



**BOARD OF SUPERVISORS AGENDA ITEM REPORT
CONTRACTS / AWARDS / GRANTS**

☉ Award ○ Contract ○ Grant

Requested Board Meeting Date: 08/01/2017

* = Mandatory, information must be provided

or Procurement Director Award

***Contractor/Vendor Name/Grantor (DBA):**

Achen Gardner Construction, LLC; B&F Contracting, Inc.; KE&G Construction, Inc.

***Project Title/Description:**

Job Order Master Agreement: Wastewater Conveyance System and Related Facilities Maintenance, Repair, Rehabilitation & Construction Services

***Purpose:**

Award: Master Agreement No. MA-PO-18-018. This award of Master Agreement is recommended to the three (3) highest qualified contractors in an annual shared amount not to exceed \$15,000,000.00 for an initial one (1) year agreement term from 08/01/17 to 07/31/18, which may be extended for up to four (4) additional one year terms. Administering Department: Regional Wastewater Reclamation.

Board of Supervisors Policy D 29.4 authorizes the Procurement Director to execute annual renewals in an amount not to exceed the annual amount approved by the Board of Supervisors. This is an indefinite delivery/indefinite quantity job order master agreement. For projects estimated at less than \$200,000.00, the department may select a contractor based on availability, specialty or other such basis as the department may determine in its sole discretion. For projects estimated at \$200,000.00 or more, all contractors will be given the opportunity to compete on the basis of cost or cost and schedule through a request for quotation. No individual job order may exceed \$1,000,000.00.

***Procurement Method:**

Solicitation for Qualifications No. 254554 was conducted in accordance with A.R.S. § 34-604 and Pima County Board of Supervisors Policy D 29.1 as a two-step competitive solicitation. For Step One, five (5) responsive Statements of Qualifications (SOQs) were received and evaluated by a seven (7) member committee using qualifications and experience-based selection criteria. Based on scoring of the SOQs, a short-list of four (4) respondents were invited to oral interviews. After the interview stage, a short-list of three (3) respondents were invited to participate in Step Two. Step Two consisted of a price book/price proposal/scenario evaluation. Scores for Step One and for Step Two were combined to obtain the final scores. Based on the final scores, the final list of the three (3) highest qualified contractors is recommended for award.

Attachments: Notice of Recommendation for Award and Master Agreement.

***Program Goals/Predicted Outcomes:**

This job order master agreement provides Regional Wastewater Reclamation Department the resources to provide construction-related services for the repair, rehabilitation, re-construction and emergency responses to critical components within the public sewer conveyance system.

***Public Benefit:**

The resources provided address critical issues derived from the Conveyance System Assessment Program per requirements from Arizona Department of Environmental Quality (ADEQ) through compliance with the Capacity, Management, Operation & Maintenance (CMOM) plan. The Arizona Aquifer Protection Permit (APP) established the CMOM requirements for Arizona. Through CMOM, Regional Wastewater Reclamation Department is required to provide a system condition assessment of the entire conveyance system every 10 years. This assessment identifies structural and operational issues within the conveyance system. As structural conditions are discovered they are to be repaired or, at a minimum, identified and monitored until further degradation elevates to a point requiring repair. Regional Wastewater Reclamation Department operates the assessment program based on National Association of Sewer Service Companies (NASSCO) standards for condition ratings, i.e., 1 - being good through 5 - being imminent failure.

TO: COB 7-19-17 (L)
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***Metrics Available to Measure Performance:**

1. Monthly review of the contractor progress schedule of ongoing job orders with each job order contractor.
2. Maintenance of a job order management spreadsheet to track monthly and annual number of pipeline point repairs, pipeline Cured In Place Pipe (CIPP) liner installation, manhole repairs and miscellaneous job orders.
3. Monthly review of invoicing status per job order.

***Retroactive:**

No

Contract / Award Information

Document Type: MA Department Code: PO Contract Number (i.e., 15-123): 18-018

Effective Date: 08/01/2017 Termination Date: 07/31/2018 Prior Contract Number (Synergen/CMS): _____

Expense Amount: \$* 15,000,000.00 Revenue Amount: \$ _____

*Funding Source(s) required: Regional Wastewater Reclamation Department Obligations

Funding from General Fund? Yes No If Yes \$ _____ % _____

Contract is fully or partially funded with Federal Funds? Yes No

*Is the Contract to a vendor or subrecipient? _____

Were insurance or indemnity clauses modified? Yes No

If Yes, attach Risk's approval

Vendor is using a Social Security Number? Yes No

If Yes, attach the required form per Administrative Procedure 22-73.

Amendment / Revised Award Information

Document Type: _____ Department Code: _____ Contract Number (i.e., 15-123): _____

Amendment No.: _____ AMS Version No.: _____

Effective Date: _____ New Termination Date: _____

Prior Contract No. (Synergen/CMS): _____

Expense or Revenue Increase Decrease Amount This Amendment: \$ _____

Is there revenue included? Yes No If Yes \$ _____

*Funding Source(s) required: _____

Funding from General Fund? Yes No If Yes \$ _____ % _____

Grant/Amendment Information (for grants acceptance and awards) Award Amendment

Document Type: _____ Department Code: _____ Grant Number (i.e., 15-123): _____

Effective Date: _____ Termination Date: _____ Amendment Number: _____

Match Amount: \$ _____ Revenue Amount: \$ _____

*All Funding Source(s) required: _____

*Match funding from General Fund? Yes No If Yes \$ _____ % _____

*Match funding from other sources? Yes No If Yes \$ _____ % _____

*Funding Source: _____

*If Federal funds are received, is funding coming directly from the Federal government or passed through other organization(s)? _____

Contact: Keith E. Rogers *Keith E. Rogers* 7-17-17

Department: Procurement *May 20 2017* Telephone: 724-3542

Department Director Signature/Date: _____

Deputy County Administrator Signature/Date: *Michaela Lebois* 7/19/17

County Administrator Signature/Date: _____

(Required for Board Agenda/Addendum Items)



NOTICE OF RECOMMENDATION FOR AWARD

Date of Issue: July 14, 2017

The Pima County Procurement Department hereby issues formal notice to respondents to **Solicitation No. 254554 for Job Order Master Agreement: Wastewater Conveyance System and Related Facilities Maintenance, Repair, Rehabilitation & Construction Services** that the following listed respondents will be recommended for award as indicated below. The award action is scheduled to be performed by the Board of Supervisors on or after August 1, 2017.

Award is recommended to the Most Qualified Respondents (listed alphabetically):

AWARDEE NAMES

Achen-Gardner Construction, LLC
B & F Contracting, Inc.
KE&G Construction, Inc.

OTHER RESPONDENT NAMES

The Ashton Company, Inc.
Borderland Construction Company, Inc.

NOTE: Information regarding this solicitation will be disclosed in accordance with A.R.S. § 34-604(H).

Issued by: Keith E. Rogers, CPPB

Telephone Number: 520-724-3542

This notice is in compliance with Pima County Procurement Code §11.20.010(C).

Copy to: Pima County SBE via e-mail at SBE@pima.gov

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT		<table border="1"> <tr> <td colspan="2" style="text-align: center;">CONTRACT</td> </tr> <tr> <td colspan="2">NO. <u>MA-20-18-D18</u></td> </tr> <tr> <td colspan="2">AMENDMENT NO. _____</td> </tr> <tr> <td colspan="2">This number must appear on all invoices, correspondence and documents pertaining to this contract.</td> </tr> <tr> <td colspan="2" style="text-align: center;">(stamp here)</td> </tr> </table>	CONTRACT		NO. <u>MA-20-18-D18</u>		AMENDMENT NO. _____		This number must appear on all invoices, correspondence and documents pertaining to this contract.		(stamp here)	
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AMENDMENT NO. _____												
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(stamp here)												
PROJECT:	JOB ORDER MASTER AGREEMENT: WASTEWATER CONVEYANCE SYSTEM AND RELATED FACILITIES MAINTENANCE, REPAIR, REHABILITATION & CONSTRUCTION SERVICES											
CONTRACTORS:	Achen-Gardner Construction, LLC 550 S 79 th Street Chandler, AZ 85226 B&F Contracting, Inc. 11011 N 23 rd Ave Phoenix, AZ 85029 KE&G Construction, Inc. 5100 S Alvernon Way Tucson, AZ 85706											
AMOUNT:	\$15,000,000.00											
FUNDING:	Regional Wastewater Reclamation Department Obligations											

JOB ORDER MASTER AGREEMENT

This Agreement is entered into between Pima County, a body politic and corporate of the State of Arizona, hereinafter called COUNTY, and Achen-Gardner Construction, LLC, B & F Contracting, Inc. and KE&G Construction, Inc., hereinafter called CONTRACTOR in the singular, CONTRACTORS in the plural, collectively referred to as the Parties.

WITNESSETH

WHEREAS, COUNTY has a need to establish an Agreement with up to three (3) Job Order Contractors for WASTEWATER CONVEYANCE SYSTEM AND RELATED FACILITIES MAINTENANCE, REPAIR, REHABILITATION & CONSTRUCTION Services; and

WHEREAS, COUNTY conducted a competitive qualifications-based procurement for Job Order Contractors under Solicitation #254554; and

WHEREAS, based on an evaluation of the respondents' representations of their qualifications and necessary due diligence, COUNTY selected the three (3) highest qualified contractors as Job Order Contractors; and

WHEREAS, the Job Order Contractors have agreed to be bound by and adhere to the requirements of this Agreement.

