

2.0 PROJECT MANAGEMENT

2.1 Administration

The Contractor has the responsibility for management and performance of the Work. CDOT shall have the right to visit the Site and observe the Work to determine that the Work is proceeding in conformance with the requirements of the Contract Documents.

2.1.1 Work Breakdown Structure (WBS)

The Contractor shall submit to CDOT, along with its Preliminary Initial Schedule, a detailed Work Breakdown Structure (WBS) for Acceptance. The Preliminary Initial Schedule shall include a detailed, organized hierarchical division of the (WBS) for completing each element of the Work. The Accepted WBS shall be the basis for organizing all Work under the Contract Documents, and shall be used as a basis for the Contract Schedules, and other cost control systems. The Contractor shall refer to and utilize Exhibit A and Exhibit B of Book 2, Section 2 – Project Management for preparation of the WBS.

The WBS shall conform to Exhibit A and Exhibit B of Book 2, Section 2-Project Management. Exhibit A of Book 2, Section 2 – Project Management graphically depicts the WBS elements for Bridge Enterprise elements and non-Bridge Enterprise elements. Exhibit B of Book 2, Section 2 – Project Management graphically displays the segments of Bridge Enterprise and non-Bridge Enterprise Level IV WBS elements. Exhibit B of Book 2, Section 2 – Project Management shall be used for determination of segment limits and cost proposal preparation of WBS elements further described herein and on Form J.

All cost and schedule information shall roll up to Level I through VI as identified in the Exhibit A. Further detail shall be provided by the Contractor for Level V to ensure a clear understanding of the Contract. The Contractor shall submit its Preliminary Initial Schedule broken down to the WBS Level VI. Additionally, a roll-up of Activities unique to DBE/ESB, design, construction, and maintenance shall be shown at Level VI.

The Accepted WBS shall be the basis for organizing all Work under the Contract, and shall be used to structure the Contract Schedules, and other cost control systems. The Contractor shall submit its Initial Schedule specifying WBS Activities and proposed Work segments within 20 Days of NTP1. NTP2 shall not be issued until CDOT has Accepted the Initial Schedule.

A methods statement shall be prepared for each of the Level V WBS activities listed in the Schedule for all critical path items in the Schedule, and for any feature not listed in the Schedule that the Contractor considers a controlling factor for timely completion. The methods statement shall be completed in accordance with the *Standard Specifications*. The methods statements shall be submitted for review prior to NTP-2.

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Table 2.1 WBS LEVELS	
Level I:	DESIGN-BUILD PROGRAM
Program Level – CDOT use only: The summary of all program components	
Level II:	MAJOR PROGRAM ELEMENTS
Major Program Elements: <input type="checkbox"/> Activities of the Contractor. This is the Contractor's highest level.	
Level III:	CONTRACT COMPONENTS
Design-Build Contract Components: <input type="checkbox"/> Bridge Enterprise (*) <input type="checkbox"/> Non-Bridge Enterprise (*) * Basis for Price Proposal to be submitted as identified on Form J	
Level IV:	CONTRACT SUBCOMPONENTS
Design-Build Contract Subcomponents: <input type="checkbox"/> Breakdown of all subcomponents as shown on Exhibit A <input type="checkbox"/> Non-Bridge Enterprise Segments <input type="checkbox"/> Bridge Enterprise Segments (*) <input type="checkbox"/> Bryant Street Braided Ramp Structure and Roadway Limits (*) <input type="checkbox"/> South Platte River Bridge Structure and Roadway Limits (*) <input type="checkbox"/> BNSF Bridge Structure and Roadway Limits (*) * Basis for Price Proposal to be submitted as identified on Form J	
Level V:	CONTRACT SUBCOMPONENTS AND WORK ACTIVITIES
Breakdown defined by the Contractor: <input type="checkbox"/> Lowest level of Price Proposal detail submitted on Form J for Bridge Enterprise and Non Bridge Enterprise <input type="checkbox"/> Basis for all progress payments	
<u>Schedules</u> – The following CPM Schedules shall be cost loaded to this level: <input type="checkbox"/> Preliminary Initial Schedule <input type="checkbox"/> Original Initial Schedule (or Revised Initial Schedule, if applicable) <input type="checkbox"/> Current Initial Schedule <input type="checkbox"/> Recovery Schedule <input type="checkbox"/> As-Built Schedule	
Level VI:	WORK SUB-ACTIVITIES
Breakdown defined by the Contractor: <input type="checkbox"/> The Contractor to define all Activities at this level	
<u>Schedules</u> - No specific Contract Schedules are required at this level. However, Level VI Activities are required as a component of the Monthly Progress Schedule.	

