Chandler - Arizona
Where Values Make The Difference

PURCHASING ITEM
FOR
COUNCIL AGENDA
Memo No. CA12-057

1. Agenda Item Number: 27

2. Council Meeting Date: October 27, 2011

TO: **MAYOR & COUNCIL**

THROUGH: **CITY MANAGER**

3. Date Prepared: October 3, 2011

4. Requesting Department: Municipal Utilities

5. SUBJECT: Award a project agreement to Black & Veatch for design of Ocotillo water transmission main from Dobson Road to McQueen Road, Project No. WA1201-201, in an amount not to exceed $298,175 contingent upon written notification from Intel and appropriate funding and authorize an increase to the annual contract EN1003-103 to Black & Veatch, from $750,000.00 to $850,000.00.

6. RECOMMENDATION: Staff recommends Council award a project agreement to Black & Veatch for design of Ocotillo water transmission main from Dobson Road to McQueen Road, Project No. WA1201-201, in an amount not to exceed $298,175 contingent upon written notification from Intel and appropriate funding and authorize an increase to annual contract EN1003-103 to the Black & Veatch, from $750,000.00 to $850,000.00.

7. BACKGROUND/DISCUSSION: Staff recommends addition of a new water transmission main to serve future system demands in southwest Chandler. This new water main will connect the existing water transmission main system on McQueen Road to facilities on South Dobson Road. This pipe is needed to insure good water pressures and redundancy of supply in that area. The new transmission main will follow the same alignment of the new force main that Black & Veatch is designing in Ocotillo Road from the Ocotillo Water Reclamation Facility (OWRF) to the Airport Water Reclamation Facility (AWRF).

The construction of the new water transmission main will be added to the force main construction package. It will be constructed using the Construction Manager @ Risk method and will be contracted separately.

8. EVALUATION: On May 26, 2011 Council approved annual contract EN1003-103 to Black & Veatch for permitting, assessment, and design of water and wastewater facilities. This is the first year of this annual agreement with the option of four one-year extensions. Staff reviewed the scope of work, billing rates, and total fee for this project, compared them to historical costs, and determined they are reasonable.

9. FINANCIAL IMPLICATIONS:

Cost:	$298,175
Savings:	N/A
Long Term Costs:	N/A

Fund Source:

Acct. No.:	Fund Name:	Program Name:	CIP Funded:	Amount:
605.3820.0000.6712.12W076	Water Operating	Transmission Mains	FY 2011-12	$298,175

10. PROPOSED MOTION: Move to approve a project agreement to Black & Veatch for design of Ocotillo water transmission main from Dobson Road to McQueen Road, Project No. WA1201-201, in an amount not to exceed $298,175 contingent upon written notification from Intel and appropriate funding and authorize an increase to annual contract EN1003-103 to the Black & Veatch, from $750,000.00 to $850,000.00; and authorize the Mayor to sign the contract documents.

ATTACHMENTS: Project Agreement, Location Map

APPROVALS	
11. Requesting Department John Knudson, Utilities Engineering Manager	**13. Department Head** Dave Siegel, Municipal Utilities Director
12. City Engineer Sheina Hughes, City Engineer	**14. City Manager** Rich Dlugas

PROJECT AGREEMENT
PURSUANT TO ANNUAL CONTRACT NO. EN1003-103

AGREEMENT NO: WA1201-201

This AGREEMENT is made this _____ day of _____ 2011, by and between the City of Chandler, a municipal corporation (hereinafter referred to as "CITY") and Black & Veatch Corporation, a Delaware Corporation licensed to do business in the state of Arizona (hereinafter referred to as "Annual Consultant") and is a project agreement entered into pursuant to Annual Contract No. EN1003-103.

CITY and Black & Veatch Corporation, in consideration of the mutual covenants herein set forth, agree as follows:

ARTICLE 1. DESCRIPTION OF WORK

This project is Ocotillo Water Transmission Main Design, Project Number WA1201-201. The scope of work consists of design services for Ocotillo Water Transmission Main from Dobson Road to McQueen Road, all as more particularly set forth in Exhibit A attached hereto and incorporated herein by reference.

The Annual Consultant shall not accept any change of scope, or change in contract provisions, unless issued in writing, as a contract amendment and signed by the Contract Administrator.

ARTICLE 2. CONTRACT PRICE

CITY shall pay Annual Consultant for completion of the Work in accordance with the Contract Documents a fee not to exceed Two Hundred Ninety Eight Thousand One Hundred Seventy Five Dollars ($298,175) determined and payable as set forth in Annual Contract EN1003-103 and Exhibit B attached hereto and made a part hereof by reference.

ARTICLE 3. CONTRACT TIME

The contract time is Seven Hundred Thirty days and Annual Consultant agrees to complete all work within Seven Hundred Thirty (730) days of the date CITY issues a Notice to Proceed.

