell: Project Engineer; over 20 years' experience in planning, design and construction environmental projects. **Education: Bachelor of Science,** West Virginia Institute of Technology, 1995; **Master of Science,** West Virginia University, 1997; **Registrations: Registered Professional Engineer**

3. d. Proposed Staffing Plan

Chief Project Engineer

F. Wayne Hypes, P.E., P.S.

Will oversee the staff and the project from conception to completion. Will be hands-on with project design, teaming with project engineers.

Project Engineers

Frederick L. Hypes, P.E., P.S. and Eric T. Hartwell, MSCE, P.S.

Will create any required engineering studies, reports, operations procedures, operation compliance reports, operations full risk assessments

Will work with Chief Project Engineer to design project plans and specifications; oversee project to completion, teaming with site resident project representatives (RPRs) for on-site supervision and oversight

Site Resident Project Representatives (RPRs) & Support Staff

RPRs: onsite supervision of construction; Support staff: CADD / Design Department - Engineering Technicians; and, Permitting Specialists

3. e. Descriptions of past projects completed - sample past projects with similar project requirements

WASTEWATER

Location: Community of Ury (*Part of Crab Orchard - MacArthur PSD*)

Project Manager: F. Wayne Hypes, P.E., P.S., President of Dunn Engineers

Contact Information: Barry Milam, General Manager, Crab Orchard-MacArthur PSD, P. O. Drawer 278, Crab Orchard, WV 25827; tel. (304) 252-0604

Type of Project: Sanitary Sewer System for Community of Ury

Project Goals / Objectives: Design a new package treatment plant and collection system for the Town, with a projected population of 13 customers. Designed treatment facility with a duplex influent grinder pumping station, creek crossings, transportation and installation of an existing package treatment plant, chlorination and dechlorination units including effluent tank and pumps, and installation of a subsurface effluent disposal field.

Location: Community of Helen, WV (*Part of Crab Orchard - MacArthur PSD*)

Project Manager: Frederick L. Hypes, P.E., P.S., Dunn Engineers

Contact Information: Barry Milam, General Manager, Crab Orchard-MacArthur PSD, P. O. Drawer 278, Crab Orchard, WV 25827; tel. (304) 252-0604

Type of Project: Sanitary Sewer System for Community of Helen

Project Goals / Objectives: Design and construct a wastewater treatment and collection system for the Community of Helen, with a maximum of 100 customers projected. The treatment plant and collection system was designed and constructed, consisting of precast concrete basins, including a 20,000 gallon aeration basin; secondary clarifiers with air lift sludge pumps; a chlorination and dechlorination basin; and 5,000 gallon aerated sludge holding tank; sludge is hauled to the PSD's Fitzpatrick plant for dewatering and disposal. Collection system is a gravity sewer system.

Location: Town of Leon, WV

Project Manager: Frederick L. Hypes, P.E., P.S., Dunn Engineers

Contact Information: Mrs. Renae Riffle, Recorder, Town of Leon, P. O. Box 22, Leon, WV 25123; tel. (304) 812-7381

Type of Project: Wastewater Treatment Facility and Collection System for the Town

Project Goals / Objectives: Design and construct a wastewater collection and treatment system to remedy the water pollution and health hazards in the Town of Leon, the community of Brownsville, and the Leon-Baden Road area. The designed and constructed treatment facility and collection system consists of a 30,000 gpd extended aeration package plant; 16 - simplex Environment One grinder pumps; a duplex Environment One grinder pump station; a triplex Environment One grinder pump station (surge basin); three duplex submersible pump stations; 13,435 LF of 8" gravity sewers; 6,150 LF of 6" gravity sewers; 132 manholes and cleanouts; 1,600 LF of 4" force main; 4,000 LF of 2" force main; 6,000 LF of 1-1/2" force main; 151 wyes; two directionally-drilled creek crossings; and a gravity creek crossing.

Location: Pine Meadows Apartment Complex (Privately Owned)

Project Manager: Eric T. Hartwell, MSCE, P.E., Dunn Engineers

Contact Information: Ms. Jennie Curry, Vice President, Pine Meadows Limited Partnership (Encore Management Company, Inc.); 2010 Quarrier Street, Charleston, West Virginia 2531; tel. 304-343-3535

Type of Project: Pine Meadows wastewater treatment plant in Lincoln County, WV

Project Goals / Objectives: Make improvements to existing facility and collection system. Examined existing collection system to determine the condition of the sewer lines and to identify any infiltration or inflow; design to correct problems at the wastewater treatment facility, design included improvements as follows: a new equalization tank at the head of the plant, new bar screen, diffusers and air piping, replacement of dosing pumps, a waste sludge pumping system for wasting sludge, rehabilitation of sand filters including removal of existing sand media, washing media, lining basins, repair and/or replace existing filter under drain.

3.1 ADDITIONAL INFORMATION: PROPOSED METHODS OF APPROACH

3.1.a. Clear Procedure for COMMUNICATIONS with owner during all phases of the project.

