

**THIRD AMENDMENT  
TO AGREEMENT BETWEEN THE  
CITY OF CHULA VISTA  
AND  
MOFFAT AND NICHOL  
TO PROVIDE PRELIMINARY ENGINEERING, ENVIRONMENTAL  
DOCUMENTATION AND FINAL DESIGN FOR THE HERITAGE ROAD BRIDGE  
REPLACEMENT PROJECT**

This THIRD AMENDMENT “Amendment” is entered into effective as of March, 17th 2020 “Effective Date” by and between the City of Chula Vista (“City”) and MOFFAT AND NICHOL “Consultant” with reference to the following facts:

**RECITALS**

WHEREAS, on November 15, 2011 City and Consultant previously entered into 19-0388 - Attachment 1 “Original Agreement” with a contract amount of \$1,777,421; and

WHEREAS, on November 15, 2011, City and Moffat and Nichol (“Consultant”) entered into an Agreement Between The City of Chula Vista and Moffatt and Nichol to Provide Preliminary Engineering, Environmental Documentation and Final Design for the Heritage Road Bridge Replacement Project (“Original Agreement”) with a contract amount of \$1,777,421; and

WHEREAS, on November 20, 2012, the City and Consultant entered into a first amendment to the Original Agreement to incorporate into the project widening of Main Street and Heritage Road and in order to comply with federal policies associated with environmental review, such as providing alternative feasible designs, increasing the Original Agreement amount by \$553,633, for a new total contract amount of \$2,331,054; and

WHEREAS, on November 1, 2016, the City and Consultant entered into a second amendment to the Original Agreement for the additional time and effort required to coordinate and produce the preliminary engineering, environmental documentation with Caltrans and the Resource Agencies increasing the total contact amount by \$1,093,051.04, for a new total contract amount of \$3,424,105.04; and

WHEREAS, the Original Agreement, as amended, may be referred to herein as the “Agreement”; and

WHEREAS, on March 9, 2018, the City and Consultant having had staffing changes, reduced the scope and fee of Task 2 Final Design decreasing the total contact amount by \$300,000, for a new contract total of \$3,124,105.04; and

WHEREAS, City and Consultant desire to again amend the Agreement to provide additional funding for the additional time and effort required to resolve Caltrans Structures Local Assistance (SLA) conditions of concurrence Bridge Type Selection, and to complete final design as more specifically set forth below; and

[WHEREAS, the bridge is included as a replacement project in Federal Highway Bridge Program (HBP) making it eligible for the City to be reimbursed 88.53% for all participating costs, including Preliminary Engineering, Environmental Clearance, Right of Way and Construction.] [ ]

NOW, THEREFORE, in consideration of the above recitals and the mutual obligations of the parties set forth herein, City and Consultant agree as follows:

1. Exhibit A, entitled Amended and Restated Scope of Work and Payment Terms is hereby attached hereto and incorporated herein by this reference.
2. Except as expressly provided herein, all other terms and conditions of the Original Agreement shall remain in full force and effect.
3. Each party represents that it has full right, power and authority to execute this [THIRD] Amendment and to perform its obligations hereunder, without the need for any further action under its governing instruments, and the parties executing this Amendment on the behalf of such party are duly authorized agents with authority to do so.

**SIGNATURE PAGE TO THIRD  
AMENDMENT  
TO  
19-0388 - ATTACHMENT 1**

MOFFAT AND NICHOL

CITY OF CHULA VISTA

BY: \_\_\_\_\_  
|PERRY SCHACHT|  
|VICE PRESIDENT|

BY: \_\_\_\_\_  
|MARY CASILLAS SALAS|  
|MAYOR|

|ATTEST<sup>1</sup>

BY: \_\_\_\_\_  
KERRY K. BIGELOW, MMC  
CITY CLERK

APPROVED AS TO FORM

BY: \_\_\_\_\_  
GLEN R. GOOGINS  
CITY ATTORNEY

<sup>1</sup> Attestation signature only required if the Mayor signs the Agreement. If Mayor is not signing agreement, delete entire attestation signature block.

**EXHIBIT A**  
**AMENDED AND RESTATED**  
**SCOPE OF WORK AND PAYMENT TERMS**

[ ]

**1. Contact People for Contract Administration and Legal Notice**

A. City Contract Administration:

José Luis Gomez  
City of Chula Vista  
276 Fourth Avenue  
Chula Vista, Ca 91910  
619-691-5021  
JGomez@chulavistaca.gov |

For Legal Notice Copy to:  
City of Chula Vista  
City Attorney  
276 Fourth Avenue, Chula Vista, CA 91910  
619-691-5037  
CityAttorney@chulavistaca.us|

B. Contractor/Service Provider Contract Administration:

MOFFAT AND NICHOL  
1660 Hotel Circle North, Suite 500  
San Diego, CA 92108  
619-220-6050  
PSchacht@moffatnichol.com |

**2. Required Services**

A. General Description:

Provide professional services for preliminary engineering, design and environmental studies for the replacement of the Heritage Road Bridge over the Otay River (“Project”). The Project consists of three segments; Segment A – Main Street from Nirvana Avenue to Heritage Road, Segment B – Heritage Road from Main Street to Entertainment Circle North, and Segment C – Heritage Road from Entertainment Circle North to the Southerly City Boundary (See EXHIBIT A-1). |

B. Detailed Description:

1.0 **TASK 1 - Preliminary Engineering**

Task 1 of the project includes the development of the project design up to the 30% design level. Included in this task are the Alternatives Evaluation, Project Report, Environmental Documentation, Visual Memo, Topographical Mapping,

Geotechnical Investigation, Hydraulic Studies, Bridge Type Selection, Preliminary Water Quality Technical Studies and 30% Design Details. The project will be developed in English Units and will be in compliance with Caltrans design criteria, memos and specifications, which are current as of notice to proceed for Task 1.

1.1 Project Management and Administration

Project Management and Administration duties will be performed for the duration of this task of the project as noted above.

1.2 Project Schedule

The project schedule will be developed and maintained for the duration of this task of the project as noted above.

1.3 Project Meetings

Up to 20 Team meetings with the City of Chula Vista are assumed and budgeted during this task. These will be held at the City's office approximately once each month. The following table provides our assumption for meeting attendance:

<b>Meeting Description</b>	<b>Consultant Team</b>								
	<b>M&amp;N</b>	<b>DHA</b>	<b>BRG</b>	<b>LLG</b>	<b>Chang</b>	<b>EMI</b>	<b>Aguirre</b>	<b>KTU+A</b>	<b>SRA</b>
<i>Kick-Off Meeting</i>	X	X	X	X	X	X	X	X	X
<i>Team Meeting #1</i>	X		X						
<i>Team Meeting #2</i>	X		X						
<i>Team Meeting #3</i>	X		X						
<i>Team Meeting #4</i>	X		X						
<i>Team Meeting #5</i>	X		X						
<i>Team Meeting #6</i>	X		X						
<i>Team Meeting #7</i>	X		X						
<i>Team Meeting #8</i>	X		X	X					
<i>Team Meeting #9</i>	X		X						
<i>Team Meeting #10</i>	X		X						
<i>Team Meeting #11</i>	X		X						
<i>Team Meeting #12</i>	X		X						
<i>Team Meeting #13</i>	X		X						
<i>Team Meeting #14</i>	X		X						
<i>Team Meeting #15</i>	X		X						
<i>Team Meeting #16</i>	X		X						
<i>30% Design Review</i>	X	X	X	X	X	X		X	X
<i>Totals:</i>	18	2	18	3	2	2	1	2	2

In addition to regularly scheduled team meetings, review focus meetings will be required with Caltrans to develop an appropriate project alternative. Up to three formal Caltrans coordination meetings are assumed and budgeted during this task.

Additional informal meetings may be required between the City Staff, Caltrans Local Assistance Staff, Environmental Resource Agencies and/or the Consultant Team. The time needed for these meetings has been included in the budget for the related task.

Additional informal meetings and coordination may be required between the City Staff, the Consultant Team and the Developer's Consultants designing the extensions of Main Street and Heritage Road. The time needed for these meetings has been included in the budget for the related task.

#### 1.4 As-Built and Utility Research

As-built plans and utilities will be researched and located on the project base map. We have assumed that the as-built plans and surface surveys will be adequate to locate existing utilities. Subsurface exploration (pot holing) will be performed during the Final Design task and is included in Task 2.16.

If the as-built plans show that potential utility conflicts exist, pot holing will be completed to verify utility locations. The extent of potential pot holing has been estimated to develop a placeholder budget for this task.

#### 1.5 Site Visit

A site visit will be held by all team members to review the existing conditions.

#### 1.6 Field Surveys and Mapping

An aerial topographical map (digital color format with a 0.5' resolution or better) and supplemental field surveys will be completed and assembled into an AutoCAD format base map. A digitally rectified orthographic photo, a scale of 1"=40' with a one-foot contour interval, will be obtained for this area. The area is defined as 500 feet on either side of the right-of-way and 200 feet north of Main Street and 200 feet south of Entertainment Circle.

The aerial map will include river channel topography at a 1"=100' scale from two miles downstream to one mile upstream of the bridge. This data is for use in the hydraulic studies.