ARTICLE 4. GENERAL

This Project Agreement is entered into pursuant to Annual Contract No. EN1003-103 and the terms and conditions contained therein are incorporated herein by reference as if set forth in full.

ARTICLE 5. ARIZONA PROCUREMENT LAW

Compliance with A.R.S. § 41-4401. Pursuant to the provisions of A.R.S. § 41-4401, the Consultant hereby warrants to the City that the Consultant and each of its subcontractors ("Subconsultants") will comply with all Federal Immigration laws and regulations that relate to the immigration status of their employees and the requirement to use E-Verify set forth in A.R.S. §23-214(A) (hereinafter "Consultant Immigration Warranty").

A breach of the Consultant Immigration Warranty (Exhibit C) shall constitute a material breach of this Contract that is subject to penalties up to and including termination of the contract.

The City retains the legal right to inspect the papers of any Consultant or Subconsultant employee who works on this Contract to ensure that the Consultant or Subconsultant is complying with the Contractor Immigration Warranty. The Consultant agrees to assist the City in the conduct of any such inspections.

The City may, at its sole discretion, conduct random verifications of the employment records of the Consultant and any Subconsultant to ensure compliance with Contractors Immigration Warranty. The Consultant agrees to assist the City in performing any such random verifications.

The provisions of this Article must be included in any contract the Consultant enters into with any and all of its subcontractors who provide services under this Contract or any subcontract. "Services" are defined as furnishing labor, time or effort in the State of Arizona by a consultant or subconsultant. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property.

In accordance with A.R.S. §35-393.06, the Consultant hereby certifies that the offeror does not have scrutinized business operations in Iran.

In accordance with A.R.S. §35-391.06, the Consultant hereby certifies that the offeror does not have scrutinized business operations in Sudan.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first written above.

This Agreement will be effective on this _____day of_____, 2011.

CITY OF CHANDLER

_____
MAYOR DATE:

ADDRESS FOR NOTICE
City of Chandler
P.O. Box 4008, Mail Stop 407
Chandler, AZ 85244-4008
480-782-3307

APPROVED AS TO FORM:

_____
City Attorney

ATTEST:

_____
City Clerk

FOR THE ANNUAL:

By: _____
Title: Vice President

ADDRESS FOR NOTICE
Ms. Lisa Jackson
Black & Veatch
3133 E. Camelback Rd., Ste. 210
Phoenix, AZ 85016

Phone: 602-381-4400
Fax: 602-381-4440

EXHIBIT A
SCOPE OF WORK

INTRODUCTION

Intel is expanding its facility located at Dobson Road and Ocotillo. Additional water supply is needed for the expanded facility. The purpose of this project is to provide a new water transmission pipeline located from a tie-in to the San Tan Vista WTP Reservoir Transmission system at the intersection of McQueen Road and Ocotillo Road west along Ocotillo Road then south along Dobson Road to just past the south entrance to the expanding Intel facility. The project also includes a tie-in to the City's existing South Dobson Reservoir.

The total estimated length of the pipeline for this scope is 24,000 feet of estimated 24-inch diameter pipeline and 2,250 ft of 16 inch diameter pipeline. The pipeline material of construction will be cement mortar lined ductile iron pipe.

The tie-in to the water pipelines at McQueen Road and Ocotillo Road includes two buried butterfly valves the motor actuators in valve vaults. The valve motor actuators will be remotely control via PLC and radio communication. There will be up to two PLCs, one-per valve, each located in an air conditioned enclosure located along public right of way. The PLC programming integration will be completed by Jens Jensen per the City of Chandler PLC programming standards. Jens Jensen is a subconsultant to Black & Veatch.

Construction of this project will be performed by a Construction Manager at Risk (CMAR) delivery method. The City will select the CMAR Contractor during the design phase of the project.

This scope is an extension of, and amendment to the Ocotillo Force Main Project. It is assumed that the water transmission line will be in the Ocotillo Road right of way and will follow the same general alignment as the Ocotillo Force Main except the extension between the canal and McQueen Road and the portion of the proposed transmission line that is along Dobson Road across the eastern frontage of the Intel facility located at Dobson Road and Ocotillo Road.

TASK 100 – PRELIMINARY DESIGN PHASE / DATA COLLECTION

The preliminary design phase includes those task needed to take the project to Level 1 (30 percent complete) design drawings and specifications.

The Preliminary Design includes the following tasks.

101 Hydraulic & Surge Analyses

The work proposed consists of analyzing the system hydraulics together with the system operation/control to review the proposed transmission line expansion to Intel. This will also include an analysis of transient conditions which may develop due to the operation of the automated valve to be located at the intersection of Ocotillo Road and McQueen Rd. The conditions to be analyzed include both existing and future San Tan Vista Pumping Capacity.
A hydraulic model will be built by B&V; it will be based on the EPANET model provided by the City of Chandler. This model will also include full control and transient capabilities.