NOW, THEREFORE, in consideration of the foregoing recitals and other valuable and good consideration the Parties hereto agree as follows:

TB

ARTICLE 1 – BASIC TERMS

This Master Agreement (Agreement), as approved by the Board of Supervisors commences on August 1, 2017 and terminates on July 31, 2018, unless sooner terminated or further extended pursuant to the provisions of this Agreement. This Agreement establishes the terms under which the Job Order Contractors will be assigned and perform tasks and projects under this Agreement. COUNTY, at its sole discretion, may extend up to four (4) additional one-year terms or add funding to this Agreement at any time with the acknowledgement of the CONTRACTORS.

Individual job orders will be implemented by issuing a Delivery Order (DO) to the selected Job Order Contractor to perform the work. Each DO will be an independent contract that will incorporate and be subject to the terms of this Agreement. The terms "DO", "Job Order", and "Contract" are used interchangeably in this Agreement.

For specific repair and rehabilitation projects anticipated to be valued less than \$200,000.00, the COUNTY will utilize unit price books. For projects anticipated to be valued less than \$200,000.00, the COUNTY may select a Contractor based on availability, specialty, or such other basis or bases as the COUNTY may determine in its sole discretion.

For projects anticipated to be valued \$200,000.00 or more, selection will be based on the responses to a simplified request for quotation covering either cost or cost and schedule from all Job Order Contractors.

Regardless of dollar value, all federally funded Job Orders will be competitively bid among all Contractors.

No individual Job Order may exceed \$1,000,000.00.

These services are subject to the Pima County Code, Title 20, and Chapter 20.04, pertaining to participation of subcontractors. The Pima County SBE Program is a race and gender neutral program established to encourage contracting with all small businesses. A minimum goal of **five percent (5%)** for participation by Small Business Enterprises (SBEs) of the total amount of the annual agreement applies to each Job Order Contractor individually. Only firms listed on the ***City of Tucson Small Business Enterprise Certified Business Directory*** are eligible to meet the SBE goal. The current list of certified SBE firms can be located on the City of Tucson's Procurement Website, <http://www.tucsonprocurement.com/assets/SBEDirectory.pdf>

The CONTRACTOR shall supply a year-to-date subcontractor and SBE utilization report covering the entire master agreement to date to the Pima County Procurement Department, Business Enterprise Coordinator on a quarterly basis. If the Contractor has experienced difficulties in achieving the SBE goal, they may present a Certificate of Good Faith Effort/Request for Waiver at that time.

For projects that are federally-funded, a Disadvantaged Business Enterprise (DBE) goal pursuant to Pima County Code Title 20, must be established for the individual Job Order and does not apply toward the five percent (5%) SBE goal.

Construction completion time for work to be performed under this Agreement will be as stated in individual Job Orders issued under this Agreement. COUNTY will assess Liquidated damages against CONTRACTOR based upon the construction completion time, if so specified in a Job Order.

Each CONTRACTOR will select subcontractors in accordance with CONTRACTOR'S Subcontractor Selection Plan, incorporated herein by reference.

All warranty and indemnification obligations under this Agreement survive expiration or termination of the Agreement, unless expressly provided otherwise. Any indemnification provision inconsistent with A.R.S. § 34-226, is, in all cases, not void, but will be interpreted and applied as if it were consistent with A.R.S. § 34-226.

ARTICLE 2 – SCOPE OF SERVICES

CONTRACTOR will provide for COUNTY all labor, materials and equipment necessary to complete the work identified in individual Job Orders awarded to CONTRACTOR under this Agreement. The scope of work under this Agreement is more fully set forth in **Exhibit “A” Scope of Work (86 pages)**, attached and incorporated herein. All work will be done per specifications called for in Job Orders, **General Conditions, Exhibit “B” (11 Pages), Special Conditions – Multiple Award Job Order Contract, Exhibit “C” (19 Pages)**, and other documents incorporated into this Agreement, all made a part hereof.

ARTICLE 3 – COMPENSATION AND PAYMENT

CONTRACTOR will provide detailed documentation in support of each requested payment. Any payments under this Article do not prevent COUNTY from objecting to charges after payment therefor in appropriate cases, or from seeking reimbursement for any such charges. Payments will be made in accordance with A.R.S. §§ 34-607 and 34-221. CONTRACTOR must cite the Delivery Order number on all invoices.

For the period of record retention required under **Article 24**, COUNTY reserves the right to question any payment made under this Article and to require reimbursement therefor by setoff or otherwise for payments determined to be improper or contrary to the Agreement or law

CONTRACTOR will not perform work in excess of the Delivery Order Amount without prior authorization by an amendment executed by COUNTY. Work performed in excess of the Agreement Amount without prior authorization by amendment is at CONTRACTOR'S own risk.

ARTICLE 4 – FEDERAL FUNDING

COUNTY and CONTRACTOR understand that the Job Orders under this Agreement may be funded partially or entirely through a federal grant or other source of federal funding. For those Job Orders that are identified as being federally funded, Federal Labor Standards will be applicable to that Job Order, and the additional requirements (federal forms) will be attached to and be a part of the Job Order. See **Supplemental Provisions for Federal-Aid Construction Contracts, Exhibit “D” (3 pages)**. CONTRACTOR agrees to be bound by all such requirements and to comply therewith, including the payment of prevailing wages under the Davis Bacon Act (AZ. Wage Decision) Minimum wage rate, withholding, payroll, apprentice, subcontracting, and termination provisions and the Work Hour and Safety Standards Act related to overtime pay and safety.

CONTRACTOR will not subcontract on any federally-funded Job Order with any firm or person listed in the Federal Government's System for Award Management (SAM) system (<https://www.sam.gov/portal/public/SAM>) with an active exclusion.

ARTICLE 5 – INSURANCE

The Insurance Requirements herein are minimum requirements for this Master Agreement and in no way limit, the indemnity covenants contained in this Contract. CONTRACTOR'S insurance shall be placed with companies licensed in the State of Arizona and the insureds shall have an “A.M. Best” rating of not less than A- VII. COUNTY in no way warrants that the minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

5.1 Minimum Scope and Limits of Insurance:

CONTRACTOR will procure and maintain at its own expense insurance policies (the “Required Insurance”) satisfying the below requirements (the “Insurance Requirements”) until all of its obligations under this Master Agreement have been met. The below Insurance Requirements are minimum requirements for this Master Agreement and in no way limit CONTRACTOR'S indemnity obligations under this Contract. COUNTY in no way warrants that the required insurance is sufficient to protect the CONTRACTOR for liabilities that may arise from or relate to this Contract. If necessary, CONTRACTOR may obtain commercial umbrella or excess insurance to satisfy the Insurance Requirements.

- 5.1.1 **Commercial General Liability (CGL)** – Occurrence Form with limits of \$2,000,000 Each Occurrence and \$2,000,000 General Aggregate. Policy shall include bodily injury, property damage, broad form contractual liability coverage, personal and advertising injury and products – completed operations.
- 5.1.2 **Business Automobile Liability** – Bodily Injury and Property Damage for any owned, hired, and/or non-owned automobiles used in the performance of this Master Agreement with a Combined Single Limit (CSL) of \$1,000,000 each accident.
- 5.1.3 **Workers' Compensation (WC) and Employers' Liability** - Statutory requirements and benefits for Workers' Compensation. In Arizona, WC coverage is compulsory for employers of one or more employees. Employer's Liability coverage- \$1,000,000 each accident and each person - disease.
- 5.1.4 **Builder's Risk**- Insurance applies to this Agreement, but need not be provided unless required for a particular job order. If Builders Risk Insurance applies to a particular job order, then CONTRACTOR is required to maintain throughout the course of construction Builder's Risk Insurance in a dollar amount equal to the full insurable value of the work under the job order, which shall include "All Risk" coverage. **Pima County** shall be named as a "Loss Payee". CONTRACTOR is responsible for equipment, materials, and supplies until completion of the project and acceptance by COUNTY.
- 5.1.5 **Claim-Made Insurance Coverage** - If any part of the Required Insurance is written on a claims-made basis, any policy retroactive date must precede the effective date of this Contract, and Contractor must maintain such coverage for a period of not less than three (3) years following Master Agreement expiration, termination or cancellation.

5.2 Additional Insurance Requirements:

The policies shall include, or be endorsed to include, as required by this written agreement, the following provisions:

- 5.2.1 **Additional Insured:** The General Liability and Business Automobile Liability Policies shall each be endorsed to include **Pima County**, its departments, districts, boards, commissions, officers, officials, agents, and employees as additional insureds with respect to liability arising out of the activities performed by or on behalf of CONTRACTOR.
 - 5.2.2 **Subrogation:** The General Liability, Business Automobile Liability and Workers' Compensation Policies shall each contain a waiver of subrogation endorsement in favor of COUNTY, and its departments, districts, boards, commissions, officers, officials, agents, and employees for losses arising from work performed by or on behalf of CONTRACTOR.
 - 5.2.3 **Primary Insurance:** The CONTRACTOR'S policies shall stipulate that the insurance afforded the CONTRACTOR shall be primary and that any insurance carried by COUNTY, its agents, officials, or employees shall be excess and not contributory insurance.
 - 5.2.4 Insurance provided by the CONTRACTOR shall not limit the CONTRACTOR'S liability assumed under the indemnification provisions of this Contract.
- 5.3 Notice of Cancellation:** Each Required Insurance policy must provide, and certificates specify, that COUNTY will receive not less than thirty (30) days advance written notice of any policy cancellation, except 10-days prior notice is sufficient when the cancellation is for non-payment of a premium. Notice shall include the COUNTY project or Master Agreement number and project description.
- 5.4 Verification of Coverage:** CONTRACTOR shall furnish COUNTY with certificates of insurance as required by this Contract. An authorized representative of the insurer shall sign the certificates.

