

FIRST AMENDMENT TO DESIGN SERVICES AGREEMENT

This **FIRST AMENDMENT TO DESIGN SERVICES AGREEMENT** is made between the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado (the “City”) and **DAVID EVANS AND ASSOCIATES, INC**, an Oregon corporation whose address is 2100 Southwest River Parkway, Portland, Oregon 97201 (the “Design Consultant”), jointly (“the Parties”).

RECITALS:

A. The Parties entered into a Design Services Agreement dated April 16, 2018 (the “Agreement”) to furnish professional design services for the Project as set forth in the Agreement.

B. The Parties wish to amend the Agreement to extend the term and increase the maximum contract amount.

NOW THEREFORE, in consideration of the premises and the Parties’ mutual covenants and obligations, the Parties agree as follows:

1. All references to “...Exhibit A...” in the Agreement shall be amended to read: “...Exhibit A and A-1...” as applicable. The scope of work marked as **Exhibit A-1** attached to this Amending Agreement is hereby incorporated by reference.

2. Section 3 of the Agreement entitled **COMPENSATION, PAYMENT, AND FUNDING** Sub-paragraph 3.05(a) entitled “**Maximum Contract Amount**” is amended to read as follows:

“3.05 Maximum Contract Amount:

(a) Notwithstanding any other provision of the Agreement, the City’s maximum payment obligation will not exceed **ONE MILLION ONE HUNDRED NINETY ONE THOUSAND SIX HUNDRED THIRTY ONE DOLLARS AND NINETY SEVEN CENTS (\$1,191,631.97)** (the “Maximum Contract Amount”). The City is not obligated to execute an Agreement or any amendments for any further services, including any services performed by Design Consultant beyond that specifically described in Exhibits A and A-1. Any services performed beyond those set forth therein are performed at Design Consultant’s risk and without authorization under the Agreement.”

3. Section 4 of the Agreement entitled **TERM AND TERMINATION** Sub-paragraph 4.01 entitled “**Term**” is amended to read as follows:

“4.01 Term:

The Agreement will commence on January 11, 2018 and expire on January 3, 2023 unless sooner terminated, upon final completion of the Project.”

4. As herein amended, the Agreement is affirmed and ratified in each and every particular.

5. This First Amendment to Design Services Agreement will not be effective or binding on the City until it has been fully executed by all required signatories of the City and County of Denver, and if required by Charter, approved by the City Council.

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Contract Control Number:
Contractor Name:

DOTI-202055868-01-[201839479-01]
DAVID EVANS AND ASSOCIATES, INC.

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of:

SEAL

CITY AND COUNTY OF DENVER:

ATTEST:

By:

APPROVED AS TO FORM:

REGISTERED AND COUNTERSIGNED:

Attorney for the City and County of Denver

By:

By:

By:

Contract Control Number:
Contractor Name:

DOTI-202055868-01-[201839479-01]
DAVID EVANS AND ASSOCIATES, INC.

By: Cody S. Keraga

Name: Cody S. Keraga
(please print)

Title: Associate
(please print)

ATTEST: [if required]

By: Joseph A. Hart

Name: Joseph A. Hart
(please print)

Title: Senior Vice President
(please print)

Exhibit A-1



DAVID EVANS
AND ASSOCIATES INC.

September 22, 2020

Jim Geist P.E.
Senior Engineer/Project Manager
City and County of Denver
Department of Transportation and Infrastructure
201 West Colfax Avenue, Department 506
Denver, Colorado 80202

Project Control No.: PWT2016-064
Contract Control No.: PWADM-201839479-00

**SUBJECT: Design Services during Construction Contract Amendment
8th Avenue over South Platte Bridge Replacement Project**

Dear Jim,

As previously discussed, the 8th Avenue over South Platte River Bridge Replacement project is moving forward and adding post-design services and design services during construction to the contract. Attached is a scope of work to continue project support during those phases of work. Below is a summary of additional services and scope revisions:

- Continuation of Project Management and Coordination
- Construction Progress and Coordination Meetings
- Post-Design/Advertisement Support
- Design Services During Construction
- Material Quality Control/Assurance Testing
- Prestressed Concrete Plant Inspection
- Load Rating Services
- Additional Engineering Design Tasks and Services During Construction

The above additional services and scope revisions require additional project funding and are summarized in Table 1 below.