Review of System Operation: B&V will review system operation to gain a clear understanding of the detailed mode of operation and control philosophy of both existing and future systems under all proposed flow conditions. This understanding will serve to establish a range of operating scenario required to test the proposed transmission line expansion.

Steady State Analysis: The pressure and flow requirements to Intel will be provided by the City for input into the model. Both existing and future pumps at the San Tan Vista will be reviewed to assess if they can meet these requirements. Pressure class and pipe diameters will be determined for the new section of the transmission line. Potential flow or pressure restrictions will be identified along the existing or already planned sections of the transmission line.

Transient Analysis: Potential surge conditions which may occur in the system as a result of pump and valve operations will be reviewed. The model will include all dynamic characteristics of the system (pump curves, horsepower, rpm and inertia, valve flow curves, check valves, actuated valves, pipe wave speed and tank storage).

The evaluation will consist in defining operation time (opening and closure) of the proposed Intel automated valve and reviewing pump failure and start-up at San Tan Vista SWTP with potential surge impact through the new pumping system.

Operation and Control Philosophy: The current control philosophy of the Zone 2 Reservoir Transmission System is relatively elaborated and unique. Initially it will be assessed if the new supply to Intel can be achieved with minimum impact to the existing system operation and control. Then recommendations will be made to achieve the best integration of this new supply branch to the overall control scheme.

Technical Memorandum: The results of the hydraulic and surge analysis will be summarized in a technical memorandum. Results will be used for the final selection of the new pipeline diameter and the isolation valve closure time.

102 Geotechnical Investigations and Report

The subsurface geotechnical investigation currently underway for the new Ocotillo Force Main will be extended to include those areas between McQueen Road and the canal and along Dobson Road between the intersection of Jacaranda and Dobson Road and to the south entrance of the Intel facility located at Dobson Road and Ocotillo Road. The geotechnical investigation will characterize subsurface conditions along these areas of the pipeline alignment. It is assumed rock will not be encountered along the alignment. The work includes layout, drilling, and surveying of 8 additional soil borings along the pipeline alignment, field soils testing, collection of soil samples, laboratory testing including moisture content, grain size analysis, consolidation, unconfined compression, direct shear, proctor compaction, swell, pH, and chlorides. If rock is encountered during the sampling work, additional rock coring and testing will be added to scope. This will be in addition to the level of effort currently included

Soil resistivity surveys will be conducted along the pipeline alignment at intervals of approximately 3,000 feet using the Wenner 4-pin method to measure the electrical resistivity of the soil in accordance with ASTM G57. Soil samples collected for corrosion studies shall be analyzed for pH, resistivity, sulfide reaction, oxidation/reduction, and chloride. The electrical resistivity of the samples shall also be measured and correlated with the results of the field resistivity survey. The results of the soil resistivity testing will be incorporated in the corrosion evaluation task.

The results of the field investigations and testing will be analyzed and recommendations for water transmission embedment, trench backfill, soil preparation, compaction, excavation effort and any other required soil mitigation measures. The geotechnical report will also include a description of site geology and subsurface conditions. The geotechnical information for the water transmission line will be incorporated into the geotechnical report for the Ocotillo Force Main.

103 Not Used

104 Aerial Mapping and Surveying

Aerial mapping and field surveying for the force main will be extended on the east and west side of the alignment for the proposed water transmission pipeline. Aerial imagery and mapping shall include no less than 10 feet outside of the right-of-way when the pipeline alignment is within an arterial roadway or 50 feet each side of the alignment when crossing unimproved ground. Aerial mapping will include generation of topographic contours at 1 foot intervals.

Land surveying for the pipeline alignment will be performed to identify detailed visible items not presented in aerial mapping such as valves, meters, fences, major landscaping and trees, visible utilities, power poles, manholes, and other visible planimetry. Blue Stake will be contacted and if they provide paint marks for underground utilities, these paint marks will be located by field survey, and included in the detailed topographic mapping.

Data collected through aerial mapping and field survey will be compiled into the base topographic map. All mapping will meet National Map Accuracy Standards.

105 Utility Engineering & Potholing

Utility engineering and potholing for the force main will be extended on the east and west side of the alignment for the proposed water transmission pipeline. Engineer will coordinate and assemble data relevant to the utilities engineering work associated with the pipeline along the final alignment chosen by the City. The ASCE "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" CI/ASCE 38-02 provides a rational basis for establishing the level of effort expended and detail provided for buried utilities on plans. All subsurface utility data will be depicted to Level D as defined in ASCE 38-02.