- 5.4.1** All certificates and endorsements, as required by this written agreement, are to be received and approved by COUNTY before work commences. Each insurance policy required by this Master Agreement must be in effect at, or prior to, commencement of work under this Master Agreement. Failure to maintain the insurance coverages or policies as required by this Master Agreement, or to provide evidence of renewal, is a material breach of contract.
- 5.4.2** All certificates required by this Master Agreement shall be sent directly to the appropriate County Department. The Certificate of Insurance shall include the COUNTY project or Master Agreement number and project description on the certificate. COUNTY reserves the right to require complete copies of all insurance policies required by this Master Agreement at any time.
- 5.5 Approval and Modifications:** COUNTY Risk Manager may approve a modification of the Insurance Requirements without the necessity of a formal Master Agreement amendment, but the approval must be in writing. Neither the COUNTY'S failure to obtain a required insurance certificate or endorsement, the COUNTY'S failure to object to a non-complying insurance certificate or endorsement, or the COUNTY'S receipt of any other information from the CONTRACTOR, its insurance broker(s) and/or insurer(s), constitutes a waiver of any of the Insurance Requirements.

ARTICLE 6 – INDEMNIFICATION

To the fullest extent permitted by law, CONTRACTOR indemnifies and holds harmless COUNTY, its officers, employees and agents from and against any and all suits, actions, legal administrative proceedings, claims or demands and costs attendant thereto, including reasonable attorney's fees and court costs, to the extent caused by any negligent, reckless or intentionally wrongful act or omission of CONTRACTOR, its agents, employees or anyone acting under its direction or control or on its behalf in connection with performance of this Agreement. The obligations under this Article do not extend to the negligence of COUNTY, its agents, employees or indemnities. All warranty and indemnification obligations under this Agreement survive expiration or termination of the Agreement, unless expressly provided otherwise. Any indemnification provision inconsistent with A.R.S. § 34-226 is, in all cases, not void, but will be interpreted and applied as if it were consistent with A.R.S. § 34-226.

Upon request, CONTRACTOR may fully indemnify and hold harmless any private property owner granting a right of entry to CONTRACTOR for the purpose of completing the project.

ARTICLE 7 – BONDING REQUIREMENTS

CONTRACTOR will file payment and performance bonds with COUNTY, as required by A.R.S. §§ 34-610 and 34-611, no later than the time of agreement on the price (or Guaranteed Maximum Price) for any construction under this Agreement. Bonds will be submitted on an annual basis for the full value of all construction reasonably anticipated during the Agreement year or may be provided on a Job-Order by Job-Order basis; in the latter case, CONTRACTOR will anticipate additional Job Orders and provide bonds in reasonable increments. At no time will the cumulative value of the bonds be less than the total value of the construction performed by CONTRACTOR under this Agreement, including Job Orders awarded to CONTRACTOR but not yet completed. If bonds are secured on a Job-Order by Job-Order basis, the Contracting Department will obtain the appropriate bonds from CONTRACTOR upon issuance of a Job Order and release of the Delivery Order.

ARTICLE 8 – COMPLIANCE WITH LAWS

CONTRACTOR will comply with all applicable federal, state, and local laws, rules, regulations, standards and Executive Orders, without limitation to those designated within this Agreement. The laws and regulations of the State of Arizona govern the rights of the Parties, the performance of this

Agreement, and any disputes hereunder. Any action relating to this Agreement must be brought and maintained in Superior Court in Pima County. Any changes in the governing laws, rules, and regulations during the term of this Agreement apply, but do not require an amendment.

ARTICLE 9 – INDEPENDENT CONTRACTOR STATUS

The status of CONTRACTOR is that of an independent contractor and CONTRACTOR is not considered an employee of Pima County and is not entitled to receive any of the fringe benefits associated with regular employment, and will not be subject to the provisions of the merit system. CONTRACTOR will be responsible for payment of all Federal, State and Local taxes associated with the compensation received by CONTRACTOR from COUNTY. CONTRACTOR will be responsible for program development and operation without supervision by COUNTY.

ARTICLE 10 – CONTRACTOR/SUBCONTRACTOR PERFORMANCE

CONTRACTOR will perform the work in accordance with the terms of the Contract and with the degree of care and skill which a licensed contractor in Arizona would exercise under similar conditions. CONTRACTOR will employ suitably trained and skilled personnel to perform all required services under this Agreement. Prior to changing any key personnel, especially those key personnel COUNTY relied upon in making this Agreement, CONTRACTOR will obtain the approval of COUNTY.

CONTRACTOR is responsible for the professional quality, technical accuracy, timely completion, and the coordination of all its effort and other services furnished by CONTRACTOR under this Agreement. Without additional compensation, CONTRACTOR will correct or revise any errors, omissions, or other deficiencies in all products of its efforts and other services provided. This includes resolving any deficiencies arising out of the acts or omissions of CONTRACTOR found during or after the course of the services performed by or for CONTRACTOR under this Agreement, regardless of COUNTY having knowledge of or condoning or accepting the products or the services. Correction of such deficiencies will be at no cost to COUNTY.

CONTRACTOR will ensure that all SUBCONTRACTORS have the appropriate and current license issued by the Arizona Registrar of Contractors for work they perform under this Agreement. CONTRACTOR will not permit any

SUBCONTRACTOR to perform work that does not fall within the scope of the SUBCONTRACTOR'S license, except as may be permitted under the rules of the Registrar of Contractors.

CONTRACTOR will be fully responsible for all acts and omissions of its SUBCONTRACTOR(S) and of persons directly or indirectly employed by a SUBCONTRACTOR and of persons for whose acts any of them may be liable to the same extent that CONTRACTOR is responsible for the acts and omissions of persons directly employed by it. Nothing in this Agreement creates any obligation on the part of COUNTY to pay or see to the payment of any money due any SUBCONTRACTOR, except as may be required by law.

ARTICLE 11 – ASSIGNMENT

CONTRACTOR will not assign its rights to this Agreement in whole or in part, without prior written approval of COUNTY. COUNTY may withhold assignment at its sole discretion, provided that COUNTY will not unreasonably withhold such approval.

ARTICLE 12 – NON-DISCRIMINATION

CONTRACTOR agrees to comply with all provisions and requirements of Arizona Executive Order 2009-09 which is hereby incorporated into this Agreement as if set forth in full herein **including flow down of all provisions and requirements to any SUBCONTRACTORS**. During the performance of this Agreement, CONTRACTOR will not discriminate against any employee, client or any other individual in any way because of that person's age, race, creed, color, religion, sex, disability or national origin.

ARTICLE 13 – AMERICANS WITH DISABILITIES ACT

CONTRACTOR will comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including 28 CFR Parts 35 and 36. If CONTRACTOR is carrying out government programs or services on behalf of COUNTY, then CONTRACTOR will maintain accessibility to the program to the same extent and degree that would be required of COUNTY under 28 CFR Sections 35.130, 35.133, 35.149 through 35.151, 35.160, 35.161 and 35.163. Failure to do so could result in the termination of this Agreement.

ARTICLE 14 - AUTHORITY TO CONTRACT

CONTRACTOR warrants its right and power to enter into this Agreement. If any court or administrative agency determines that COUNTY does not have authority to enter into this Agreement, COUNTY will not be liable to CONTRACTOR or any third party by reason of such determination or by reason of this Agreement.

ARTICLE 15 – NON-WAIVER

The failure of COUNTY to insist in any one or more instances upon full and complete compliance with any of the terms and provisions of this Agreement or to take any action permitted as a result thereof is not a waiver or relinquishment of the right to insist upon full and complete performance of the same or any other covenant or condition either in the past or in the future. The acceptance by either party of sums less than may be due and owing it at any time is not an accord and satisfaction.

ARTICLE 16 – CANCELLATION FOR CONFLICT OF INTEREST

This Agreement is subject to the provisions of A.R.S. §38-511 which provides in pertinent part:

"The state, its political subdivisions or any department of either may, within three years after its execution, cancel any contract, without penalty or further obligation, made by the state, its political subdivisions, or any of the departments or agencies of either if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the state, its political subdivisions or any of the departments or agencies of either is, at any time, while the contract or any extension of the contract is in effect, an employee or agent of any other party to the contract in any capacity or a CONTRACTOR to any other party to the contract with respect to the subject matter of the contract."

