

STATEMENT OF WORK FOR PROJECT
**DESIGN PACKAGE FOR
SITE UTILITY
INFRASTRUCTURE
UPGRADES - NLR**

598-22-115



**Central Arkansas Veterans Healthcare System
VISN 16, Group 598
North Little Rock, Arkansas**

**Prepared By
CAVHS Planning and Design Office**

03 June 2022

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DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 00 00 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SAFETY REQUIREMENTS

- A. Refer to the VA Technical Information Library (TIL), Section 01 35 26, SAFETY REQUIREMENTS for safety and infection control requirements.

1.02 GENERAL

- A. A Professional Architect/Engineer (A/E) Firm shall furnish all services, materials, supplies, travel, and supervision as required to fully investigate and prepare engineering studies and fully engineered construction documents and specifications for the SITE UTILITY INFRASTRUCTURE UPGRADES – NLR, 598-22-115, project on the Eugene J. Towbin Memorial Veterans Hospital Campus in North Little Rock, Arkansas. The Campus is part of the Central Arkansas Veterans Healthcare System (CAVHS) and is located at 2200 Fort Roots Drive, North Little Rock, AR 72114. The survey and design of architectural and engineering features of the work shall be accomplished by the appropriate licensed design professional(s) who are experienced in the design of the respective systems. The construction set of drawings shall be stamped and signed by the registered professional architect(s) and registered professional engineer(s) responsible for the design in their respective area(s) of expertise and, if applicable, a principal of the firm registered in architecture and/or engineering.
- B. A Life Safety Review is required by a qualified individual such as a Fire Protection Engineer (FPE) who is knowledgeable of NFPA Fire Codes, exit calculations, sprinkler systems, fire alarm requirements, and Life Safety Code Requirements (LSC), etc. It is the A/E's responsibility to have a Fire Protection Engineer involved in all stages of design and review. A signed statement of this design and review process, along with stamped (by the FP engineer) plans, shall be submitted to the reviewer at with the 100% or Final submission. Refer to PG-18-15 for Fire Protection Engineer Qualifications.
- C. All employees of A/E design firm shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.

1.03 SCOPE OF WORK

- A. Provide Architectural/Engineering (A/E) design solutions for the preparation of engineering studies, design drawings, construction drawings and specifications for solicitation, for upgrades/replacement of the following four (4) systems: Domestic Water Source, Storage and Site Distribution System; Site Steam and Natural Gas Distribution Systems; Site Sanitary Sewer System; and Site Storm Water Sewer System. Separate Engineering Studies shall be conducted for each utility system (Water, Steam, Natural Gas/Steam, Sanitary Sewer and Storm Water) to determine existing configuration, sizes, flow rates, etc. and recommend a path/cost solution for complete upgrades/solutions on the Eugene J. Towbin Memorial Veterans Hospital Campus in North Little Rock, AR.

1.04 SPECIFICATIONS AND DRAWINGS FOR A/E FIRM

- A. Drawings and specification documents may be obtained from the Engineering – Planning & Design section. Note: Due to the age of the facility and systems, not all drawings are available and field work/investigations will be required. The following list are the documents that can be provided.
 - 1. AutoCAD Drawings or Hard Copies
 - 2. Arkansas Department of Health Letter dated 9-26-2016
 - 3. 2012 Ten State Recommend Standards
 - 4. EPA 2002 Finished Water Storage Facilities
 - 5. EPA 2015 Underground Storage Tank Regulations

PART 2 - TECHNICAL DESCRIPTION OF PROJECT

2.01 DESCRIPTION OF WORK

- A. The A/E will work with Central Arkansas Healthcare System (CAVHS) staff, Engineering Staff, and other staff as required to collect all information required to design the required corrective actions in accordance with the TIL, local, state and federal building codes and standards that correct problems with the original design, system efficiency, and improve overall facility operations.
- B. These projects will be delivered in multiple phases throughout the process. The first phase will be the Engineering Study for each system. Each study shall be independent of the others. The studies shall identify the current configurations and deficiencies within the existing systems and recommend changes. Preliminary construction cost estimates shall be included in each study for the recommendations. Utilizing the information obtained in the studies, the second phase will address the complete design and anticipated phasing of construction for each utility system. The Design Phase will also cover the recommended changes required to upgrade or replace our systems to meet code compliance. During the design phase, constructability, order of utility system repairs, and phasing timelines will be established to keep CAVHS operating with minimal disruptions to service. The third phase or Construction Phase shall implement the design, keeping outages and disruptions of service to a minimum while correcting our aging and failing infrastructure.
 - 1. A/E Design Firm will provide four (4) separate Studies and separate Design Packages. Design packages to include Drawings, Specifications, and Design Narrative with construction cost estimates. These Packages will be broken down into the following:
 - a. Area 1 – Water Source, Storage and Site Distribution System
 - b. Area 2 – Site Steam and Natural Gas Distribution Systems
 - c. Area 3 – Site Sanitary Sewer System
 - d. Area 4 – Site Storm Water Sewer System
 - 2. One, all, or any combination of the design packages may be constructed and/or may be constructed at different times.