Copies of the project maps will be sent to utility companies, and their record drawings and special design, construction, and right-of-way requirements will be solicited. Submittal and schedule requirements associated with obtaining permits from utilities will be investigated. Using available information, the horizontal and vertical (where available) locations of the utilities will be recorded. Additionally, the size and type of material of the pipelines or cables, and whether they are cathodically protected will be determined from available information.

Based on the above, Engineer will identify utilities which may conflict with the pipeline and identify critical pothole locations. The "potholing" of these locations will be coordinated with the Engineer's potholing subconsulant and surveying subconsultant and will be completed during the early stages of final design; for budget purposes, costs are included for up to 5 potholes located in unpaved areas and 20 potholes located in paved areas.

Engineer will maintain a utility coordination file which will provide a listing of contacts made and summary of discussions.

106 Pipeline Alignment Refinements

Using the results of the utility coordination, potholing, survey, and geotechnical report, the pipeline alignment and design requirements will be refined to maintain appropriate offsets with other utilities, minimize major utility crossings, and aid constructability. Once the City has approved of the alignment refinement, preliminary design for the Drawings and Specifications will commence.

107 Right-of-Way and Easement Identification

It is assumed that the proposed pipeline will be inside existing right-of-ways. There are no additional right-of-ways or easement anticipated or included in the scope of services for the transmission pipeline.

108 Pipeline Crossings Design

Four major crossings have been identified that will require trenchless construction methods. These are Arizona Avenue, Alma School Road, the Union Pacific Rail Road and the SRP Canal. The particular type of tunneling method will depend on the geotechnical evaluation, and the physical characteristics of the crossing. Preliminary details will be developed for these crossings including location of boring and receiving pits and casing details if applicable.

109 Pipeline Basis of Design

The proposed Force Main Basis of Design Report will be expanded to include the water transmission pipeline basis of design information.

110 Pipeline Level 1 (30 Percent) Design Drawings and Specifications

Engineer will develop the Level 1 (30 percent) design drawings for the water transmission pipeline. Including 25 plan and profile sheet, additional drawing sheets with details for the valve connections at McQueen and Ocotillo Roads, water pipeline details, valve vault structure, and electrical and control system design. It is assumed that the specifications for the Force Main will be expanded to include the proposed water transmission pipeline equipment and materials. The Level 1 (30 percent) design drawings and specifications will include.

- Preliminary plan and profile drawings for the entire pipeline at final design scale (1 inch = 40 feet horizontal, 1 inch = 5 feet vertical). These drawings will show pipe centerline (with control), parcel boundaries, identified right-of-way, major utility, road, drainage and irrigation ditch crossings, and the location of major pipeline appurtenances.
- Temporary construction and permanent easement limits.
- Preliminary drawings of standard pipe details.
- Preliminary plan and profile and details for the trenchless construction installation of pipeline crossings.
- Depth of cover.
- Pipeline protection requirements such as concrete encasement.
- Deflection angles and bends.
- Longitudinal and transverse separations to adjacent pipelines and utilities.
- Preliminary specifications including:

- Pipeline materials
- Pipeline casing pipe (if applicable)
- Trench excavation and backfill

The drawing and specification deliverable for the transmission pipeline will be combined with the drawings and specifications for the Ocotillo Pump Back Force Main (one submittal and bid package).

The Level 1 documents will be reviewed by the Engineer for quality control and constructability. Comments received will be incorporated into the Level 1 submittal.

This Scope of Work is based on the assumption that traffic control plans for construction within existing roadways will be the sole responsibility of the Contractor(s) within his construction means and methods. Traffic control engineering and plans are not included with this scope. The requirements of the traffic control relative to jurisdictional agency requirements will be included in the project specifications.

This Scope of Work is based on the assumption that pavement removed for the pipeline construction will be replaced with a tee-top type pavement. It does not include complete re-pavement of the roadway.

Deliverable

The following will be submitted at the 30 percent preliminary design level: Contract drawings – five (5) sets of ½-sized drawings; contract specifications – five (5) sets.

Review comments received from the City will be noted in a comment resolution document and where appropriate incorporated into the Level 2 design.

150 Corrosion Evaluation

Engineer will perform an investigation along the final alignment to determine the corrosion potential along the pipeline route. Sources of corrosion that will be considered are soils, water, and stray electrical currents from protected buried pipelines. The potential for electrical coupling with existing electrical power transmission lines will also be evaluated. Preliminary recommendations for corrosion protection and mitigation of electrical coupling will be identified. The following activities will be performed:

- Review Existing Information and Alignment Reconnaissance. Review existing pipelines and power transmission lines in the vicinity of the proposed alignment. Review soil characteristics for corrosion potential.
- Evaluate Stray Current Interference. The potential for stray direct current interference from existing cathodic protection systems in the vicinity of pipeline alignment will be evaluated. Owners of facilities with cathodic protection systems, such as natural gas pipelines, will be contacted to determine current output and the location of rectifiers in the vicinity of the identified pipeline and facilities.
- Evaluate Electrical Coupling. The potential for electrical coupling between the new pipeline and any high-voltage power transmission lines in the immediate vicinity will be assessed. This task will include a preliminary assessment of the need for further modeling studies and mitigation of induced voltage in the pipeline due to operation of any power line. Preliminary recommendations for grounding or other requirements for corrosion protection and personnel safety during operation of the pipeline will be included.
- **NOTE:** It is assumed that the force main will be HDPE and the corrosion allowance included in the level of effort estimate will be applied for this task for the proposed water transmission pipeline.

