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## DIVISION 01 - GENERAL REQUIREMENTS

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## PROJECT SCHEDULE

02/15

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PROJECT SCHEDULE  
02/15

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this Specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## AACE INTERNATIONAL (AACE)

AACE 29R-03 (2011) Forensic Schedule Analysis  
AACE 52R-06 (2006) Time Impact Analysis - As Applied  
in Construction

## U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1-1-11 (1995) Administration -- Progress,  
Schedules, and Network Analysis Systems

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00  
SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

Project Scheduler Qualifications; G, RO  
Preliminary Project Schedule; G, RO  
Initial Project Schedule; G, RO  
Periodic Schedule Update; G, RO

## 1.3 SCHEDULE PREPARER

Authorize a representative to prepare the schedule and update and produce reports. The authorized representative shall have at least 2 years experience scheduling construction projects similar in size and nature to this project with scheduling software that meets the requirements of this Section. Representative shall have a comprehensive knowledge of CPM scheduling principles and application.

## PART 2 PRODUCTS

## 2.1 SOFTWARE

The software used to produce and update the required schedules shall meet the requirements of this Section.

### 2.1.1.1 Government Default Software

The Government intends to use Primavera P6.

### 2.1.1.2 Contractor Software

Scheduling software used by the contractor shall be commercially available from the software vendor for purchase with vendor software support agreements available. The software routine used to create the required sdef file shall be created and supported by the software manufacturer.

#### 2.1.2.1 Primavera

If Primavera P6 is being used, request a backup file template (.xer) from the Government, if one is available, prior to building the schedule. The following settings are mandatory and required in all schedule submissions to the Government:

- a. Activity Codes shall be Project Level, not Global or EPS level.
- b. Calendars shall be Project Level, not Global or Resource level.
- c. Activity Duration Types shall be set to "Fixed Duration & Units".
- d. Percent Complete Types shall be set to "Physical".
- e. Time Period Admin Preferences shall remain the default "8.0 hr/day, 40 hr/week, 172 hr/month, 2000 hr/year". Set Calendar Work Hours/Day to 8.0 Hour days.
- f. Set Schedule Option for defining Critical Activities to "Longest Path".
- g. Set Schedule Option for defining progressed activities to "Retained Logic".
- h. Set up cost loading using a single lump sum resource. The Price/Unit shall be \$1/hr, Default Units/Time shall be "8h/d", and settings "Auto Compute Actuals" and "Calculate costs from units" selected.
- i. Activity ID's shall not exceed 10 characters.
- j. Activity Names shall have the most defining and detailed description within the first 30 characters.

#### 2.1.2.2 Other Than Primavera

If the Contractor chooses software, other than Primavera P6, that is compliant with this Section, provide for the Government's use 2 licenses, 2 computers, and training for 2 Government employees in the use of the software. These computers shall be stand-alone and not connected to Government network. Computers and licenses will be returned at project completion.

## PART 3 EXECUTION

### 3.1 GENERAL REQUIREMENTS

Prepare for approval a Project Schedule, as specified herein, pursuant to

FAR Clause 52.236-15, SCHEDULE FOR CONSTRUCTION CONTRACTS. Show in the schedule the proposed sequence to perform the work and dates contemplated for starting and completing the schedule activities. The scheduling of the entire project, including the design and construction sequences, is required. Contractor management personnel shall actively participate in its development. Subcontractors and suppliers, Designers, subcontractors, and suppliers working on the project shall also contribute in developing and maintaining an accurate project schedule. Provide a schedule that is a forward planning as well as a project monitoring tool. Use the Critical Path Method (CPM) of network calculation to generate all Project Schedules. Prepare each Project Schedule using the Precedence Diagram Method (PDM).

### 3.2 BASIS FOR PAYMENT AND COST LOADING

The schedule is the basis for determining contract earnings during each update period and therefore the amount of each progress payment. The aggregate value of the activities coded to a Contract Line Item Number (CLIN) shall equal the value of the CLIN.

#### 3.2.1 Activity Cost Loading

Activity cost loading shall be reasonable and without front-end loading. Provide additional documentation to demonstrate reasonableness if requested by the Contracting Officer.

#### 3.2.2 Withholdings / Payment Rejection

Failure to meet the requirements of this Section may result in the disapproval of the schedules or updates and subsequent rejection of payment requests until requirements are met.