C. (Area 1) Water Source, Storage and Site Distribution System

1. The NLR campus is short of reserve water capacity. The intent of this project is to provide additional storage via a new water storage tank. The new tank shall be designed to meet the required operational, fire, emergency demands and determine the best location to ensure the flow, pressure, quality of water and the campus historic consideration. The initial proposed location for the new water storage tank would be in the north existing ballfield area. Some preliminary calculations suggest the tank size would be approximately 1,500,000 gallons.
2. The NLR campus is also required to have a secondary water source. Currently the campus is served from one location from the south side of campus. Central Arkansas Water (CAW) has a main on the north side of campus that can possibly be utilized to solve this deficiency. The A/E shall work with VA and CAW staff to determine the best solution.
3. This new tank and service connection will be used in combination with the existing 250,000 gallon water tower, service connection and pumping facilities. Interconnection of both piping and controls shall be designed to provide a complete integrated system with remote monitoring and control for all parts of the system.
4. The new tank and service connection shall be provided with a new pump house with new pumps and new pump controls. This system is to be designed to meet all flow and pressure requirements for the campus and to also be designed to meet all current applicable codes and regulations including, but not limited to, security, monitoring, control, redundancy and emergency power.
5. The new pump house and associated shall be provided with all required water quality and monitoring systems including a chlorination system with continuous monitoring. The systems shall have the capability to be remotely controlled and monitored and be integral to the overall control and monitoring system.
6. The existing south pump house and its associated pumps and systems shall also be analyzed and repaired/replaced/modified as required to seamlessly integrate in the overall campus water system. The entire campus system shall operate as one and all parts shall have the capability to be remotely controlled and monitored.
7. This portion of the project will also replace the existing, failing cast iron, ductile iron, galvanized and asbestos cement water pipe with new copper or PVC pipe. The water supply lines shall also be looped to improve supply redundancy and improve the water pressure. Additionally, new backflow preventers shall be installed on the Fire Protection supply lines to buildings which have fire protection systems. This will include pressure testing, disinfecting, and hyper-chlorinating as required for new piping installation per Federal, State, and Local codes.
8. The entire, completed campus wide water system shall conform to all current VA, Federal, State and/or Local codes and regulations.

D. (Area 2) Site Steam and Natural Gas Distribution Systems

1. The intent of this portion of the project is to replace the failing and undersized steam and condensate distribution lines (approximately +/- 16,000) LF across the North Little Rock campus. This work will include provisions for new piping and

conversions from steam heating to natural gas heating where needed and as appropriate.

E. (Area 3) Site Sanitary Sewer System

1. The intent of this portion of the project is to replace failing and undersized Sanitary Sewer lines, structures and appurtenances. Some specific areas the study (and subsequent design and construction project) shall address are listed below but the list is not all inclusive and the entire system shall be analyzed.
 - a. Current codes and/or regulations: The study shall examine all current Federal, State and/or Local codes to ensure compliance. The study shall also examine all current VA and/or Federal regulations to ensure compliance.
 - b. Age: The NLR campus has been built, added to and/or modified in multiple stages for over a century. The study shall identify the age of the pipelines and associated manholes and appurtenances and make recommendations based on such.
 - c. Condition: The study shall also analyze the condition of pipelines and associated manholes and appurtenances and make recommendations based on such. Pipeline videography, smoke tests or other methods may be required to determine the condition of the existing lines. The costs associated with these tests are to be borne by this contractor.
 - d. Configuration: As the NLR campus has been modified through the years, the study shall analyze the overall layout and configuration and recommend changes for any deficiency found.
 - e. Capacity: As with configuration, the study shall analyze the overall capacity of the pipelines and layout and recommend changes for any short comings discovered.
 - f. Infiltration: Significant infiltration of storm water into the sanitary sewer system has been observed. The study shall use all necessary means and methods to determine the source of the infiltration and include recommendations to correct such. Cross connection to the storm drainage system is a possibility. Smoke tests, pipeline videography or other methods may be required to determine the source and/or extent of infiltration. The costs associated with these tests are to be borne by this contractor.
 - g. Storm drainage: The study will analyze the storm drainage system as it pertains to potential cross connection with the sanitary sewer system. Any issues discovered shall be addressed.
 - h. Backwater valves: It is the intent of this project to add backwater valves at each building on the campus.
 - i. Discharge: It is the intent of this project to replace the existing sewer monitoring station house. The study will analyze the current open trench configuration, capacity, adding a bypass, adding grinder(s) to reduce particle size and stoppage, updating/upgrading the monitoring system, and other capabilities and recommendations as applicable.

F. (Area 4) Site Storm Sewer System

1. The intent of this portion of the project is to replace failing and undersized Storm Sewer lines, structures and appurtenances. The Storm Drainage System shall be analyzed similarly as to the Sanitary Sewer system described above. The study shall address current codes and regulations, age, condition, configuration, capacity, infiltration and potential cross connection issues. The project includes repairs and upgrades to the entire campus wide storm sewer system. Clean out and repair existing pipes, box culverts, drainage structures, grates and manholes, frames, and covers, conduct point repair, grout repair or abandonment, replacement, lining, raising, lowering, grading/site and pavement work to improve storm sewer system and surface drainage.
- G. A/E will conduct building and site surveys as required to meet all design requirements and ensure accurate specifications during the design process. This includes validating existing drawings to verify and validate existing conditions.
1. Asbestos survey: The A/E will review the existing asbestos survey and determine any additional locations required to be on the asbestos survey, if any. Any construction in areas requiring abatement is identified on the survey. Asbestos abatement will follow Master Construction `s Section 02 82 13 from the TIL, local, state and federal requirements.
 2. Third party utility location service: The A/E shall employ and bear the cost of a third-party locating service as required to verify the location(s) of all existing utilities.
 3. Third party pipeline testing: The A/E shall employ and bear the cost of any third-party pipeline testing services required. Pipeline videography, smoke tests or any other testing deemed necessary shall be included.
 4. Third party surveying: The A/E shall employ and bear the cost of a third-party surveying service as required to verify existing elevations.
- H. The A/E shall conduct site/facility surveys as required to perform design, commissioning, and construction period services. Some specific site surveys are identified above. These are not all inclusive of the survey requirements.
- I. Construction cost estimates shall be produced by the A/E and updated throughout the study and design processes.