TASK 200 – FINAL DESIGN

Final Design will commence with the City's acceptance of the Level 1 design. The Final Design phase work is divided into three (3) principal subtasks: 60 percent Design Submittal, 90 percent Design Submittal, and the Final Drawings and Specifications.

201 Level 2 (60 percent) Pipeline Design Submittal

This subtask includes the preparation of the 60 percent Design Submittal. Engineer will advance the design and design documents from the preliminary design level to the 60 percent level of design by performing design

calculations, preparing layouts and details, and updating the contract drawings and specifications. Design development will include:

- Plan & profile drawings with the majority of appurtenances, permanent and temporary construction easements shown.
- Pre-final pipeline appurtenance detail sheets.
- Trenchless construction plans, sections and details.
- Trenchless construction staging areas delineated.
- Pipeline connection details.
- Corrosion control plans and Level 2 details

- Preliminary specifications for pipe and pipeline appurtenances including:
  - Pipeline schedules
  - Valve schedules
  - Pipeline materials,
  - Pipeline installation
  - Pipeline Pressure testing
  - Pipeline casing pipe (if applicable)
  - Trench excavation and backfill
  - Trenchless construction

The Level 2 documents will be reviewed by the Engineer for quality control and constructability. Comments received will be incorporated into the Level 2 submittal. A QC comment resolution document will be prepared.

Deliverable

The following will be submitted at the 60 percent preliminary design level: Contract drawings - five (5) sets of ½-sized drawings; contract specifications – five (5) sets.

Review comments received from the City will be noted in a comment resolution document and where appropriate incorporated into the Level 3 design.

202 Level 3 (90 percent) Pipeline Design Submittal

Engineer will advance the design and design documents from the 60 percent level of design to the 90 percent level of design by performing design calculations, preparing plans and details, and completing specifications. Design development will include:

- Plan & profile drawings with the appurtenances, permanent and temporary construction easements shown.
- Complete the pipeline appurtenance detail sheets.
- Complete trenchless construction plans, sections and details.
- Delineation of trenchless construction staging areas and temporary easements.
- Pipeline connection details.
- Corrosion control plans, schedules, and details.
- Pipeline schedules.
- Complete technical specifications.

The Level 3 documents will be reviewed by the Engineer for quality control and constructability. A QC comment resolution document will be prepared.

Deliverable

The following will be submitted for each bid package at the 90 percent preliminary design level: Contract drawings – five (5) sets of ½-sized drawings; contract specifications – five (5) sets.

Review comments received from the City will be noted in a comment resolution document and where appropriate incorporated into the Final design.

203 Final Design Submittal
Comments received during the 90 percent design review will be incorporated into the final contract documents. Completed contract drawings and specifications originals will be delivered to the City for final review. Following the incorporation of any additional comments, these contract documents will be signed and delivered to the City as camera-ready contract documents.

Deliverable

The following will be submitted: Contract drawings – one set of signed/sealed full-sized drawings; contract specifications – one digital pdf of the signed and sealed final design submittal.

TASK 300 – CMAR CONTRACTOR COORDINATION

301 GMP Review
Engineer will assist the City with the review of the Contractor's Guaranteed Maximum Price (GMP) Proposal at the 60% and 90% Submittal stages.

302 Design Coordination
Participation by the CMAR Contractor in the Design Review Workshops and submittal review process is expected. Written submittal review comments provided by the Contractor will be addressed in the following submittal where appropriate. Other CMAR design coordination includes:

- Answering CMAR technical questions
  - Construction cost estimates will be prepared by the CMAR Contractor. Consultant will answer questions regarding the work being designed.
  - The Pipeline Construction Project Schedule will be developed throughout the design phase by the CMAR. Consultant will provide input into the schedule by identifying key design milestones.

Construction Phase Services such as submittal reviews, responses to Contractor RFI's, and preparation of facility O&M manuals is not included in this Scope of Services. This work would be provided under a separate contract.

TASK 400 – PROJECT COORDINATION

401 Coordination with other Consultants
This subtask covers the coordination of design activities with Intel's water supply engineer for the connections of the new 24-inch transmission line to Intel's water supply system and the South Dobson Reservoir. Such coordination will be by meeting, email or telephone exchange. Information exchanged will be recorded and tracked as part of the project documentation.