Field surveying will identify existing topographical features, right-of-way (including all critical points) and tie out any and all existing survey monuments that may be disturbed by the work. Street centerline and centerline stationing will be established to an accuracy of five-hundredths (0.05) foot. We will establish one field survey datum or benchmark which was used in the design for use during construction and all elevations, dimensions, and other measurements necessary to establish proper line and grade.

Channel cross sections will be completed approximately 100' down stream of the existing bridge and 500' up stream of the proposed bridge, on 50' intervals (total of 17 sections). This data is for use in the hydraulic studies. It is assumed that a biologist will be provided to accompany the surveyor within the river channel.

Planimetrics will be obtained from the aerial and will include key design features such as driveways, curb & gutter, storm drain manholes and outlets, bridge limits, sidewalks, signal equipment, building boundaries, and

visible utilities. Right-of-way boundaries will be obtained from record drawings.

The existing bridge will be surveyed to determine the location and elevation of the deck.

Documentation for all survey monumentation used in the design for use during construction will be provided with electronic files and a plot of all control coordinates for use in construction staking.

#### 1.7 Preliminary HEC/RAS Analysis (Applicable to Segment B only)

A preliminary HEC/RAS analysis will be performed with and without the existing bridge and the new bridge up stream, and up to three hydraulically different alternatives. The results of this analysis will provide water surface elevations from 100' down stream of the existing the bridge to 500' upstream of the proposed bridge for the 2, 10, 50 and 100-year events along with the corresponding flow volume and velocities. Initial scour estimates will be based on engineering judgment and similar river dynamics.

The existing drainage structures will be identified and evaluated for current deficiencies.

##### 1.7.1 Compilation of Channel Geometry Flood Data

New cross-sectional geometries will be created based on the updated topographic survey of the river channel. The FEMA adopted flood discharges will be used. Such flood discharges as given in the report "Flood Insurance Study" by FEMA for the Otay River are as follows:

- 10-yr: 1,200 cfs
- 50-yr: 12,000 cfs
- 100-yr: 22,000 cfs

##### 1.7.2 Preliminary Hydraulic Evaluation of Bridge

The HEC-RAS program will be used for the preliminary hydraulic evaluation of the bridge. A debris factor will be applied to the piers. Hydraulic computations will be performed to provide:

- Bridge waterway opening
- Proper location of the bridge
- Water-surface elevation
- Bridge low chord elevation, considering the required freeboard
- Flow velocity
- Overtopping flow

The hydraulic design will be guided by the Caltrans Local Assistance Procedures Manual, Chapter 11. The 50-yr and 100-yr flood will be included in hydraulic computations. This item shall cover the existing channel conditions as well as the proposed conditions. The hydraulic geometries for the optimized bridge length will be used. The impacts of the bridge on the established flood level and floodway boundaries will be determined.

#### 1.7.3 Preliminary Flooding Impacts on Adjacent Properties

Potential backwater impacts will be evaluated and mitigated whenever possible.

#### 1.7.4 Compilation of Hydraulic Models

Three hydraulic models will be compiled; they are listed below:

- Effective Model: This is the HEC-2 model originally prepared by the County of San Diego for the Otay River.
- Duplicate Effective Model: This is the HEC-RAS model converted from the HEC-2 effective model.
- Corrected Effective Model: This is the HEC-RAS model with corrections made to the duplicate effective model. Such corrections consist of the following: survey datum, roughness coefficient, bridge geometry, etc.

#### 1.8 Preliminary Foundation Report (PFR) (Applicable to Segment B only)

A Preliminary Foundation Report (PFR) will be prepared based on a review of available studies and documentation of previous subsurface investigations in the vicinity of the Heritage Road Bridge. The PFR will present general geology and subsurface conditions, seismic evaluation, liquefaction, scour, corrosion, preliminary foundation recommendations and recommended additional work based on a review of published geologic maps, aerial photographs, "as-built" plans, in-house documents, and other literature pertaining to the site to aid in evaluating geologic conditions and hazards that may be present. This report will be superseded by the final foundation report, which will be based on a detailed subsurface exploration program and lab testing. The PFR will generally follow the Caltrans document entitled: "Foundation Report Preparation for Bridges," dated December 2009.

#### 1.9 Traffic Analysis

Traffic analysis will be completed for the intersections of Heritage Road at Main Street and at Entertainment Circle. The analysis will include studies for the current traffic volumes, opening day, assumed as 2015, and the horizon year, assumed to be 2035. A total of five (5) projections will be performed.

A traffic study will be completed for the traffic section of the environmental document. The analysis will include projected impacts to the adjacent



intersections and roadway segments under existing, phased construction, opening day (2015), and horizon year (2035) conditions.

The intersections listed below will be counted to obtain existing baseline traffic volume data:

- Main Street/Heritage Road
- Heritage Road/Entertainment Circle
- Heritage Road/Avenida de Las Vistas

ADT (tube) counts will be collected at three locations including Main Street, west of Heritage Road; Heritage Road, south of Main Street and Heritage Road south of Entertainment Circle.

Forecast Traffic Volumes:

- The 2030 Series 11 Forecast will be used to extrapolate to the horizon year, which is assumed to be 2035. Separate Forecasts will be run for two bridge alternatives, which are assumed to be a 6-lane, and a 4-lane alternative. The Forecasts will assume Heritage Road extended northerly of Main Street and Main Street extended easterly of Heritage Road. A select link assignment on the bridge segment will be run to estimate the origins and destinations of existing traffic on the bridge. An assumed direct cost of \$3600 for the SANDAG modeling has been included.

The above analyses assume the existing bridge will remain open to traffic during construction. Potential impacts of the temporary reduction of lanes during construction will be analyzed.

The traffic analysis will be for typical days, assuming no events at the amphitheater.

A traffic analysis will be assembled that incorporates all of the above items and it will contain appropriate tables and figures.

When available, forecast traffic volumes using the Year 2035 Series 12 model for the complete study area, including the expanded intersections. No modeling costs or calibration are assumed. Conduct a supplemental horizon year traffic analysis based on these new volumes. Two bridge alternatives are assumed (4-lane and 6-lane). Main Street is assumed to be built to 6-lanes per the General Plan for both alternatives. Document the results in text, tables, and graphics.

Adjust Model to Account for Future Changes to SR-125 Toll Processing and Meetings:

A Traffic Assessment report will be processed and approved through the City of Chula Vista. The following are assumed for this task:

- Two (2) submittals to the City of Chula Vista
- Two (2) meetings with City of Chula Vista staff
- Two (2) meetings with SANDAG, Caltrans and/or City of San Diego staff

- Cursory review by SANDAG, Caltrans and/or City of San Diego staff – two (2) submittals

1.9a Not used.

#### 1.10 Alternatives Evaluation (Applicable to Segment B & C only)

This task will focus on developing the most appropriate replacement strategy and obtaining a consensus for project development and possible funding commitments through the HBP program via Caltrans and the FHWA

##### 1.10.1 Alternatives Development

In order to develop a consensus on the baseline project, two alternatives will be developed to approximately a 10% design level and studied. Plans will include a bridge general plan and a roadway plan and profile sheet. Up to three replacement alternatives will be developed.

These may include:

- Replace with a 6-lane bridge with 8' shoulders and 5' sidewalks, Width = 118'. Demo the existing bridge and re-align traffic to new structure (off-alignment).
- Replace with a 4-lane bridge with 8' shoulders, 4' striped median and 5' sidewalks, Width = 82'. Demo the existing bridge and re-align traffic to new structure (off-alignment). Construction within existing right-of-way.

##### 1.10.2 Pedestrian, Bicycle and Equestrian Circulation

Pedestrian, bicycle and equestrian circulation, and the planned multi-use trail will be considered in respect to the proposed alternatives.

##### 1.10.3 Ranking of Alternatives

We will provide previous prepared technical information to assist the City in selecting the evaluation criteria and ranking the alternatives.

Potential evaluation criteria will likely include:

- Hydraulic Performance
- Deck Geometry (Width)
- Traffic Capacity (ADT) and LOS
- Traffic Safety Features
- Structure Lifespan
- Future Maintenance
- Scour Potential

- Right-of-Way Impacts
- Potential Environmental Issues
- Pedestrian and Bicycle Connectivity
- Ability to Accommodate future roadway extension
- Ability to Accommodate Future Multiuse Trail

The City will compile the technical information and develop a ranking matrix for each alternative. We will review and comment on the City's evaluation.

#### 1.10.4 Cost Estimates

Preliminary cost estimates for each alternative will be developed using current unit cost data and a general plan level quantity take-off. Details will include a bridge general plan and a roadway plan and profile sheet for each alternative.

#### 1.10.5 Draft Project Report

This Draft Project Report will be prepared the City of Chula Vista.

### 1.11 Project Report for Preferred Alternative (Applicable to Segment B only)

This task will focus on developing the cost, scope and schedule for the preferred alternative. It will also determine the most appropriate replacement strategy and obtain a consensus for project development. Plans shall include a bridge general plan and a roadway plan and profile sheets.

#### 1.11.1 HEC/RAS Analysis (Hydraulic Study)

A HEC/RAS analysis shall be performed for the additional above alternatives. The results of this analysis shall provide water surface elevations at the bridge and upstream for the 2, 10, 50 and 100-year events along with the corresponding flow volume and velocities.