2.02 PROJECT AREA LIMITATIONS

- A. All work shall be performed in the immediate project area – Eugene J. Towbin Memorial Veterans Hospital Campus in North Little Rock, Arkansas.

2.03 A/E FIRM SECURITY INFORMATION (INFORMATION SYSTEMS SECURITY REQUIREMENTS)

- A. Information Systems Officer, Information Protection:
1. The A/E Firm will not have access to VA Desktop computers and nor will they have access to online resources belonging to the government while conducting services. If removal of equipment from the VA is required, any memory storage devices, such as hard drives, solid state drives and non-volatile memory units will remain in VA control and will not be removed from VA custody.
- B. Privacy Officer:

1. The A/E Firm will not have access to protected Patient Health Information (PHI) and nor will they have the capability of accessing patient information during the services provided to the VA and if removal of equipment from the VA is required, any memory storage devices, such as hard drives, solid state drives and non-volatile memory units will remain in VA control and will not be removed from VA custody. All research data available for Contractor analyses is de-identified.

C. Records Manager:

1. Citations to pertinent laws, codes, and regulations such as 44 U.S.C chapters 21, 29, 31 and 33; Freedom of Information Act (5 U.S.C. 552); Privacy Act (5 U.S.C. 552a); 36 CFR Part 1222 and Part 1228.
2. A/E Firm shall treat all deliverables under the contract as the property of the U.S. Government for which the Government Agency shall have unlimited rights to use, dispose of, or disclose such data contained therein as it determines to be in the public interest.
3. A/E Firm shall not create or maintain any records that are not specifically tied to or authorized by the contract using Government IT equipment and/or Government records.
4. A/E Firm shall not retain, use, sell, or disseminate copies of any deliverable that contains information covered by the Privacy Act of 1974 or that which is generally protected by the Freedom of Information Act.
5. A/E Firm shall not create or maintain any records containing any Government Agency records that are not specifically tied to or authorized by the contract.
6. The Government Agency owns the rights to all data/records produced as part of this contract.
7. The Government Agency owns the rights to all electronic information (electronic data, electronic information systems, electronic databases, etc.) and all supporting documentation created as part of this contract. A/E Firm must deliver sufficient technical documentation with all data deliverables to permit the agency to use the data.

2.04 DESIGN CRITERIA, CONSTRUCTION STANDARDS, ETC.

- A. VA Design Manuals, Standards, Criteria, and Space Requirements provided on the VA TIL site. This includes the following but is not limited to this list and the latest guidelines at contract award hold precedence over dated information in this supplement.
 1. PG-18-3, Design and Construction Procedures
 2. PG-08-4, VA Standard Details
 3. PG-18-10, Design Manuals – see index on TIL for complete listing (<http://www.cfm.va.gov/til/dManual/dmIndex.pdf>)
 4. PG-18-10 Site Design Manual
 5. PG-18-15 Minimum Requirements for A/E Submissions
 6. PG-18-17 Environmental Planning Guidance
 7. H-18-8, Seismic Design Manual

8. Engineering Guide for Fire Protection Design

- B. VA Construction Standards, Handbooks, etc., will be followed to the maximum extent practicable in design of the project and are available on the Internet at: <http://www.va.gov/facmgt/standard.htm> . All variations will be discussed with the Supervisory General Engineer for a waiver.
- C. Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings- (must be used in the initial planning and project design as applicable to the specific project)
- D. Local and state codes by discipline.
- E. It is the A/E's responsibility to acquire access to all standards, codes, manuals; and be proficient in their application. Failure to provide any procedure, design or construction aspect required by the above will be remedied at A/E's expense.

2.05 COMMISSIONING QUALIFICATIONS

- A. Provide independent third-party functional commissioning services for each construction project. All communications from the Commissioning Agent must be delivered simultaneously to the A/E team and the VA Project Manager and/or the VA Contracting Officer's Representative. This paragraph supersedes any general instructions provided in VA specification templates and the A/E is to amend their specifications to reflect this section.
- B. Commissioning Agent Qualifications
 - 1. Firm and Individual Experience
 - a. The firm and the designated Commissioning Authority shall have a minimum of five (5) years' experience in providing Total Building Commissioning Services and shall be regularly employed as a Commissioning Provider.
 - b. The Commissioning Authority is an objective, independent advocate for the VA. The Commissioning Authority shall have current engineering knowledge and extensive hands-on field experience regarding building systems; the physical principles of building systems performance; building systems start-ups, balancing, functional testing, and troubleshooting; operation and maintenance procedures; and the building design and construction process.
 - c. The Commissioning firm and the designated Commissioning Authority shall have successful commissioning experience for projects that are similar to the project. The Firm and designated Commissioning Authority shall have been the principal commissioning authority on a least three (3) comparable projects that have been completed within the previous five (5) years.
 - d. The Commissioning Authority shall have experience in the quality process.
 - e. The Commissioning Authority shall be knowledgeable in building operation and maintenance, including training of operations and maintenance personnel.
 - f. The Commissioning Authority shall have excellent verbal and written communications skills, be highly organized, and able to work with all levels of management, technical, and trades personnel.
 - g. Personnel and the capability to sustain loss of assigned personnel without compromising quality and timeliness of performance.