The payment to the Contractor will be in the amount shown on the Contractor's Approved invoice less Retainage and any deductions.

2.1.2 Cost Management

2.1.2.1 Progress Payment Calculations

CDOT will base progress payments on a mutually agreed estimate of percent complete of the Work, not on measured quantities. The Contractor shall progress the Activities identified on the Approved Original Initial Schedule, the Current Initial Schedule or the Approved Revised Initial Schedule (if applicable), for determining the Monthly Progress Schedule. The Accepted Monthly Progress Schedule will determine the amount of the Contractor's progress payments. Percent complete shall be calculated using project scheduling software meeting the requirements of this section, where progress is measured based on percent complete/Days remaining.

Partial payment for stored Materials shall only be made as allowed in the Contract.

The Contractor's invoice shall not include a request for payment for Nonconforming Work documented by the Contractor's Quality Manager or CDOT.

2.1.2.2 Invoice Submittals

The Contractor shall submit invoices to CDOT each month. Each Monthly Invoice shall be submitted in draft form for review within 5 Working Days following prior month's end. Draft invoice submittals shall be done electronically in Microsoft Excel format.

2.1.2.3 Invoice Document Content

The requirements for the supporting documents to be included with the invoice form shall be finalized by the Contractor in consultation with CDOT before NTP2. The Contractor may present variations in this format for CDOT Approval at least 15 Days prior to the submittal of the first invoice. Once the invoice format has been Approved by CDOT, the format shall not change unless subsequently Approved by CDOT.

The invoice documents shall include:

1. Invoice Cover Sheet

The Cover Sheet shall indicate the following information:

- A. Project number and title
- B. Invoice number (numbered consecutively starting with "1")
- C. Period covered by the invoice (specific calendar dates)
- D. Total earned to date for the Project as a whole and for each Level VI-Non-BE & Level VI-BE WBS Activity
- E. Nonconforming Work and amount withheld identified
- F. Authorized signature and title of signatory
- G. Date that invoice was signed

2. Monthly Progress Report

The Monthly Progress Report shall include the following:

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- A. Brief narrative description of Level VI-Non-Be & Level VI-BE Activity and progress for the Project as a whole, including maintenance, design, and construction. Identify start date and completion dates
- B. Update of progress with respect to Utilities (if any)
- C. Identify whether any Completion and Final Acceptance Deadlines are achieved or revised during the period
- D. Summary of Quality Program efforts, including result of design reviews
- E. Identify problems/issues that arose during the period and remaining issues to be resolved
- F. Summarize resolution of problems/issues raised in previous monthly progress reports or resolved during the period
- G. Summary of Project accidents (frequency and severity) and corrective actions taken
- H. Identify critical Schedule issues and proposed resolution
- I. Discuss Schedule variations from Completion Deadlines that have slipped or improved
- J. Monthly DBE/WDP Report and tracking
- K. Progress photographs

The format and detail level required for submittal of the monthly progress report shall be established by CDOT, in consultation with the Contractor within 10 Working Days after NTP1. The Monthly Progress Report shall be on Contractor 8.5- x 11-inch letterhead.

3. Updated Monthly Progress Schedule

No invoice shall be Approved nor payment made if there is not a current Accepted Monthly Progress Schedule and Current Initial Schedule in place. The status date of the Monthly Progress Schedule, coinciding with the payment invoice date, is the last day of each month. The data date for use in calculating the Monthly Progress Schedule shall be the first Working Day of the following month.

The Contractor shall make all corrections to the Monthly Progress Schedule requested by CDOT and resubmit the Monthly Progress Schedule. If the Contractor does not agree with CDOT's comments, the Contractor shall provide written notice of disagreement within 5 Working Days from the receipt of the comments. The items in disagreement shall be resolved in a meeting held for that purpose, if necessary.

4. Certification by Contractor's Quality Manager

The Contractor shall submit a certification signed by its Quality Assurance Manager accompanying each invoice request certifying that:

- A. All Contract Work, including that of designers, Subcontractors, Suppliers, and fabricators has been checked and/or inspected by the Contractor's Quality Program

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staff, and that all Work, except as specifically noted in the certification, conforms to the requirements of the Contract Documents.

- B. The Quality Management Plan, and all of the measures and procedures provided therein, are functioning properly and are being followed.
- C. All safety-critical Work, in conformance with the Project Safety Management Plan as further described in Book 2 Section 20, has been reviewed and sealed by the Professional Engineer of responsible charge before construction begins.

No invoice will be Approved (payment made) if there is not completion and implementation of the Quality Management Plan (QMP).