- Communications are established at the onset of the project, when the contract for Engineering Services is signed. At that time, a project team is identified, which will include team members from DNR (the owner) and Dunn Engineers Inc. and other such parties as may be appropriate.
- A set line of communications is then established for the duration of project and post-project actions as needed. This sets the methods for on-going communications by assigning personnel from the team, from DNR and/or State Park involved and from Dunn to act as liaisons, with email, FAX, and telephonic exchanges plus regularly scheduled on-site meetings for progress assessment, time management and quality control.
- Once contractor bids are received and construction begins, coordination between the Owner and the Engineer increases as the projects are being constructed because existing systems must be kept in operation while the new infrastructure system is being constructed and brought on line. Regular meetings are held throughout construction to exchange information and resolve any problems that might develop; our resident project representatives will also be onsite every day and communicating with our engineers and with the Parks' operational staffs.
- Communications begin with establishment of the project team and continue through construction and post-construction services. Dunn responds within 24 hours (or sooner) to any communications from the owner, the owner's representatives, and the contractor, and contractor's representatives, and/or other involved parties.
- Keeping within budget and on schedule requires constant, timely communications between all involved parties.

3.1.b. History of Projects that met owner's BUDGET and a clear plan to construct within budget.

- Dunn Engineers' technical expertise in preparing accurate construction cost estimates is proven; we have a superlative record of project bids coming in under our cost estimates and have prepared a table to demonstrate a HISTORY OF PROJECTS staying within construction cost proposed budgets. Our estimates are accurate and realistic which allows for more confident financial planning with the WV DNR.
- Dunn sets up quality control review sessions on the project(s); typically, at least two other engineers will review the plans and report findings with the design engineer. This extra effort spent on quality control produces concise cost estimation, and, results in consistently favorable bids from the contracting industry. All cost factors are closely balanced in the planning process to guard against under- or over-sizing systems for the DNR projects.
- Close scrutiny of all contractor shop drawings during the construction phase, with attention to both costs of proposed material alternatives and project schedule, keep the costs from overrunning the original project budget. All budgets, however, have a required contingency amount (a set percentage) which addresses any unexpected costs such as delays due to weather, delivery of material and equipment, or contractor performance. Keeping a tight rein on costs is part of the service provided by Dunn Engineers.

See chart displaying representative sample budget performance data on the below.

REPRESENTATIVE HISTORY OF PROJECTS MEETING BUDGET

CONTRACT PRICES VS. ENGINEER'S ESTIMATES

CLIENT	ENGINEER'S ESTIMATE	BID PRICE	BID DATE
City of Ronceverte Wastewater Treatment Plant Upgrade	\$22,369,500	\$19,678,810	May 28, 2015
City of Logan Midelburg Sewer Separation	\$69,000	\$54,815	Dec.16, 2014
City of War Centerville & Shop Branch Wastewater Collection System Extensions	\$1,367,120	\$1,243,680	Feb. 2013
Town of Worthington Wastewater Treatment Plant Upgrade	\$3,500,000	\$3,268,700	March 2012
Crab Orchard-MacArthur P.S.D. Wastewater Collection System Ext., Misc. Ext. Phase II and Community of Ury	\$4,094,000	\$3,367,893	May 2011
Flatwoods-Canoe Run P. S. D. Wastewater System Improvements	\$7,000,000	\$6,631,335	March 2011

3.1.c. History of Projects that were TIMELY performed:

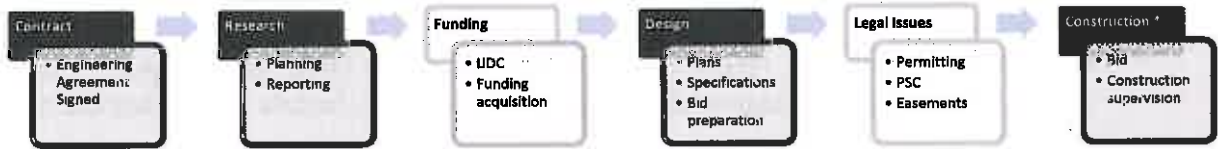
History of Projects that have been constructed in the TIME ALLOTTED in contract documents and a clear plan to ensure this project will be constructed within the agreed construction period

- **Dunn Engineers, Inc. (DEI), in coordination with the DNR, sets the project schedule during the planning stage of the project. This project schedule establishes the timeline for the project.**
- **Design services of the engineer: Once the project schedule is set, Dunn is capable producing finished engineering designs and of meeting the schedule in a timely manner; and, in several instances, we have developed project plans and specifications for approval in record time. However, we do not sacrifice quality and accuracy for speed and make certain that this effort is considered when establishing the schedule. Our performance records shows successfully expedited projects, but is keyed closely to all parties responding in a timely manner.**
- **Preplanning project schedule: Keeping construction on track and on time requires pre-planning to account for potential hurdles, particularly inclement weather delays and timely delivery of equipment, materials and manpower. Crafting the contract and specifications to account for such hurdles, assists in ensuring timely completion of construction.**
- **Monitoring the contractor's performance: another key to maintaining project schedule is maintaining an onsite presence; Dunn provides permanent onsite Resident Project Representatives (RPRs) who stay with the contractor's workers and foreman throughout the project, keeping our project engineer in constant contact, and alerting the engineer to any potential delays so that actions may be taken to offset such delays before the schedule is affected in any substantial manner. Regular meetings and communications with the Contractor and the Owner further ensure that everyone adheres to the project schedule.**

Normally, DEI works with utilities in the public sector (county and municipal governments), which involve additional steps in the process of moving from Engineering Agreement to Project Completion; notably, these involve funding acquisition, permitting, easement acquisition, and Public Service Commission approval.

In the case of work for the State, most of these steps will not apply. In order to best express our timeliness record of performance with projects, we are therefore only addressing our performance for the Planning and Reporting, Design, and Construction Supervision stages. To illustrate our explanation of steps of the process for engineering services, there is a diagram on the following page.