- h. The Commissioning Authority shall be an independent contractor and not an employee of the Architect/Engineer, Design-Build Contractor, Prime Contractor or General Contractor on this project.
2. Firm and Individual Certifications
- a. The proposed commissioning firm should be certified by at least one of the following agencies:
 - i. National Environmental Balancing Bureau (NEBB)
 - ii. AABC Commissioning Group (AGC)
 - iii. Building Commissioning Association (BCxA)
 - b. The proposed Commissioning Agent should be certified by one of the following organizations to supervise execution of the commissioning process:
 - i. National Environmental Balancing Bureau (NEBB)
 - ii. AABC Commissioning Group (AGC)
 - iii. Building Commissioning Association (BCxA)
 - c. The Fire Protection Commissioning Specialist should be a registered Fire Protection Engineer in at least one state. He/she should have a minimum of 5 years' experience with design, installation, inspection, or testing of fire protection systems, and/or smoke control systems.
 - d. The Building Envelope Commissioning Specialist should be a Registered Architect in at least one state. He/she should also have a minimum of five (5) years' experience with design, installation, or inspection of building envelope components.
 - e. The Controls Commissioning Specialist should have a minimum of 5 years' experience in design, installation, programming, inspection, or testing of direct digital control systems for HVAC systems.
 - f. Key members of the Commissioning Authority's commissioning team should have a bachelor's degree in Mechanical, Electrical, Architectural engineering. A Professional Engineer license in at least one jurisdiction is desired. Over 5 years field experience in building systems operations, maintenance, and troubleshooting, HVAC system installation, maintenance, and troubleshooting, HVAC Direct Digital Control system installation, programming, maintenance, and troubleshooting, electrical system installation, maintenance, and troubleshooting, other applicable trade contracting experience may be deemed equivalent experience for the bachelor's degree.

2.06 COMMISSION TESTING

- A. As per specification section 01 91 00, the contractor shall provide a written testing and commissioning plan complete with component level, equipment level, sub-system level and system level breakdowns. The plan will provide a schedule and a written sequence of what will be tested, how and what the expected outcome will be. This document will be submitted for approval prior to commencing work. The contractor shall document the results of the approved plan and submit for approval with the as built documentation.

- B. Pre-test mechanical and electrical equipment and systems and make corrections required for proper operation of such systems before requesting final tests. Final test will not be conducted unless pre-tested.
- C. Conduct final tests required in various sections of specifications in presence of an authorized representative of the Contracting Officer. Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests.
- D. Mechanical and electrical systems shall be balanced, controlled, and coordinated. A system is defined as the entire system which must be coordinated to work together during normal operation to produce results for which the system is designed. For example, air conditioning supply air is only one part of entire system which provides comfort conditions for a building. Other related components are return air, exhaust air, steam, chilled water, refrigerant, hot water, controls, and electricity, etc. Another example of a system which involves several components of different disciplines is a boiler installation. Efficient and acceptable boiler operation depends upon the coordination and proper operation of fuel, combustion air, controls, steam, feedwater, condensate, and other related components.
- E. All related components as defined above shall be functioning when any system component is tested. Tests shall be completed within a reasonable period during which operating and environmental conditions remain reasonably constant and are typical of the design conditions.
- F. Individual test result of any component, where required, will only be accepted when submitted with the test results of related components and of the entire system.

2.07 ENERGY PERFORMANCE & SUSTAINABILITY

- A. Follow: SUSTAINABLE DESIGN MANUAL (May 2014, Rev 1 – Aug 18, 2017). See full text at: <https://www.cfm.va.gov/til/sustain/dmSustain.pdf>
- B. The A/E Shall follow the requirements of the VA's Sustainable Design Manual and incorporate the requirements into the basis of design and the project documents, including the appropriate Guiding Principles checklist. In case of conflicting requirements, the more stringent requirements shall govern.
- C. A/E shall incorporate into the design premium efficiency solutions to all issues related to water and energy.

2.08 DOCUMENT CHECKLIST

- A. PLANS TO BE DEVELOPED FOR:
 - Sealed Bid (Limited to Service-Disabled Veteran-Owned Small Business)
 - 8a Construction/Service-Disabled Veteran Owned Small Business
 - In-House Construction
 - Other: Open Competition Solicitation
- B. SPECIFICATIONS:
 - Modify VA Guideline Specifications. Current information may be obtained off the Internet at: <http://www.va.gov/facmgt/> Go into the Technical Information Library (TIL), then Specifications.

Go to the link below to receive the latest specifications in support of this project:

- NA Use A/E Standard Specifications
- C. PROGRAM OF SPACES & REQUIREMENTS:
- NA To be provided by VA.
- X A/E to develop as part of project meeting VA space planning guidelines available in the TIL web site: <http://www.cfm.va.gov/til/planning.asp>
- D. BASE DRAWINGS:
- X VA to provide base drawing on Auto Cad Drawing format.
- X VA to provide copy of original building plans.
- X A/E to verify all drawings provided.
- NA A/E to red-line drawings of existing conditions
- X A/E to furnish final product electronically (dwg and pdf format) and hard copy.
- E. A/E COMPLETION TIME:
- 270 Days
- F. LAND SURVEY:
- NA Provided by VA (2' contour intervals) from Photometric Survey
- X A/E to provide
- G. SOILS TESTING:
- NA Provided by VA (From nearby past project)
- X A/E to provide
- H. COLOR BOARD REQUIRED:
- Yes X No; If yes # of sets with 2nd submittal:
- I. CONSTRUCTION PERIOD SERVICES:
- X A/E will provide construction period services, see supplement section 14. See H highlighted above.
- NA A/E construction period services are not within the scope of this contract.
- X Retain the services of a Commissioning Agent. (It is the intent of the VA that the same Commissioning Agent that performed the commissioning of the design also performs the commissioning during construction, subject to satisfactory performance.)
- J. PROJECT SCHEDULE: A/E Firm shall provide a project schedule for this design effort. [NOTE: VA requires 14 calendar days minimum to process each review.]
- Review #0: Signature Page Submission (10%) days after Notice to Proceed.
VA Response Due: 14 days after receipt of the submission.
- Review #1: Schematic Submission (35%) days after Notice to Proceed.
VA Response Due: 14 days after receipt of the submission.
- Review #2: Design Document Submission (65%) days after Notice to Proceed.