If the Contracting Officer directs schedule revisions and those revisions have not been included in subsequent Project Schedule revisions or updates, the Contracting Officer may withhold 10 percent of pay request amount for each payment period until such revisions to the project schedule have been made.

### 3.3 PROJECT SCHEDULE DETAILED REQUIREMENTS

#### 3.3.1 Level of Detail Required

Develop the Project Schedule to the appropriate level of detail to address major milestones and to allow for satisfactory project planning and execution. Failure to develop the Project Schedule to an appropriate level of detail will result in its disapproval. The Contracting Officer will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

#### 3.3.2 Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities shall have Original Durations (OD) greater than 20 work days or 30 calendar days.

#### 3.3.3 Design and Permit Activities

Include design and permit activities with the necessary conferences and

follow-up actions and design package submission dates. Include the design schedule in the project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific contract period. Provide at a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. Also include review and correction periods associated with each item.

#### 3.3.4 Procurement Activities

Include activities associated with the critical submittals and their approvals, procurement, fabrication, and delivery of long lead materials, equipment, fabricated assemblies, and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days.

#### 3.3.5 Mandatory Tasks

Include the following activities/tasks in the initial project schedule and all updates.

- a. Submission, review and acceptance of SD-01 Preconstruction Submittals (individual activity for each).
- b. Submission, review and acceptance of features require design completion  
Submission, review and acceptance of design packages.
- c. Submission of mechanical/electrical/information systems layout drawings.
- d. Long procurement activities
- e. Submission and approval of O & M manuals.
- f. Submission and approval of as-built drawings.
- g. Submission and approval of DD1354 data and installed equipment lists.
- h. Submission and approval of testing and air balance (TAB).
- i. Submission of TAB specialist design review report.
- j. Submission and approval of fire protection specialist.
- k. Submission and approval of Building Commissioning Plan, test data, and reports. Develop the schedule logic associated with testing and commissioning of mechanical systems to a level of detail consistent with the Contract commissioning requirements. Building testing and commissioning tasks shall be completed prior to submission of building commissioning report and subsequent Contract completion.
- l. Air and water balancing.
- m. Building commissioning - Functional Performance Testing.
- n. Controls testing plan submission.
- o. Controls testing.
- p. Performance Verification testing.

- q. Other systems testing, if required.
- r. Contractor's pre-final inspection.
- s. Correction of punch list from Contractor's pre-final inspection.
- t. Government's pre-final inspection.
- u. Correction of punch list from Government's pre-final inspection.
- v. Final inspection.

### 3.3.6 Government Activities

Show Government and other agency activities that could impact progress. These activities include, but are not limited to: [approvals, acceptance, design reviews](#), environmental permit approvals by State regulators, inspections, utility tie-in, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements.

### 3.3.7 Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in [ER 1-1-11](#). This exact structure is mandatory. Develop and assign the Activity Codes to activities as detailed herein. A template SDEF compatible schedule backup file is available on the QCS web site: <http://rms.usace.army.mil>.

The SDEF format is as follows:

Field	Activity Code	Length	Description
1	WRKP	3	Workers per day
2	RESP	4	Responsible party
3	AREA	4	Area of work
4	MODF	6	Modification Number
5	BIDI	6	Bid Item (CLIN)
6	PHAS	2	Phase of work
7	CATW	1	Category of work
8	FOW	20	Feature of work*

\*Some systems require that FEATURE OF WORK values be placed in several activity code fields. The notation shown is for Primavera P6. Refer to the specific software guidelines with respect to the FEATURE OF WORK field requirements.

#### 3.3.7.1 Workers Per Day (WRKP)

Assign Workers per Day for the field construction and direct work activities, if directed by the Contracting Officer. Workers per day shall be the average number of workers expected each day to perform a task for

the duration of that activity.

#### 3.3.7.2 Responsible Party Coding (RESP)

Assign responsibility code for activities to the Prime Contractor, subcontractor, or Government agency responsible for performing the activity.

- a. Activities coded with a Government Responsibility code include, but are not limited to: Government approvals, Government design reviews, environmental permit approvals by State regulators, Government Furnished Property/Equipment (GFP) and NTP) for phasing requirements.
- b. Activities cannot have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for the designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and GOVT (for USACE).

#### 3.3.7.3 Area of Work Coding (AREA)

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities cannot have more than one Work Area Code.