Engineering Service Processes from Agreement to Construction



* Construction timelines vary with contractor's performance; although engineering services are provided, strictly speaking, the timeliness factor is reliant upon the contractor's ability to complete the job, not the engineer's performance as an oversight function.

Designates engineering services applicable to a WV Purchasing Division CEOI

Designates engineering services NOT applicable to a WV Purchasing Division CEOI

REPRESENTATIVE HISTORY OF PROJECTS' TIMELINESS

Engineering Planning & Design Work Performed Within Contractual Time Constraints*

CLIENT	Planning and Reports	Design	Engineering Total time	Construction work Projected / actual schedule
Town of Leon: Complete Wastewater Facility and Collection System	6 months	9 months	15 months <i>with aerial mapping</i>	Projected 12 months Completed 12 months
PNGI Charles Town Gaming LLC Wastewater Treatment Facility (Provided Engineering Report, Plans and Specifications for Potesta & Associates, Inc.)	<i>Done by Potesta (Dunn was hired to do design as a subcontractor)</i>	21 days	21 days	Construction supervised by Potesta. <i>(Dunn sub-contracted for design only)</i>
Crab Orchard-MacArthur P.S.D.: Wastewater Collection & Treatment System Community of Ury	2 months	30 days	3 months	Projected 4 months Completed 4.5 months
Town of Wardensville: Upgrade existing .120 mgd Wastewater Treatment Lagoons	4 months	90 days	7 months	Projected 9 months Completed 9 months
Union Williams Public Service District: Pleasant Lane Waterline Relocation	2 months	60 days	4 months	Projected 46 days Completed 46 days
Town of Hillsboro: Water Storage Tank painting	30 days	30 days	2 months	Projected 96 days Completed 96 days

*Most projects also involve assistance with fund acquisition which usually prevents moving forward on design work for periods of time.

3.1.d. Experience in all expected PROFESSIONAL DISCIPLINES.

PERFORMANCE DATA (continued)

3.1.d.i. Overview of Staffing

Dunn Engineers is staffed with specialists to perform the functions required to meet our clients' current and future needs. We currently have a staff of twenty-three employees, including three registered professional engineers, an engineer intern, five CAD designers, permit technicians, full time resident project representatives and an office staff. This staffing allows Dunn Engineers, Inc. to perform all the Facilities Planning and Preliminary Engineering Report studies, funding analysis, Infiltration / Inflow Analysis or Water / Sewer System Evaluations, detailed design, permitting, bidding and construction inspection, and administrative services required by our clients.

Our typical annual workload includes approximately five Facility Plan Studies, four to six design projects and four to six construction projects. In addition to these wastewater and water projects, our workload will also include one or more industrial park projects.

We very carefully manage our workload to enable us to meet all of the scheduling of our clients and those of the regulatory and funding agencies. Because of this management, Dunn Engineers, Inc. could immediately engage our staff for the DNR when selected to work on your Canaan Valley Resort State Park wastewater treatment project.

3.1.d.ii. Technical Expertise Qualifications

Our personnel, with experience ranging from 5 to 37 years, have been involved in many different civil engineering projects. Those people now charged with design and construction management for our firm have served for periods of time as members of survey crews gathering design data and performing construction stakeout, resident project representatives, design technicians and design engineers. Each member has a specific task to perform and does it within a prescribed budget and time schedule. Dunn Engineers believes that a client is a special team member and should be a part of every decision.

This variety of experience has proven extremely valuable in determining project feasibility, preparing accurate cost estimates and advising support personnel at critical stages in the development and construction of projects. Our design engineers and technicians function as a single integrated unit ready to meet the needs of our clients and their project.

The staff at Dunn Engineers, Inc. is fully capable of evaluating and analyzing the base data and information generated prior to design with an eye toward the development of alternative concepts and facilities. Our strong background enables us to quickly analyze problem areas and develop cost-effective solutions.

We have the latest in modern equipment necessary to generate and compile complex engineering data. We are well equipped using our own portable pressure pipe flow meter, open channel flow meters, and pipe location equipment with fully trained staff to operate these units. A well-qualified technical drafting and CAD staff provide the touch of quality in the appearance of our final products. Three of our CAD operators have over twenty (20) years each of drafting and design.

All state and federal agencies have specific project administrative requirements which must be followed. We are well versed in these practices and have in-depth experience in SCBG / HUD / RUS / ARC / EDA programs necessary to assist our client in the preparation of contract documents and detailed specifications.

From the above, it can be seen that Dunn Engineers, Inc. has the qualifications and technical expertise to perform the required work for these DNR projects.

3.1.d. iv. Resumes of key personnel - see APPENDIX A

3.1.e. Procedure for Proposed Methods of Approach: Presented below is our **Plan of Approach** which also addresses the issues in 3.1.a - 3.1.c::

3.1.a. Procedure for Communications with Owner (Proposed Methods Of Approach)

3.1.b. History of Projects that met Owner's budget with a clear plan to construct within budget (Performance Data shown after Proposed Method of Approach)

3.1.c. History of Projects that met time allotments (Performance Data shown after Proposed Method of Approach)



**Wastewater Treatment Facilities at Canaan Valley Resort State Park
Photo by Dunn Engineers, Inc. 2016 for Report to DNR
See APPENDIX C**

DUNN ENGINEERS PLAN OF APPROACH

Dunn Engineers, Inc. has been very successful in taking utility projects from conception to completion by utilizing a multi-step procedure that integrates the owner, engineer and other professionals. This procedure has been used to guide every project undertaken by our firm.