VA Response Due: 14 days after receipt of the submission.

Review #3: Construction Document Submission (95%) ____ days after Notice to Proceed.

VA Response Due: 14 days after receipt of the submission.

Final Design: Final Document Submission (100%) ____ days after Notice to Proceed. It is the A/E responsibility to ensure all prior comments are incorporated into the design. All costs of correcting and resubmitting final stamped sets due to omissions or code/requirement violations are the responsibility of the A/E.

K. SEISMIC DESIGN:

X Project designed in accordance with VA Design Guides (H-18-8, available on the TIL website) and State Law.

L. COMMISSIONING:

X Hire a Commissioning Agent per the requirements of Section XI. Commissioning.

PART 3 - PRODUCTS (Not Used)

PART 4 - EXECUTION (Not Used)

END OF SECTION – GENERAL REQUIREMENTS

SECTION 01 32 16.01 – ARCHITECTURAL AND ENGINEERING CPM SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. The Architect/Engineer of Record (A/E) shall develop a Critical Path Method (CPM Schedule) plan and schedule demonstrating fulfillment of the contract requirements as designated in VA PG 18-15, shall keep the CPM up to date in accordance with the requirements of this section and shall utilize the plan for scheduling, coordinating and monitoring work under this contract. Conventional Critical Path Method (CPM) Precedence Diagramming Method (PDM) technique will be utilized to satisfy both time and cost applications. All schedule data and reports required under this specification section shall be based upon regular total float, not relative total float schedules.

1.02 A/E'S REPRESENTATIVE:

- A. The A/E shall designate an authorized representative in the firm who will be responsible for the preparation of the CPM Schedule, review and report progress of the project with and to the Project Manager and the Contracting Officer.
- B. The A/E's representative shall have direct project control and complete authority to act on behalf of the A/E in fulfilling the requirements of this specification section and such authority shall not be interrupted throughout the duration of the project

1.03 A/E'S SCHEDULE PREPARATION:

- A. To prepare the CPM Schedule, and subsequent periodic updates, which reflects the A/E's project plan, the A/E shall either designate a qualified individual within their firm or engage an independent CPM consultant (CPM Developer) who is skilled in the time and cost application of scheduling using (PDM) network techniques for Design projects, the cost of which is included in the A/E's bid.
- B. Within 10 calendar days after award of the contract, the A/E shall submit to the Contracting Officer:
 - i. The name of the CPM Developer.
 - ii. The Computer Software to be utilized.
 - iii. Sufficient information to show that the CPM Developer has the qualifications to meet the requirements specified in the preceding paragraph.
- C. The Contracting Officer has the right to approve or disapprove the designated CPM developer and will notify the A/E of the VA decision within seven calendar days from receipt of information. In case of disapproval, the A/E shall resubmit another CPM Developer within 10 calendar days for renewed consideration. The A/E must have their CPM Developer approved prior to submitting the Initial CPM Schedule

1.04 COMPUTER PRODUCED SCHEDULES

- A. The A/E shall provide to the VA Project Manager, Contracting Officer and CPM Schedule Analyst, monthly computer processing of all computer-produced time/cost schedules and reports generated from monthly project updates. A hard copy listing of all project schedule changes, and associated data, made at the update and an electronic file of this data. These reports shall be submitted with and substantively

support the A/E's monthly payment request. The Project Manager shall identify the different report formats that the A/E shall provide based upon the monthly schedule updates.

- B. The A/E is responsible for the correctness and timeliness of the computer-produced reports. The A/E is also responsible for the accurate and timely submittal of the updated project schedule and all CPM data necessary to produce the computer reports and payment request that is specified.
- C. The VA shall report errors in computer-produced reports to the A/E's representative within ten calendar days from receipt of reports. The A/E will reprocess the computer-produced reports and associated compact disk(s), when requested by the Contracting Officer's representative, to correct errors which affect the payment and schedule for the project.

1.05 THE COMPLETE CPM SCHEDULE SUBMITTAL

- A. Within 45 calendar days after receipt of Notice to Proceed, the A/E shall submit for the Project Manager and Contracting Officer's review: three blue line copies of the complete CPM Schedule on sheets of paper 765 x 1070 mm (30 x 42 inches) and an electronic file, (PDM) format. The submittal shall also include three copies of a computer-produced activity/event ID schedule showing project duration; phase completion dates; and other data, including event cost. Each activity/event on the computer-produced schedule shall contain as a minimum, but not limited to, activity/event ID, duration, predecessor and successor relationships, area code, description, budget amount, early start date, early finish date, late start date, late finish date and total float. Work activity/event relationships shall be restricted to finish-to-start and start-to-start without lead or lag constraints. Activity/event date constraints, not required by the contract, will not be accepted unless submitted to and approved by the Contracting Officer. The A/E shall make a separate written detailed request to the Contracting Officer identifying these date constraints and secure the Contracting Officer's written approval before incorporating them into the CPM Schedule. The Contracting Officer's separate approval of the CPM Schedule shall not excuse the A/E of this requirement. Logic events (non-work) will be permitted where necessary to reflect proper logic among work events but must have zero duration. The complete working CPM Schedule shall reflect the A/E's approach to scheduling the complete project. The final CPM Schedule in its original form shall contain no contract modifications or changes which may have been incurred during the final CPM Schedule development period and shall reflect the entire contract duration as defined in the bid documents. These changes/delays shall be entered at the first update after the final CPM Schedule has been approved. The A/E should provide their requests for time and supporting time extension analysis for contract time as a result of contract changes/delays, after this update, and in accordance with Article, ADJUSTMENT OF CONTRACT COMPLETION.
- B. Within 30 calendar days after receipt of the complete project CPM Schedule, the Project Manager of Contracting Officer will do one or both of the following:
 - 1. Notify the A/E concerning his actions, opinions, and objections.
 - 2. A meeting with the A/E at or near the job site for joint review, correction or adjustment of the proposed plan will be scheduled if required. Within 14 calendar days after the joint review, the A/E shall revise and shall submit three blue line copies of the revised CPM Schedule, three copies of the revised computer-