Some activities do not require a Work Area code. A lack of Work Area coding indicates the activity is not resource or space constrained.

#### 3.3.7.4 Modification Number (MODF)

Assign a Modification Number Code to an activity or sequence of activities added to the schedule as a result of a Contract Modification, when approved by Contracting Officer. Key the Code values to the Government's modification numbering system. An activity can have only one Modification Number Code.

#### 3.3.7.5 Bid Item Coding (BIDI)

Assign a Bid Item Code to the activities, using the CLIN to which the activity belongs, even when an activity is not cost loaded. An activity can have only one BIDI Code.

#### 3.3.7.6 Phase of Work Coding (PHAS)

Assign Phase of Work Code to all activities. Examples of phase of work are [design phase](#), [procurement phase](#), and [construction phase](#). Each activity can have only one Phase of Work code.

- a. Code fast-track design and construction phases proposed to allow filtering and organizing the schedule by fast-track design and construction packages.
- b. If the Contract specifies phasing with separately defined performance periods, identify a Phase Code to allow filtering and organizing the schedule accordingly.

### 3.3.7.7 Category of Work Coding (CATW)

Assign a Category of Work Code to all activities. Category of Work Codes include, but are not limited to design, design submittal, design reviews, review conferences, permits, construction submittals, procurement, fabrication, weather sensitive installation, non-weather sensitive installation, start-up, and testing activities. Each activity can have only one Category of Work Code.

### 3.3.7.8 Feature of Work Coding (FOW)

Assign a Feature of Work Code to appropriate activities based on the Definable Feature of Work to which the activity belongs based on the approved quality control plan.

Definable Feature of Work is defined in Section 01 45 00.00 10 QUALITY CONTROL. An activity can have only one Feature of Work Code.

### 3.3.8 Contract Milestones and Constraints

Milestone activities shall be used for significant project events including, but not limited to, project phasing, project start and end activities, and interim completion dates. The use of artificial float constraints such as "zero free float" or "zero total float" are prohibited.

Mandatory constraints that ignore or affect network logic are prohibited. No constrained dates are allowed in the schedule other than those specified herein. Submit additional constraints to the Contracting Officer for approval on a case-by-case basis.

#### 3.3.8.1 Project Start Date Milestone and Constraint

The first activity in the project schedule shall be a start milestone titled "NTP Acknowledged," which shall have a "Start On" constraint date equal to the date that the NTP is acknowledged.

#### 3.3.8.2 End Project Finish Milestone and Constraint

The last activity in the schedule shall be a finish milestone titled "End Project".

The project schedule shall be constrained to the Contract Completion Date in such a way that if the schedule calculates an early finish, then the float calculation for "End Project" milestone reflects positive float on the longest path. If the project schedule calculates a late finish, then the "End Project" milestone float calculation reflects negative float on the longest path. The Government is under no obligation to accelerate Government activities to support a Contractor's early completion.

#### 3.3.8.3 Interim Completion Dates and Constraints

Constrain contractually specified interim completion dates to show negative float when the calculated late finish date of the last activity in that phase is later than the specified interim completion date.

##### 3.3.8.3.1 Start Phase

Use a start milestone as the first activity for a project phase. The start milestone shall be called "Start Phase X" where "X" refers to the phase of

work.

#### 3.3.8.3.2 End Phase

Use a finish milestone as the last activity for a project phase. Call the finish milestone "End Phase X" where "X" refers to the phase of work.

#### 3.3.9 Calendars

Schedule activities on a calendar to which the activity logically belongs. Develop calendars to accommodate Contract-defined work periods, such as a 7-day calendar for Government Acceptance activities, concrete cure times, etc. Develop the default calendar to match the physical work plan with non-work periods identified including weekends and holidays. Develop and assign seasonal calendars to seasonally affected activities.

If an activity is weather-sensitive, assign it to a calendar showing non-work days on a monthly basis, with the non-work days selected at random across the weeks of the calendar, using the anticipated days provided in Contract Clause TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. The assignment of the non-work days should be over a 7-day week since weather records are compiled on 7-day weeks, which will cause some of the weather related non-work days to fall on weekends.

#### 3.3.10 Open Ended Logic

Only 2 open ended activities are allowed: the first activity "NTP Acknowledged" shall have no predecessor logic, and the last activity "End Project" shall have no successor logic.