This plan will entail reviewing current conditions and plans to coordinate and implement the improvement projects needed to provide the requested wastewater improvements to State Park for the next several decades.

The steps of our procedure to be used for your overall wastewater project include:

- 1) Preplanning
 - ↳ *Establish Communications Plan (3.1.a.)*
 - ↳ *Establish Timelines Plan (3.1.c.)*
- 2) Planning / Study
 - ↳ *Establish Budget Plan (3.1.b.)*
- 3) Design
- 4) Construction

I. PREPLANNING: The first and most critical step is to preplan your project. Preplanning will accomplish the following goals:

- Identify project team* - establishes team members from DNR and Dunn Engineers
- Establish lines of **COMMUNICATIONS** for duration of project - set the methods for on-going communications by assigning personnel from DNR and/or State Park involved and from Dunn to act as liaisons, with email, FAX, and telephonic exchanges plus regularly scheduled on-site meetings for progress assessment, time management and quality control.

**NOTE: This sets up communications procedures between owner and engineer.*

- Identify existing studies / reports for DNR's wastewater project needs
- Review scope of project
- Set project **TIMELINE** (schedule)* - Planning for project timeline (schedule) establishes date for groundbreaking through completion, with benchmarks as appropriate; team oversight is essential and provided onsite by Dunn Engineers' Resident Project Representatives (RPRs) and State Park assigned personnel. Regular meetings and/or electronic communications between Engineer and Owner to assist in maintaining timeliness.

**NOTE: This sets up timeline for completion of project.*

These goals will be achieved by meeting with the project team (owner, engineer, and other parties as appropriate), and regulatory agencies as may be needed. Once the scope is established, the project will move into the planning / study phase.

II. PLANNING AND STUDY: The second step is to evaluate the problems identified during the preplanning step and develop alternatives for solving them. For the DNR this would include:

- Review of existing reports / studies identified in pre-planning step
- Review of existing data, any plans and surveys
- Conduct field research
- Compile all existing data and data collected in field research
- Establish project **BUDGET** - Dunn will prepare cost estimates for the projected project to meet identified needs for wastewater services for the State Park identified.* These cost estimates will include not only costs for materials and equipment but also costs for engineering services and any other applicable services or expenses. The final budget will reflect entire budget for the project. **NOTE: This sets up budget for the project.*
- Finalize Facilities Plan incorporating all of the above

Once sufficient data is assembled, alternatives for future water and wastewater infrastructure projects are developed, incorporating the existing data and research. The Facilities Plan will incorporate all the assembled data. This will be a living document which will be subject to re-assessment to reflect data streams providing updated information on the projects as they are undertaken and / or completed.

III. DESIGN: Once the specific alternatives for the proposed new wastewater infrastructure project have been determined, the project will proceed to the design step. As in the Planning and Study step, the DNR will be integrated into the design of the project. Equipment and treatment process selection will be thoroughly discussed with and input obtained from the DNR to produce the best, most cost effective project for Canaan Valley Resort State Park.

As the design progresses, regular team meetings are held with the DNR, to apprise them of project progress and to obtain their input prior to the formal review process. Meetings will also be held with the project team to finalize any permit applications or other regulatory requirements.

At the conclusion of the design step, the project will move to construction.

IV. CONSTRUCTION: For most engineering firms, the final step of the project is construction. Once contractor bids are received and construction begins, coordination between the Owner and the Engineer increases as the projects are being constructed because existing systems must be kept in operation while the new infrastructure system is being constructed and brought on line. Regular meetings are held throughout construction to exchange information and resolve any problems that might develop; our resident project representatives will also be onsite every day and communicating with the Parks' operational staffs.

After construction has been completed, post construction services will begin. These activities will include resolution of warranty issues, assistance with the operation, new equipment and processes. This will continue our on-going relationship with the DNR; communications will continue, to satisfy permitting and reporting requirements and to resolve any problems that might develop over time.

4. Project and Goals: The project goals and objectives are:

- 4.1. 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.**

Dunn Engineers Inc. reviews of all available existing plans and conducts site visits to assess actual current conditions of the facilities identified in the project, visits the park to interview the park operators, especially but not only the operators of the targeted facility, with the aim of acquiring a full and complete understanding of the needs of the state park and the methodology used in providing services utilizing the existing facilities.

Once familiar with all existing plans, documents, related official regulatory notifications / warnings, and the actual state of the existing facility as best as can be determined with onsite visit and assessment by the assigned project engineer(s), then Dunn will issue a Facilities Plan that will describe the current state of the facility identified for the project and the engineer's evaluation of the operational conditions.

The facilities planning report will describe in detail plans of action to redress the issues thus identified, including upgrades, replacements, renovations, or other identified procedures needed; and, will lay out a plan to ensure that services are not disrupted during the course of the project construction. The plan will provide the DNR and park staff with all the information needed to move the project forward while sustaining and / or improving the park's current level of services to its clientele / guests and staff.

The Facilities Plan will describe the engineers' determination of the best courses of action forward, and will describe alternatives, and include associated cost estimates.

Once the Facilities Plan has been written, the next step will be for DNR staff and, as appropriate, park staff, to meet with engineers from Dunn to thoroughly discuss the planning report and Dunn can make adjustments to the proposed plan as necessary, based upon the input from the DNR and park staffs. At this point, the projects are ready to move into the design stage.