produced activity/event ID schedule and a revised electronic file as specified by the Contracting Officer. The revised submission will be reviewed by the Contracting Officer and, if found to be as previously agreed upon, will be approved.

- C. The approved baseline CPM Schedule and the corresponding computer-produced schedule(s) shall constitute the approved baseline schedule until subsequently revised in accordance with the requirements of this section.

1.06 WORK ACTIVITY/EVENT COST DATA

- A. The A/E shall cost load all work activities. The cost loading shall reflect the appropriate level of effort of the work activities/events. The cumulative amount of all cost loaded work activities/events (including alternates) shall equal the total contract price. Prorate overhead, profit and general conditions on all work activities/events for the entire project length. The A/E shall generate from this information cash flow curves indicating graphically the total percentage of work activity/event dollar value scheduled to be in place on early finish, late finish. These cash flow curves will be used by the Contracting Officer to assist him in determining approval or disapproval of the cost loading. In the event of disapproval, the A/E shall revise and resubmit in accordance with Article, THE COMPLETE PROJECT CPM SCHEDULE SUBMITTAL. Negative work activity/event cost data will not be acceptable, except on VA issued contract changes.

1.07 CPM SCHEDULE REQUIREMENTS

- A. Show on the CPM Schedule the sequence and interdependence of work activities/events required for complete performance of all items of work. In preparing the CPM Schedule, the A/E shall:
 1. Exercise sufficient care to produce a clear, legible and accurate CPM Schedule.
 2. Show the following on each work activity/event:
 - a. Activity/Event ID number.
 - b. Concise description of the work represented by the activity/event. (35 characters or less including spaces preferred).
 - c. Performance responsibility.
 - d. Duration (in workdays.)
 - e. Cost (in accordance with Article, ACTIVITY/EVENT COST DATA of this section and less than \$99,999 per activity).
 - f. Manpower required (average number of men per day).
 3. Show activities/events as:
 - a. A/E's time required for submittal of drawings.
 - b. VA review and approval of drawings, equipment schedules, samples, template, or similar items.
 - c. Interruption of VA Medical Center utilities, delivery of Government furnished equipment, project phasing and any other specification requirements.
 4. Show activities/events for work for each discipline.

5. Break up the work into activities/events of duration no longer than 20 workdays each, except for which the Project Manager and/or the Contracting Officer may approve the showing of a longer duration.
 6. Describe work activities/events clearly, so the work is readily identifiable for assessment of completion. Activities/events labeled "start," "continue," or "completion," are not specific and will not be allowed. Lead and lag time activities will not be acceptable.
 7. Uniquely number each activity/event with numbers ranging from 1 to 99998 only. The CPM Schedule should be generally numbered in such a way to reflect disciplines, phase, or location of the work.
- B. Submit the following supporting data in addition to the CPM Schedule, activity/event ID schedule and electronic file (s). Failure of the A/E to include this data will delay the review of the submittal until the Contracting Officer is in receipt of the missing data:
1. The proposed number of working days per week.
 2. The holidays to be observed during the life of the contract (by day, month, and year).
- C. To the extent that the CPM Schedule or any revised CPM Schedule shows anything not jointly agreed upon, it shall not be deemed to have been approved by the Contracting Officer. Failure to include any element of work required for the performance of this contract shall not excuse the A/E from completing all work required within any applicable completion date of each phase regardless of the Contracting Officer's approval of the CPM Schedule.
- D. Compact Disk Requirements and CPM Activity/Event Record Specifications: Submit to the VA (Project Manager and CPM Schedule Analyst) an electronic file(s) containing one file of the data required.

1.08 PAYMENT TO THE A/E:

- A. Monthly, the A/E shall submit the AIA application and certificate for payment documents G702 & G703 reflecting updated schedule activities and cost data. The A/E is entitled to a monthly progress payment upon approval of estimates as determined from the currently approved updated computer-produced calendar-dated schedule unless, in special situations, the Contracting Officer permits an exception to this requirement.
- B. When the A/E fails or refuses to furnish to the Contracting Officer the information, which, in the sole judgment of the Contracting Officer, is necessary for processing the monthly progress payment, the A/E shall not be deemed to have provided an estimate and supporting schedule data upon which progress payment may be made.