ARTICLE 17 – TERMINATION OF CONTRACT FOR DEFAULT

- A. Upon a failure by CONTRACTOR to cure a default under this Agreement within ten (10) days of receipt of notice from COUNTY of the default, COUNTY may, in its sole discretion, terminate this Agreement for default by written notice to CONTRACTOR. In this event, COUNTY may take over the work and complete it by Agreement or otherwise. CONTRACTOR and its sureties, if any, will be liable for any damage to COUNTY resulting from CONTRACTOR'S default, including any increased costs incurred by COUNTY in completing the work.
- B. The occurrence of any of the following constitutes an event of default:
 1. Abandonment of or refusal or failure to prosecute the work or any separable part thereof with the diligence that will insure completion within the time specified in this Agreement, including any extension, or a failure to complete the work (or the separable part of the work) within the specified time;
 2. Persistent or repeated refusal or failure to supply enough properly skilled workers or materials to perform the work on schedule;
 3. Failure to provide competent supervision at the site;
 4. Failure to take down, rebuild, repair, alter or amend any defective or deficient work, or to remove any defective or deficient Material

5. Failure to make prompt payment to SUBCONTRACTORS or suppliers for material or labor;
 6. Loss of CONTRACTOR'S business or other required license or authority, or any curtailment or cessation for any reason of business or business operations that would substantially impair or preclude CONTRACTOR'S performance of this Agreement;
 7. Disregard of laws, ordinances, or the instructions of COUNTY or its representatives, or any otherwise substantial violation of any provision of the Agreement; or
 8. If a voluntary or involuntary action for bankruptcy is commenced with respect to CONTRACTOR, or CONTRACTOR becomes insolvent, makes a general assignment for the benefit of creditors, or has a receiver or liquidator appointed in respect of its assets.
- C. In the event of a termination for default:
1. All finished and unfinished as-builts, shop drawings, documents, data, studies, surveys, drawings, photographs, reports and other information in whatever form, including electronic, acquired or prepared by CONTRACTOR for this project become COUNTY'S property and will be delivered to COUNTY not later than five (5) business days after the effective date of the termination;
 2. COUNTY may withhold payments to CONTRACTOR arising under this or any other Agreement for the purpose of set-off until such time as the exact amount of damage due COUNTY from CONTRACTOR is determined; and
 3. Subject to the immediately preceding subparagraph (2), COUNTY'S liability to CONTRACTOR will not exceed the reasonable value of work satisfactorily performed prior to the date of termination for which payment has not been previously made.
- D. Neither this Agreement nor any job order issued under this Agreement will be terminated for default or the CONTRACTOR responsible for damages under this Article, if—
1. Excepting item (8) in paragraph B above, the event of default or delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of CONTRACTOR. Examples of such causes include—
 - (i) Acts of God or of the public enemy,
 - (ii) Acts of COUNTY in either its sovereign or contractual capacity,
 - (iii) Acts of another contractor in the performance of a Contract with COUNTY,
 - (iv) Fires,
 - (v) Floods,
 - (vi) Epidemics,
 - (vii) Quarantine restrictions,
 - (viii) Strikes,
 - (ix) Freight embargoes,
 - (x) Unusually severe weather, or
 - (xi) Delays of SUBCONTRACTORS or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both CONTRACTOR and the SUBCONTRACTORS or suppliers; and
 2. CONTRACTOR, within three (3) days from the beginning of any event of default or delay (unless extended by COUNTY), notifies COUNTY in writing of the cause(s) therefor. In this circumstance, COUNTY will ascertain the facts and the extent of the resulting delay. If, in the judgment of COUNTY, the findings warrant such action, the time for completing the work may be extended.
- E. For the purposes of paragraph A above, "receipt of notice" includes receipt by hand by CONTRACTOR'S onsite project manager, facsimile transmission, or under the Notices clause of this Agreement.
- F. If, after termination of the Agreement for default, it is determined that the CONTRACTOR was not in default, or that the delay was excusable, the rights and obligations of the Parties will be the same as if the termination had been issued for the convenience of COUNTY.
- G. The rights and remedies of COUNTY in this Article are cumulative and in addition to any other rights and remedies provided by law or under this Agreement.

ARTICLE 18 – TERMINATION FOR CONVENIENCE OF COUNTY

COUNTY may terminate this Agreement at any time by giving written notice to CONTRACTOR of such termination and specifying the effective date thereof, at least fifteen (15) days before the effective date of such termination.

In that event, all finished or unfinished documents and other materials will, at the option of COUNTY, become its property. If COUNTY terminates the Agreement as provided herein, COUNTY will pay CONTRACTOR an amount based on the time and expenses incurred by CONTRACTOR prior to the termination date. However, COUNTY will make no payment for anticipated profit on unperformed services.

ARTICLE 19 – NON-APPROPRIATION OF FUNDS

Notwithstanding any other provision in this Agreement, COUNTY may terminate this Agreement if for any reason the Pima County Board of Supervisors does not appropriate sufficient monies for the purpose of maintaining this Agreement. In the event of such termination, COUNTY has no further obligation to CONTRACTOR, other than payment for services rendered prior to termination.

ARTICLE 20 – NOTICES

Any notice required or permitted to be given by CONTRACTORS under this Agreement will be in writing and will be served by delivery or by certified mail upon the other party as follows:

COUNTY:

Jackson Jenkins, Director
Regional Wastewater Reclamation Department
201 N Stone Ave
Tucson, AZ 85701
Tel: 520-724-6549
Fax: 520-724-6553

Any Notice required or permitted to be given by COUNTY may be served by personal delivery or certified mail to CONTRACTOR'S contact name in CONTRACTOR'S electronic vendor record.

ARTICLE 21 - NON-EXCLUSIVE AGREEMENT

CONTRACTOR understands that this Agreement is Non-Exclusive and is for the sole convenience of COUNTY. COUNTY reserves the right to obtain like services from other sources for any reason.

ARTICLE 22 - AGREEMENT DOCUMENTS

A. INCORPORATION OF DOCUMENTS: CONTRACTOR and COUNTY in entering into this Agreement have relied upon information provided in SOLICITATION NO. 254554 – Job Order Master Agreement: WASTEWATER CONVEYANCE SYSTEM AND RELATED FACILITIES MAINTENANCE, REPAIR, REHABILITATION & CONSTRUCTION SERVICES, EXHIBIT "A" – SCOPE OF WORK, BONDS (BID, PAYMENT, AND PERFORMANCE BONDS), EXHIBIT "B" - GENERAL CONDITIONS, EXHIBIT "C" - SPECIAL CONDITIONS – MULTIPLE AWARD JOB ORDER CONTRACT, EXHIBIT "D" – SUPPLEMENTAL PROVISIONS FOR FEDERAL AID CONSTRUCTION CONTRACTS, and on information provided in the CONTRACTOR'S response to this Solicitation, Job Orders and Modifications thereto, and all drawings and specifications referenced in this Agreement or included in such Job Orders as may be issued under this Agreement. These documents are hereby incorporated into and made a part of this Agreement by reference as if set forth in full herein. The CONTRACTOR'S respective Subcontractor Selection Plans are incorporated by reference; each CONTRACTOR shall be bound by the terms of its own Subcontractor Selection Plan.

B. ORDER OF PRECEDENCE: In the event of a conflict or inconsistency between or among the Documents incorporated into this Agreement, the Agreement Documents take precedence in the following order:

1. This Agreement
2. Special Conditions – Multiple Award Job Order Contract
3. General Conditions
4. Special Provisions
5. Subcontractor Selection Plan
6. Job Orders
7. Technical Specifications
8. Contractor's Response to the Solicitation

The Parties may, by written mutual agreement, deviate from this order of precedence in resolving inconsistencies between or among Agreement documents. Any such agreement altering the order of precedence must be incorporated into this Agreement by Amendment. In the event of any conflict between any provision in the Special Conditions, if any, and any provision of the General Conditions, or any other incorporated document, the provision in the Special Conditions takes precedence.

ARTICLE 23 - OWNERSHIP OF DOCUMENTS

All original drawings, boring logs, field data, estimates, field notes, plans, specifications, documents, reports, calculations, maps and models, and other information developed by CONTRACTOR under this Agreement vest in and become the property of COUNTY and will be delivered to COUNTY upon completion or termination of the services, but CONTRACTOR may retain record copies thereof.

ARTICLE 24 – BOOKS AND RECORDS

CONTRACTOR will keep and maintain proper and complete books, records and accounts, which will be open at all reasonable times for inspection and audit by duly authorized representatives of COUNTY.

CONTRACTOR will retain all records relating to this Agreement at least five (5) years after its termination or cancellation or until any related pending proceeding or litigation has been closed, if later. Alternatively, CONTRACTOR may, at its option, deliver such records to COUNTY for retention.

ARTICLE 25 – REMEDIES

Either party may pursue any remedies provided by law for the breach of this Agreement, provided, however, that the procedures in **Article 28** are first exhausted. No right or remedy is intended to be exclusive of any other right or remedy and each is cumulative and in addition to any other right or remedy existing at law or at equity or by virtue of this Agreement.

ARTICLE 26 – SEVERABILITY

Each provision of this Agreement stands alone, and any provision of this Agreement found to be prohibited by law is ineffective to the extent of such prohibition without invalidating the remainder of this Agreement.

ARTICLE 27 – DELAYS

Neither party hereto is in default in the performance of its obligations hereunder to the extent that the performance of any such obligation is prevented or delayed by any cause, existing or future, which is beyond the reasonable control of such party.

ARTICLE 28 – DISPUTES

In the event of a dispute between COUNTY and CONTRACTOR regarding any part of this Agreement or the Parties' obligations or performance hereunder, the dispute must be referred to COUNTY in writing with a request for review and response by COUNTY within a reasonable time. Either Party may request a special meeting between their respective representatives to resolve the dispute. If the dispute remains unresolved, then either Party may request escalation of the issue to a meeting between the Director of the Pima County Department administering this Agreement and CONTRACTOR'S counterpart official, such meeting to be held within one (1) week of the request, unless otherwise agreed. If the dispute is still not resolved after that meeting, then either Party may pursue such remedy or remedies as may be available to them under the laws of the State of Arizona including arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) will be entered in any court having jurisdiction thereof. All arbitration hearings must be held in Tucson, Arizona.