The hydraulic analysis shall also be completed for any storm drain facilities affected by the project.

#### 1.11.2 Bridge Advanced Planning Study

This study will develop the most feasible type of bridge structure for each alternative. Span lengths, structural depth, column locations, seismic issues, scour, railings, approach slabs, falsework requirements, and other details and controls will be examined in order to develop planning level an accurate cost estimate.

#### 1.11.3 Preliminary Aesthetic Studies

Aesthetic studies will be performed in conjunction with the bridge advance planning study. Span configurations, superstructure

shapes, pier shapes, and other architectural elements such as railings, bridge lighting and pier overlooks will be evaluated on a conceptual level. Sketches and rough computer models will be provided with enough detail such that visual simulations can be developed.

#### 1.11.4 Visual Simulations

Visual simulations will be developed based on the results of the preliminary aesthetic studies. The visual simulations shall be of a quality suitable for use in the Visual Impact Assessment as part of the Environmental Document and for use at public meetings.

#### 1.12 Drilling Permits and Environmental Clearance (Applicable to Segments A & B only)

Environmental permits to perform the geotechnical borings and investigation will be obtained through the jurisdictional agencies. These are assumed to include the California Department of Fish and Game, the US Army Corps of Engineers and the Regional Water Quality Control Board. Permit application fees will be invoiced as a direct cost. It is assumed that no borings will be taken in the sensitive habitat areas within the river channel, and that drilling will commence from the non-vegetated area to the north east of the existing bridge and along the existing roadways including Heritage Road, Main Street and the adjacent quarry access road.

#### 1.13 Geotechnical Investigation (Applicable to Segments A & B only)

Geotechnical field investigation and lab testing will be completed to support the bridge and roadway design. Based on published geologic maps, it appears that the bridge alignment is underlain by alluvium over San Diego, Mission Valley or Otay Formation. Shallow groundwater at about river elevation is expected. The bridge shall be designed to Caltrans standards, and the geotechnical investigation shall follow the guidelines in the Caltrans Geotechnical Manual

County of San Diego Department of Environmental Health well permits will be obtained by Earth Mechanics, Inc. for the borings. To avoid potential environmental impacts, we propose to do all drilling along the existing roadways and within the un-vegetated area to the north of the proposed bridge alignment. We have assumed one boring will be completed per day.

The scope of the investigation shall consist of the following:

- Drill a total of nine (9) small-diameter borings using hollow-stem auger drilling equipment to examine and sample the prevailing soil conditions. Five deep borings will be drilled at the expected locations of the bridge foundations, and four shallow borings will be drilled along the proposed roadway alignment. We expect that borings will be drilled along the existing alignment of Heritage Road and Main Street, outside of the existing river channel. Drilling mud will be disposed of by the geotechnical consultant. Pavements will be patched with cold patch asphalt.

- Subsurface investigation shall be conducted in accordance with Article 4.3, "Subsurface Exploration and Testing Programs," of the Caltrans Bridge Design Specifications dated April 2000 and the guidelines described in the current Caltrans Geotechnical Manual.
- Perform laboratory tests on selected soil samples to evaluate unit weight, water content, pH, resistivity, soluble sulfate content, chloride ion content, grain size, shear strength, consolidation, expansion and compaction characteristics of the prevailing soils.
- The results of the subsurface investigation and laboratory tests will be used to confirm the recommendations made in the Preliminary Foundation Report (PFR.) If appropriate, additional guidance will be provided to the design team to aid in the bridge type selection process. A Final Foundation Report (FR) will be completed in Task 2 of the project to document the final findings, conclusions and recommendations regarding the geotechnical aspects of constructing the proposed bridge, retaining walls and roadway widening. Grain-size data will be provided for use in the hydraulics and scour studies.

#### 1.14 Bridge Type Selection (Applicable to Segment B only)

This task includes the development of the preferred bridge alternative for the project site. A bridge type selection report will be developed to formalize the bridge type, materials, span arrangement, constraints, foundations, aesthetics and construction methods. This document will be prepared in accordance with Caltrans Memo to Designers 1-29.

##### 1.14.1 Foundation Type Selection

Coordinate with the project geotechnical engineer for appropriate foundation type and sizing. Based on the known geotechnical conditions up and down stream of the bridge, driven pile foundations are anticipated.

##### 1.14.2 Roadway and Hydraulics Coordination

Coordinate with the project civil designer and hydraulic requirements for bridge vertical alignment and landing requirements.

##### 1.14.3 Bridge General Plan and Cost Estimate

Prepare a bridge general plan and preliminary cost estimate

##### 1.14.4 Aesthetic Concept

The bridge engineering and project architect will collaborate to develop an aesthetic concept for the bridge that is consistent with the site. The aesthetic concept will include the general layout and shape of the main structural elements.

##### 1.14.5 Type Selection Report

Prepare a Type Selection Report that summarizes our recommended bridge type, which is best suited to the preferred

project alignment as determined in the Project Report. Items that will be addressed in this report include other viable bridge types, abutment and bent layout, utility issues, maintenance issues, aesthetic issues and construction methods. This report will reference the preliminary construction cost estimates for other bridge types and bridge configurations studied for this project.

The Type Selection Report will be made available to the City and Caltrans. We will attend an informal Type Selection Meeting at the City of Chula Vista. If desired, the City can invite a representative from Caltrans Local Assistance. However, since our project is not within Caltrans Right of Way, our scope does not include a formal Type Selection Meeting with Caltrans in Sacramento. The draft and final Type Selection Report will be provided to the City.

#### 1.15 Hydrology, Hydraulics and Scour (Applicable to Segment B only)

A final HEC/RAS analysis will be performed on the selected bridge alternative. The results of this analysis will provide water surface elevations at the bridge and upstream for the 2, 10, 50 and 100-year events along with the corresponding flow volume and velocities. Scour analysis will be developed based in a flood series and a FLUVIAL-12 model.

A hydraulic analysis will also be completed for any storm drain facilities affected by the project.

A final Hydrology, Hydraulics and Scour analysis report will be prepared to document the studies.

##### 1.15.1 Hydraulic Evaluation of Bridge

The hydraulic evaluation performed in Task 1.8 will be finalized based on the final bridge geometry.

##### 1.15.2 Hydrologic Data Summary

A Hydrologic Summary in Caltrans format will be provided for inclusion with the bridge plans. The table will include the 50-yr, 100-yr, overtopping and record floods.

##### 1.15.3 Flooding Impacts on Adjacent Properties

Flooding impacts on adjacent properties performed in Task 1.8 will be finalized based on the final bridge geometry.

##### 1.15.4 Compilation of Required Hydraulic Models

The HEC-RAS models compiled in Task 1.8 will be finalized based on the final bridge geometry.

##### 1.15.5 Bridge Freeboard and Drift Analysis

A drift analysis for the bridge will be performed based on the final bridge geometry. The source of floating debris will be analyzed. The production of floating debris will be assessed in consideration

of the hydraulics of flood flow. The required freeboard for safe drift passage will be determined and recommended.

#### 1.15.6 Bridge Scour Analysis

Potential river channel changes will be determined to provide the necessary information for bridge design. The following will be performed:

- Finalize the hydraulic geometries of the channel and the bridge based on the fluvial study
- Determine the general and local scour for the design of bridge piers and abutments
- Provide recommendations for the design of bank protection and bridge abutments

#### 1.15.7 Application for CLOMR

A Conditional Letter of Map Revision (CLOMR) will be processed through FEMA based on the final design. After the bridge is constructed a Letter of Map Revision (LOMR) will be processed through FEMA.

The package will include necessary items for obtaining a LOMR from FEMA for the as-built plans of the channel including the floodwalls. The following items will be prepared and submitted.

- A report for the application providing all necessary information requested by FEMA as documented in a notebook of instruction by Baker Engineers
- Plotted 100-yr water-surface and channel-bed profiles of channel reach for the as-built conditions
- Plots of sample cross sections
- Maps for the updated HEC-2 study showing the new floodplain boundaries and floodway
- Input/output listings of HEC-2 run for as-built conditions of channel
- Forms required by FEMA including Certification by Registered Professional Engineer, Riverine Hydraulic Analysis, etc.
- Responses to questions from FEMA and Baker Engineers during the review process
- Making revisions and providing additional information if requested from FEMA resulting from the review.

#### 1.16 Preliminary Water Quality Technical Studies Memo (Applicable to

Segments A & B only)

A Preliminary Water Quality Technical Studies Memo will be prepared for the preferred project to discuss alternative temporary and permanent Best Management Practices (BMP's) to protect water quality during and after completion of construction works. The memo will be prepared in compliance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit # CAS000002, the NPDES Municipal Permit # CAS0108758, and the City of Chula Vista Development Storm Water Manual, and included as an appendix to the Project Report.

1.17 30% Design Submittal (Applicable to Segments B & C only)

The 30% design submittal will be based on the preferred alternative and will include a project title sheet, a sheet list, horizontal control sheet, bridge general plan, bridge foundation plan, roadway plan and profile sheets (Geometric Approval Drawings), grading plans, roadway typical sections, preliminary landscape plan and a preliminary engineer's estimate of probable cost. Utility dispositions will be defined on the bridge foundation plan or on the roadway plan and profile sheets.