1.09 PAYMENT AND PROGRESS REPORTING

- A. Monthly progress meetings shall be held on dates mutually agreed to by the Project Manager and/or Contracting Officer and the A/E. The A/E shall update the project schedule and all other data required by this section shall be accurately filled in and completed prior to the monthly progress meeting. The A/E shall provide this information to VA three workdays in advance of the progress meeting. Job progress will be reviewed to verify:

1. Actual start and/or finish dates for updated/completed activities/events.
 2. Remaining duration, required to complete each activity/event started, or scheduled to start, but not completed.
 3. Logic, time and cost data for change orders, and supplemental agreements that are to be incorporated into the CPM Schedule and computer-produced schedules. Changes in activity/event sequence and duration which have been made pursuant to the provisions of following Article, ADJUSTMENT OF CONTRACT COMPLETION.
 4. Percentage for completed and partially completed activities/events.
 5. Logic and duration revisions required by this section of the specifications.
 6. Activity/event duration and percent complete shall be updated independently.
- B. The A/E shall submit a narrative report as a part of his monthly review and update, in a form agreed upon by the A/E and the Contracting Officer. The narrative report shall include a description of problem areas; current and anticipated delaying factors and their estimated impact on performance of other activities/events and completion dates; and an explanation of corrective action taken or proposed.
- C. After completion of the joint review and the Contracting Officer's approval of all entries, the A/E shall generate an updated computer-produced calendar-dated schedule and supply the Contracting Officer's representative with reports in accordance with the Article, COMPUTER PRODUCED SCHEDULES, specified.
- D. After completing the monthly schedule update, the A/E's scheduling person shall rerun all current period contract change(s) against the prior approved monthly project schedule. The analysis shall only include original workday durations and schedule logic agreed upon by the A/E and Project Manager for the contract change(s). When there is a disagreement on logic and/or durations, the CPM Schedule update shall use the schedule logic and/or durations provided and approved by the Project Manager. After each rerun update, the resulting electronic project schedule data file shall be appropriately identified and submitted to the VA in accordance to the requirements listed in articles 1.4 and 1.7. This electronic submission is separate from the regular monthly project schedule update requirements and shall be submitted to the resident engineer within fourteen (14) calendar days of completing the regular schedule update. Before inserting the contract changes durations, care must be taken to ensure that only the original durations will be used for the analysis, not the reported durations after progress. In addition, once the final CPM Schedule is approved, the A/E must recreate all manual progress payment updates on this approved CPM Schedule and associated reruns for contract changes in each of these update periods as outlined above for regular update periods. This will require detailed record keeping for each of the manual progress payment updates.
- E. After VA acceptance and approval of the final CPM Schedule, and after each monthly update, the A/E shall submit to the Contracting Officer three blue line copies of a revised complete CPM Schedule showing all completed and partially completed activities/events, contract changes and logic changes made on the intervening updates or at the first update on the final diagram. The Contracting Officer may elect to have the A/E do this on a less frequent basis, but it shall be done on a quarterly basis as a minimum.

1.10 RESPONSIBILITY FOR COMPLETION

- A. Whenever it becomes apparent from the current monthly progress review meeting or the monthly schedule that phasing or contract completion dates will not be met, the A/E shall execute some or all of the following remedial actions:
 - 1. Increase manpower in such quantities and discipline as necessary to eliminate the backlog of work.
 - 2. Increase the number of working hours to eliminate the backlog of work.
 - 3. Reschedule the work in conformance with the specification requirements.
- B. Prior to proceeding with any of the above actions, the A/E shall notify and obtain approval from the Project Manager and/or the Contracting Officer for the proposed schedule changes. If such actions are approved, the CPM revisions shall be incorporated by the A/E into the CPM Schedule before the next update, at no additional cost to the Government.

1.11 CHANGES TO CPM SCHEDULE AND SCHEDULE

- A. Within 30 calendar days after VA acceptance and approval of any updated computer-produced schedule, the A/E will submit a revised CPM Schedule
- B. Contracting Officer's approval for the revised CPM Schedule and all relevant data is contingent upon compliance with all other paragraphs of this section and any other previous agreements by the Contracting Officer or the VA representative.
- C. The cost of revisions to the CPM Schedule resulting from contract changes will be included in the proposal for changes in work as specified in Article, FAR 52.243 -4 (CHANGES), VAAR 852.236 – 88 (CHANGES – SUPPLEMENTS), and will be based on the complexity of the revision or contract change, man hours expended in analyzing the change, and the total cost of the change.
- D. The cost of revisions to the CPM Schedule not resulting from contract changes is the responsibility of the A/E.

1.12 ADJUSTMENT OF CONTRACT COMPLETION

- A. The contract completion time will be adjusted only for causes specified in this contract. Request for an extension of the contract completion date by the A/E shall be supported with a justification, CPM data and supporting evidence as the Contracting Officer may deem necessary for determination as to whether or not the A/E is entitled to an extension of time under the provisions of the contract. Submission of proof based on revised activity/event logic, durations (in workdays) and costs is obligatory to any approvals. The schedule must clearly display that the A/E has used, in full, all the float time available for the work involved in this request. The Contracting Officer's determination as to the total number of days of contract extension will be based upon the current computer produced calendar dated schedule for the time period in question and all other relevant information.
- B. Actual delays in activities/events which, according to the computer produced calendar dated schedule, do not affect the extended and predicted contract completion dates shown by the critical path in the network, will not be the basis for a change to the contract completion date. The Contracting Officer will within a reasonable time after receipt of such justification and supporting evidence, review the facts and advise the A/E in writing of the Contracting Officer's decision.

- C. The A/E shall submit each request for a change in the contract completion date to the Contracting Officer in accordance with the provisions specified under Article, FAR 52.243 -4 (CHANGES), VAAR 852.236 – 88 (CHANGES – SUPPLEMENTS). The A/E shall include, as a part of each change order proposal, a sketch showing all CPM logic revisions, duration (in workdays) changes, and cost changes, for work in question and its relationship to other activities on the approved CPM Schedule.
- D. All delays due to non-work activities/events such as RFI's, WEATHER, STRIKES, and similar non-work activities/events shall be analyzed on a month-by-month basis.