The Parties will continue performance of their respective obligations under this Agreement notwithstanding the existence of any dispute.

ARTICLE 29 – PUBLIC INFORMATION

Pursuant to A.R.S. § 39-121 et seq., and A.R.S. §§ 34-603(H), 604(H), in the case of construction or Architectural and Engineering services procured under A.R.S. Title 34, Chapter 6, all information submitted by CONTRACTOR in any way related to this Agreement, including, but not limited to, pricing, product specifications, work plans, and any supporting data becomes public information and upon request, is subject to release and/or review by the general public including competitors.

Any information submitted related to this Agreement that CONTRACTOR believes constitutes proprietary, trade secret or otherwise confidential information must be appropriately and prominently marked as CONFIDENTIAL prior to submittal to COUNTY and be accompanied by an index specifically identifying and describing the general contents of each page so marked. The index is a public record and should not include any information considered confidential.

Notwithstanding the above provisions, in the event records marked CONFIDENTIAL are requested for public release pursuant to A.R.S. § 39-121 et seq., COUNTY will release records marked CONFIDENTIAL ten (10) business days after the date of notice to CONTRACTOR of the request for release, unless CONTRACTOR has, within the ten (10) day period, secured a protective order, injunctive relief or other appropriate order from a court of competent jurisdiction, enjoining the release of the records. For the purposes of this paragraph, the day of the request for release is not counted in the time calculation. CONTRACTOR will be notified of any request for such release on the same day of the request for public release or as soon thereafter as practicable.

COUNTY is not, under any circumstances, responsible for securing a protective order or other relief enjoining the release of records marked CONFIDENTIAL, nor is COUNTY in any way financially responsible for any costs associated with securing such an order.

ARTICLE 30 – LEGAL ARIZONA WORKERS ACT COMPLIANCE

CONTRACTOR hereby warrants that it will at all times during the term of this Agreement comply with all federal immigration laws applicable to CONTRACTOR'S employment of its employees, and with the requirements of A.R.S. § 23-214 (A) (together the "State and Federal Immigration Laws"). CONTRACTOR will further ensure that each SUBCONTRACTOR who performs any work for CONTRACTOR under this Agreement likewise complies with the State and Federal Immigration Laws.

COUNTY has the right at any time to inspect the books and records of CONTRACTOR and any SUBCONTRACTOR in order to verify such party's compliance with the State and Federal Immigration Laws.

Any breach of CONTRACTOR'S or any SUBCONTRACTOR'S warranty of compliance with the State and Federal Immigration Laws, or of any other provision of this section, is a material breach of this Agreement subjecting CONTRACTOR to penalties up to and including suspension or termination of this Agreement. If the breach is by a SUBCONTRACTOR, and the subcontract is suspended or terminated as a result, CONTRACTOR will take such steps as may be necessary to either self-perform the services that would have been provided under the subcontract or to retain a replacement SUBCONTRACTOR (subject to COUNTY approval if SBE or DBE preferences apply), as soon as possible so as not to delay project completion.

CONTRACTOR will advise each SUBCONTRACTOR of COUNTY'S rights, and the SUBCONTRACTOR'S obligations, under this Article by including a provision in each subcontract substantially in the following form:

"SUBCONTRACTOR hereby warrants that it will at all times during the term of this Agreement comply with all federal immigration laws applicable to SUBCONTRACTOR'S employees, and with the requirements of A.R.S. § 23-214 (A). SUBCONTRACTOR further agrees that COUNTY may inspect the SUBCONTRACTOR'S books and records to insure that SUBCONTRACTOR is in compliance with these requirements. Any breach of this paragraph by SUBCONTRACTOR is a material breach of this Agreement subjecting SUBCONTRACTOR to penalties up to and including suspension or termination of this Agreement."

Any additional costs attributable directly or indirectly to remedial action under this Article are the responsibility of CONTRACTOR. In the event that remedial action under this Article results in delay to one or more tasks on the critical path of CONTRACTOR'S approved construction or critical milestones schedule, such period of delay will be excusable delay for which CONTRACTOR is entitled to an extension of time, but not costs.

ARTICLE 31 – ISRAEL BOYCOTT CERTIFICATION

CONTRACTOR hereby certifies that it is not currently engaged in, and will not for the duration of this Agreement engage in, a boycott of Israel as defined by A.R.S. § 35-393.01. Violation of this certification by CONTRACTOR may result in action by the COUNTY up to and including termination of this Agreement.

ARTICLE 32 - COUNTERPARTS

This Agreement may be executed in one or more counterparts, each of which will be deemed an original and all of which together will constitute one and the same instrument. Facsimile or other electronically delivered copies of signature pages to this Agreement shall be treated as between the parties as original signatures for all purposes.

The Remainder of This Page Intentionally Left Blank

ARTICLE 33 – ENTIRE AGREEMENT

This document, in all its parts, together with Attachments and documents incorporated by reference constitutes the entire agreement between the parties pertaining to the subject matter hereof, and all prior or contemporaneous agreements and understandings, oral or written, are hereby superseded and merged herein. Except as otherwise specifically provided in Article I, this Agreement may be modified, amended, altered or extended only by a written amendment signed by the parties.

IN WITNESS WHEREOF, the CONTRACTORS and the COUNTY have affixed their signatures to this Agreement on the dates written below.

APPROVED:

CONTRACTOR:

Chair, Board of Supervisors

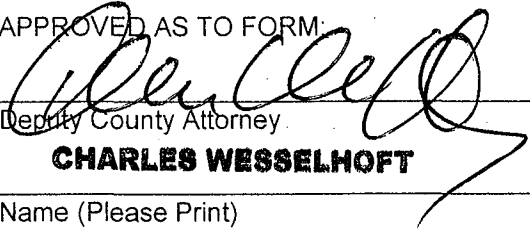
Authorized Officer Signature

Date

Printed Name and Title

Date
ATTEST:

Clerk of the Board

APPROVED AS TO FORM:


Deputy County Attorney

CHARLES WESSELHOFT

Name (Please Print)

JUL 18 2017

Date

EXHIBIT "A" (85 pages) SCOPE OF SERVICES

This is an indefinite delivery/indefinite quantity, job order contract under which the Contractor will provide all labor, materials, management, supervision, services, and coordination required to provide a full range of conveyance system maintenance, repair, rehabilitation, and construction services. All such work is to be requested by the COUNTY from time to time by issuance of an individual job order for each individual project. Services are for the Pima County Regional Wastewater Reclamation Department.

General Scope: Scope of work will include repair, construction, improvement and maintenance of new and existing COUNTY owned structures, and facilities.

Exhibit "A" consists of the following sections:

A1 SCOPE OF WORK

A2 BACKGROUND AND INTRODUCTION

A3 EMERGENCY RESPONSE

- A3-1 Response Time
- A3-2 Emergency Job Order Liquidated Damages
- A3-3 Emergency Payment Multiplier

A4 PROJECT MANAGEMENT

- A4-1 Project Kick-Off Meeting
- A4-2 Job Order Progress Meetings and Job Order Progress Reports
- A4-3 Subcontractor, Engineer Design & Surveying Management
- A4-4 Community Relations
- A4-5 Resident Notification

A5 REFERENCES AND JOB ORDER SUBMITTALS

- A5-1 References
- A5-2 Submittals

A6 JOB ORDER EXECUTION

- A6-1 Work Within Easements and Right-Of-Way
- A6-2 Execution
- A6-3 Maintenance of Sewage Flows
- A6-4 Cleaning of Sewer
- A6-5 Television Inspection
- A6-6 Sewer Preparation Prior to Liner Installation
- A6-7 CIPP Liner installation
- A6-8 Service Connections
- A6-9 Utility Trench Pavement Patch
- A6-10 Chip Seal Coat
- A6-11 Manhole Construction
- A6-12 Manhole Rehabilitation
- A6-13 Manhole Adjustment and Reconstruction
- A6-14 Manhole and Cleanout Frame and Cover and Existing Manhole Section Replacement and Salvage/Disposal
- A6-15 Pot-Holing
- A6-16 Cleanout Reconstruction
- A6-17 Excavation and Backfill
- A6-18 Manhole Bench Rehabilitation

A6-19	Pipe Point Repair
A6-20	Clean-Up
A6-21	Concrete Sidewalks and Curb
A6-22	Property Damage
A6-23	Punch List Items
A6-24	Traffic Control
A6-25	Section Reserved
A6-26	General Field Procedures
A6-27	Scheduling of Work
A6-28	Immediate Maintenance Requirements
A6-29	Grouting of Cavities

A7 MEASUREMENT

A7-1	RWRD Price Book Unit Measure/Payment
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A8 ADMINISTRATIVE PROVISIONS

A8-1	Availability of Applicable Information
A8-2	Coordination and Approvals
A8-3	Quality Control
A8-4	Submittals
A8-5	Force Account
A8-6	Invoicing and Payment
A8-7	COUNTY Responsibilities

The following Appendices are attached:

SUB APPENDIX A	Engineering Resources
SUB APPENDIX B	Wastewater Flow Management Plan Guidelines
SUB APPENDIX C	Residential/Business Notification Guidelines
SUB APPENDIX D	Cured In Place Pipe (CIPP) Specifications
SUB APPENDIX E	Procedure for Reporting Unauthorized Discharges/Releases
SUB APPENDIX F	Manhole Rehabilitation Specifications
SUB APPENDIX G	Construction Safety Plan Outline

A1 SCOPE OF WORK:

Job Orders will be issued for the maintenance, repair, rehabilitation, adjustment or construction of Conveyance Facilities or other RWRD facilities. Job Orders scope may include irrigation systems and landscaping, site grading, pavement repair and installation, surveying, potholing for locating RWRD utilities or other utilities impacting conveyance assets, installation, maintenance and repair of odor control facilities, minor related design work and permitting, Storm Water Pollution Prevention Plan preparation and inspection and other related facilities construction tasks. The conveyance system is described below.