- 4.2. 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.**

Dunn Engineers Inc. submits, in this bid, a list of Professional Engineers who will be involved in this project, along with their resumes and project experience / history.

These engineers will provide all the designs necessary for this project and will ensure that there is full compliance with the DNR's needs, objectives, current law, and current code.

As experienced professionals, with a proven track record in meeting budget requirements, as shown in our samples provided at 2.1.b, our engineers will design and execute the project within the project budget.

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

Dunn Engineers' professional engineers, who will be involved in this project, will continue the project from the design stage through construction.

Our engineers conduct regular site visits, regular team meetings with the Owners, Contractors, and Dunn Engineers' Resident Project Representatives (RPRs), who will provide continuing on-site construction supervision *under* the overall guidance of our project engineers for the duration of the project and any post-construction activity.

A list of our current Resident Project Representatives is provided on the following page, along with a brief work history for each representative.

Current Listing of Dunn Engineers' Resident Project Representatives (RPRs)

Elvis Canterbury, RPR

Pre-Dunn work experience: Building trades and construction contracting for pipelines, road construction, buildings, and cross-country gas lines (35 years); included work on I-64, Bluefield Hospital, Beckley Regional Jail and Federal Jail, and the bridge at Bramwell. Projects for Dunn include City of Keyser, Worthington, City of Logan, Salt Rock, Crab Orchard MacArthur PSD, Oceana, Mason, and Wardensville.

Currently working at the City of Ronceverte.

Steven L. Carnefix, RPR

Pre-Dunn work experience: Construction Industry (35 years, including the construction of buildings, highways, and bridges for 16 years); foreman and supervisor since 1981. Projects for Dunn include Flatwoods Canoe Run, Greater St. Albans PSD, City of Keyser, City of War, Sugar Creek PSD. Currently working at the Greater St. Albans (Marlaing).

Ed Carpenter, RPR

Pre-Dunn work experience: Service in both the US Army and the Coast Guard; Retired Professional Engineer (P.E.) in three states (West Virginia, Ohio, and Mississippi); ISO 900 Auditor; Manager in Construction Engineers (new plant design); project engineer (10 years); Maintenance and Maintenance Manager (15 years). Projects for Dunn include Nettie-Leivasy PSD, St. Albans MUC, Crab Orchard-MacArthur PSD, City of Petersburg, and City of Keyser. Currently working at City of Keyser.

Randall Canterbury, RPR

Pre-Dunn work experience: Retail, Coal, and Construction Industries: Including contractor for work with masonry and homebuilding. Currently working at the Greater St. Albans (Route 60).

Roscoe Knight, RPR

Pre-Dunn work experience: Service in the National Guard; Flatwoods Canoe Run PSD operator of Water Treatment Plant / Class II License – retired in 2007 with 27 years' experience with waterlines; Projects for Dunn include Sugar Creek PSD and Flatwoods Canoe Run PSD. Currently working at Clay Roane PSD's Amma Industrial Park waterline extension.

DUNN ENGINEERS, INC.

400 SOUTH RUFFNER ROAD
CHARLESTON, WV 25314

TEL 304-342-3436

FAX 304-342-7823

EMAIL: dunneng@aol.com

WEBSITE: www.dunnengineers.com

APPENDIX A
[ATTACHMENT A]

F. Wayne Hypes, P.E., P.S. President



Highlights of Qualifications

With 36 years of experience as a Civil Engineer, Mr. Hypes has a strong background in the planning, design and construction engineering administration of wastewater treatment systems, potable water treatment systems, site development, and solid waste disposal systems.

WASTEWATER

Mr. Wayne Hypes' wastewater experience includes the planning, design and construction engineering administration of collection systems (including extensions) and more than forty (40) wastewater treatment facilities ranging in size from 0.06 MGD to 21 MGD. He has designed or upgraded SBR Advanced Wastewater Treatment Plants, a Vertical Loop Reactor advanced wastewater treatment plant, Orbal oxidation ditches, wastewater - aerated lagoons, extended aeration activated sludge, moving bed bio-reactors (MBBRs), gravity sewer collection lines, and gravity interceptors, vacuum and low pressure (grinder pump) collection systems,

Education

Bachelor of Science,
Mining Engineering Technology,
West Virginia Institute of Technology,
1982

Associate of Science (Surveying),
West Virginia Institute of Technology,
1983

Registrations

Registered Professional Engineer
Registered Professional Surveyor

Professional Associations

Water Environment Federation
Association of Consulting
Engineers
Rural Water Association

Resume for F. Wayne Hypes, P.E., P.S. - continued

submersible and wetwell dry pit sewage pump stations, wetwell mounted sewage pump stations, vacuum-primed sewage pump stations, and vacuum collections stations. When ground water and stormwater enter wastewater collection systems, an occurrence known as *inflow and infiltration* (I&I), Mr. Hypes has designed systems to respond to the issue.

POTABLE WATER

Mr. Wayne Hypes' potable water experience comprises distribution systems (including extensions) and treatment facilities, having designed nineteen (19) treatment facilities during his career. Mr. Hypes has designed or upgraded storage tanks (with capacities up to and including 1,500,000 gallon storage tanks), buried storage tanks, miles of distribution lines (both rehabilitation/ replacement of existing lines and design for new extensions), mixed media gravity filter treatment facilities, pressure filter potable water treatment facilities, upgrade of wells, hydropneumatic booster pumping stations, new / refurbished deep wells, springs development, and producing Countywide Water Studies. When continual breaks of water mains or other distribution lines occur, Mr. Hypes has designed solutions to the systems to resolve the issues.