Predecessor open-ended logic may be allowed in a time impact analysis upon the Contracting Officer's approval.

#### 3.3.11 Default Progress Data Disallowed

Actual Start and Finish dates shall not automatically update with default mechanisms included in the scheduling software. Updating of the percent complete and the remaining duration of an activity shall be independent functions. Disable program features that calculate one of these parameters from the other. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process shall match those dates provided in the Contractor Quality Control Reports. Failure to document the AS and AF dates in the Daily Quality Control report will result in disapproval of the Contractor's schedule.

#### 3.3.12 Out-of-Sequence Progress

Activities that have progressed before the preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis, subject to Government approval. Propose logic corrections to eliminate Out-of-Sequence Progress or justify not changing the sequencing for approval prior to submitting an updated project schedule. Address Out-of-Sequence Progress and logic changes in the Narrative Report and in the periodic schedule update meetings.

#### 3.3.13 Added and Deleted Activities

Do not delete activities from the project schedule or add new activities to the schedule without approval from the Contracting Officer. Activity ID

and description changes are considered new activities and shall not be changed without Contracting Officer approval.

#### 3.3.14 Original Durations

Activity Original Durations (OD) shall be reasonable to perform the work item. OD changes are prohibited unless justification is provided to and approved by the Contracting Officer.

#### 3.3.15 Leads, Lags, and Start to Finish Relationships

Lags shall be reasonable as determined by the Government and not used in place of realistic original durations, shall not be in place to artificially absorb float, or to replace proper schedule logic. Leads (negative lags) and Start to Finish (SF) relationships are prohibited.

#### 3.3.16 Retained Logic

Schedule calculations shall retain the logic between predecessors and successors ("retained logic" mode) even when the successor activity starts and the predecessor activity has not finished (out-of-sequence progress). Software features that, in effect, sever the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("progress override") shall not be allowed.

#### 3.3.17 Percent Complete

Update the percent complete for each activity started, based on the realistic assessment of earned value. Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be declared 100 percent complete to allow for proper schedule management.

#### 3.3.18 Remaining Duration

Update the remaining duration for each activity based on the number of estimated work days necessary to complete the activity. Remaining duration may not mathematically correlate with percentage found under Paragraph "Percent Complete", above.

#### 3.3.19 Cost Loading of Closeout Activities

Cost load the "Correction of punch list items from Government pre-final inspection" activities not less than 1 percent of the present Contract value. Activities may be declared 100 percent complete upon the Government's verification of completion and correction of the punch list work identified during Government pre-final inspection(s).

##### 3.3.19.1 As-Built Drawings

If there is no separate CLIN for as-built drawings, cost load the "Submission and approval of as-built drawings" activity not less than \$35,000 or 1 percent of the present Contract value, whichever is greater, up to \$200,000. Activity will be declared 100 percent complete upon the Government's approval.

##### 3.3.19.2 O & M Manuals

Cost load the "Submission and approval of O & M manuals" activity not less

than \$20,000. Activity will be declared 100 percent complete upon the Government's approval of all O & M manuals.

#### 3.3.20 Anticipated Adverse Weather

This Paragraph is applicable to contracts with Contract Clause TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. Reflect the number of anticipated adverse weather delays allocated to a weather-sensitive activity in the activity's calendar.

#### 3.3.21 Early Completion Schedule and the Right to Finish Early

An Early Completion Schedule is an Initial Project Schedule (IPS) that indicates the scope of the required contract work will be completed before the contractually required completion date.

- a. No IPS indicating an Early Completion will be accepted without being fully resource-loaded (including crew sizes and manhours) and the Government agreeing that the schedule is reasonable and achievable.
- b. The Government is under no obligation to accelerate its own work items to ensure that the early completion is met nor is it responsible to modify incremental funding (if applicable) for the project to meet the Contractor's accelerated work.

### 3.4 PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data CD/DVD, reports, and network diagrams required for each submission are contained in Paragraph SUBMISSION REQUIREMENTS. If the Contractor fails or refuses to furnish the information and schedule updates as set forth, the Contractor will be deemed not to have provided an estimate upon which a progress payment can be made.

Review comments made by the Government on the schedules do not relieve the Contractor from compliance with the Contract.