Table 1: Summary of Contract Amendment Fees

| Task | Task Description | Hours | Fee |
|------------------------------------|---|--------------|---------------------|
| 1 | Project Management and Coordination | 234 | \$36,872.34 |
| 2 | Construction Progress and Coordination Meetings | 59 | \$9,300.00 |
| 3 | Additional Final Design Services | 177 | \$24,565.00 |
| 4 | Post-Design / Advertisement Support | 309 | \$45,748.20 |
| 5 | Design Services During Construction | 583 | \$80,481.60 |
| 6 | Material Quality Control/Assurance Testing | 1033 | \$106,267.50 |
| 7 | Prestressed Concrete Plant Inspection | 174 | \$21,740.00 |
| 8 | Load Rating Services | 88 | \$10,600.00 |
| 9 | Additional Services During Construction | -- | \$35,000.00 |
| Exp | Expenses | -- | \$39,288.00 |
| Total Additional Services = | | | \$399,862.64 |

Exhibit A-1



DAVID EVANS
AND ASSOCIATES INC.

The detailed scope and fee estimates are attached.

Below is a summary of current and revised contract value:

- Current Contract Value = \$791,769.33
 - Current Fee = \$724,230.33
 - Current Maximum Direct Expenses = \$49,999.00
 - Current Additional Engineering Design Tasks and Services = \$17,540.00

- This Amendment Total = \$399,862.64
 - This Amendment Fee = \$335,574.64
 - This Amendment Direct Expenses = \$39,288.00
 - This Amendment Additional Engineering Design Tasks and Services = \$25,000.00

- Revised Total Contract Value = \$1,191,631.97
 - Revised Fee = \$1,059,804.97
 - Revised Maximum Direct Expenses = \$89,287.00
 - Additional Engineering Design Tasks and Services = \$42,540.00

We will continue to use our M/WBE firms to support this effort including Clanton & Associates, Inc. to continue electrical/lighting services, Goodbee & Associates, Inc. to continue utility coordination services, SAN Engineering to continue structural checking/review services, and Shrewsbury & Associates, Inc. to continue trail, landscaping, irrigation and erosion control services.

Shannon & Wilson will also remain on the team and will continue geotechnical services along with adding material quality assurance services.

Based on the current project schedule, construction will occur in fall 2021 and continue into the spring of 2022. Our current contract expires on January 10, 2021. We request extension of the contract end date to January 3, 2023.

Lastly, as discussed, due to the inclusion of tasks not part of the original contract (tasks include plant inspection, material testing, field inspection, etc.), the team has to add the following job classifications and rates to the Contract:

Exhibit A-1



DAVID EVANS
AND ASSOCIATES INC.

Table 2: Additional Job Classifications and Rates

| David Evans and Associates, Inc. | |
|--|----------|
| Planning Project Manager | \$180.00 |
| Senior Designer | \$125.00 |
| Senior Construction Inspector | \$125.00 |
| Construction Inspector | \$105.00 |
| Goodbee & Associates, Inc. | |
| PM I | \$120.00 |
| Shannon & Wilson, Inc. | |
| Vice President | \$225.00 |
| Senior Administrator | \$115.00 |
| Professional IV | \$110.00 |
| Drafter III/IV | \$105.00 |
| Technician IV | \$90.00 |
| Shrewsbury & Associates, Inc. | |
| Senior Manager | \$212.02 |

If you have any questions or need additional information, please feel free to call (720-225-4684) or email (csk@deainc.com) me. We appreciate the opportunity to continue this project with you and look forward to it moving through construction.

Sincerely,

DAVID EVANS AND ASSOCIATES, INC.

Cody Keraga, P.E.

Project Manager, Associate

Copies: Project File

DEA Project Number: CCDN0000.0068

File Path: P:\C\CCDN00000068\0000CON\C0030Contract\CO#3\8th Ave CO Letter 03-20-20.docx

Exhibit A-1

Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
Project Control No. PWT2016-064
Design Services during Construction - Scope of Services

Project Summary

The project consists of removal and replacement of the existing bridge, which carries West 8th Avenue over the South Platte River. This bridge serves as an important transportation link to and from Interstate 25 for critical local truck access to nearby industrial uses. It is one of the only local crossings of the South Platte River in the area, serving businesses and populations to the east and west. At 92 years old, the existing structure has far exceeded its initial life expectancy of 50 to 75 years. Built in 1928 and subsequently rehabilitated after the 1965 flood, this 171-ft, 6-in long, three-span bridge steel superstructure consists of riveted exterior girders, riveted floor beams, and steel stringers. The bridge has an 8-in concrete deck with a 2½-in asphalt overlay. Some of the steel members are considered “fracture critical,” indicating that the failure of certain members would cause a partial or complete collapse of the bridge. The bridge is also functionally obsolete due to its narrow lanes. Continued scour of the southeast pier also heightens the urgency to replace this structure, and the existing condition of the riding surface and the lack of pedestrian facilities are constant reminders to the public that this bridge is in need of replacement.