402 Permitting
Engineer will coordinate with and prepare all documentation to apply for Maricopa County Environmental Services Department (MCESD) Approval to Construct. Permit fees will be paid by the City. Engineer will submit permit documentation for the Approval to Construct

Engineer will provide information such as alignment, plans and profiles in support of the City's application for a Union Pacific Railroad Pipeline License. It is assumed the City will prepare all Licensing forms and application and pay all license fees for crossing the Union Pacific Railroad.

The CMAR will be responsible for applying for and obtaining all Arizona Pollution Discharge Elimination System (AZPDES) Construction General Permit (CGP) (AZPDES Permit No. AZG2003-001 including a Stormwater Pollution Prevention Plan (SWPPP) and a Notice of Intent (NOI) for the pipeline.

403 Design Review Workshops
In addition to the monthly progress meetings, design review workshops will be held to receive and discuss the City's and CMAR's comments relative to design-related submittals. This will include the following:

- 30 percent Design Submittal
- 60 percent Design Submittal
- 90 percent Design Submittal

Documents to be discussed at the meetings will be submitted to the City as soon as they are available prior to the meeting.

Draft bid package review comment summaries and action items listings will be prepared for City review within one week of the meeting for the City's review; following receipt of the City's comments on the bid package review comment summaries and action items listings, the project team will prepare the comment resolution summary documents.

404 Right of Entry Agreements
Additional Right of Entry (ROE) Agreements are not anticipated for the water transmission pipeline work.

TASK 500 – PROJECT MANAGEMENT

The purpose of the project management task is to manage the efforts of project team members and subconsultants; coordinate the project design and progress with the City's staff; coordinate internal QA/QC procedures; and otherwise direct work so as to ensure satisfactory completion of work elements on schedule and within budget. Minimal additional project management is anticipated.

501 Project Administration
Engineer will provide the City with monthly progress reports. Each progress report will contain the following information: a description of work completed in the last month, percentage of task completion, key issues identified, and any requests for information that are outstanding. Informal project administration meetings, e-mail, and phone contact will be maintained with the City's Project Manager between regular monthly reports. Minimal additional project administration is anticipated.

502 Project Management Work Plan
No additional project work plan effort is anticipated.

503 Project Drawing Standards
No additional project work plan effort is anticipated.

504 Progress Meetings
Project progress meetings will be conducted on a monthly basis. Progress meeting will be held at the City's Public Works office. Additional meetings may be required and will be conducted via teleconference where appropriate. Progress meetings will be utilized to discuss project technical issues and alternatives, and to keep the City staff informed regarding the status of the work.

Engineer will prepare draft agendas for review by the City In advance for regularly scheduled meetings and workshops. Documents to be discussed at the meetings will be submitted to the City as soon as they are available prior to the meeting.

Draft meeting minutes and workshop notes will be prepared for City review within one week of the meeting; minutes will include an action items log and a decision log. An electronic copy of the draft meeting minutes will be e-mailed to the City's Project Manager.

ALLOWANCES
The following reimbursable expenses will have established allowances for this project:

- Mail and Courier.
- Reproduction.

Assumptions and Clarifications:

The following is a list of assumptions made for the preparation of our scope and level of effort estimate:

1. The 24" line will be a dedicated transmission main.
2. The 24" transmission line will parallel the proposed 36" force main including the alignment in Jacaranda Pkwy. It will tee at Dobson a road (near the retention basin at Cactus Wren) and reduce to a 16-inch main for a northern alignment to the City's S. Dobson Tank. The southern 24-inch transmission line will continue south along Dobson and terminate approximately 100 ft south of the Intel facility south entrance.
3. The 24-inch transmission line will be on separate plan and profile sheets. The total number of extra sheets required including connection details, buried isolation valve vault, electrical and hydraulic profile (excluding PLC design by Jens Jensen) is estimated to be 37 sheets.
4. The preliminary plan & profile sheets will include appurtenance locations. The plan and profile drawings will be prepared on a 1"=40' horizontal scale (approximately 1,000 ft. per sheet) and a 1"=5' vertical scale, with one foot contours.
5. The 24-inch transmission main will have trenchless crossing of the SRP Canal, Arizona Avenue, Alma School Road and the Union Pacific Rail Road.
6. The 24-inch transmission main will be included in the 36-inch force main as once design drawing deliverable to the City of Chandler and the CMAR (one drawing set).
7. The 24-inch transmission main will be included in the 36-inch force main as one submittal to MCESD (one drawing set and one permit).
8. One CMAR for the 24-inch transmission main and the 36-inch force main. Both will be included in one GMP.
9. At the end of the project the AutoCAD version 2008 format design drawings will be provided to the City.
10. The contract specifications will be developed using the City's master front-end documents and Black & Veatch's technical specifications as applicable. The specifications will include the following:
    - City's boilerplate for technical specifications prepared by the City including:
        - Agreement
        - General Conditions
        - Supplemental Conditions
    - B&V Standard Technical Specifications and any required supplemental conditions.
    - City of Chandler Standard Pipeline and Roadway Pavement Replacement Details.
    - All public information / approval will be prepared and provided by others.
11. All permitting fees to be paid by the City of Chandler
12. All traffic control plans to be by the CMAR.
13. Public involvement by others.
14. Any radio path studies for SCADA communications would be by others.
15. Roadway pavements damaged by the construction will be repaired with a tee top matching the existing pavement. Full replacement of the roadway pavement is out of the scope of the design and construction bid document deliverable.
16. The Basis of Design will be combined into one document for the 24-inch transmission main and the 36-inch force main.
17. B&V will coordinate with and prepare all documentation to apply for Maricopa County Environmental Services Department (MCESD) Approval to Construct. Permit fees will be paid by the City. B&V will submit permit documentation for the Approval to Construct.
18. B&V will provide information such as alignment, plans and profiles in support of the City's application for a