#### 3.4.1 Preliminary Project Schedule Submission

Within 15 calendar days after the NTP is acknowledged, submit the [Preliminary Project Schedule](#) defining the planned operations detailed for the first 90 calendar days for approval. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Completely cost load the Preliminary Project Schedule to balance the CLINS shown on the Price Schedule. The Preliminary Project Schedule may be summary in nature for the remaining performance period. It shall be early start and late finish constrained and logically tied as specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and shall include all of the required plan and program preparations, submissions and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, planned submissions of early design packages, permitting activities, design review conference activities, and other non-construction activities intended to occur within the first 90 calendar days. Government acceptance of the associated design packages and other specified Program and Plan approvals shall occur prior to planned construction activities. Activity code activities that are summary in nature after the first 90 calendar days with Bid Item code (BIDI), Responsibility Code (RESP), and Feature of Work code

(FOW).

### 3.4.2 Initial Project Schedule Submission

Submit the [Initial Project Schedule](#) for approval within 42 calendar days after NTP is issued. The schedule shall demonstrate a reasonable and realistic sequence of activities which represent the work through the entire Contract performance period. [In the design-build schedule, include detailed design and permitting activities, including but not limited to, identification of individual design packages, design submission, reviews and conferences; permit submissions and required Government actions; and long lead item acquisition prior to design completion. Also cover in the preliminary design-build schedule the entire construction effort with as much detail as is known at the time but, as a minimum, include the construction start and completion milestones, and detailed construction activities through the dry-in milestone, including activity coding and cost loading. The remaining construction, including cost loading, may be scheduled summary in nature. As the design proceeds and design packages are developed, fully detail the remaining construction activities concurrent with the monthly schedule updating process. Constrain construction activities by Government acceptance of associated designs. When the design is complete, incorporate the remaining detailed construction activities, planned to occur after the dry-in milestone, into the then-approved schedule update. No payment will be made for work items not fully detailed in the Project Schedule.](#)

#### 3.4.2.1 Design Package Schedule Submission

With each design package submitted to the Government, submit a fragment schedule, extracted from the then-current schedule, which covers the activities associated with that Design Package including construction, procurement, and permitting activities.

### 3.4.3 Periodic Schedule Updates

Update the Project Schedule on a regular basis, monthly at a minimum. Provide a draft Periodic Schedule Update for review at the schedule update meetings as prescribed in Paragraph PERIODIC SCHEDULE UPDATE MEETINGS, below. These updates will enable the Government to assess Contractor's progress. [Update the schedule to include detailed construction activities as the design progresses, but not later than the submission of the final un-reviewed design submission for each separate design package. The Contracting Officer may require submission of detailed schedule activities for distinct construction that is started prior to submission of a final design submission, if such activity is authorized.](#)

- a. Update information, including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD), and Percent Complete, is subject to the approval of the Government at the meeting.
- b. AS and AF dates shall match the dates reported on the Contractor's Quality Control Report for an activity start or finish.

## 3.5 SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

### 3.5.1 Data CD/DVDs

Provide 2 sets of data CD/DVDs containing the current project schedule, previously submitted schedules in the format of the scheduling software (e.g. .xer), the Narrative Report, and the required Schedule Reports. Label each CD/DVD with the type of schedule (Preliminary, Initial, Update), full Contract number, data date, and file name. Each schedule shall have a unique file name and use project-specific settings.

### 3.5.2 Narrative Report

Provide a Narrative Report with each schedule submission. The Narrative Report is expected to communicate to the Government the thorough analysis of the schedule output and the plans to compensate for problems, either current or potential, which are revealed through that analysis. At a minimum:

- a. Identify and discuss the work scheduled to start in the next update period.
- b. Describe activities along the 2 most critical paths where the total float is less than or equal to 20 work days.
- c. Describe current and anticipated problem areas, delaying factors, their impact, and an explanation of corrective actions taken or required to be taken.
- d. Identify and explain why activities based on their calculated late dates should have either started or finished during the update period but did not.
- e. Identify and discuss the schedule changes by activity ID and activity name, including what specifically was changed and why the change was needed. At a minimum, include new and deleted activities, logic changes, duration changes, calendar changes, lag changes, resource changes, and actual start and finish date changes.
- f. Identify and discuss out-of-sequence work.