The 30% design will be submitted to the City.

Response to comments and comment resolution of the 30% submittal will be performed as part of Task 2. The 30% design submittal will conclude the design effort for Task 1.

1.18 Caltrans Coordination (Applicable to Segments A & B only)

The project must be designed and processed in accordance with the Caltrans Local Programs Manuals to facilitate potential funding from the HBP program. Significant Coordination with the District Local Assistance Engineer and the Structures Local Assistance Engineer will help assure a smooth project that meets the federal funding criteria.

1.18.1 Bridge Sufficiency Rating Analysis

An evaluation of the bridge condition will be completed and compared to the current Caltrans maintenance reports and sufficiency rating (SR). This task includes a detailed visual field review of the bridge condition. Recommendations that could change the SR will be formalized in a project memo along with any noted structural or geometric deficiencies.

1.18.2 Project Funding Analysis

We will assist the City with securing HBP funding by drafting preliminary paperwork required to nominate the bridge for inclusion into the HBP program, (most likely as a rehabilitation candidate). We will advise the City as to other potential funding sources that may be used for this project.

1.18.3 Replacement vs. Rehabilitation Letter

Once the bridge becomes eligible for rehabilitation through the HBP program, we will assist the City in preparing a letter to justify to Caltrans and FHWA that the bridge should be replaced. This letter



will address the deficiencies of the existing bridge and describe why replacing the bridge is the best option.

1.19 NEPA / CEQA Environmental Documentation (Applicable to Segments A & B only)

The following scope of work is based on the assumption that a single document is developed that will satisfy both CEQA and NEPA requirements. Moreover, the required technical reports will be prepared as single document unless otherwise instructed to satisfy both the NEPA federal lead agency requirements as well as the City of Chula Vista requirements as lead agency for CEQA. It is further assumed for purposes of this scope of work, but not conclusively at this time, that the joint document will be an Initial Study (IS) pursuant to CEQA and an Environmental Assessment (EA) pursuant to NEPA. The City and Caltrans will provide a format and recent example for the EA/IS.

1.19.1 Field Review / PES

We will attend a Field Review of the project site with City and CALTRANS District 11 staff as necessary. If necessary, we will review and revise, the current version of the Preliminary Environmental Studies (PES) form, with the input of the Project Design Team (PDT), The PES form identifies (and confirm) the anticipated documentation necessary pursuant to NEPA. We will prepare a CEQA Initial Study Checklist which will be used to determine the appropriate environmental document and what technical studies will be required pursuant to CEQA and the City of Chula Vista local ordinances. The draft PES form will be submitted to Caltrans. After any necessary revisions are incorporated, the final signed PES form will be forwarded for signature. The draft initial study checklist will be submitted to City of Chula Vista environmental staff for review and approval.

1.19.2 Project Impact Area (PIA)/Area of Potential Effect (APE)

A) The PIA will be prepared in consultation with Caltrans and will be based on all anticipated pre-construction and construction activities.

B) An APE map will be developed in consultation with the City and CALTRANS for obtaining project approval through CALTRANS/FHWA. This map will provide the survey boundaries for cultural resources evaluated during project studies. The APE map will be based on the total anticipated disturbance footprint associated with project activities (e.g., road construction, staging areas, detours, drainage facilities, and adjacent parcels should any additional right-of-way be required). The APE will incorporate within its boundaries all the limits of the PIA.

1.19.3 Environmental Data Collection

Existing conditions data will be collected from site visits and through identification of relevant secondary data sources such as the City General Plan, MSCP, Subarea Plan, and SANGIS database.

#### 1.19.4 Technical Studies

##### 1.19.4.1 Visual Impact Assessment

We will prepare a Visual Impact Assessment (VIA) that evaluates the visual impact of the project improvements from several key viewpoints. The FHWA Visual Impact Assessment for Highway Project guidelines shall be followed to quantify the visual analysis. This assessment shall describe the existing visual characteristics of the area involving the interchanges and vicinity, and any significant visual resources. The potential visual impacts from project construction and use of the widened and/or replaced bridge will be evaluated through the use of ground level photographs from viewpoints near the project site. Visual conditions and project impacts shall be quantified as required in the VIA guidelines for highway projects. Mitigation measures shall be recommended, if necessary, to reduce any significant impacts.

The visual quality report would include view shed maps and character/quality unit mapping and typical photos of the adjacent visual environment. It would include mass diagram/model wire-frames for each of the alternatives being considered. These wire-frames would be added over site photos. Detailed visual simulations will be done for the preferred project. Multiple views will be included of the preferred alternative. An existing photo, proposed unmitigated and a mitigated version would all be provided. The VIA will be prepared under the supervision of a licensed Landscape Architect.

##### 1.19.4.2 Historic

See Cultural Resource Studies under Task 1.20.4.9.

##### 1.19.4.3 Biology

The Natural Environmental Study (NES) will be prepared consistent with U.S. Department of Federal Highway requirements as implemented by Caltrans. Discussion of sensitive wildlife and plant species will be done within the context of the City's MSCP Subarea Plan, Wetlands Protection Program (WPP) and the Habit Loss and Incidental Take (HLIT) ordinance. The tables and text will need to reference whether the species are covered, and will describe the appropriate management requirements for each species. This includes, but is not limited to, restrictions for timing for clearing, implementing protective measures and adjacency guidelines for the species' habitat, and providing the requisite habitat-based mitigation. The mitigation should be identified based on the ratios provided in the MSCP Subarea Plan that governs that particular area of impact.

It is assumed that the project will not result in a net impact to wetlands and that all wetland impacts will be mitigated on-site or at an approved wetland mitigation bank. Work to identify and plan for off-site mitigation is not anticipated in this scope of work.

The following tasks will be performed:

- Arroyo toad and western spadefoot toad habitat. Although nocturnal presence surveys for arroyo toad and spadefoot toad may not be needed, the biological report will need to contain an assessment of the project impact area of the Otay River watershed to determine whether it contains suitable habitat for the arroyo toad and the western spadefoot toad. The three characteristics most commonly associated with arroyo toad breeding habitat include: 1) sandy channel substrate, 2) adjacent open sandy terraces, and 3) channel braiding, all of which are associated with low stream gradients. The western spadefoot toad habitat primarily consists of lowlands, sandy washes and river floodplains. This information will need to be included within a list of potential sensitive species that could occur within the project area and incorporated into the appendices of the biological report. Surveys for arroyo toad and western spadefoot toad are not included in this scope and fee.
- Perform protocol surveys for least Bell's vireo and southwest willow flycatcher. A total of eight surveys would be conducted for the least Bell's vireo, at least ten days apart between April 10th and July 31st; and a total of five surveys would be conducted for the southwestern willow flycatcher, over three separate time periods (one survey between May 15th to May 31st, one survey between June 1st and June 21st, and three surveys between June 22nd and July 17th). Within 45 days of the last field survey, a letter report summarizing the survey findings would be submitted to the USFWS and CDFG
- Perform protocol surveys for coastal California gnat catcher. Include a description of the Biological Survey Area for this species and a map that shows the buffer area.
- Permitted biologist(s) will conduct protocol surveys, in accordance with current USFWS protocol survey requirements within potentially suitable habitat areas for the federally listed endangered quino checkerspot butterfly. As required by federal permit, a Notice indicating the initiation of protocol surveys on the project site would be submitted to USFWS 10 days prior to the first survey. Within 45 days of the last field survey, a letter report summarizing the survey findings will be submitted to the USFWS. Costs associated with this task are based on the assumption that 5 protocol surveys would be conducted. If quino are not found during the first 5 surveys, then protocol surveys would continue until the end of flight season and each additional survey would be billed on a time

and materials basis.

- Permitted/supervised biologists will conduct turtle trapping surveys over consecutive days within each trapping location during the pond turtle's breeding season to potentially determine presence. If a western pond turtle is captured during trapping effort, it will be reported to CDFG through submission of a California Native Species Field Survey form or similar reporting format, as required by the Scientific Collectors Permit.
- The biological report shall contain an assessment of the PIA to determine if appropriate habitat exists for the clapper rails. If it is determined that appropriate habitat exists for clapper rails then Protocol Surveys utilizing prescribed USFWS methods, taking into account the season and aural and visual surveys, will need to be performed. Surveys for clapper rails are not included in the present scope and fee.
- Perform focused surveys for Chula Vista narrow endemic species. If detected, the project would be subject to the provisions for narrow endemic species pursuant to the City's MSCP Subarea Plan.
- Perform rare plant surveys in May and July in order to coincide with the blooming periods of potentially occurring sensitive species. The report shall also include a table that identifies the vegetation communities and land cover types by name and acreage within the study area. Late season surveys will need to be performed to detect late blooming sensitive and/or special status species. Discuss why species with low or medium potential are not to be further considered any further, specifically those listed as threatened or endangered by the state or federal government.
- Perform a wetland delineation using the currently accepted U.S. Army Corps of Engineers (ACOE) delineation manual. This delineation will be used to determine project impacts and in support of the Section 404 permit required from the UCOE. The City of Chula Vista's Wetlands Protection Program (WPP) shall be referenced in the appropriate Regulatory Requirement Section. Any wetlands identified by the biological report shall be reviewed in order to determine whether these are considered wetlands as defined by the City's WPP. Wetland resources shall be mitigated pursuant to the mitigation standards contained in the City's MSCP Subarea Plan.
- Prepare a Natural Environment Study (NES) consistent with Caltrans requirements. The NES will describe the biological resources of the project area, quantify project impacts, and recommend mitigation measures to offset those impacts. The NES will address two to three project alternatives and it is anticipated that the City, Caltrans and FHWA will require revisions. Fully describe the relationship between the City of

Chula Vista and Caltrans in regards to this project. In particular, explain the federal action involved with the proposed project. The report will incorporate a quantifiable evaluation of expected indirect impacts associated with noise, lighting, drainage, toxic substances, and spread of invasive species.