5. Monthly Maintenance Progress Report

The Contractor shall submit to CDOT the current Monthly Maintenance Progress Report, as required in Book 2, Section 18.

No invoice will be reviewed or processed until all invoice documents and certifications, as identified in 2.1.2.3 are received by CDOT.

2.1.2.4 Progress Status Meetings

A Progress Status Meeting shall be conducted each time a draft Monthly Invoice submittal is made. The meeting shall be used to verify, address and finalize the following:

- 1. Actual start dates
- 2. Actual and planned Completion Deadlines
- 3. Earned value of Work that has been Accepted and reported in-place, based on installed quantities and Material on Hand (stockpiled Materials)
- 4. Activity percent complete
- 5. Incorporation of Approved Change Orders
- 6. Verification of unit-price items, if any
- 7. Status of outstanding Nonconforming Work
- 8. Completion of Value Engineering Change Proposals, if any
- 9. Work performance
- 10. Project Schedule, including changes from previous month's Schedule
- 11. Critical Path(s)

Following the progress status meeting, CDOT shall have up to 5 Working Days to review, verify, and comment on the draft invoice submittal. After reviewing, CDOT will return the draft for the Contractor to revise and correct. The Contractor shall then submit a corrected and final Monthly Invoice to CDOT for Approval. Approval of the final Monthly Invoice will be issued within 7

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Working Days, contingent upon the Contractor's satisfactory resolution of CDOT's comments of the draft invoice submittal.

2.1.3 Schedule Management

2.1.3.1 General

The Work specified in this subsection includes preparing, progressing, revising, and submitting of Contract Schedules.

The Contract Schedules shall represent a practical plan to complete the Work within the Completion Deadlines and convey the intent in the manner of the prosecution and progress of the Work.

The Contract Schedules shall include the planned execution of the Work in accordance with the Contract Documents. The Contract Schedules shall include involvement and coordination with other Contractors, Utility Owners, Governmental Persons, Engineers, Architects, Subcontractors, and Suppliers in the development of the Original Initial Schedule, Revised Initial Schedule, and updating of subsequent Monthly Progress Schedules.

The Contract Schedules shall represent the requirements of the Contract Documents and the Work shall be executed in the sequence and duration indicated in the Contract Schedules.

All Contract Schedules shall be developed consistent with the Accepted WBS and the Completion Deadlines.

2.1.3.2 Contract Schedule and Term Definitions

Contract Schedules shall include the Preliminary Initial Schedule, Original Initial Schedule, Current Initial Schedule, Revised Initial Schedule, Monthly Progress Schedule, Recovery Schedule, and the As-Built Schedule.

2.1.3.2.1 Preliminary Initial Schedule

The Preliminary Initial Schedule is defined as the Initial Project Schedule for the purpose of initiating Work on the Project. It shall be a CPM Schedule with Activity detail for the first three months following the NTP1 and shall be cost-loaded to WBS Level V. The Preliminary Initial Schedule shall conform to the Accepted WBS and include all Contractor-defined WBS Level IV and V Activities.

2.1.3.2.2 Original Initial Schedule

The Original Initial Schedule is defined as the Contractor's original plan for the Project from NTP1 through Final Acceptance. It shall be a detailed CPM Schedule with Work Activities and Completion Deadlines included for the full term of the Project. The Original Initial Schedule shall be developed from the Preliminary Initial Schedule and shall conform to the Accepted WBS and include all Contractor defined WBS Level IV and V Activities. The Original Initial Schedule shall not change after Approval.

The Original Initial Schedule shall be cost loaded to WBS Level V and, when summarized for the aggregate costs of WBS Level V Activities, shall equal the WBS Level IV prices set forth in the Proposal Documents.

2.1.3.2.3 Current Initial Schedule

The Current Initial Schedule is defined as the Original Initial Schedule with cost and Schedule changes from Approved Change Orders incorporated. It shall be updated monthly with only Approved cost and Schedule changes. This Schedule will not show progress but shall maintain the original data date from the Original Initial Schedule as a baseline. The Current Initial Schedule shall be submitted to CDOT for Acceptance with each Monthly Invoice.

The Current Initial Schedule shall be cost loaded to WBS Level V and, when summarized for the aggregate costs of WBS Level V Activities, shall equal the WBS Level IV prices set forth in the Proposal Documents and Approved Change Orders.

2.1.3.2.4 Revised Initial Schedule

The Revised Initial Schedule is defined as the Contractor's plan for the Project which is current with progress to date. This Schedule shall reflect the planned execution of the Work for the remainder of the Project along with a reallocation of the remaining resources and quantities to represent the estimate to complete the Work. The Revised Initial Schedule shall include all Approved Change Orders, Work Orders, and Completion Deadlines. A Revised Initial Schedule must be Approved by CDOT; such Approval shall only apply to the scheduled Work that is planned after the Schedule's Approval date.