1.13 PROJECT DESIGN SCHEDULE RISK ANALYSIS/MITIGATION PLAN

- A. Schedule Risk Analysis – The A/E shall conduct the statistical schedule risk analysis based on the above detailed construction activities in the Day 1 approved diagram, identifying major schedule risk areas and recommended risk mitigation plans as outlined below.
- B. The risk analysis shall be conducted by a person or firm skilled in the statistical method of schedule risk analysis based on the (PDM) CPM Schedule techniques for major projects, preferably in the major health care related projects. The cost of this service shall be included in the A/E's proposal.
- C. The Contracting Officer has the right to approve or disapprove the Person or firm designated to perform the risk analysis.

1.14 RISK ANALYSIS FORMAT / REQUIREMENTS / SUBMITALS

- A. Risk Analysis Software / Format - Within 45 calendar days after receipt of Notice to Proceed, the A/E shall submit for the Contracting Officer's review; a Risk Analysis software to be utilized, the method of performing the analysis, the format of presenting the data and the reports for VA approval.
- B. Conduct Risk Analysis / Submittals - Based on the approved software / format, the consultant shall perform statistical risk analysis on the detailed approved Day 1 diagram. The A/E shall review and utilize any previous Risk analysis based on the "semi-detailed" schedule logic and schedule to ensure the continuity of previous schedule risk analysis. The A/E's project manager shall identify the major schedule risk areas and possible risk mitigation strategy/plan and record it in a narrative format, with electronic file submission to VA. The risk analysis exercise shall be performed or updated at least on a quarterly basis or as directed by the VA Contracting officer.
- C. The submittal shall include three copies of a computer-produced risk analysis results, predicting the various meaningful probability curves of achieving the contract schedules. It shall also include a detailed narrative list of all major and minor potential and specific schedule and cost risk areas, and a A/E 's recommendations of mitigating the identified risks which must be addressed by the VA Project and Resident engineer teams to maintain the contract schedule.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION – PROJECT SCHEDULES

SECTION 01 33 23 – DRAWINGS AND SPECIFICATIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This specification defines the general requirements and procedures for AutoCAD drawings and Specifications.

1.02 SUBMITTAL EXCHANGE SERVICES

- A. Primavera Submittal Exchange Cloud Service provides an easy user experience for electronically exchanging, reviewing, and archiving construction project documentation in the cloud. A/E Firm will provide access to the Submittal Exchange for design work. In construction specifications, General Contractor shall provide access to the Submittal Exchange.
- B. Procore Submittal Cloud Service provides an easy user experience for electronically exchanging, reviewing, and archiving construction project documentation in the cloud. A/E Firm will provide access to Procore Submittal Cloud Service for design work. In construction specifications, General Contractor shall provide access to the Procore Submittal Cloud Services.

1.03 AUTOCAD DRAWINGS

- A. Standard Auto Cad Drawing file compatible to Release 2017 to be provided on compact disk. The VA does not use any "helper" programs and A/E drawings should be useable by the VA.
- B. VA Standard Title Blocks will be provided on disk.
- C. Each submission will include 2 full size and 2 half size hard copies of drawings required for that submission. Each drawing submission will also be provided on DVD in pdf and AutoCAD format.
- D. The Final Drawing Set, after the CD (95%) drawings will meet PG-18-15 requirements and will have all A/E Design Contract notation (such as contract/project numbers) removed from all parts of the submission. The final drawing sets will be signed/stamped drawings. Final electronic copies are to be "purged" of all unused components. "XREF'S" used should be bound to each sheet.

1.04 SPECIFICATIONS

- A. The Spec Book Title and Drawing titles should be the same.
- B. Specifications shall be provided at all stages (35%, 65%, 95%, 100%) of the design process.
- C. Follow PG-18-15, Volume C guidelines on specifications and submittals. CAVHS has modified PG-18-15 and added the 35% specification to reflect the initial understanding of the project.
- D. All submissions including final shall include (three formats):
 1. Microsoft Word (single or multiple word documents)
 2. Adobe Acrobat: one book unless document is larger than 5 meg, then compile into 2 books.
 3. Hard copies (2)

- E. Specifications Format:
1. Margin (all pages): Top - 1 1/2", Bottom - 1", Sides - 1"
 2. Spacing: Single spacing with double spacing between outline formats.
 3. Page Numbers: Centered at approximately 1" from bottom of page. Use specification number and number consecutively (ex. 01 33 23-1, 01-33-23-2).
 4. Pages: Should be single sided.
 5. Double spaced and centered at the end of each specification section should be the word "- - - END - - -". This comes above the last page number.
- F. The VA may provide specifications, to include the following:
1. Cover
 2. 000501 Special Requirements for Work Within a VA Hospital (the A/E is to meet with the VA's Infection Control to determine ICRA level for construction and update this specification).
 3. 010000 General Requirements
 4. 013323 Shop Drawings, Product Data, and Samples.
 5. 013525 Safety
 6. 017701 Final Cleaning
 7. SCHEDULE
- G. The A/E is responsible for integrating any VA supplied specifications into the overall specifications. This includes editing and correcting as necessary.
- H. The A/E is responsible for completing the submittal register and integrating into specification 013323. Example form (latest to be used) copied below and electronic Excel file available from VA COR.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION – SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

SECTION 01 91 00 – GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 DEPT OF VETERANS AFFAIRS SPECIFICATIONS

- A. Following VA Technical Information Library (TIL) Standards (www.cfm.va.gov/TIL) and active participation of facility user/stakeholder groups in the application of Standards for all projects will ensure VA provides optimally functional, high quality, high performance, and flexible facilities within scope, on budget, and on time in accomplishment of VA's missions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION – GENERAL COMMISSIONING REQUIREMENTS