### 3.5.3 Schedule Reports

Formatting, filtering, organizing, and sorting each schedule report shall be as directed by the Contracting Officer. Typically, reports shall contain Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. Provide the reports electronically in .pdf format. Provide [\_\_\_\_\_] set(s) of hardcopy reports. Typical reports that will be requested include:

#### 3.5.3.1 Activity Report

List of the activities sorted according to activity number.

#### 3.5.3.2 Logic Report

List of detailed predecessor and successor activities for every activity in ascending order by activity number.

### 3.5.3.3 Total Float Report

A list of the incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

### 3.5.3.4 Earnings Report by CLIN

A compilation of the Total Earnings on the project from the NTP to the data date. This report shall reflect the earnings of activities based on the agreements made in the schedule update meeting. If a complete schedule update has been furnished, this report serves as the basis of determining progress payments. Group activities by CLIN number and sort by activity number. This report shall also provide a total CLIN percent earned value, CLIN percent complete, and project percent complete. The printed report shall contain the following for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Earnings to Date, Earnings this period, Total Quantity, Quantity to Date, and Percent Complete (based on cost).

### 3.5.3.5 Schedule Log

Provide a Scheduling/Leveling Report generated from the current project schedule being submitted.

## 3.5.4 Network Diagram

The Network Diagram is required for the Preliminary, Initial, and Periodic Updates. Depict and display the order and interdependence of activities and the sequence in which the work shall be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

### 3.5.4.1 Continuous Flow

Show a continuous flow from left to right with no arrows from right to left. Show the activity number, description, duration, and estimated earned value on the diagram.

### 3.5.4.2 Project Milestone Dates

Show dates on the diagram for start of project, Contract-required interim completion dates, and Contract completion dates.

### 3.5.4.3 Critical Path

Show all activities on the critical path. The critical path is defined as the longest path.

### 3.5.4.4 Banding

Organize activities using the WBS or as otherwise directed to assist in the understanding of the activity sequence. Typically, this flow will group activities by major elements of work, category of work, work area, and/or responsibility.

#### 3.5.4.5 Cash Flow / Schedule Variance Control (SVC) Diagram

With each schedule submission, provide a SVC diagram showing:

- a. Cash Flow S-Curves indicating planned project cost based on projected early and late activity finish dates, and
- b. Earned Value to-date

### 3.6 PERIODIC SCHEDULE UPDATE

#### 3.6.1 Periodic Schedule Update Meetings

Conduct periodic schedule update meetings, to review the proposed Periodic Schedule Update, Narrative Report, Schedule Reports, and progress payment. Conduct meetings at least monthly, within 5 days of the proposed schedule data date. Provide a computer with the scheduling software loaded and a projector which allows the meeting participants to view the proposed schedule during the meeting. The Contractor's authorized scheduler shall organize, group, sort, filter, perform schedule revisions as needed and review functions as requested by the Contractor and/or Government. The meeting is a working interactive exchange which allows the Government and Contractor the opportunity to review the updated schedule on a real-time and interactive basis. The meeting will last no longer than 8 hours. Provide a draft of the proposed narrative report and schedule data file to the Government at least 2 workdays in advance of the meeting. The Contractor's Project Manager and scheduler shall attend the meeting with the authorized representative of the Contracting Officer. Superintendents, foremen, and major subcontractors shall attend the meeting as required to discuss the project schedule and work. Following the periodic schedule update meeting, make corrections to the draft submission. Include only those changes approved by the Government in the submission and invoice for payment.

#### 3.6.2 Update Submission Following Progress Meeting

Submit the complete [Periodic Schedule Update](#), containing the approved progress, revisions, and adjustments, pursuant to Paragraph SUBMISSION REQUIREMENTS not later than 4 work days after the periodic schedule update meeting.

### 3.7 REQUESTS FOR TIME EXTENSIONS

Provide a justification of delay to the Contracting Officer, in accordance with the Contract provisions and clauses, for approval within 10 days of a delay occurring. Also prepare a time impact analysis for each Government request for proposal (RFP) to justify time extensions.

#### 3.7.1 Justification of Delay

Provide a description of the event(s) that caused the delay and/or impact to the work. As part of the description, identify the schedule activities impacted. Show that the event that caused the delay/impact was the responsibility of the Government. Provide a time impact analysis that demonstrates the effects of the delay or impact on the project completion date or interim completion dates. Multiple impacts shall be evaluated chronologically; each with its own justification of delay. With multiple impacts, consider concurrency of delay. A time extension and the schedule fragment becomes part of the project schedule and future schedule updates

upon approval by the Contracting Officer.