- Prepare a conceptual restoration plan to mitigate for project impacts. The plan will identify the type of plants, planting densities, irrigation and long-term monitoring requirements.
- Consult with the USFWS on an informal basis during design of the project in order to obtain a favorable Biological opinion pursuant to Section 7 of the federal Endangered Species Act as may be required by the federal government.

#### 1.19.4.4 Noise

It is assumed that the project is a Type I project as defined by 23 CFR 772. We will prepare a Noise Study in accordance with Caltrans Traffic Noise Analysis Protocol. Noise measurements shall be conducted at sensitive receptors in the four quadrants of the existing river crossing/proposed bridge structure area, and at nearby locations as necessary to define existing traffic noise levels and to calibrate the traffic noise model. Future traffic noise will be predicted using Caltrans SOUND32/SOUND2000 or equivalent. Preparation of a Noise Abatement Decision Report is not proposed at this time. The noise study will also include a separate evaluation of construction noise. Noise originating from construction equipment will be evaluated with respect to relevant federal and municipal standards.

In addition to complying with federal noise standards, the noise report will also comply with the City of Chula Vista Noise Control Ordinance. The noise measurements used in the noise report shall be calibrated and comply with both federal and City of Chula Vista standards and methods for assessing and mitigating any potential noise impacts.

A Noise Abatement Decision Report (NADR) will also be prepared. The NADR will (1) summarize the conclusions of the Noise Study; (2) present the preliminary noise abatement decision; and (3) present preliminary information on any secondary effects of noise abatement.

#### 1.19.4.5 Traffic

A traffic study using the results of the traffic analysis from Section 1.9 will be incorporated into the environmental technical studies. Two review cycles are assumed for the noise study.

#### 1.19.4.6 Water Quality Technical Report

The Water Quality Technical Report (WQTR) shall comply with the requirements of the City of Chula Vista Development Storm Water Manual.

The report shall provide a Best Management Practices (BMP) Plan with suitable scale to show Drainage Management Areas (DMA's) and locations of proposed BMP's. The BMP Plan shall demonstrate that runoff from all project areas are treated before discharge to the river.

The WQTR shall address hydromodification and potential impacts to downstream erosion and habitat integrity. Mitigation measures shall be proposed to prevent such impacts. A project specific Storm Water Pollution Prevention Plan (SWPPP) will be developed. The project construction and post construction Best Management Practices will be outlined and described in the environmental documents. The WQTR shall identify responsible persons for maintenance of all treatment control BMP's and establish a maintenance procedure and schedule for each treatment control BMP. An estimate shall be included for the annual cost of post-construction BMP maintenance.

#### 1.19.4.7 Hydraulic and Drainage Study / Floodplain Evaluation Report

A hydraulic study using the 2, 50- and 100-year floods adopted by FEMA for the existing bridge profile and the adjusted bridge profile will be prepared by the consultant. The report will conform to Caltrans standards and requirements.

The results obtained from the Hydrologic/Hydraulic analysis performed in Tasks 1.7 and 1.15 will be incorporated into the environmental technical studies as a Floodplain Evaluation Report.

A technical report will be prepared. This report will document the background, methods of study, findings and recommendations to prepare the construction documents for the final configuration of the bridge.

#### 1.19.4.8 Initial Site Assessment (Hazardous Materials)

We will prepare an Initial Site Assessment (ISA) in accordance with Caltrans' procedures. We will conduct an agency records search to identify all hazardous waste sites located within the project study area and classified as a hazardous waste site under State law. The records search shall also identify business types located within the project study area that would be likely to store, transfer, or utilize large quantities of hazardous materials. This information shall be obtained from records maintained by the State of California Department of Health and Regional Water Quality Control Board, and other appropriate agencies.

We will conduct a visual survey of the project area via available public access to identify any obvious area of hazardous waste contamination.

If hazardous waste sites are identified within the project study area, we will determine the potential impact to the project and identify subsequent procedures to determine the extent of contamination and remediation requirements. Historic land use information for the project study area shall be requested from the City to determine whether previous uses may have resulted in hazardous waste contamination.

A draft ISA shall be submitted to the City and Caltrans for review. We will revise the ISA as necessary, and submit a final ISA for Caltrans and City of Chula Vista approval.

#### 1.19.4.9 Air Quality Study

We will prepare an air quality assessment for the project. Conformity with the Clean Air Act for regional operational emissions will be demonstrated by documenting that the project is consistent with the air quality analysis of the SANDAG Regional Transportation Improvement Program and Regional Transportation Plan. Local emissions will be addressed in accordance with Caltrans Transportation Project Level Carbon Monoxide (CO) Protocol.

Construction-related emissions will be estimated and compared with CEQA and NEPA conformity guidelines. Dust control requirements and abatement measures consistent with City and SCAQMD policies and regulations will be included in the analysis.

The air quality analysis will address the applicability of the City's Growth Management Ordinance and Carbon Dioxide Reduction Plan, as applicable to the project.

The analysis of local CO emissions is dependent on detailed traffic data, which will be determined for the project. The Air Quality report will include an evaluation of Green House Gas emissions. The Air Quality report will also determine if the project is regionally significant in order to determine if CO Protocol analysis will be required. The Air Quality report will reference the most recent Mobile Source Air Toxics Guidance Memorandums from FHWA. Two review cycles are assumed for the Air Quality Study.

#### 1.19.4.10 Cultural Resource Study/ Paleontological Resource Assessment

An archaeological records search will be conducted to identify prehistoric and historic archaeological sites recorded within one mile of the project area, as well as the locations of previous cultural resource studies.

Native American Consultation: The scope of work for this task includes the following:

- Request a Sacred Lands Search from the Native American Heritage Commission, and obtain a list of Native American representatives who will be contacted

- Prepare letters to each of the above representatives
- Contact each tribe to confirm receipt of the letter and determine if they will comment on the project

We have assumed that the tribes will not comment. If we do receive comments, the additional work may include; responding to the comments, meeting with the tribes to discuss, or developing a mitigation approach. This additional effort is not included in the current scope.

**Field Survey:** Upon receipt and review of the records search an archaeological field survey will be conducted of the project area under the supervision of a qualified archaeologist. The field investigation will use standard intervals of 10 to 15 meters. Special attention will be given to relocating previously recorded sites, which have been identified by the records search.

**Report Preparation:** An Archaeological Survey Report (ASR) and a Historic Properties Survey Report (HPSR) meeting Caltrans standards will be completed. The reports will be prepared to document the results of the records search and intensive field survey. The reports will provide background cultural history for the project area, discuss survey methods, and identify any cultural resources located on the project site and impacts that would occur to those resources. Additionally, a report for the City of Chula Vista detailing the results of the study will be completed.

No subsurface testing, significance evaluation, or data recovery or significance evaluation will be conducted. Subsurface testing may be required under Caltrans guidelines if previously recorded sites are not relocated during survey due to poor visibility or other circumstances. In the event that cultural resources found on the project site cannot be avoided through project design or mitigation, testing may be required to fully evaluate significance. Under these circumstances, a revised scope and cost estimate will be prepared. If evaluation of cultural or historical resources is required a Historic Resource Evaluation Report (HRER) and/or Archaeological Resource Evaluation Report (ARER) meeting Caltrans standards will be prepared and appended to the HPSR.

The Paleontological Resource Assessment will commence by conducting a paleontological records search in the Department of Paleontology at the San Diego Natural History Museum. The records search will identify all paleontological sites recorded within one mile of the project area. In addition to the records search, a review will be conducted of previous paleontological studies in the area.

**Field Survey:** Upon completion of the paleontological records search and literature survey, a paleontological field survey will be conducted of the project area under the supervision of a qualified professional paleontologist. Special attention will be given to



inspection of bedrock exposures and to relocating any previously recorded sites.

Report Preparation: A Paleontological Identification Report (PIR) meeting Caltrans standards will be completed. In the event the PIR identifies on-site sensitive paleontological resources, a Paleontological Evaluation Report (PER) and a Paleontological Mitigation Report (PMP) meeting Caltrans standards will be prepared. Additionally, a report for the City of Chula Vista detailing the results of the study will be completed.

No subsurface testing or data recovery or significance evaluation will be conducted as part of this proposal.