OTHER DESIGN WORK

Among Mr. Hypes' other engineering design work are development of industrial development parks, sanitary landfills, and field design and implementation of emergency measures to restore potable water and wastewater service to residents during major flooding, landslides, lightning strikes, wind destruction (*derecho*), power outages, and unexpected failure of existing equipment, lines and tanks.

UNIQUE LEVEL OF EXPERIENCE

What makes Wayne Hypes' resume of experience unique among engineers is his depth and breadth of design accomplishments. Few if any other engineers have designed as many as ten treatment facilities (water and/or wastewater) in a career. Mr. Hypes' list of designed projects that have moved through to completion with construction is impressive. Below are listings of his major design work.

Frederick L. Hypes, P.E., P.S., MSCE

Vice-president of Engineering

Highlights of Qualifications

With over 40 years' experience in planning, design and construction environmental projects, Mr. Hypes has designed systems for both potable water and wastewater. Mr. Hypes is the former Chief Engineer for the West Virginia Department of Environmental Protection (WV DEP) Construction Assistance Programs for 15 years.



PLANNING AND DESIGN

Mr. Hypes has prepared Facilities Plans and Preliminary Engineering Reports for planning and design engineering projects. He has prepared asset management plans for multiple clients, and assisted with emergency engineering work to resolve unexpected issues for clients.

Education

Bachelor of Science, (Civil Engineering),
West Virginia Institute of Technology, 1979

Master of Science, (Civil Engineering), West Virginia College of Graduate Studies, 1985

Registrations

Registered Professional Engineer
Registered Professional Surveyor

WASTEWATER

Mr. Hypes has planned, designed, and overseen construction engineering administration for thirteen (13) wastewater collection / treatment systems. His design have included systems ranging from 0.05 MGD aerated lagoon treatment system to 2.0 MGD wastewater treatment plant and pumping facilities.

Resume for Frederick L. Hypes, P.E., P.S., MSCE - continued

POTABLE WATER

His potable water treatment and distribution system experience include seven (7) systems throughout the state of West Virginia. His work has included extension of waterlines, upgrades to current distribution systems, tank inspection with tank refurbishment, repainting, and or replacement, and upgrades to water treatment plants.

EXPERTISE IN FUNDING ACQUISITION

Due to his work in fund acquisition for clients, Dunn Engineers is one of the most successful engineering companies in West Virginia at acquiring project funding, having completed one hundred fifty-nine (159) IJDC Pre-Applications and have obtained funding for 100% of those projects. Mr. Hypes' Grant experience includes grants from the IJDC, Small Cities Block Grants, Rural Utilities Service (RUS), Appalachian Regional Commission (ARC), EPA and US EDA.

EXPERT WITNESS-FORENSIC ENGINEERING

Dunn Engineers Inc. is repeatedly selected by other engineering firms, as well as clients, to act in their interest in courts of law. Dunn is the leading firm in the entire State of West Virginia for providing expert legal testimony and acting as engineering consultants in legal cases. Frederick L. Hypes, is recognized as a leading legal expert / consultant in the field of engineering for civil actions in courts of law.

EXPERIENCE AT WV DEP

(WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION)

Mr. Hypes was Chief Engineer / Engineering Section Leader - Construction Assistance Programs for fifteen years, and before that was Project Engineer for six years. His duties during those 21 years included supervision of 10 staff engineers, administered over 100 EPA Construction Grant Program wastewater projects and another 100 State Revolving Fund wastewater project. He did evaluating and trouble-shooting for alternative collection systems (low pressure grinder pump, vacuum, variable gradient sewers) and innovative treatment technologies (captor, SBR's, interchannel clarifiers, ultraviolet disinfection, constructed wetlands).

Eric T. Hartwell, P.E., MSCE



Highlights of Qualifications

Over 22 years' experience in planning, design and construction environmental projects. Mr. Hartwell has a master's degree with a strong emphasis in environmental engineering. He has a background in the design and construction of wastewater treatment and collection systems, potable water treatment and distribution systems, and industrial oil-water separation systems.

WASTEWATER

Mr. Hartwell was an integral part of the design team for wastewater projects that include treatment plants ranging from .65 MGD to 2.4 MGD. Wastewater plant experience has included designs for Vertical Loop Reactors and SBR Advance Treatment Systems (sequencing batch reactors with aerobic digester and ultraviolet disinfection); his designs have included multiple pumping stations. He has designed industrial wastewater treatment system for a natural gas compressor station, utilizing an oil-water separator, pumping system, and three manifolded wastewater storage tanks; and for an industrial wastewater treatment system serving a natural gas compressor station, utilizing a chemical addition system and three pressurized sand filters.

POTABLE WATER

His water treatment plant designs have included water well and chemical dosing systems and systems with flocculation basins / flocculating clarifiers and sand filters. He is experienced in preparing the necessary permits for the design, operation and construction of water and wastewater treatment systems.

Education

Bachelor of Science,
West Virginia Institute of
Technology, 1995

Master of Science,
West Virginia University,
1997

Registrations

Registered Professional
Engineer

APPENDIX B
[ATTACHMENT B]

STATE OF WEST VIRGINIA
Purchasing Division
PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

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

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

DEFINITIONS:

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

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

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

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §81-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, 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.