The Revised Initial Schedule shall be prepared by the Contractor when requested by CDOT. The Contractor may request that CDOT review a Revised Initial Schedule at any time. However, such review will be undertaken if CDOT agrees with the need for that review.

The Revised Initial Schedule shall be cost loaded to WBS Level V and when summarized for the aggregate costs of WBS Level V Activities, shall equal the WBS Level IV prices set forth in the Proposal Documents and Approved Change Orders.

2.1.3.2.5 Monthly Progress Schedule

The Approved Original Initial Schedule or Current Initial Schedule, shall be used as the basis to establish the Progress Schedule. It shall be updated every month to show the actual progress of Work and the earned value of Work accomplished, including Approved Change Orders and Work Orders.

The Monthly Progress Schedule shall be cost loaded to WBS Level V, and when summarized for the aggregate costs of WBS Level V Activities, shall equal the WBS Level IV prices set forth in the Proposal Documents and Approved Change Orders. In addition, the Progress Schedule shall include WBS Level VI detail for the upcoming three months of design and construction on the Project, except that cost loading to WBS Level VI is not required for the three-month look-ahead.

2.1.3.2.6 Recovery Schedule

The Recovery Schedule is defined as the Contractor's program and proposed plan for the recapture of lost Schedule progress and to achieve Project completion or Final Acceptance by the applicable Completion Deadlines. The Recovery Schedule shall be based on the latest Accepted Monthly Progress Schedule and shall include equivalent detail. The Recovery Schedule shall show the proposed changes to the Schedule, include cost loading and additional

detail to substantiate the recovery plan, and shall reflect all proposed changes to WBS Level V Activities through Project Completion.

The Recovery Schedule shall be cost loaded to WBS Level V and, when summarized for the aggregate costs of WBS Level V Activities, shall equal the WBS Level IV prices set forth in the Proposal Documents and Approved Change Orders.

2.1.3.2.7 As-Built Schedule

The last Current Initial Schedule submitted shall be identified by the Contractor as the As-Built Schedule. The As-Built Schedule shall reflect the exact manner in which the Contractor executed the Work (including start and completion dates, Activities, actual durations, sequences, and logic), and shall be signed and certified by the Engineer and the Contractor's Scheduler as being a true reflection of the way in which the Work was executed at the time of Final Acceptance. This certified As-Built Schedule must be Accepted before the final Retainage is released.

2.1.3.2.8 Float

Float is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, for each and every Activity in the Schedule. Float shall be for the benefit of all parties to the Contract and not for the exclusive benefit of the Contractor. Suppression or consumption of Float by extended Activity duration, dummy Activities, or preferential sequencing will not be allowed. Critical Activities shall be defined as Activities with a total Float less than 10 Days.

2.1.3.3 Schedule Requirements

1. General Scheduling Constraints
 - A. All Contract Schedules shall be in the same master data file, including design, submittals, procurement, and construction Schedules. These Work Activity Schedules shall all tie together logically to present a total Critical Path analysis in the same master data file.
 - B. The only constraints allowed to be included in the Schedule are the Contract Deadlines. No intermediate completion constraints or start constraints shall be allowed unless they are included in the Contract. Unless Approved by CDOT, all Activities must have at least one predecessor and one successor, except for the NTP1 (no predecessor) and Final Acceptance (no successor).
 - C. All Activities that start or complete out of sequence shall be rescheduled (logic corrected) to reflect the actual sequence of events.
 - D. Actual start and completion dates shall be accurately input. Prior to changing or correcting any previous actual dates, or dates required in the Contract, a narrative shall be written to CDOT requesting Approval to change such a date.
 - E. If any logic is changed after the Approval of the Original Initial Schedule or Revised Initial Schedule, if one exists, a narrative by Activity code shall accompany the

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Monthly Progress Schedule stating the reason the logic changed and the benefit to CDOT. If CDOT does not agree with the reason for the logic change, the Monthly Progress Schedule will not be Accepted.

- F. All Activity identification codes for a specific Activity description created in any Contract Schedule shall remain unchanged and connected to its original Activity description through Final Acceptance. An Activity description may only be changed to clarify an Activity's original scope.