It is the COUNTY's intent to primarily use this contract to perform work on both large and small diameter pipes, sanitary sewer manholes and structures, lift stations, siphons, and other conveyance system appurtenances. Methods for sewer line maintenance, repair and construction may involve open cut, CIPP, concrete rehabilitation, coatings and other methods of repair and rehabilitation. The scope of work shall also include furnishing of materials, repairing, rehabilitating, and reconstruction of existing sewer structures & constructing new manholes over existing sewer lines.

The purpose of this contract is to specify the terms and conditions whereby the **Contractor** shall:

1. Provide effective project management of any/all Subcontractors, field procedures, and all related supporting contracts included in this project.
2. Obtain all necessary permits and coordinate with affected jurisdictions.
3. Coordinate and provide public notification prior to Job Order accomplishment.
4. Provide sewer line cleaning, closed circuit television (CCTV) inspection, without wastewater in the lines, and video recording of existing sewer and services connections prior to repair, rehabilitation or reconstruction.
5. Provide sewer line cleaning, closed circuit television (CCTV) inspection, without wastewater in the lines, and video recording of existing sewer and services connections after repair, rehabilitation or reconstruction, and provide verification of re-instatement of lateral connections.
6. Rehabilitate existing sewers by the CIPP method, or other approved method, and Reinstatement of lateral connections without excavation.
7. Performance of spot repairs, as required, by the repair method selected by COUNTY. Perform active leak sealing operations, as required.
8. Performance of sanitary sewer structure rehabilitation by coating and/or reconstruction.
9. Provide replacement, rehabilitation and/or adjustment of structures such as manholes, siphons, and pump stations.
10. Provide sewage flow management and maintenance of flow, with zero release of sewage.
11. Provide and perform all required acceptance testing.
12. Maintenance of traffic in accordance with local, state, and federal requirements.
13. Adhere to all safety requirements in accordance with local, state, and federal requirements.
14. Provide As-Builts as required.
15. Respond to emergency sanitary sewer overflow (SSO) situations as required.

Attention to detail, adherence to safety measures, and organizational skills will be a key factor to the success of this contract. All design standards, materials and workmanship for public sanitary sewers are to be in accordance with the latest edition of the Pima COUNTY Regional Wastewater Reclamation Department Manuals of Engineering Design Standards and Standard Specifications and Details for Construction, except as modified by the provisions and specifications of this contract. Copies of said Manuals are on file at Pima COUNTY Wastewater Management offices at 201 N. Stone Avenue, 5th Floor.

PROJECT PHASING

Normal Job Order Accomplishment

The following Five-Phase Approach shall be followed throughout the life of this contract for "normal" Job Order Accomplishment (Time-frame shown corresponds to a **one-reach repair** Job Order level of effort):

Phase One: Day One. This phase consists of a Job Order being issued by the COUNTY Project Manager to the Contractor. The Job Order will also mark day one of the required performance period. The actual performance period will be calculated by COUNTY by issuing a total of 4 weeks for the initial reach to be rehabilitated and adding an additional week for each additional reach. For example: a one reach Job Order will have a 4-week performance period specified as it is delivered to the Contractor in Phase I. A four reach Job Order will have a 7-week performance period (four weeks for the initial reach and one week each for the subsequent three reaches for a total of seven weeks). The Job Order may include one sewer pipe reach or multiple reaches. In a similar manner, performance periods will be established for manhole repairs or rehabilitations.

The Job Order will include:

- a prioritized written report summarizing CCTV inspection results identifying sewer defects, or a report detailing manhole defects;
- a definition of the Job Order time period;
- a definition of the "affected neighborhood";
- a listing of the number of reaches and household connections that are necessary;
- a map of affected property owners;
- a copy of the CCTV inspection log and tape; and
- submittal checklist with the items identified which need to be addressed and returned to COUNTY.

Phase Two: Day two to Day four (three days). With the information provided by the Job Order in the Phase One, the Contractor shall turn in the required submittals for the rehabilitation/reconstruction of each specific reach included in the Job Order. The required submittals for this Phase are identified in the Submittal Section III.4.2.

Phase Three: Day five to Day six (two days). Once the submittals received in Phase Two are approved by COUNTY Field Engineering, a NTP will be issued to the Contractor by the COUNTY Project Manager.

Phase Four: Day seven through completion of Job Order performance period. The receipt of the NTP, issued in Phase Three, allows the Contractor to start mobilization and proceed with the required rehabilitation work.

Phase Five: Completion of Performance Period and Job Order invoice payment. Upon the receipt, review and approval of the Punch List Completion Report and Submittals on the Phase Four, COUNTY will proceed with payment for the Completed Job Order. Partial payments will be processed on Job Orders that extend longer than 30 days, once the submittals for the installed reaches for the requested partial payment are received. The required submittals for this Phase are identified in the Submittal Section III.4.2.

Manhole/Cleanout Phasing

The following Five-Phase Approach shall be followed throughout the life of this contract for "Normal" Job Order Accomplishment (Time-frame shown correspond to a Job Order for set of **manholes and/or cleanouts repair or rehabilitation** Job Order level of effort):

Phase One: Day One. This phase consists of a Job Order being issued by the Pima COUNTY Project Manager to the Contractor. The COUNTY Job Order will include written report summarizing and identifying all manholes/cleanouts needing repair; the Job Order will also mark day one of the required performance period. The actual performance period will be calculated by COUNTY, and shall not exceed a total of twenty-one (21) working days for the Job Order to be completed from the NTP issue date.

The following information will be included in each work order:

- Indication of "NORMAL or EMERGENCY" response time.
- "Scope of Services" outlining the required work to be performed.
- A map indicating the location of the project.
- A sample job order is included in the Solicitation for Qualifications.

Phase Two: Day two to Day four (three working days). With the information provided by the Job Order in the Phase One, the Contractor shall turn in the required submittals for the reconstruction/adjustment of each Job Order.

Phase Three: Day five to Day seven (three working days). Once COUNTY Field Engineering approves the submittals received in Phase Two, a NTP will be issued to the Contractor by the COUNTY Project Manager.

Phase Four: Day eight to Completion of Performance Period. The receipt of the Notice To Proceed issued in Phase Three allows the Contractor to start mobilization and proceed with the required rehabilitation work.

Phase Five: Completion of Performance Period and Job Order invoice payment. Upon the receipt, review and approval of the Completed Job Order(s), payments will be processed on Job Orders (s) on a monthly basis.

In order to achieve a good interface between the Contractor and COUNTY, a sample Job Order dry-run will be developed for this project. This dry-run will go through the five phases of Job Order Accomplishment.

After successfully completing the initial Job Order dry-run, a contract Notice to Proceed will be issued. The Contractor thereafter, shall schedule all new personnel for training in all aspects of the work as provided in the initial Job Order Dry-run. The training of new personnel will be performed at COUNTY's earliest convenience.

The Contractor shall perform these tasks on a Job Order-by-Job Order basis not to exceed the performance period for each Job Order, and each Job Order's tasks shall be complete and accepted by COUNTY before the COUNTY issues the next Job Order Notice To Proceed. The COUNTY reserves the right to issue multiple Job Orders in case of an emergency situation or as the Contractor demonstrate its capability to handle multiple Job Orders simultaneously. When multiple Job Orders are issued, COUNTY will prioritize and provide the order of execution for each of the Job Orders.

In case of an emergency situation, the COUNTY and the Contractor will work together to minimize the amount of time for the accomplishment of each phase.

In the event of any conflict, seeming or real, between the Special Provisions and the RWRD Standard Details and Specifications for Public Improvements, the Special Provisions shall prevail.

Job Orders that are not completed within the calculated performance period will trigger the deduction of Liquidated Damages in the amount as provided for in Section 108 of PAG Standard Specifications from the amount owed to the Contractor to cover COUNTY management and inspection expenses.

COUNTY guarantees no minimum or maximum to the size or amount of any Job Order or to the TOTAL contract amount over the life-time of the contract.

The Contractor shall be expected to accomplish each Job Order in the most efficient and expeditious manner possible. The Contractor, when requested by COUNTY, shall submit the list of equipment proposed to be used on specific Job Order for review and approval prior to commencement of the Job Order.

A2 BACKGROUND AND INTRODUCTION

It is the intent of these specifications to provide a means for rehabilitating sanitary sewer lines using mainly the Cured-In-Place-Pipe (CIPP) reconstruction process. Other trenchless technologies will be considered, on a case-by-case basis, as approved by COUNTY. The awarded Contractor shall be responsible for providing all labor, materials, equipment, flow control/management, tools, transportation, and supplies required to complete the work in accordance with the terms of the Contract and the repair method selected by COUNTY. The involved rehabilitation and/or point repair work is to be achieved with zero release of sanitary sewage. When complete, the liner pipe will extend from one manhole to the next manhole in a continuous watertight length, and all active lateral connections (if applicable) in this length will be reinstalled without exception, and be free of all forms of restrictions.