Union Pacific Railroad Pipeline License. It is assumed the City will prepare all Licensing forms and application and pay all license fees for crossing the Union Pacific Railroad.

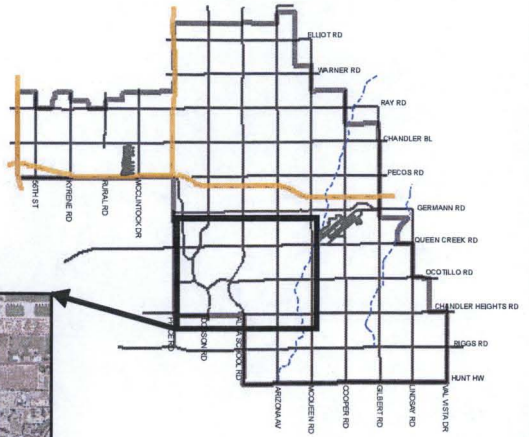
19. The CMAR will be responsible for applying for and obtaining all Arizona Pollution Discharge Elimination System (AZPDES) Construction General Permit (CGP) (AZPDES Permit No. AZG2003-001 including a Stormwater Pollution Prevention Plan (SWPPP) and a Notice of Intent (NOI) for the.

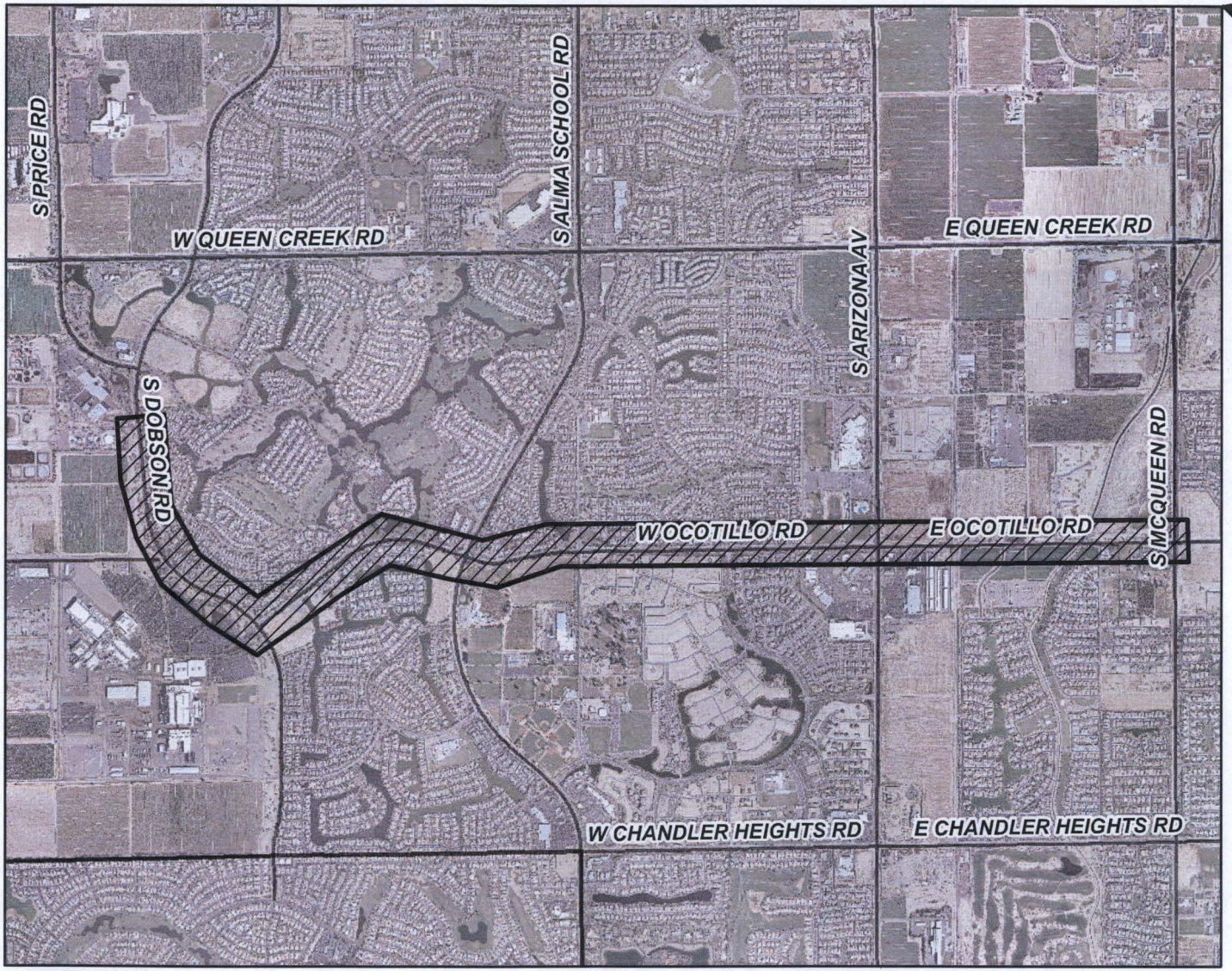
EXHIBIT B
FEE SCHEDULE

Task	Description	Principal	Project Manager	Project Engineer	Assistant Engineer	Engineer Intern	Senior Designer	Designer	CAD Technician	Senior Engineering Technician	Engineering Technician	Senior Construction Manager	Construction Manager	Administrative Assistant	Total
24-Inch Water Transmission Main Design															
Task Group 100 - Preliminary Design and Data Collection															
101	Hydraulic & Surge Analyses	0	8	0	0	8	175	0	0	8	0	0	0	0	199
102	Geotechnical Investigation and Report	0	1	2	0	2	0	0	0	2	0	0	0	0	7
104	Aerial Mapping and Surveying	0	0	0	0	2	0	0	0	4	0	0	0	0	6
105	Utility Engineering and Potholing	0	2	0	0	8	0	0	0	16	0	4	0	0	30
106	Pipeline Alignment Refinements	0	8	0	0	18	0	0	0	36	0	24	0	0	86
107	ROW and Easement Identification	0	2	0	0	8	0	0	0	24	0	16	0	0	50
108	Pipeline Crossing Design	0	4	32	0	12	0	0	0	24	0	16	0	0	88
109	Pipeline Basis of Design (TM2)	2	4	2	0	12	0	0	0	16	0	8	0	4	48
110	Pipeline Level 1 Drawings and Specs	2	8	30	0	80	0	0	0	80	0	160	0	16	396