2. CPM Requirements

- A. The Critical Path shall be determined according to Critical Path Method (CPM) principles and shall be highlighted in "RED" on all Schedules to distinguish critical Activities from other Activities. A diamond, flag, or other symbol shall highlight milestones.
- B. The CPM shall have all major procurement Activities identified for any item with more than 30 Days lead time for delivery. This includes shop drawing submittal and approval, lead times for the fabrication and delivery of Materials and Equipment, and installation of Materials and Equipment.
- C. The CPM shall be sufficiently detailed to accurately depict all the Work. Activity durations shall be an estimate in Working Days of the time required to perform each Activity. No individual Activity will have a duration exceeding 30 Working Days. Activities with durations of less than 5 Working Days shall be held to the absolute minimum. For an Equipment or Material fabrication item whose duration exceeds 30 Working Days, several Activities, none exceeding 30 Working Days, shall be used. Each Activity shall have a detailed description.
- D. Contract Completion Deadline dates shall be shown on the CPM. These dates shall be input as finish constraint dates and shall agree with such dates specified in the Contract.

3. Schedule Output Format

The Contractor shall submit the electronic output files of the Schedule (e.g., .mpx for MS Project). Its Schedule charts and graphs shall be submitted in Adobe PDF. These files shall be submitted with the Monthly Progress Schedule.

2.1.3.4 Execution

2.1.3.4.1 WBS Activities and Schedule Modifications

When it becomes necessary to add, combine, eliminate or modify Contract-specified WBS Level IV or V Activities to reflect modifications to the Work, such changes shall be made through a Change Order that has been Approved by CDOT in accordance with the Contract. These changes to the WBS Level IV or V Activities shall consequently be reflected in subsequent Schedule submittals. Alternately, if a proposed addition, combination, elimination, or

modification of WBS Level IV or V Activities would not be the subject of a Change Order, then the consequent realignment of funds between Level V Schedule Activities must be Approved by CDOT in accordance with the Contract and thereafter reflected in the required Schedule submittals.

2.1.3.4.2 Preliminary Initial Schedule

The Contractor shall submit the Preliminary Initial Schedule to CDOT for Acceptance prior to NTP1. The Preliminary Initial Schedule shall be in accordance with the Contract requirements, consistent with the Accepted WBS, and be cost loaded to WBS Level V Activities and include Contractor-defined detail necessary to provide measurable Schedule progress. The Accepted Preliminary Initial Schedule shall provide an intermediate Schedule during the production of the Original Initial Schedule and shall establish a payment schedule for the duration between NTP1 and NTP2.

2.1.3.4.3 Original Initial Schedule

The Original Initial Schedule shall show the sequence and interdependence of Activities required for complete performance of the Work, beginning with the date of the NTP2, and concluding with the date of Final Acceptance and shall comply with the following:

1. The actual number of Activities in the Schedule shall be sufficient to assure adequate planning of the Work and to permit monitoring and evaluation of progress and the analysis of time impacts. Activity durations shall be expressed in Working Days. The Work calendar shall clearly identify Holidays and other non-Working Days, as well as Special Events.

Special Events include, but are not limited to(need list of special events from CCD and others) etc. This list shall be further developed as progress is made on the Work included in Book 2, Section 4, Public Involvement.

2. The Contractor shall schedule deliverable review times by CDOT as separate tasks logically tied to the appropriate Activity. Concurrent review of multiple deliverables by one discipline, must be agreed to by CDOT, prior to inclusion in the Original Initial Schedule.
3. A graphic representation of all Activities necessary to complete the Work shall be provided.
4. All Completion Deadlines set forth in the Contract shall be identified.

Not later than 15 Days prior to issuance of NTP2, the Contractor shall submit to CDOT for Approval the final Original Initial Schedule. Once Approved, this Schedule shall become the Original Initial Schedule against which all progress and revisions shall be measured.

The Original Initial Schedule will be reviewed by CDOT for purposes of determining:

1. Compliance with applicable provisions of the Contract Documents.
2. The logic of the proposed CPM Schedule is sound and consistently developed and demonstrates a logical sequencing and interdependence of Activities required for the

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timely and orderly achievement of all Work Activities and milestones, including completion of the Work within the Completion Deadlines.

Upon Approval by CDOT, the Original Initial Schedule shall be employed as the basis for the Monthly Progress Schedule by the Contractor in its scheduling and performance of the Work.

2.1.3.4.4 Monthly Progress Schedule

The Monthly Progress Schedule shall be submitted each month to CDOT for Acceptance, concurrent with the invoice submittal as required herein. The Monthly Progress Schedule shall include all information current as of the status date.