Funding from the City and County of Denver (CCD) is anticipated to be available for construction of the project from the CCD bond program in Summer of 2020.

The proposed schedule for this work anticipated the following:

Advertisement – Spring 2021

Design Services during Construction – Summer 2021 to Spring 2023

Project Scope and Tasks

This Scope of Work is for Professional Services necessary to continue final design services, provide design services after final design and during construction including bidding support, addendums/revisions during advertisement, shop drawing review, design support, providing responses to contractor questions, material testing, prestressed concrete plant inspection, and other construction support necessary for the project.

Anticipated tasks for this scope include the following:

Task 1 - Project Management/Coordination

This task is in support of the CCD’s Project Manager and Project Management Team with the management of this project. Individual tasks include:

- A. Coordinate project tasks with the CCD’s Department of Transportation and Infrastructure Project Manager and other CCD personnel and departments as required.
- B. Review subconsultant invoices; prepare and submit monthly invoices and progress reports. Invoices must meet CCD’s format and requirements.
- C. Manage and coordinate work efforts of the Consultant Team.
- D. Prepare and submit a QA/QC plan and adhere to the process throughout the project.

Task 2 – Construction Progress / Coordination Meetings

This task covers project management coordination meetings, consultant team coordination meetings, and miscellaneous meetings with CCD staff and outside entities. Individual tasks include:

- A. Attend Pre-Bid meeting and Pre-Construction meeting (max 2 attendees). Prepare and write minutes, if requested, and distribute within seven days of meeting. Attendance at Bid Opening is not included.
- B. Attend construction progress meetings as requested (max 10 with max 2 attendees at each) except as noted in Task 6.

Exhibit A-1

Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
Project Control No. PWT2016-064
Design Services during Construction - Scope of Services

- C. Attend outside agency meetings as requested (max 2 with max 2 attendees at each).
- D. Attend other miscellaneous coordination or specific construction issue meetings as requested (max 4 with max 2 attendees at each).

Task 3 – Continued Final Design Services

The Consultant will provide the requested design services during final design within the following scope and assumptions:

- A. 7th Avenue & 8th Avenue additional drainage modeling to adjust and revise drainage split between 7th and 8th Avenue to reduce flow along 8th Avenue. Modeling will be based on information provided from Denver Wastewater, including GIS, and not topographic survey.
- B. Conduct additional supplemental Utility potholing up to 3 additional potholes with permanent (as required per the permit) patches requiring 1 day of work and 1 day of traffic control.
- C. Conduct supplemental topographic survey for the following: survey of up to 12 potholes over 2 days, and storm sewer including 2 inlets and 2 manholes to be uncovered/cleaned/opened by Denver Wastewater. Incorporate and update current topographic survey microstation file to include information.
- D. Provide a Construction Schedule with the PS&E deliverable using Microsoft Project. The following key elements shall be provided: vehicular full closure, bike path closure/detour, in water duration, diversion duration, precast prestressed girder lead time, girder erection, deck placement, asphalt placement, substructure construction, structure completion, existing structure removal, shop/working drawing approvals (girders, other major items needed to start work), other major lead times, erosion control installation and removal, landscaping installation, Frog Hollow Park construction, traffic signal construction, and other key items as requested by the City Project manager.
- E. Quantity Package and other pre-construction/field engineer submittals per CDOT requirements as requested by the City Project manager.

Task 4 – Post-Design/Advertisement Support

The Consultant will provide design services after final design and prior to construction, including bidding/advertisement support services, within the following scope and assumptions:

- A. Attend meetings as requested and as stated above in Task 2.
- B. Post-design on-going coordination with the City and outside agencies.
- C. Post-design coordination with utility companies after final design and prior to construction to verify utility companies are relocating and relocations are complete prior to construction. After relocations are complete, verify relocations are clear, to the extent possible without survey, of anticipated construction and improvements.
- D. Review and respond to Contractor bid questions during bidding/advertisement (maximum 12). The Consultant shall respond within 3 business days.
- E. Revise plans, specifications and cost estimate during advertisement via addendums as directed (maximum 3). The Consultant shall revise and re-submit revised plans, specifications, and cost estimate, as applicable (per sheet/page), within 5 business days.
- F. After bidding, review bids for inconsistencies and potential errors.