Where rehabilitation is not feasible due to the extent of the deterioration, these Specifications provide for the Point Repair by replacement of the involved deteriorated sections. These Specifications also provide for the rehabilitation of sewer structures (manholes, diversion structures, siphon inlets and outlets, etc.) suffering from deterioration and/or offset in the frame and cover and riser area resulting in infiltration by the application of an internal, approved, coating system. These Specifications also provide for the reconstruction of the sanitary sewer structure from significant deterioration or offset (greater than 6 inches) in the frame/riser such that internal rehabilitation methods are insufficient to acceptably restore the integrity of the structure. This specification also applies to the vertical adjustment of sewer structures to the extent that the adjustment is being made as part of a rehabilitation project for sewer structures as determined by COUNTY.

A3 EMERGENCY RESPONSE:

A3-1 *Response Time:*

An EMERGENCY response is required when there is an actual or imminent danger to the public health and/or property. When responding to an EMERGENCY job order, the Contractor must be able to complete site assessment and mobilize (to the site) with the necessary equipment within 120 minutes of being notified by COUNTY personnel. FOR EMERGENCY situations in the Mt. Lemmon, Green Valley, and Arivaca Junction areas, the response time for EMERGENCY work orders shall be 180 minutes.

The Contractor must provide and constantly update a list of its personnel (including telephone numbers) that are assigned to respond to EMERGENCY job orders, on a monthly basis.

A3-2 *EMERGENCY Job Order Liquidated Damages:*

Failure to respond to the work site within the required response time and with the required equipment will result in an initial Liquidated Damages Penalty of \$500.00 Dollars. An additional \$100.00 Dollars per hour will be assessed for each successive hour thereafter, until the Contractor's personnel start repair work on site, with the required equipment, to bring the EMERGENCY situation under control.

A3-3 *EMERGENCY Payment Multiplier:*

EMERGENCY Job Order payment shall be calculated with a 1.15 multiplier for work performed under Emergency status (price book work), as required by the COUNTY. Once the EMERGENCY has been determined to be stabilized (no longer a threat to life, health, or property) by COUNTY personnel on site, the EMERGENCY will Job Order will be closed and a standard Job Order for the remaining scope or repair will be issued.

A4 PROJECT MANAGEMENT:

The services provided under this task relate to monitoring the progress and performance of the Contractor and its Subcontractors. The Contractor selected for this project shall be responsible for the effective, timely, efficient, and environmentally sound completion of the required work and shall also be held fully accountable for the conduct and actions of its staff, and staff of the Subcontractors.

A4-1 *Project Kick-Off Meeting*

A4-1a The Contractor shall conduct a Kick-Off meeting for the project. At the Kick-Off meeting the Contractor shall:

- Introduce the project team.
- Establish project task goals.
- Review the project Job Order Accomplishment Phases.
- As directed and agreed upon with COUNTY:
 - o Establish lines of communication between the Contractor, its Subcontractors, and COUNTY.

- Establish formats for project deliverables following COUNTY approved standards.
- Establish public notification procedures following COUNTY approved standards.
- Present the mobilization schedule.
- Present the required submittals.

A4-1b The Contractor shall prepare the agenda in consultation with the COUNTY Project Manager and record and prepare minutes of the meeting.

A4-2 Job Order Progress Meetings and Job Order Progress Reports

Note that each Job Order Accomplishment Phase has to be completed before proceeding with the next phase. The approval to begin the next phase will not be issued until all deliverables listed on each phase have been received and approved by COUNTY Project Manager on a Job Order-by-Job Order basis.

A4-2a Throughout the Contractor's performance of this contract, the Contractor shall prepare a written Job Order Completion Report detailing the Contractor's efforts and achievements for each completed Job Order. Each Job Order Completion Report shall be presented to COUNTY as part of the Phase Five Submittals. The Job Order Completion Report shall include, but not be limited, to:

- Summary of Work performed during the completed Job Order.
- Collection of any and all Lessons Learned for implementation on future Job Orders.
- Status of the punch list items generated during that Job Order.
- Job Orders still open for resolution.
- As-Builts of the reach if changes occurred.
- Expected warranty "cut-off" date.

A4-2b The monthly Job Order meetings (estimated duration 1 hours) shall be for the purpose of discussing, preparing, and resolving all related Job Order issues. The Contractor shall turn in all required initial submittals during the initial Job Order Meeting. This initial meeting shall mark the start of the Second Phase for Job Order Accomplishment. The Contractor shall submit the mailing labels/door hangers of the affected residents in the area of the Job Order to be executed for COUNTY approval.

A4-2c The Contractor shall be responsible for recording and typing the minutes of each meeting and for submittal of a copy of the minutes to the Project Manager within five (5) calendar days of the date on which the meeting was held. Upon receipt of concurrence with the meeting minutes, the Contractor shall revise and resolve the minutes, if necessary, and resubmit the minutes to COUNTY for record purposes. The minutes shall identify each significant agenda topic, summarize the discussions, identify action items with the responsible party, and indicate conclusion(s) reached in a manner sufficiently complete to adequately record the meeting. The Job Order meetings are in addition to the normal day-to-day communications between the Contractor and COUNTY. Special meetings may be required at more frequent intervals to discuss issues affecting the quality and timeliness of its completion, and may be called by either the Contractor or COUNTY.

A4-2d As-Built Records. Upon completion of construction, and as part of the final submittals for Phase V, the Contractor shall forward a complete set of as-built drawings and a copy set in accordance with COUNTY standards. These drawings shall indicate all final measurements and locations of all Work constructed under this Contract, deviations from design sewer alignment and grade, structural changes, and flow configurations. They shall also include, but not be limited to the following:

- Lengths, elevations, grades, stations and locations of all sewers, identified by Contract items, pipe size, and depth between manholes, special structures and terminals;
- Lengths and locations of all water mains, identified by Contract items, depth and main size;

- Distances between sewer service wyes and tees, with tie-in measurements to manholes and indication as to type of connection, length of house connection, and location and depth of end of lateral;
- Distance between water service connections, with tie-in measurements to valves, fire hydrants, laterals, and other fittings, and indication as to size of connection, length of service connection, location of curb or corporation stop and end of pipe;
- Alignment of water mains, sewers, process piping, buildings, tanks, roadways, and other structures, where final installed location of alignment differs from that shown on the Plans, including tie-in measurements of distinguished marks that can be identified on the aerial photograph or topographic survey plan; and
- Every other feature or aspect of the completed Project which differs from or was not shown on the original Contract Plans.
- The locations of all House Connection Sewer (HCS) openings and abandoned HCSs.

A4-3 Subcontractor, Engineering Design & Surveying Management

A4-3a Due to the extent of this project it is anticipated that more than one Subcontractor and/or Subcontractor crews may be required for Job Order accomplishment.

A4-3b The Contractor shall provide currently licensed/bonded, qualified Subcontractors to perform the work that the Contractor is not qualified to perform. The Contractor shall be responsible for insuring that the work of its Subcontractors is performed within the guidelines established herein, in a timely manner, and shall not adversely impact the overall Job Order schedule.

A4-3c When it is necessary for the JOC Contractor to Hire an Engineering Firm (or Engineer) for design and/or inspections (examples – geotechnical, electrical, mechanical, materials, etc.), the engineer must be registered in the State of Arizona in the appropriate field of expertise.

A4-3d For design work the Firm must be approved by the COUNTY. The COUNTY can request the Contractor to provide a design and As-Builts with appropriate seals on all drawings.

A4-3e If surveying is required, the surveyor must be licensed to practice in the State of Arizona and will be required to seal survey information within the drawings.

A4-4 Community Relations

A4-4a Due to the extent of this project it is anticipated that the Contractor will be in a position where interaction with the public will be often required. It is the intent of Pima COUNTY to maintain a positive public image at all times during the construction planning, progress, and completion. To that effect, the COUNTY Community Relations Manager shall be contacted whenever a situation involving public property damage, Sanitary Sewer Overflows (SSO's, see **SUB APPENDIX E**), residential street closure, major street lane closures, or any other major interaction with the public is required (contact phone numbers will be provided). All information delivered to the public or the press shall be coordinated with the COUNTY Community Relations Manager. All inquiries from the press shall be directed to the COUNTY Community Relations Manager.

A4-4b Any damage to COUNTY infrastructure or to private or public property shall be immediately repaired or rehabilitated to COUNTY or property owner's satisfaction at no additional expense to COUNTY. The property owner and COUNTY will be notified of the problem and the repair. The COUNTY Community Relations Manager shall be contacted to interact with the public on behalf of COUNTY. This does not preclude the Contractor or his/her representative from speaking to a resident whose property has been damaged at the time of the incident.

Neither does it preclude the Contractor or his/her representative from speaking to residents or a specific resident who approach him/her later in the project unless he/she has been instructed not to communicate with specific individuals. In such cases, the Contractor or his representative will address the individual or individuals courteously and politely and refer them to the designated Pima COUNTY representative.

A4-4c During any Sanitary Sewer Overflow (SSO) situation, the COUNTY Community Relations Manager shall be contacted to interact with the public and media as the Department spokesperson.