For the three-month look-ahead portion of the Monthly Progress Schedule that establishes the WBS Level VI Activities, the Contractor shall provide sufficient detail to convey a Schedule that provides weekly Schedule control and shall specifically identify:

1. Completion Deadlines, if any.
2. Phasing of design, construction, testing, and staging of the Work as specified shall be prominently identified. Particular attention shall be given to release for construction dates, Site availability, construction staging, and maintenance and protection of traffic requirements of the Contract.
3. Procurement, fabrication, preparation of mock-ups, preparation of prototypes, delivery, installation, testing of Materials, and Equipment, including factory testing and demonstration testing, and any long lead time (over 30 Days) orders for Material and Equipment.
4. Interface coordination and dependencies with preceding, concurrent, and follow-on Contractors.
5. Work to be performed by other Contractors and agencies that may affect the Schedule.

Prior to the progress status meeting, the Contractor shall obtain from the design team, Subcontractors, Suppliers, and field staff the necessary information as required to accurately reflect progress to date.

2.1.3.4.5 Recovery Schedule

If the Work is lagging the late start cost curve in the Current Initial Schedule for a period which exceeds the greater of, (a) 15 Days in the aggregate or (b) that number of Days in the aggregate that equals 5 percent of the Days remaining until the Project Completion Deadline. The Contractor shall prepare and submit to CDOT for Approval a Recovery Schedule within 14 Days after the Contractor first becomes aware of such Schedule delay.

The Recovery Schedule shall demonstrate the Contractor's program and proposed plan to regain lost Schedule progress, as well as demonstrate how Project Completion and Final Acceptance of the Project shall be achieved by the deadlines specified in Exhibit B of the Contract.

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CDOT will notify the Contractor within 14 Days after receipt of the Recovery Schedule whether the Recovery Schedule is Approved, or will describe changes that CDOT believes should be made to the Schedule. The Contractor shall incorporate and fully include the Recovery Schedule (including CDOT's comments) into the next scheduled Monthly Progress Schedule (or, if the next scheduled Monthly Progress Schedule is due within 7 Days of Approval of the Recovery Schedule, then the Recovery Schedule shall be incorporated into the subsequent Monthly Progress Schedule), and shall concurrently provide to CDOT a Revised Initial Schedule.

2.1.4 Meetings

2.1.4.1 Task Force Meetings

At a minimum, the Contractor shall conduct Task Force Meetings for the following disciplines to facilitate "Over the Shoulder" review of the design:

1. Drainage
2. Roadway
3. Structures
4. Traffic/ITS
5. Utilities
6. Environmental
7. Public Involvement
8. City and County of Denver – Parks Department

2.1.4.2 Safety Meetings

The Contractor shall conduct regularly scheduled Project Safety Meetings, tool box talks, etc., as specified in their Project Safety Management Plan & as per the Standard Specifications.

2.1.5 Photographs

2.1.5.1 Progress Photographs

The Contractor shall take aerial Project photographs of the Work and Site every 6 months as a minimum. Aerial photographs shall include all areas under construction, whether temporary or permanent, and all other areas impacted, each time they are taken. One series of oblique photographs shall be taken from one direction along the corridor. CDOT's confirmation shall be sought regarding views to be taken and the approximate time at which they will be taken.

The Contractor shall provide one complete set of aerial photographs on DVD when taken. All photographs shall be provided in high quality digital format. The file format shall be .jpg, .gif, or .tiff and be provided on DVDs.

The Contractor shall provide interior and exterior photographs of each buried structure just prior to burial. Provide a minimum of four internal views (as applicable) and four external views of each structure. Place the following information on the front of digital photographs:

1. Date photograph was taken

2. Title of Project
3. Description of view shown in photograph
4. Identification of photographer
5. Sequential number of photograph

2.1.5.2 Pre-Construction Photographs

Immediately after NTP1, the Contractor shall take and label a sufficient number of pre-construction photographs and a high quality video of the Site, including roadways, structures, drainage, existing landscape, and all areas necessary and/or anticipated to be impacted by the Work in HD format so as to resolve any disputes which may arise regarding the conditions prior to and subsequent to construction. Such preconstruction survey shall be completed prior to NTP2. If a dispute arises where no or insufficient photographic or video evidence of its existing condition is available, the disputed area shall be restored to the extent directed by CDOT at no additional cost to CDOT.

2.2 Office Facilities and Options

2.2.1 Office

The Contractor shall provide all office space, and equipment, for CDOT as required for the Project. This may be co-located with the Contractor.

The Contractor shall provide office space (the CDOT Offices) and Equipment for 10 CDOT personnel as specified herein.