Exhibit A-1

Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
Project Control No. PWT2016-064
Design Services during Construction - Scope of Services

Task 5 – Design Services during Construction

Design Services during Construction will be provided by the Consultant as stated below. The Consultant will have the disciplines listed below, within the limits of the previous scope of work and to the extent listed below, available during construction for questions, submittals, and RFIs.

- Structural/Bridge
- Hydraulic/Drainage
- Traffic and Construction Traffic Control including signing/striping, signal, traffic control, and detours for vehicles and bike path.
- Geotechnical
- Utilities
- Environmental including only general support and other stakeholders, biological (including T&E) support, 4(f) & 6(f) support, and waters of the US (including Corps coordination) support.
- Electrical/Lighting
- Roadway and Trail
- Landscaping/Irrigation/Erosion Control

The Consultant will provide the following design services during the construction phase of the project:

- A. Attend meetings during construction as requested and as stated above in Task 2.
- B. Review submittals as requested (see anticipated submittal list in Appendix B, max 40 submittals). The Consultant shall review submittals within 7 business days.
- C. Respond to Requests for Information (RFIs) as requested (maximum 20). The Consultant shall respond within 3 business days.
- D. Respond to Contractor field questions and participate in calls from the field (maximum of 20 questions). The Consultant shall document questions and discussions via email within 48 hours.
- E. Track and log submittals, RFIs, and field questions that are submitted to the Consultant team only.
- F. Perform field site visits as requested (maximum 2 with max 2 attendees). In addition, the consultant shall be available and shall attend major milestones on-site such as girder erection and deck pours (maximum 3 with a maximum of 2 people at each). One environmental, in addition to above, site visit (2 attendees max) will be conducted during work in the South Platte River for Corps permit compliance.
- G. Assist City Project Manager with review and analysis of proposed change orders from the Contractor (maximum 5).
- H. Provide coordination support with outside agencies (including Mile High Flood District, Army Corps of Engineers, Colorado Parks & Wildlife, etc.) as required based on field or construction changes (assume a maximum of 12 hours of coordination time).
- I. General environmental support is considered responding to contractor RFIs or review of contractor submittals if the contractor is required to submit additional documentation to resource agencies based on field changes. Contractor is responsible for the preparation of additional clearances or documentation should field changes occur.
- J. Prepare as-built plans based upon redlines by the Contractor and CCD. Consultant will only track redlines for as-builts for questions, submittals, and RFIs that are submitted to the Consultant team and will not track or maintain the master as-built redlines.

Exhibit A-1

Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
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Design Services during Construction - Scope of Services

Task 6 – Material Quality Control/Assurance Testing

The Consultant will provide Material Quality Assurance Testing services per the requirements listed in Appendix B and the following scope and assumptions:

- A. Observation, sampling, and testing of earthwork. This includes field moisture/density testing and associated laboratory testing of the soil.
- B. Mechanically stabilized earth backfill field moisture/density testing and associated laboratory testing of the aggregate.
- C. Aggregate Base Course sampling and testing, including determining a modified moisture/density relationship, sieve analysis, R-value, L. A. Abrasion, and field moisture/density testing.
- D. Observation, inspection, sampling, and testing of asphalt paving materials. This includes inspection with the Consultant team and CCD personnel, hot plant inspection, asphalt paving materials sampling, and laboratory and field testing. Testing will include field density determination with moisture/density gauge and drilled cores, thickness determination, and full laboratory analysis per project specifications.
- E. Concrete field and laboratory testing including temperature, slump, unit mass, entrained air content, thickness, field cylinders, and compressive strength determination. The Consultant will perform additional testing as requested by CCD. For prestressed girder concrete, the Consultant will perform laboratory compressive strength determination on the cylinders received from the girder fabricator according to Task 7 and provide the inspector the results along with providing to CCD.
- F. Soil support bearing capacity testing as needed.
- G. The Consultant will provide CCD with a copy of field testing results and observations prior to leaving the site, and will distribute final reports no later than one week after the site visit. Concrete compressive strength results will be distributed within 1 day after testing is performed.
- H. All testing shall be performed in accordance with the applicable AASHTO, ASTM, or CDOT requirements and procedures, or at the discretion of CCD.
- I. All testing shall be performed by certified testing technicians meeting the qualifications with the applicable AASHTO, ASTM, and CDOT requirements. Qualifications shall be submitted to CCD at least 10 business days prior to personnel performing testing.
- J. Expenses for material testing as listed in Appendix C.