#### 1.19.5 Initial Study Checklist

The IS Checklist will be prepared in accordance with CEQA Guidelines. A draft Initial Study Checklist will be transmitted to City staff for their review. Comments received will be incorporated into the final environmental document. If there is substantial evidence that the proposed project may have a significant effect on the environment, then a draft EIR will be prepared. If it is determined that an EIR will be required then, the City will provide consultant with a different set of instructions and guidelines for initiating and preparing an EIR document.

#### 1.19.6 Prepare Draft EA/IS

We will prepare an EA/IS in conformance with the Caltrans document template dated March 2004. The EA/IS will satisfy CEQA and NEPA Guidelines.

The Draft EA/IS will incorporate the findings of the technical studies described above, and will be submitted to the City and Caltrans for review. It is anticipated that three rounds of document review by City and Caltrans will be required. An additional set of revisions will be incorporated subsequent to FHWA review, for a total of four rounds of document review. It is anticipated that comments provided for each subsequent review will be focused and will not contradict comments previously provided and incorporated into the prior submittals.

We will revise the Draft EA/IS per comments received from FHWA and prepare copies of the EA/IS for Caltrans submittal to FHWA for signature and approval to circulate the document for public review.

#### 1.19.7 Environmental Checklist

#### 1.19.8 We will prepare the FHWA NEPA checklist to accompany the transmittal of the draft NEPA/CEQA document and the supporting technical studies for transmittal to the FHWA. Public Review EA/IS

We will prepare a draft public distribution list per input from the City, Caltrans, and FHWA. The EA/IS shall be circulated for public review per the distribution list, once the list has been

approved by the City, Caltrans, and FHWA. City staff will prepare and publish a Notice of Availability and Opportunity for public hearing. The draft Response to Comments shall be prepared for submittal to the City, and FHWA, via Caltrans.

#### 1.19.9 Respond to Comments

We will coordinate the preparation of responses to comments received as a result of public distribution of the EA/IS. Each team member will prepare responses for its areas of responsibility. We will number individual comments and preliminarily assign team members to prepare responses based on areas of responsibility. The numbered comment letters and assignments will be distributed to the team members for concurrence with assignments. We will coordinate the preparation of responses with the City, and Caltrans within their respective areas of responsibility. We will assemble all responses into a comprehensive draft response to comments volume. We assume that no more than ten comment letters with no more than 100 total comments are received on the Draft EA/IS and that the comments do not raise issues that require additional field work, redesign, or recirculation of the draft EA/IS (note that each letter typically includes many comments). A draft version of the complete responses will be prepared for submittal to the City, Caltrans, and FHWA, via Caltrans. Revisions will be made subsequent to review by these entities.

#### 1.19.10 Prepare Final EA/IS

We will prepare a Final EA/IS, including revisions based on responses to comments received during the public review period, for submittal to the City, Caltrans, and FHWA (via Caltrans) for review.

As part of the process for the Final EA/IS, we will file a Notice of Determination (NOD), and if desired by FHWA, prepare a Finding of No Significant Impact (FONSI) for the EA component of the Final EA/IS. We will provide the approved EA/IS to the City of Chula Vista.

#### 1.19.11 Public Hearings and Meetings

The environmental consultant's Project Manager, as well as relevant technical staff, will be available for up to three public hearings or meetings.

#### 1.19.12 Environmental Permits

##### 1.19.12.1 ACOE Nationwide Permit (404)

It is assumed that the project will qualify for a Nationwide Permit under the Army Corps of Engineers Nationwide Permit Program. Consultant shall prepare and submit the application package;

containing an application for a 404 permit, cover letter, appropriate supporting documents, required graphics and pre-construction notification (PCN).

1.19.12.2 CDFG Streambed Alteration Agreement (1601)

We will prepare and submit a Section 1601 Streambed Alteration Agreement request to the CDFG for project impacts to areas under CDFG jurisdiction. The package shall contain an application for the 1601 permit, cover letter, and appropriate supporting documents.

1.19.12.3 RWQCB Water Quality Certification (401)

We will prepare and submit a 401 Water Quality Certification application to the RWQCB if a Section 404 ACOE permit is required. The package shall contain the application for 401 certification, cover letter and appropriate supporting documents. We assume the City of Chula Vista will be responsible for paying the application fee for the 401 Certification.

1.19.12.4 Permit Processing

We will assist the City in applying for the relevant permits subject to the limitations of this scope of work.

We will provide responses to reasonable requests from regulatory agencies that are within the scope of the overall investigations and meet with agency staff as requested to facilitate permit issuance.

We will request draft permits, review draft conditions and advise the City as to the general implications of these conditions to the construction cost and schedule. We will generally assist the City to develop alternative designs that provide a similar level of resource protection, but are less restrictive to constructability. However, detailed changes to project impact footprints or design will require additional work, which are not included this scope.

**DELIVERABLE MATRIX**

**TASK 1 - PRELIMINARY ENGINEERING**

<b>TASK NO.</b>	<b>DESCRIPTION</b>	<b>NO. OF COPIES</b>
1.7	Preliminary HEC/RAS Analysis (Hydraulic Study)	1
1.8	Preliminary Foundation Report	1
1.9	Traffic Assessment Report	2 + 2
1.10.4	Preliminary Cost Estimate	1
1.11.1	HEC/RAS Analysis (Hydraulic Study)	1
1.11.2	Bridge Advanced Planning Study	1
1.11.4	Visual Simulations	Up to 3 Visual Simulations

<b>TASK NO.</b>	<b>DESCRIPTION</b>	<b>NO. OF COPIES</b>
1.13	Geotechnical Investigation	1
1.14	Bridge Type Selection Report	10
1.14	Final Type Selection Report	10
1.15.1	Hydraulic Evaluation	1
1.15	Final Hydrology Report	1
1.15.6	Bridge Scour Analysis	1
1.16	30% Design Submittal Plans	6-full size and 6-11x17 size
1.16	30% Preliminary Engineer's Estimate	1
1.17	Preliminary Water Quality Technical Study	1
1.18.1	Bridge Sufficiency Rating Analysis	1
1.18.2	Project Funding Analysis	1
1.18.3	Replacement vs. Rehabilitation Letter	1
1.19.1	Draft Environmental Studies (PES)	1
1.19.1	Final Environmental Studies (PES)	1
1.19.2	Area of Potential Effect (APE) Map	1
1.19.4.1	Visual Impact Assessment (VIA)	Up to 4 Visual Simulations
1.19.4.3	Natural Environmental Study (NES)	4
1.19.4.4	Noise Study & NADR	2 EA
1.19.4.5	Traffic Study	2
1.19.4.6	Water Quality Technical Report (WQTR)	3
1.19.4.6	Draft Storm Water Pollution Prevention Plan (SWPPP)	3
1.19.4.6	Floodplain Evaluation Report	3
1.19.4.7	Draft Initial Site Assessment Report (ISA)	1
1.19.4.7	Final Initial Site Assessment Report (ISA)	2
1.19.4.8	Air Quality Assessment	3
1.19.4.9	Archaeological Survey Report (ASR)	3
1.19.4.9	Historic Properties Survey Report (HPSR)	3
1.19.4.9	Paleontological Identification Report (PIR)	3
1.19.5	Draft Initial Study Checklist	1
1.19.6	Draft EA/IS	60 total 15 sets/4 submittals (*)
1.19.6	EA/IS	4 (*)
1.19.7	FHWA NEPA Checklist	1
1.19.8	EA/IS Draft Public Distribution List	Up to 40 copies (*), 10

TASK NO.	DESCRIPTION	NO. OF COPIES
		CD's
1.19.9	Response to EA/EIR Public Comments	1
1.19.10	Final EA/IS	60 total 15 sets/4 submittals (*)
1.19.10	Notice of Determination (NOD), Finding of No Significant Impact (FONSI) for Final EA/IS	20 copies, master photo ready copy, CD
1.19.12.1	ACOE Nationwide Permit (404)	1 (*)
1.19.12.2	Section 1601 Streambed Alteration Agreement	1 (*)
1.19.12.3	401 Water Quality Certification Application	1 (*)

Notes: (\*) Technical Reports will be provided on CD Meeting, coordination & support "deliverables" not shown.

## 2.0 TASK 2 - Final Design

Once we have approval of the type selection and environmental clearance, we can begin final design. This task includes the development of the construction documents - ready plans, specifications and estimate (PS&E). Specifications and details will be prepared in English units in a format compatible with Land Development Desktop 3/Civil 3D 2011 or above. We have assumed that all plan view layout sheets will be developed in accordance with City of Chula Vista CADD standards. Detail sheets will be completed in a uniform format consistent with industry standards but will not necessarily include specific line weight or layering conventions as defined by the City of Chula Vista. We will provide submittals at the 65%, 95% and 100% levels.

### 2.1 Project Management and Administration (Applicable to Segments A & B only)

This task includes project management and administration during the final design as noted above.