The Contractor shall make available its proposed facilities for inspection and Approval by CDOT prior to CDOT occupying any Contractor provided facilities not later than 30 Days after the NTP1 effective date. The Contractor shall be required to furnish CDOT's staff with offices that are in good and serviceable condition (condition comparable to the Contractor's office space), within one-half mile of the Project Site. Both parties shall participate in a facility condition inspection prior to and at the completion of occupancy. CDOT will return possession of Contractor-provided facilities to the Contractor in essentially the same condition as when CDOT initially occupied the facilities except for reasonable wear and tear.

The Contractor shall secure Sites; obtain all Site permits; install, set up, and provide Utility services; and maintain the facilities as part of the Work. The Contractor may consult with CDOT about availability of suitable local sites and office facilities.

In the event that office spaces or appurtenant facilities are stolen, destroyed, or damaged during the Work, except by fault of CDOT, the Contractor shall at its expense repair or replace those items provided to their original condition within 5 Working Days. If loss or damage is caused by CDOT personnel, the Contractor shall replace the facilities within 5 Working Days, except CDOT will be responsible for costs incurred.

The Contractor shall maintain the CDOT Offices until at least 90 Days following the Final Acceptance of the Project unless otherwise agreed to by CDOT. CDOT may, at its option, vary the number of its staff throughout the duration of the Project. However, the Contractor shall maintain the initial number and size of the CDOT Offices, conference rooms, reception area,

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break room and filing area (the CDOT Office Facilities) until 90 Days following the Final Acceptance of the Project.

The Contractor shall be responsible for disposal or removal of all CDOT Office Facilities and any site restoration Work required.

The Contractor shall provide:

1. Telephones and telephone service with at least two lines for CDOT Offices, conference rooms, break room, and filing room, including five cordless phones.
2. High-speed Internet connection (100kbps or greater) and networking for all offices.
3. Overhead lighting meeting Occupational Health & Safety Administration (OSHA) and code requirements for office space.
4. One color laser printer, copier, with additional 11- by 17-inch tray or Approved equal, including paper, toner, parts, service, and repairs. This printer shall be capable of networking to all CDOT personnel offices. The printer shall be capable of scanning documents to 11- x 17-inch size and transmitting the scanned file to multiple email addresses
5. One black and white copier capable of 45 ppm input and output at 600 x 600 dpi and at least two paper drawers accepting 8-1/2- x 11-inch up to 11- x 17-inch paper and paper weights from 16 to 24 lb. bond, including paper, toner, service and repairs.
6. Office space not less than the size indicated below:
 - A. 5 private offices (with door): 150 square feet of enclosed office space per office.
 - B. 5 partitioned offices (without door): 100 square feet enclosed office space per office (cubicles/partitions are acceptable).
 - C. One enclosed conference room with doors capable of accommodating a 30-person meeting, with at least 50 percent of seating capacity at the conference table. This can be a shared conference room between the Contractor and CDOT.
 - D. One enclosed conference room with doors for CDOT's exclusive use capable of accommodating a 20-person meeting, with a 15-person seating capacity at the conference table. The conference room shall be in an adjacent space to the CDOT Offices.
 - E. Break room: 150 square feet with sink, counter, microwave, and 20-cubic-foot refrigerator, and drinking water and dispenser.
 - F. Filing space: enclosed, with lockable door and 5 steel, 5-drawer, locking, lateral file cabinets (approximate size = 18 inches by 42 inches). The file room shall also have two 30- x 72-inch utility tables with two chairs each. This space shall be of sufficient size to accommodate the requested equipment and accommodate two staff members (to typical industry standards). This space shall not be shared with any other room.
 - G. One reception area with common access to the CDOT Offices.
 - H. Storage room: 150 square feet, enclosed with lockable door.

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7. Furnishings, as follows:

Conference Room

- A. Conference table and chairs
- B. Wastebasket
- C. Two, Hanging, erasable white boards that are six feet wide minimum

Offices

- A. Desk that is minimum size 76 x 36 inches with locking drawers
 - B. Computer workstation desk capable of holding a desktop printer, monitor, keyboard, and any accessories
 - C. Worktable (private offices only)
 - D. Ergonomically correct, OSHA-approved chairs
 - E. Extra office chair
 - F. Hanging, erasable white board, 4 feet wide, minimum (private offices only)
 - G. Bookshelf
8. Indoor restrooms suitable to accommodate the office staff.
9. Hard-surfaced (paved) parking, one space per employee, plus 10 visitor spaces.
10. Weekly janitorial service.
11. Maintenance of the exterior area of office, including access to parking and snow removal.
12. Facilities that meet American with Disabilities Act (ADA) access requirements and meet all local code requirements for office space.
13. Heating, ventilation and air conditioning/cooling systems adequate for office use.
14. 24 hours a day, 7-days a week access with security after normal working hours.