Task 7 – Prestressed Concrete Plant and Girder Field Observation and Inspection

The Consultant will provide prestressed concrete plant and girder field observation and inspection services within the following scope and assumptions:

- A. Provide Quality Assurance Construction inspection and pre-inspection at prestressed concrete plant prior and during construction of the prestressed concrete girders. Inspection will verify girder construction compared to the latest plans, specifications, and approved shop drawings. It is assumed the Consultant will provide inspection on-site at the plant for a total of 16 business days. The consultant shall have a 10 day notice from the plant prior to beginning of fabrication of the prestressed girders.
- B. Complete and sign CDOT Form 193 for pre-inspection of the plant. CDOT Form 193 shall be submitted to CCD within 3 business days of performing the pre-inspection.
- C. Inspection shall include observation of the creation of the concrete cylinders for both QC and QA. Girder fabricator will be responsible for creating all required cylinders. Consultant will transport QA concrete cylinders to testing facility for testing per Task 6.

Exhibit A-1

Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
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Design Services during Construction - Scope of Services

- D. Complete and maintain daily field logs of the pre-inspection and inspection. Daily field logs shall include detailed notes of activities performed, photos, sketches, personnel performing the work, number of workers, weather (high & low for day), date, project name, project number, girder mark(s), equipment, material deliveries, quantities of items set or poured (as applicable), signature of inspector, signature of fabricator, and any other item to document the work performed each day. Daily field logs shall be submitted to CCD no later than the following working day.
- E. Review Mill Test Reports, Certified Test Report, Certificate of Compliance, and/or concrete mix design for plant and materials, as requested by CCD (maximum 3).
- F. Inspection shall be performed by qualified personnel meeting the qualifications as required by CCD and CDOT. Inspector shall be a PCI Certified Inspector at a minimum. Qualifications shall be submitted to CCD at least 10 business days prior to personnel performing inspection.

Task 8 – Load Rating Services

The Consultant will provide load rating services within the following scope:

- A. Perform load rating calculations.
- B. Perform QC of load rating calculations.
- C. Address client review comments on load rating.

The Consultant will provide load rating services based on the following assumptions:

- A. Use AASHTOWare BrR (Virtis) software. The Consultant will check with CDOT prior to starting load rating to verify the correct version to perform load rating calculations.
- B. Perform the load rating per the CDOT Load Rating Manual, latest version.
- C. Perform and provide the load rating, including all required vehicles, documentation, reporting, and electronic files per CDOT standards.
- D. Perform a load rating near end of design and submit at or prior to final PS&E submittal. Revisions to the load rating after construction are not included in this scope of work.

Task 9 – Additional Services during Construction

This task covers unanticipated items or additional services or tasks as approved by CCD's Project Manager.

Miscellaneous Requirements

- A. Revisions to Plans and Specifications, if needed based on the tasks defined above for Consultant, shall follow CDOT format.
- B. Electronic Files shall be transmitted to CCD upon completion of the project organized in accordance with the CCD file directory structure.
- C. All documents shall be provided in a pdf format in addition to the file created by the original program.

Work Product

At a minimum, the Consultant work products shall include:

- A. Project Coordination and Meeting Minutes
- B. Plan and specifications revisions/addendums
- C. Quantity Package/Other Field Submittals
- D. Construction Schedule

Exhibit A-1

**Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
Project Control No. PWT2016-064
Design Services during Construction - Scope of Services**

- E. Issue for Construction plans and specifications
- F. Submittal and RFI responses
- G. As-built plans PDF
- H. CDOT Form 193
- I. Daily Field logs, Testing Reports, and Observations

Exhibit A-1

**Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
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Design Services during Construction - Scope of Services**

APPENDIX A: Anticipated Submittals to be Reviewed

The following submittals are anticipated to be reviewed by the Consultant:

- A. Expansion Device Shop Drawings (1)
- B. Bridge Railing Shop Drawings (1)
- C. Traffic Signal Pole Shop Drawings (1)
- D. Prestressed Concrete Girder Shop Drawings (1)
- E. Bridge Demolition Plan (1)
- F. Girder Erection Plan (1)
- G. Formwork and Falsework Submittals (Wall, Abutment, Pier, Deck) (4)
- H. Formliner Submittal (1)
- I. Concrete Stain Submittal (1)
- J. Lighting Submittals (Wall pack, Pedestrian lights, street lights) (3)
- K. Concrete mix designs (3)
- L. HMA/SMA mix designs (2)
- M. Aggregate material & base course gradations (2)
- N. Miscellaneous certificate of compliances (pipes, reinforcing, steel, etc.) (4)
- O. Temporary shoring submittal (2)
- P. Dewatering and/or Diversion Plan(s) (2)
- Q. Handrail/fence submittals (2)
- R. Reinforcing working drawing submittals (4)
- S. Manhole, inlet, and pipe submittals (2)
- T. Landscaping and irrigation submittals (2)