### 2.2 Project Meetings (Applicable to Segments A & B only)

Up to eighteen Team meetings with the City of Chula Vista are assumed and budgeted during this task. These will be held at the City's office approximately every month. The following table provides our assumption for meeting attendance:

Meeting Description	Consultant Team								
	M&N	DHA	BRG	LLG	Chang	EMI	Aguirre	KTU+A	SRA
Team Meeting #1	X		X	X			X	X	X
Team Meeting #2	X								
Team Meeting #3	X								
Team Meeting #4	X		X						
Team Meeting #5	X								
Team Meeting #6	X								
Team Meeting #7	X		X						
Team Meeting #8	X								
Team Meeting #9	X								
65% Design Review	X	X	X	X	X	X	X	X	X

95% Design Review	X		X				X	X	
100% Design Review	X								
Totals:	12	1	5	2	1	1	3	3	2

2.3 Final Foundation Report (Applicable to Segment B only)

Prepare a report presenting our findings and our conclusions and recommendations regarding the geotechnical aspects of constructing the proposed bridge, retaining walls and roadway widening. Recommended foundation design criteria including bottom of footing elevations and bearing capacities or pile tip elevations and lateral pile capacities will be included. The report will be prepared in accordance with the Caltrans document entitled, "Foundation Report Preparation for Bridges," dated December 2009. A Log of Test Borings sheet in Caltrans format (but transferred to a City title block) will also be provided. Recommended grading specifications, temporary slope criteria, liquefaction evaluation, groundwater conditions, seismic design criteria, retaining wall design criteria, excavation characteristics including any necessary over excavation and re-compaction areas or embankment surcharges, R-values of subgrade material and the structural section of each road segment using the latest traffic index will be included in the report. Once the draft report has been reviewed by the City of Chula Vista and the design team, comments will be addressed and a final version of the report will be submitted.

2.4 Bridge Design and Detailing (Applicable to Segment B only)

This task includes the design and detailing of the bridge based on Caltrans manuals and procedures. We have assumed a three-span cast-in-place, pre-stressed concrete, haunched box girder bridge in estimating our design scope. The bridge is assumed to include two stages with a closure pour near the center median. The design effort for other alternatives may require a revision to our scope and fee estimate.

2.4.1. Bridge Design Calculations

Prepare the bridge design calculations based on *AASHTO LRFD, Bridge Design Specifications, Fourth Edition with California Amendments* (with revisions available on the Caltrans Publications web site). The design calculations and details will also follow the guidelines in the Caltrans Bridge Design Aids, Bridge Memo to Designers and Bridge Design Details (versions available on the Caltrans Publications web site as of January 2011).

2.4.2. Bridge Seismic Design

Prepare seismic analysis and design in accordance with Caltrans SDC version 1.555, dated September 2009.

2.4.3. Unchecked Bridge Plans

Prepare "unchecked" bridge plans. Bridge plans are assumed to include the following sheets:

<b>Sheet #</b>	<b>Sheet Name</b>
1	<i>General Plan</i>
2	<i>General Notes</i>
3	<i>Deck Contours</i>
4	<i>Foundation Plan</i>
5	<i>Abutment 1 Layout</i>
6	<i>Abutment 2 Layout</i>
7	<i>Abutment Details No. 1</i>
8	<i>Abutment Details No. 2</i>
9	<i>Bent Details No. 1</i>
10	<i>Bent Details No. 2</i>
11	<i>Bent Details No. 3</i>
12	<i>Typical Section</i>
13	<i>Superstructure Geometry</i>
14	<i>Girder Layout No. 1</i>
15	<i>Girder Layout No. 2</i>
16	<i>Girder Details No. 1</i>
17	<i>Girder Details No. 2</i>
18	<i>Miscellaneous Details No. 1</i>
19	<i>Miscellaneous Details No. 2</i>
20	<i>Architectural Details</i>
21	<i>Structure Approach Details</i>
22	<i>Structure Approach Drainage Details</i>
23	<i>Joint Seal Details</i>
24	<i>Log of Test Borings No. 1</i>
25	<i>Log of Test Borings No. 2</i>
26	<i>Log of Test Borings No. 3 (As-built log of test borings)</i>

2.5 Bridge Architectural Details (Applicable to Segment B only)

For the purpose of estimating the effort in this task, it has been assumed that a three-span haunched girder bridge will be designed, and that only basic aesthetic details will be developed. These basic details will be limited to shaping of the girder and piers, standard form-liner textures and concrete stain. The project architect will provide general guidance and minimal conceptual sketches only.

Custom aesthetic details such as shaping of the abutments, design of special abutment landings, design of pier overlooks or “belvederes”, design of custom barriers, railings, lighting and other special details may be appropriate, but have not been included in the base scope.

2.6 Not used.

2.7 Roadway Improvements (Applicable to Segments A & B only)

Roadway improvement plans will include pavement sections and other above ground appurtenances. The anticipate sheet list is as follows:

<b>Sheet #</b>	<b>Sheet Name</b>
1	<i>Details</i>

2.8 Not used.

2.9 Signing and Striping Plans (Applicable to Segments A & B only)

The signing and striping plan sheets will be prepared. The anticipate sheet list is as follows:

<b>Sheet #</b>	<b>Sheet Name</b>
1	<i>Signing and Striping Plan</i>
2	<i>Signing and Striping Details</i>

2.10 Not used.

2.10.1 Not used.

2.11 Landscaping Plans

This task includes the preparation of the landscaping plans. It is assumed that the landscaping will include hydroseeding of the new embankment slopes and revegetation of the disturbed areas within the river with native species. Only native trees, shrubs and ground covers will be used.

Existing native plant materials will be preserved and protected and invasive non-native species will be removed when feasible. A survey of existing trees and shrubs will be prepared to include location, type, size and general health. This information will be evaluated and incorporated into the final design as appropriate.

Since only native species will be used, no irrigation will be required. The special provisions will provide for a plant establishment period.

2.11.1. Field Work

Visit the project site to identify site-specific issues, photograph the site, and take a soil sample for horticultural analysis. Identify the general locations of plant materials, and identify any special treatments to meet mitigation requirements.

2.11.2. Final Landscape Plans

Prepare final construction documents for the planting and erosion control. The planting plans will identify the species and location of all proposed plant materials. A plant material legend will include the botanical and common names, quantities, container size and minimum height and spread of the plants at the time of installation. The locations and areas to be hydroseeded will be identified and the type of hydroseed mixes to be used will be specified. A preliminary sheet list includes the following:



<b>Sheet #</b>	<b>Sheet Name</b>
1	Site Plan No. 1
2	Site Plan No. 2
3	Planting Plan No. 1
4	Planting Plan No. 2
5	Landscape Legend
6	Landscape Details

2.12 Not used.

2.13 Not used.

2.14 Traffic Signal Modifications (Applicable to Segment B only)

Traffic signal modification design plans (if required) will be prepared for the three traffic signals along Heritage Road including Main Street and Entertainment Circle South and North. The anticipated sheet list is as follows:

<b>Sheet #</b>	<b>Sheet Name</b>
1	Signal Plan

2.15 Street and Bridge Lighting Plans (Applicable to Segments A & B only)

Lighting plans will be prepared for the street and bridge lighting along Heritage Road between Main Street and Entertainment Circle and on Main Street from the west confirm point easterly to the new Heritage intersection. City standard luminaires will be used along the street and if desired, architectural luminaires will be used on the bridge. The bridge luminaires will be a standard design that is selected from a lighting catalog. The anticipated sheet list is as follows:

<b>Sheet #</b>	<b>Sheet Name</b>
1	Lighting Plan
2	Lighting Details No 1
3	Lighting Details No 2

2.16 Final Design Surveys (Applicable to Segments A & B only)

Fifty (50) foot cross sections will be obtained along Heritage Road between Main Street and Entertainment Circle. Fifty (50) foot cross sections will also be obtained along Main Street from 100 feet west of Heritage Road to approximately 300 feet east of Heritage Road. Cross sections of the abutment slopes will also be obtained.

Existing driveways along Heritage Road between Main Street and Entertainment Circle will also be profiled. The driveway profiles will extend into the existing parking lots to determine the existing drainage patterns.

The east and west edges of the existing bridge deck will be surveyed at the joints and approximately every 25 feet.

Potholing of existing utilities that may be in conflict or where proposed connections are anticipated will be performed. A maximum of 8 potholes have been budgeted.

2.17 QA/QC (65%, 95% and 100%) (Applicable to Segments A & B only)

An in-house QA/QC review will be performed by the Project Manager and/or the Principal-in-Charge for each design submittal, including subconsultants' work, to assure a high-quality and complete design package. We will also perform a detailed plan review and independent review of the bridge plans as described in Task 2.22.

2.18 65% Design Submittal (Applicable to Segments A & B only)

The 65% Design Submittal will include completed but "unchecked" bridge plans, civil, roadway plans, traffic, landscape, and lighting plans developed to a 65% design level of completion. The submittal will also include a outline of the technical specifications and a preliminary list of bid items as prepared in Tasks 2.23 and 2.24. The submittal will be made to the City of Chula Vista.

2.19 Review and Respond to 65% Comments (Applicable to Segments A & B only)

Our team will review and respond to comments received from the City Chula Vista and Caltrans. We will also review and respond to comments received from the effected utility companies. Our response will be in written form.

2.20 Bridge Independent Review (Applicable to Segment B only)

Since this project is not within Caltrans right-of-way, an independent check of the bridge design including complete structural calculations is not required. Thus, for this task we have budgeted for an independent plan review by a senior bridge engineer who was not involved with the initial design.