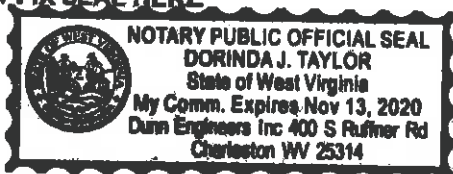
WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Dunn Engineers Inc.
Authorized Signature: [Signature] Date: 2/22/19
State of West Virginia
County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 22 day of February, 2019.

My Commission expires November 13, 2020

AFFIX SEAL HERE



NOTARY PUBLIC Dorinda J. Taylor

ADDENDUM ACKNOWLEDGEMENT FORM

SOLICITATION NO.: 0310-DNR 1900000001

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

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

Dunn Engineers Inc.
Company

[Handwritten Signature]
Authorized Signature

2/22/19
Date

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

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

F. Wayne Hypes
 (Name, Title)
F. WAYNE HYPES, PRESIDENT, Dunn Engineers Inc.
 (Printed Name and Title)
400 South Ruffner Road, Charleston, WV 25314
 (Address)
304-342-3436 / FAX: 304-342-7823
 (Phone Number) / (Fax Number)
dunneng@aol.com
 (email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated 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.

Dunn Engineers, Inc.
 (Company)
F. Wayne Hypes
 (Authorized Signature) (Representative Name, Title)
F. WAYNE HYPES, P.E., P.S., President
 (Printed Name and Title of Authorized Representative)
2/22/19
 (Date)
304-342-3436 / FAX: 304-342-7823
 (Phone Number) (Fax Number)

APPENDIX C
[ATTACHMENT C]

**Canaan Valley Resort State Park
Sewage Treatment Facilities
Observations & Recommendations by Dunn Engineers, Inc.**

1. Ski Area (002)

a. Description

Wastewater from the Ski Area is currently treated in a 10,000 gpd extended aeration package treatment plant followed by sand filters and two ½ acre polishing ponds. The plant includes:

- 13,000 gallon aerated equalization basin
- Comminutor and bar screen
- 10,000 gallon aeration basin
- 2,360 gallon clarifier
- 417 gallon chlorine contact tank
- Two 258 square foot sand filters
- Two 0.55 acre polishing ponds

The original treatment plant (including the polishing ponds) was permitted in 1969, and the equalization basin, sand filters and chlorine contact tank were permitted in 2001.

b. Problems observed

The following problems and/or deficiencies were observed at the Ski Area wastewater treatment facility:

- No sludge holding tank
- Undersized clarifier
- No flow rate control device between equalization basin and aeration basin (little “equalization” occurs with the current arrangement)
- No post aeration device

- No aeration on ponds (necessary for summer operation)
- Unusable flow metering device
- No bypass device to allow package plant to be taken out of service after ski season is over (i.e. during spring, summer and early fall)
- Comminutor needs to be replaced with a functional influent screen
- Sand filters not constructed properly
- Chlorine contact tank located ahead of polishing ponds

The operation of this treatment plant is being unnecessarily complicated by the deficiencies outlined above. Continued compliance with the tertiary treatment requirements contained in the WV NPDES permit will be difficult without improvements being made to this facility.

2. Campground (004)

Wastewater from the campground is treated in a 6,000 gpd extended aeration package plant followed by two ½ acre polishing ponds. The plant, which was permitted in 1969, includes:

- 6,000 gallon aeration basin
- 1,365 gallon clarifier
- 250 gallon chlorine contact tank
- Two ½ acre polishing ponds

Deficiencies and/or problems identified at this facility include:

- No functional influent screen
- No sludge holding tank
- Undersized clarifier

- No aeration on ponds
- No post aeration
- No flow metering
- Very noisy blowers
- Heavy duckweed on first pond

A functional influent screen and a sludge holding tank would simplify the operation of this plant, and the replacement of the positive displacement blower with a much quieter rotary lobe or centrifugal blower would substantially reduce the annoyance of campground guests. As with the Ski Area plant, the lack of pond aeration and a post aeration device is problematic for consistent WV NPDES permit compliance, especially during summer months.

3. Golf Course (005)

The golf course is currently served by a small package treatment plant and two 1/3 acre polishing ponds; these facilities were permitted in 1970. The facilities include:

- 5,000 gallon aeration basin
- 1,365 gallon clarifier
- 208 gallon chlorine contact tank
- Two 1/3 acre polishing ponds

Unlike the other treatment plants at Canaan Valley, this one appears to be oversized and is significantly underused. To be operated properly, the plant would have to receive a minimal daily flow, and a supplemental organic food source (i.e. horse and mule feed, etc.) would have to be regularly introduced (especially during the late fall, winter and early spring) to sustain a functioning population of bacteria in the aeration basin.

Consideration should be given to removing this plant from service and replacing it with a septic tank and soil absorption field (if a permit can be obtained from the Health Department) or by converting the aeration basin to a septic tank and utilizing the ponds for biological treatment (floating aerators will need to be installed on the ponds).