Exhibit A-1

**Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
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APPENDIX B: Material Quality Control/Assurance Testing Frequency Requirements and Qualifications

The Consultant will perform material QA testing based on the frequencies scheduled below. The minimum frequencies are required per the 2019 CDOT Standard Specifications for Road and Highway Construction and the City and County of Denver Department of Transportation and Infrastructure Minimum Frequency of Materials Sampling and Testing Standard dated December 8, 2010.

| Item | Quantity | Test Frequency | Assumptions |
|---|--------------------|---|---|
| Item 203 Embankment Material (Complete In Place) | | 3 Tests/50 Lin. Ft./Lift | Assumes soil testing under the existing roadway and areas in the "backfill zone" above the "bedding zone." Assumes 16 trips (field testing, proof roll, and sample pick-up). Assumes the following soil testing: R-Value Test (2); Standard Proctor Test (2); One Point Proctor Check (2); Corrosion Suite (2); Gradation Test (2); Atterberg Limits Test (2) |
| Item 206 Structure Backfill (Class 1 and 2) | 1,390 CY 195 CY | 3 Tests/50 Lin. Ft./Lift 1 Test/Each Layer/Structure | Assumes 23 trips (field testing and sample pick-up). Trips include testing aggregate and soil placed around RCP, manholes, inlets, and bridge abutments. Assumes the following soil testing: Modified Proctor Test (2); One Point Proctor Test (1); Corrosion Suite (2); Gradation Test (8); Atterberg Limits Test (8). |
| Item 304 Aggregate Base Course | | 2 Tests/Day or 1 Test/100 CY | Assumes 6 trips (field testing and sample pick-up). Assumes the following soil testing: Modified |

Exhibit A-1

Professional Design and Engineering Services
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| Item | Quantity | Test Frequency | Assumptions |
|--|------------|----------------|--|
| | | | Proctor Test (1); LA Abrasion Test (1); R-Value Test (1); Gradation Test (1); Atterberg Limits Test (1). |
| Item 403 Stone Matrix Asphalt (Fibers)(Asphalt) | 252 Tons | | <p>Assumes 2 trips (field testing and aggregate and oil pick-up).</p> <p>Assumes this application is for the bridge deck.</p> <p>Assumes the following testing: Ignition Oven Calibration (1); Asphalt Ignition with Gradation (1); Maximum Specific Gravity (1); Micro Deval Test (1); Fractured Faces Test (1); Fine Aggregate Voids (1); Lottman Test (1).</p> |
| Item 403 Hot Mix Asphalt (Grading S)(100)(PG 64-22) | 1,444 Tons | | <p>Assumes 2 trips.</p> <p>Assumes the contractor PC will core the asphalt for density determination.</p> <p>Assumes the following testing: Ignition Oven Calibration (1); Gradation After AC Burn Test (1); Ignition AC Test (2); Maximum Specific Gravity (2); Micro Deval Test (1); Hveem Properties (2); SuperPave Volumetric Properties (2); Fractured Faces Test (1); Fine Aggregate Voids (1); Lottman Test (1); Core Density (12).</p> |
| Item 403 Hot Mix Asphalt (Grading SX)(100)(PG 76-28) | 413 Tons | | <p>Assumes 1 trip.</p> <p>Assumes the contractor PC will core the asphalt</p> |