### 3.7.2 Time Impact Analysis (Prospective Analysis)

Prepare a time impact analysis for Government approval based on industry standard [AACE 52R-06](#). Use a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis. If the Government determines the time frame between the last approved schedule and the first day of impact is too great, prepare an interim updated schedule to perform the time impact analysis. Unless approved by the Contracting Officer, no other changes will be incorporated into the schedule being used to justify the time impact.

### 3.7.3 Forensic Schedule Analysis (Retrospective Analysis)

Prepare an analysis for Government approval based on industry standard [AACE 29R-03](#).

### 3.7.4 Fragmentary Network (Fragnet)

Prepare a proposed fragnet for time impact analysis. The proposed fragnet shall sequence new activities into the project schedule to demonstrate the influence of the delay or impact to the project's contractual dates. Clearly show how the proposed fragnet shall be tied into the project schedule, including the predecessors and successors to the fragnet activities. Obtain Government approval of the proposed fragnet before incorporating it into the project schedule.

### 3.7.5 Time Extension

Time extensions will not be granted until after the Government has approved the Justification of Delay, including the time impact analysis. No time extension will be granted unless the delay consumes the available Project Float and extends the projected finish date ("End Project" milestone) beyond the Contract Completion Date. The time extension will be in calendar days.

Actual delays that the Government determines are caused by the Contractor's own actions and result in a calculated schedule delay will not be a cause for an extension to the performance period, completion date, or interim milestone date.

### 3.7.6 Impact to Early Completion Schedule

No extended overhead will be paid for delay prior to the original Contract Completion Date for an Early Completion IPS unless the Contractor actually performed work in accordance with that Early Completion Schedule. Show that an early completion was achievable had it not been for the impact.

## 3.8 FAILURE TO ACHIEVE PROGRESS

If the progress falls behind the approved project schedule for reasons other than those that are excusable within the terms of the Contract, the Contracting Officer may require submittal of a written recovery plan for approval. The plan shall detail how progress shall be recovered, including which activities will be accelerated by adding additional crews, longer work hours, extra work days, etc.

### 3.8.1 Artificially Improving Progress

Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule is prohibited. Indicate assumptions made and the basis for logic, constraint, duration, and calendar changes used in the creation of the recovery plan. Additional resources, manpower, and daily and weekly work hour changes proposed shall be evident at the work site and documented in the daily report along with the Schedule Narrative Report.

### 3.8.2 Failure to Perform

Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and/or may result in corrective action directed by the Contracting Officer pursuant to FAR 52.236-15 "Schedules for Construction Contracts", FAR 52.249-10 "Default (Fixed-Price Construction)", and other Contract provisions.

### 3.9 WEEKLY PROGRESS MEETINGS

Conduct a weekly meeting with the Government (or as otherwise mutually agreed to) between the meetings described in Paragraph PERIODIC SCHEDULE UPDATE MEETINGS, for the purpose of jointly reviewing the actual progress of the project as compared to the planned progress and to review planned activities for the upcoming 2 weeks. Use the current approved schedule update for the purposes of this meeting and for the production and review of reports. At the weekly progress meeting, address the status of RFIs, RFPs, and Submittals.

### 3.10 OWNERSHIP OF FLOAT

Except for the provisions in Paragraph IMPACT TO EARLY COMPLETION SCHEDULE, float available in the schedule shall not be considered for the exclusive use of either the Government or the Contractor, including activity and project float. Activity float is the number of work days that an activity can be delayed without causing a delay to the "End Project" finish milestone. Project float (if applicable) is the number of work days between the projected early finish and the Contract completion date milestone.

### 3.11 TRANSFER OF SCHEDULE DATA INTO RMS/QCS

Import the schedule data into the Quality Control System (QCS) and export the QCS data to the Government. This data is considered to be additional supporting data in a form and detail required by the Contracting Officer pursuant to FAR 52.232-5 "Payments under Fixed-Price Construction Contracts". The receipt of a proper payment request pursuant to FAR 52.232-27 "Prompt Payment for Construction Contracts" is contingent upon the Government receiving both acceptable and approvable hard copies and matching electronic export from QCS of the application for progress payment.

-- End of Section --