150	Corrosion Evaluation (use FM Allowance)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Task Group 200 - Final Design															
201	Level 2 Drawings and Specs	0	24	30	0	64	0	0	0	80	0	160	0	6	364
202	Level 3 Drawings and Specs	0	24	16	0	40	0	0	0	50	0	100	0	6	236
203	Final Drawings and Specs	0	16	16	0	30	0	0	0	40	0	80	0	6	188
Task Group 300 - CMAR Contractor Coordination															
301	GMP Review	0	1	4	0	8	0	0	0	20	0	0	0	0	33
302	Design Coordination	0	3	0	0	12	0	8	0	12	0	0	0	0	27
Task Group 400 - Project Coordination															
401	Coordination w/Other Consultants	0	0	0	0	8	0	0	0	0	0	0	0	0	8
402	Permitting	0	0	0	0	8	0	0	0	16	0	4	0	2	30
403	Design Review Workshops	4	4	0	0	4	0	0	0	8	0	0	0	0	20
Task Group 500 - Project Management															
501	Project Administration	0	8	0	0	8	0	0	0	0	0	8	0	8	32
504	Progress Meetings	0	8	0	0	8	0	0	0	16	0	0	0	0	32
Total Hours		8	125	134	0	340	175	0	0	452	0	800	0	48	1982
Expenses															$8,250
Total Basic Services															$248,775
ALLOWANCES															
	Subconsultants														
	Geotechnical Report (Speedie)														$7,000
	Surveying (Black Mountain)														$14,400
	Utility Potholing (Aztec)														$10,000
	Jens Jensen (PLC Design and Integration)														$20,000
Total Allowances															$51,400
TOTAL FEE ESTIMATE															$288,175

Chandler + Arizona

OCOTILLO WATER TRANSMISSION MAIN
PROJECT NO. WA1201-201





MEMO NO. CA12-057

PROJECT SITE

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