2.2.2 Design-Build Field Laboratory (Owner Verification Testing)

The Contractor shall provide a Field Laboratory, Class 2, as per CDOT *M & S Standard Plans*, at a location to be agreed upon by CDOT and the Contractor. The field Laboratory shall have a minimum of three parking spaces, all contained within a security fence. The field Laboratory shall be provided to CDOT at least 15 Working Days prior to commencement of any field Activities involving earthwork of any type, analysis of mix designs, or planned placement of Portland Cement Concrete Pavement (PCCP) or Hot Bituminous Pavement (HBP) and shall have a forced air oven and high-speed Internet connection.

2.2.4 Project Vehicles

Intentionally left blank.

2.2.5 Project Directory

The Contractor shall maintain and furnish to CDOT a Project Directory listing the names, addresses and telephone numbers (office, home, cellular, etc.) of the Key Personnel and critical support staff of the Contractor and each Subcontractor. The Project Directory shall be submitted to CDOT prior to issuance of NTP2. The Contractor shall update the Project Directory quarterly for the duration of the Work.

2.3 Safety Management

2.3.1 Project Safety Management Plan Submittal

The Contractor's Project Safety Management Plan (PSMP) (CDOT *Standard Specifications for Road and Bridge Construction*, 107.06) must be submitted for review and Acceptance prior to receiving NTP2.

The PSMP is a living document and shall be updated when a process, method, chemical or other Work criteria changes that affects the safety of a person or property. The updated portion of the PSMP must be submitted for review.

2.3.2 Project Safety Management Plan Criteria

The PSMP must answer the "who, what, and how" based upon the technical requirements contained within Book 2 of the RFP and the 12 elements identified in the CDOT *Standard Specifications for Road and Bridge Construction*, 107.06.

2.3.3 Project Safety Management Plan Training and Communication

All Contractors Project staff, including CDOT and Sub-contractors, must be trained on the elements of the Contractor's accepted PSMP submittal.

2.4 Document Management

The Contractor shall establish and maintain its own Document Control System (DCS) to store and record all correspondence, drawings, progress reports, technical reports, specifications, Contract Documents, deliverables, calculations, and administrative documents generated under the Contract. Document Control, storage, and retrieval methods shall include the use of both hard copies and electronic records. The Contractor's DCS shall handle all Project documents.

All correspondence of the Contractor to and from CDOT and its representatives with respect to the Contract shall be serialized, and the Contractor shall maintain separate incoming and outgoing correspondence logs. At a minimum, a serialization similar to the following is required:

DATE: _____
DBC Assigned No.: _____
DB-(year): _____
Addressee: _____

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Address: _____
Subject: _____
Reference: _____
Copies: _____

Example Document Serialization

All correspondence shall include the Project name, Contract name and number, along with the specific subject of the letter. All replies shall refer specifically to prior correspondence to which it relates.

The Contractor shall make available, when requested by CDOT, copies of its logs indicating CDOT's outstanding items and a copy of any document requested within 24 hours.

2.3 Deliverables

The Contractor shall submit the following to CDOT for review, Approval, or and/or Acceptance:

DRAFT

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Deliverable	Review, Acceptance or Approval	Schedule
Draft Monthly Invoices	Acceptance	Within 5 Working Days following prior month's end concurrent with the progress status meeting
Final Monthly Invoices	Approval	Within 7 Working Days following CDOT's acceptance of the draft Monthly Invoice.
Monthly Progress Report format	Acceptance	Within 10 Working Days after NTP1
Monthly Invoice format changes	Approval	At least 15 Days prior to first invoice
Preliminary Initial Schedule & WBS Structure	Acceptance	Prior to NTP1
Original Initial Schedule	Approval	15 Days prior to issuance of NTP2
Methods Statements	Review	With Original Initial Schedule
Current Initial Schedule	Acceptance	Concurrent with Monthly Invoice
Revised Initial Schedule	Approval	Upon CDOT's or Contactor's request
Monthly Progress Schedule	Acceptance	Concurrent with Monthly Invoice
Monthly Maintenance Progress Report	Review	Concurrent with each Monthly Invoice submittal
As-Built Schedule	Acceptance	Before the release of final Retainage
Recovery Schedule	Approval	According to Section 2.1.3.4.5
Office Facilities and Options	Approval	(see requirements in Section 2.2)
Project Directory	Review	Prior to NTP2
Project Safety Management Plan	Acceptance	Prior to NTP2 or any work element requiring implementation of the Safety Plan.

All deliverables shall also conform to the requirements of Book 2, Section 3 - Quality Management.