The design review will focus on the capacity of main load carrying members and a detailed review of plans utilizing a similar bridge for comparison. A set of marked up plans and comments regarding any substantial issues found with the 65% design will be provided. The review comments will be resolved with the designer and revisions incorporated in the 95% submittal.

2.21 Technical Specifications (Applicable to Segments A & B only)

Technical specifications for the bridge items will follow the Caltrans Standard Specifications and Standard Special Provisions (SSP's). The technical specifications for the roadway, landscape and lighting items will be developed using the Standard Specifications for Public Works Construction (Greenbook).

An outline of the technical specifications (index of SSP's) will be provided at the 65% submittal.

Technical specifications will be prepared for the 95% submittal and updated for the 100% submittal.

The City of Chula Vista will merge the technical specifications into their boilerplate and prepare the final bid documents.

2.22 Quantities, Estimate and Bid Item List (65%, 95% & 100%) (Applicable to Segments A & B only)

A preliminary list of bid items will be provided at the 65% submittal.

For the 95% submittal, quantities will be calculated and independently checked for each major item of work in accordance with the procedures in Section 11 of the Caltrans Bridge Design Aids. Items typically bid on a lump-sum basis (landscaping, lighting, traffic control, bridge removal and prestressing) will be quantified by individual component. Once the quantities have been resolved, a unit price will be applied based on the current Caltrans Cost Data, local and site specific conditions and engineering judgment. The resulting estimate will be factored up to include mobilization, contingency and inflation factors (as appropriate).

For the 100% submittal, the quantity calculations and cost estimate will be updated and a final bid item list will be provided for the City's use in the bid documents.

2.23 95% PS&E Submittal (Applicable to Segments A & B only)

We will respond to the comments made at the 65% submittal and advance the plans and specifications to a 95% level of completion. The 95% PS&E submittal will include all plan sheets in a completed format, special provisions and the engineer's estimate as performed in Tasks 2.23 and 2.24. We will also provide hydraulic calculations, scour calculations, and bridge design calculations. The submittal will be made to the City.

2.24 Review and Respond to 95% Comments (Applicable to Segments A & B only)

We will review and respond to comments received from the City of Chula Vista and Caltrans. We will also review and respond to comments received from the effected utility companies. Our response will be in written form.

2.25 100% PS&E Submittal (Applicable to Segments A & B only)

The 100% PS&E submittal will include bid ready plans, specifications and engineer's estimate based on comments received from the 95% submittal. The submittal will be made to the City of Chula Vista.

Upon approval of the 100% submittal, final deliverable will include a CD with the project design file(s) along with one set of signed and stamped 24" x 36" mylars.

A resident engineer's (RE) pending file with copies of the quantity summary sheets, bridge 4-scale plots and other data to be transferred from design to construction will be provided as part of the bid and construction support in Task 3.

**DELIVERABLE MATRIX**  
**TASK 2 - PRELIMINARY ENGINEERING**

TASK NO.	DESCRIPTION	NO. OF COPIES
2.3	Final Foundation Report	1
2.4.1	Bridge Design Calculations	1
2.4.3	Unchecked Bridge Plans	1
<del>2.13</del>	Not used.	4
2.18	65% (Unchecked) Plans	1 pdf
2.18	65% Technical Specifications Outline	1
2.19	65% Response to Comments	1
2.21	95% Technical Specifications	1
2.22	95% Engineer's Estimate (Quantity & Cost)	1
2.23	95% Plans	1 pdf
2.23	Hydraulic and Scour Calculations	1
2.23	Bridge Design Calculations	1
2.23	Bridge Independent Review Comments	1
2.24	95% Response to Comments	1
2.25	100% Plans	1 pdf
2.25	100% Technical Specifications	1
2.25	100% Engineer's Estimate (Quantity & Cost)	1
2.25	Final Plans	One set of signed and stamped 24"x36" Mylars
2.25	Final Submittal - Project Design Files	CD

Note: Meeting, coordination & support "deliverables" not shown.

**3.0 TASK 3 - Bidding and Construction Support** (Applicable to Segments A & B only)

Provide construction engineering services and administration duties throughout project construction. These services generally include monthly meetings, bid support, construction change orders as well as the following:

- Attend pre-bid meeting
- Respond to bidder RFI's
- Assist City with review of bids
- Attend pre-con meeting
- Respond to contractor RFI's
- Attend 16 site visits

- Complete as-built plans from red-lines provided by RE

3. **Term:** In accordance with Section 1.10 of this Agreement, the term of this Agreement shall begin [March 10th 2020] and end on [March 10th 2025] for completion of all Required Services.

4. **Compensation:** [ ]

A. Form of Compensation [ ]

Not-to-Exceed Limitation on Time and Materials.

For performance of the Required Services by Contractor/Service Provider as herein required, City shall pay Contractor for the productive hours of time spent by Contractor in the performance of said Services, at the rates or amounts as indicated below:

Notwithstanding the expenditure by Consultant of time and materials in excess of said Maximum Compensation amount, Consultant agrees that Consultant will perform all Tasks set forth in the Required Services herein required of Consultant for the following total amount:

Task 1	(Preliminary Engineering)	\$	1,896,578.04
Task 2	(Final Design)	\$	1,785,712.00
Task 3	(Construction Support)	\$	<u>133,084.00</u>
Total Contract Amount		\$	3,815,374.04

The amounts identified for Tasks 1, 2, and 3 include all materials, reimbursables, and other costs required to complete the Required Services. The amounts identified for Tasks 1, 2, and 3 do not include payments already made to Consultant prior to entering into this 3rd Amendment.

To date, payments to Consultant under this Agreement total \$2,030,060.03, leaving a total contract amount balance of \$ 1,785,314.01 (“Maximum Compensation Amount”).

Notwithstanding any of the foregoing, the maximum amount to be paid to Consultant performed during the term of this Amendment shall not exceed the Maximum Compensation Amount.

Consultant shall not perform any additional work without written authorization and approval by the City.

**RATE SCHEDULE**

The above referenced Hourly Rates include both the Actual Costs and the Fixed-Fee. The Hourly Rates identified in EXHIBIT B are supported by the figures and calculations in Exhibit C – “Fee Schedule”.

**Reimbursement for “Other Direct Costs” (ODC).**

A. **Equipment Costs**

The Consultant shall not be reimbursed for the purchase of any equipment that has not been authorized by the City.

- (1) Prior authorization in writing, by the Local Agency's Contract Manager shall be required before the Consultant enters into any unbudgeted purchase order, or subcontract exceeding **\$5,000** for supplies, equipment, or Consultant services. The Consultant shall provide an evaluation of the necessity or desirability of incurring such costs.
- (2) For purchase of any item, service or consulting work not covered in the Consultant's Cost Proposal and exceeding **\$5,000** prior authorization by the Local Agency Contract Manager; three competitive quotations must be submitted with the request, or the absence of bidding must be adequately justified.
- (3) Any equipment purchased as a result of this contract is subject to the following: "The Consultant shall maintain an inventory of all nonexpendable property. Nonexpendable property is defined as having a useful life of at least two years and an acquisition cost of **\$5,000** or more. If the purchased equipment needs replacement and is sold or traded in, the Local Agency shall receive a proper refund or credit at the conclusion of the contract, or if the contract is terminated, the Consultant may either keep the equipment and credit the Local Agency in an amount equal to its fair market value, or sell such equipment at the best price obtainable at a public or private sale, in accordance with established Local Agency procedures; and credit the Local Agency in an amount equal to the sales price. If the Consultant elects to keep the equipment, fair market value shall be determined at the Consultant's expense, on the basis of a competent independent appraisal of such equipment. Appraisals shall be obtained from an appraiser mutually agreeable to by the Local Agency and the Consultant, if it is determined to sell the equipment, the terms and conditions of such sale must be approved in advance by the Local Agency."

**B. Other Direct Costs for Travel (Airfare and Rental Vehicle)**

The Consultant shall be reimbursed for these ODC Items at actual costs supported by invoices and receipts. Reimbursement for airfare shall be for Economy Class or equivalent only.

**C. Other Direct Costs for Printing (Miscellaneous and Outside Reproduction), Courier Services, Reproduction Supplies, and Potholing**

The Consultant shall be reimbursed for these ODC Items at actual costs supported by outside venter invoices and receipts.

**D. Other Direct Costs for Printing (Documents and Mylar, Color, Vellum and Bond Plots)**

The Consultant shall be reimbursed for these ODC Items at actual costs supported by outside vender invoices and receipts. In-House Printing/Reproduction costs shall not be reimbursed as direct costs.

- E. Other Direct Costs for Travel (Per-Diem-lodging, per Diem-meals, & incidentals, Internet and Mileage)

The Consultant and/or subconsultants shall not be reimbursed for ODC for the above Travel items.

- F. All subconsultants with contracts in excess \$25,000 shall contain the above provisions.

**5. Special Provisions:**

Permitted Sub-Contractor/Service Providers:

Aguirre & Associates  
BRG Consultants, Inc.  
Dewberry | Drake Haglan  
Earth Mechanics, Inc.  
KTU+A  
Linscott, Law & Greenspan Engineers  
Safdie Rabines Architects  
Avila and Associates  
River Focus Inc.