Exhibit A-1

**Professional Design and Engineering Services
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| Item | Quantity | Test Frequency | Assumptions |
|---|----------|---|--|
| | | | for density determination. Assumes the following testing: Ignition Oven Calibration (1); Gradation After AC Burn Test (1); Ignition AC Test (1); Maximum Specific Gravity (1); Micro Deval Test (1); Hveem Properties (1); SuperPave Volumetric Properties (1); Fractured Faces Test (1); Fine Aggregate Voids (1); Lottman Test (1); Core Density (6). |
| Item 412 Concrete Pavement (8 Inch) | 366 SY | 1 Set Cylinders Every Other Day Air Content: First 3 Trucks (Min.) | Assumes 6 trips (field testing and cylinder pick-up). Assumes 10 cylinders. |
| Item 503 Drilled Caissons (bridge and traffic signal) | 962.5 LF | 1 Set Cylinders Each Day Air Content: First 3 Trucks (Min.) | Assumes 24 trips (field testing and cylinder pick-up). Assumes 60 cylinders. Assumes 18 days of engineering construction observation of the drilled caissons to confirm bedrock penetration and conformance with specifications. |
| Item 507 Concrete Slope and Ditch Paving | 5 CY | | Assumes 2 trips (field testing and cylinder pick-up). Assumes 5 cylinders. |
| Item 601 Structural Concrete Class B | 3 CY | | Assumes 2 trips (field testing and cylinder pick-up). Assumes 5 cylinders. |
| Item 601 Structural Concrete Class D | 1,105 CY | 1 Set Cylinders Each Day | Assumes 44 trips (field |

Exhibit A-1

**Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
Project Control No. PWT2016-064
Design Services during Construction - Scope of Services**

| Item | Quantity | Test Frequency | Assumptions |
|---|----------|--|--|
| (Bridge) | | Air Content: First 3 Trucks (Min.) | testing and cylinder pick-up). Assumes approximately 50 CY will be placed per day. Assumes 110 cylinders. |
| Item 601 Structural Concrete Class D (Wall) | 240 CY | 1 Set Cylinders Each Day Air Content: First 3 Trucks (Min.) | Assumes 16 trips (field testing and cylinder pick-up). Assumes 40 cylinders. |
| Item 602 Reinforcing Steel | | Strength testing as per CDOT Specifications. 2 sets of tests required. | |
| Item 606 Bridge Rail Type 10M (Special) | 55 CY | | Assumes 4 trips (field testing and cylinder pick-up). Assumes 10 cylinders. |
| Item 608 Sidewalk, Curb Ramp, and Bikeway | 1,831 SY | 1 Set Cylinders Every Other Day Air Content: First 3 Trucks (Min.) | Assumes 27 trips (field testing and cylinder pick-up). Assumes 45 cylinders. |
| Item 609 Curb and Gutter (All Types) | 1,136 SF | 1 Set Cylinders Every Other Day Air Content: First 3 Trucks (Min.) | Assumes 8 trips (field testing and cylinder pick-up). Assumes 15 cylinders. |
| Item 610 Median Material (Patterned Concrete) | 58 LF | 1 Set Cylinders Every Other Day Air Content: First 3 Trucks (Min.) | Assumes 2 trips (field testing and cylinder pick-up). Assumes 5 cylinders. |
| Item 618 Prestressed Concrete Bridge Girder | 756 CY | 1 set cylinders for Every 50 CY placed or 1 per day or per production line (minimum) | Assumes no field visits; DEA to drop-off cylinders. A high-strength capping compound will need to be applied to both sides of each cylinder. |

Exhibit A-1

**Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
Project Control No. PWT2016-064
Design Services during Construction - Scope of Services**

| Item | Quantity | Test Frequency | Assumptions |
|------|----------|----------------|------------------------|
| | | | Assumes 160 cylinders. |

Exhibit A-1

**Professional Design and Engineering Services
W. 8th Avenue over the South Platte River Bridge Replacement Project
Project Control No. PWT2016-064
Design Services during Construction - Scope of Services**

APPENDIX C: Anticipated Reimbursable Expenses for Material Quality Control/Assurance Testing and Prestressed Concrete Plant Inspection

The following reimbursable expenses are anticipated to be incurred by the Consultant and reimbursed by the City and County of Denver for this Design Services during Construction contract:

- A. Density Gauge Test
- B. R-Value Test
- C. Standard Proctor Test
- D. One Point Proctor Check
- E. Corrosion Suite Test
- F. Gradation Test
- G. Atterberg Limit Test
- H. Modified Proctor Test
- I. LA Abrasion Test
- J. Ignition Oven Calibration
- K. Asphalt Ignition with Gradation
- L. Maximum Specific Gravity
- M. Micro Deval Test
- N. Fractured Faces Test
- O. Fine Aggregate Test
- P. Lottman Test
- Q. Gradation After AC Burn Test
- R. Ignition AC Test
- S. Hveem Properties
- T. SuperPave Volumetric Properties
- U. Core Density
- V. Concrete Cylinders
- W. Concrete Cylinders (High Strength) for Prestressed Concrete Girders
- X. Reinforcing Steel
- Y. Vehicle Charge and/or Mileage in support of Tasks 6 and 7 only. Mileage/vehicle charges for Task 6 are mileage/vehicle charges associated with soils and concrete testing. Mileage/vehicle charges for Task 7 are mileage/vehicle charges associated with prestressed concrete plant inspections which occurs outside of the City and County of Denver only; travel within the City and County of Denver is not reimburseable. All other mileage is excluded from direct reimbursement. Mileage shall be reimbursed at the current Federal standard rate. Vehicle charges shall be reimbursed at the approved rate as stated in the attached rate table unless otherwise approved by the City Project manager.