4. Lodge and Cabins (003)

a. Description

Wastewater from the lodge and cabins is treated at a 100,000 gpd facility that is located below the new lodge. The two original 25,000 gpd concrete extended aeration package plants and two 1-¼ acre polishing ponds were permitted in 1969, while the two steel 25,000 gpd package plants and 3,800 LF effluent force and pump station were permitted in 1978. The facility includes:

- Comminutor and bar rack
- Four 25,000 gallon aeration basins
- Four 4,150 gallon clarifiers
- Two 2,084 gallon chlorine contact tanks
- Flow metering station
- Two 4,000 gallon sludge holding tanks
- One 8,000 gallon sludge holding tank
- Two 1-¼ acre polishing ponds
- Effluent Pump Station with 3,800 LF of 6" force main

b. **Problems observed**

Problems and/or deficiencies found at the wastewater treatment facility serving the Lodge and Cabins include:

- **Inadequately sized grease trap for Lodge**
- **Lack of a mechanically-cleaned influent screen with ¼" or smaller openings (existing comminutor is useless)**
- **Lack of waste food management at Lodge restaurants (wastewater treatment plant being used for disposal of food waste instead of being hauled off as solid waste)**
- **Lack of serviceable anodes for steel package plants (at almost 40 years old, these basins need to be replaced as soon as possible because of corrosion)**
- **Questionably sized and designed flow measurement device (small 30° V notch weir)**
- **Lack of aeration on the polishing ponds**
- **Lack of post aeration device**
- **Chlorine contact tanks located ahead of polishing ponds and golf course ponds**

The operation of this facility is being unnecessarily complicated by the management of waste food and grease from the restaurants and bar in the Lodge. The wastewater system was not designed to treat food waste, and this waste is substantially increasing the organic load received by the plant. The lack of an adequate, mechanically cleaned influent screening device is also contributing to the excessive plant loading.

The two steel package plants have reached the end of their useful lives and will need to be replaced in the near future because of corrosion. It is our understanding that the anodes (if they were even included with the original installation) have not been replaced or installed since the tanks were installed nearly 40 years ago. The aeration system should also be replaced (blowers, piping and diffusers).

5. Polishing Ponds

None of the polishing ponds that follow the package treatment plants have ever included mechanical aeration, and none of them are followed by either disinfection or post aeration devices (either mechanical or step aeration). Since samples for BOD₅ must be taken prior to disinfection (and therefore prior to the polishing ponds), we seriously question their benefit and, by extension, the need to operate and maintain them. While the ponds can certainly absorb plant washouts (were they to occur) and protect the quality of the receiving stream, the permit doesn't allow for such use. The fact that geese and other wildlife use and populate the ponds make excursions for fecal coliform likely, and waste from the wildlife enhances the possibility of excursions for other permit parameters.

6. Mechanical / Electrical Equipment

Given the age of the wastewater equipment in service at Canaan Valley Resort, consideration should be given to replacing the aeration systems (blowers, piping, valves and diffusers). New blowers would be much more efficient and much quieter than the existing Positive Displacement blowers and new diffusers would be more efficient than the existing ones. Controls for the blowers, as well as for the pumping stations, should also be replaced for both reliability and to allow a telemetry and SCADA system to be installed. An operable telemetry system would optimize operator labor and permit compliance.

Flow metering at the Ski Area and Lodge plants is deficient, with the unit at the Ski Area being in such a configuration as to render its data useless. There is no flow metering at the Campground plant, even though a meter would assist in the operation of the plant. All of the current metering equipment should be replaced.

We did not investigate the condition of any of the pumping equipment, although it, too, likely needs to be replaced given the very short working life that those low horsepower pumps usually have.

Summary

Our visit to the Canaan Valley Resort's wastewater treatment facilities found that maintenance of these facilities has been very good to excellent, especially given the number of plants and the other maintenance obligations that the staff must address. With that said, the equipment and facilities that are currently being operated are old, both physically and in design, with designs that predate both the state and federal Clean Water Acts, which have been continuously updated since passage in 1972. It must be noted that the original Clean Water Act required treatment levels of 30 mg/ℓ of both BOD₅ and Suspended Solids, which the combination of package plants and "polishing ponds" could easily and reliably meet. Because of their lack of controls and the likelihood of fecal, nutrient and suspended solids contamination by geese, ducks, turtles and other wildlife, ponds are no longer designed as supplemental (or tertiary) treatment units for wastewater treatment facilities that have effluent limits that are more stringent than secondary (30 mg/ℓ BOD₅ and SS, 18 mg/ℓ TKN). Consistently meeting BOD₅ levels of 5 mg/ℓ and TKN levels of 2 mg/ℓ with the ponds cannot be guaranteed, and meeting fecal coliform limits when the ponds *follow* the chlorine contact tanks will continue to be very questionable.

To insure long term compliance with the current WV NPDES permit (except for the effluent limits for copper), upgrading of the existing extended aeration package treatment plants serving the Lodge and Cabins, Campground and Ski Area, and replacing the package plant serving the Golf Course with a septic tank needs to be initiated in the very near future. The initial step of that process would be to complete a detailed engineering study that evaluates alternatives and prioritizes the various improvements that need to be made to the existing facilities. Some of those improvements could be installed with "in house" staff, while others, particularly the replacement of the steel tankage at the Lodge plant, will require contractors to be hired.

Frederick L. Hypes, P.E., P.S.

PHOTO ATTACHMENTS

**FROM REPORT ON
CANAAN VALLEY RESORT STATE PARK
SEWAGE TREATMENT FACILITIES
OBSERVATIONS & RECOMMENDATIONS
BY
DUNN ENGINEERS, INC.**

Lodge



Comminuter



Steel Plants



Polishing Pond

Campground



Package Plant



Polishing Pond

Ski Area



Sand Filters



Clarifier



Equalization Basin (Splitter box)



Plant Site



Polishing Pond



S.E. Flow Meter