Exhibit A-1

FEE ESTIMATE: 8TH AVENUE OVER SOUTH PLATTE RIVER - DSDC CONTRACT AMENDMENT

| TASK NO. | TASK | DEA | | Clanton | | Goodbee | | HKS | | SAN | | S&W | | Shrewsberry | | PROJECT TOTALS | |
|---------------------------------|---|-------------|----------------------|-----------|--------------------|-----------|---------------------|-----------|--------------------|-----------|--------------------|-------------|----------------------|-------------|---------------------|----------------|----------------------|
| | | Hours | Fee | Hours | Fee | Hours | Fee | Hours | Fee | Hours | Fee | Hours | Fee | Hours | Fee | TOTAL | FEE |
| 1 | Project Management and Coordination | 172 | \$ 27,310 | 8 | \$ 1,200 | 8 | \$ 1,020 | 2 | \$ 240 | 8 | \$ 1,040 | 12 | \$ 2,040 | 24 | \$ 4,022 | 234 | \$ 36,872.34 |
| 2 | Construction Progress / Coordination Meetings | 50 | \$ 8,310 | 0 | \$ - | 3 | \$ 450 | 0 | \$ - | 0 | \$ - | 6 | \$ 540 | 0 | \$ - | 59 | \$ 9,300.00 |
| 3 | Additional Final Design Services | 117 | \$ 17,415 | 0 | \$ - | 20 | \$ 2,440 | 40 | \$ 4,710 | 0 | \$ - | 0 | \$ - | 0 | \$ - | 177 | \$ 24,565.00 |
| 4 | Post-Design / Advertisement Support | 192 | \$ 27,910 | 12 | \$ 1,800 | 32 | \$ 4,240 | 0 | \$ - | 0 | \$ - | 9.5 | \$ 1,353 | 63 | \$ 10,446 | 309 | \$ 45,748.20 |
| 5 | Design Services during Construction | 442 | \$ 60,125 | 14 | \$ 2,100 | 16 | \$ 2,230 | 0 | \$ - | 0 | \$ - | 57 | \$ 7,275 | 54 | \$ 8,752 | 583 | \$ 80,481.60 |
| 6 | Material Quality Control/Assurance Testing | 2 | \$ 220 | 0 | \$ - | 0 | \$ - | 0 | \$ - | 0 | \$ - | 1030.5 | \$ 106,048 | 0 | \$ - | 1033 | \$ 106,267.50 |
| 7 | Prestressed Concrete Plant Inspection | 174 | \$ 21,740 | 0 | \$ - | 0 | \$ - | 0 | \$ - | 0 | \$ - | 0 | \$ - | 0 | \$ - | 174 | \$ 21,740.00 |
| 8 | Load Rating Services | 44 | \$ 5,120 | 0 | \$ - | 0 | \$ - | 0 | \$ - | 44 | \$ 5,480 | 0 | \$ - | 0 | \$ - | 88 | \$ 10,600.00 |
| 9 | Additional Services During Construction | | | | | | | | | | | | | | | | \$ 25,000.00 |
| Total Labor | | 1193 | \$ 168,150 | 34 | \$ 5,100 | 79 | \$ 10,380 | 42 | \$ 4,950 | 52 | \$ 6,520 | 1115 | \$ 117,255 | 141 | \$ 23,220 | 2656 | \$ 360,574.64 |
| Direct Expenses | | | | | | | | | | | | | | | | | |
| Expenses | | | \$ 600 | | \$ - | | \$ 4,050 | | \$ - | | \$ - | | \$ 34,638 | | \$ - | | \$ 39,288.00 |
| Total Expenses | | | \$ 600 | | \$ - | | \$ 4,050 | | \$ - | | \$ - | | \$ 34,638 | | \$ - | | \$ 39,288.00 |
| Total Labor and Expenses | | | \$ 168,750.00 | | \$ 5,100.00 | | \$ 14,430.00 | | \$ 4,950.00 | | \$ 6,520.00 | | \$ 151,893.00 | | \$ 23,219.64 | | \$ 399,862.64 |

9/22/2020