A4-4d When public meetings are required in preparation for a rehabilitation project, per SUB APPENDIX C, close coordination with the COUNTY Community Relations Manager shall be required.

A4-4e A project supervisor must be available for calls on a cell phone (paid for by the Contractor and with a Local Tucson number) from 5:00 p.m. to 8:00 a.m. Monday through Friday and 24 hours a day on weekends and COUNTY holidays. This **local** phone number will be provided to residents in affected areas so they can ask questions or address concerns about work that might be taking place "after hours" in their neighborhood.

A4-5 Resident/Business Notification

Residents may need to be notified of inspection or construction activities, including changes in street traffic or lane closures. All the residents within the proposed work area shall be notified of the estimated timing, duration, and type of activities to be performed in the area. The Contractor and its Subcontractors shall communicate and coordinate with the public in an effective, efficient, and friendly manner in order to be a "good neighbor" and foster their cooperation during the task. During the course of the project, if the original time for the construction activity is accelerated or delayed, the Contractor will notify the COUNTY PM, Community Relations, as well as residents to commencement of any work schedule change 24 hours in advance.

A4-5a The Contractor shall present and submit for County approval the proposed notification letter. The resident's addresses and information are available on the Pima County GIS data files. If notification is required, notifications shall be mailed and/or hand delivered to residents, as specified in **Sub Appendix C**, prior to the actual cleaning and/or CCTV inspection activity. The Contractor and/or its Subcontractors field crews shall carry a copy of the notification letter at all times.

A4-5b Every effort shall be made to determine if a neighborhood or home owner association exists within the proposed work area. If such an organization is active, it shall also be included in the notification procedures. The Contractor shall contact the County Community Relations Manager for a list of known neighborhood associations with their respective points of contacts (POC). The list shall be part of the final report for the project.

A5 REFERENCES AND JOB ORDER SUBMITTALS:

This task describes the project references and submittal requirements for CIPP Rehabilitation/Pipeline Reconstruction, Point Repairs, Manhole Rehabilitations, and Manhole Reconstructions. Failure to provide the required up to date submittals at the Project Kick-Off meeting will result in the contractor's NOT being issued JO's

A5-1 References

Where a reference is made to one of the standards listed below, the revision in effect at the time of the bid opening shall apply. If there is a conflict between any ASTM data and this specification, this specification shall govern.

American Society for Testing and Materials (ASTM)

ASTM D-638: Test Method for Tensile Properties of Plastics

ASTM D-790: Test Method for Flexural Properties of Un-reinforced and Reinforced Plastics and Electrical Insulating Materials

ASTM F-1216: Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.

ASTM C-581: Standard Practice for Determining Chemical Resistance of Thermosetting Resins Used in Glass-Fiber-reinforced Structures Intended for Liquid Service

ASTM D-3681: Standard Test Method for Chemical Resistance of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting Resin) Pipe in a Deflected Condition

ASTM F 1743: Rehabilitation of Existing Pipelines and Conduits by Pulled-In-Place Installation of Cured-In-Place Thermosetting Resin Pipe (CIPP)

Arizona Department of Environmental Quality (ADEQ), Section R18-9-E301.4.01 General Permit: Sewage Collection System.

Pima County Regional Wastewater Reclamation Department Standard Details and Specification, latest edition.

Pima Association of Governments (PAG) Standard Details and Specification, latest edition.

A5-2 General Contract Submittals

A5-2a Due to the phase approach of this contract, the Contractor shall be required to establish a submittal schedule for the duration and performance of this contract. The submittals will be required as per the phase of the Job Order.

A5-2b Before the Contractor receives the Contract NTP, the Contractor shall present COUNTY with the following:

- List of Subcontractors certifications and qualifications
- Local Tucson phone numbers for all superintendents and project managers
- Coating applicator's certifications and qualifications
- Confined space entry procedures and certifications for the General Contractor's personnel and all Subcontractor's personnel requiring entrance to the sewage system (Cleaning, Manhole Rehabilitation, Manhole Reconstruction, Closed Circuit Televising (CCTV))
- All relevant information for the proposed (CIPP) liner from the resin manufacturer (specifications, characteristics, properties, and methods of application). Ref: Cured In Place Pipe (CIPP) Specifications, **SUB APPENDIX D**.
- Spill Prevention Plan
- Construction Safety Plan per **SUB APPENDIX G**.
- Emergency Personnel telephone numbers (updated thru contract duration as needed)
- Contractors equipment cost for owned equipment (updated thru contract duration as needed) for force account work payment calculation
- Draft of Residents Notification Letter/Door hangers

A5-2c As the contract progresses and a Job Order is issued, the Contractor shall (on a Job Order basis) as part of the submittals for the Job Order Accomplishment, (Phase Two), submit to COUNTY the following submittals to include but not limited to:

- A copy of the proposed work schedule
- Pricing based on Pima COUNTY Wastewater Unit Price Book; this pricing will be stated as a computation of prices for each item times the quantity and will give an over-all Not To Exceed amount
- Design data and specifications data sheets listing all parameters used in the CIPP design and thickness calculations based on Appendix X1 of ASTM F-1216.
- Flow Management Plan (If required)
- Confined space entry plan (if required)
- Traffic Control Plan (If Required)
- Proposed method of sewer cleaning

- Residents Notification Letter customized to the specific Job Order location
- Pipe materials and appurtenances
- Submittal for seals and grout
- Manhole Reconstruction Shop Drawings & material submittals (If required by the Job Order)
- Manhole/structure coating product
- Photos and video of the proposed construction area (before & after construction) for COUNTY records (If required by the Job Order).
- Proposed lay down area for construction activities
- Any Environmental related permit including but not limited to SWPPP permits, Native Plant Preservation Surveys and Plans, 404 Permits, Right of Entry or Right of Way permits, or other required permits.
- Erosion Control Plan per COUNTY requirements for construction impacting less than 1 acre.
- NASSCO certifications for personnel performing CCTV inspections
- Submittal for all other equipment and material not previously approved after award of the Contract
- Resident Notification Log

A5-2d During the progress of the Job Order, as part of the submittals for the Job Order Accomplishment, (Phase Four), the Contractor shall submit to COUNTY the following submittals/Deliverables, to include but not limited to:

- Daily progress reports, to be turned in to the Pima COUNTY Inspector for approval and coordination. The daily report will include the proposed activities for the next day.
- A copy of the "wet-out", Styrene Monitoring Log and "Cure" reports in an approved format immediately after curing of each liner is completed if applicable.
- Pipe Installation Cut sheets
- Concrete tickets
- Notification of any property damage

A5-2e Upon completion of the Job Order the Contractor shall submit to COUNTY the following submittals/Deliverables for the process of payment, to include but not limited to:

- Job Order Completion Report
- Materials Tests Results
- Updated list of punch list items
- Records and DVDs documenting line cleaning and television inspection of completed work
- Actual resin volume used, and test results of infrared spectrum analysis conducted on each lot of resin, if applicable
- Copy of cured liner samples test result reports, if applicable
- Photos and video of the construction area (after construction)
- Notification of any property damage
- Job Order status report
- Meeting Minutes
- As-Built/Record drawings if required in the Job Order
- Electronic photos of completed manhole/cleanout reconstruction and or adjustment to finish grade.

A6 JOB ORDER EXECUTION:

Utilizing the Job Order information and submittals approved on the previous subtask, COUNTY will issue a NTP to the Contractor. The Contractor shall then proceed with the Job Order.

The Contractor shall research all available public records such as: existing As-Builts, Wastewater Operations Division Hansen Infrastructure Management System (IMS) database, sewer base maps, Ortho-photos (where available), subdivision plats, GIS data maps, or any other data source the Contractor and/or COUNTY deem reliable or necessary.

The **Contractor** shall provide, at a minimum, one-week notice when requesting from COUNTY any other data sources (existing As-Builts, sewer base maps, Ortho-photos, subdivision plats, GIS data maps, COUNTY Field Operations survey folders) deemed reliable or necessary and not otherwise accessible to the public.

A6-1 Work Within Easements and Right-Of-Way

A6-1a This work is to be done within existing public rights-of-ways. It shall be the responsibility of the Contractor to obtain any and all necessary permits to conduct the work within the rights-of-way shown in the plans, including any permits required for temporary pavement cuts within the roadway. It will be the Contractor's responsibility to obtain any Right of Entry permits or agreements required to perform work within other jurisdictions or utilities easements, right of way, or property including ADOT and Railroad right of way, easements or property. The Contractor shall prepare and provide control plans as necessary, including for traffic and sewage flow management. The Contractor shall complete the ADEQ application for the purpose of obtaining the ADEQ Approval to Construct letter if required. Payment for the required permits shall be made per permit receipt amount from the Jurisdiction Payment Bill, with no markup allowed, out of the Permits Line Item.

A6-1b The Contractor shall follow Pima COUNTY Native Plant Preservation Plan. The Contractor shall make every effort to minimize damage to existing improvements and/or vegetation during all work operations. Any existing improvement and/or vegetation which require removal for work access shall be replaced "in kind" by the Contractor. All costs associated with the above work within rights-of-way shall be included in pipe installation costs, except as provided for by specific items in the Special Provisions. Any existing improvement and/or vegetation that is damaged or removed by the Contractor outside the rights-of-way shall be replaced "in kind" and to a condition equal to or better than the original at the Contractor's expense.

A6-2 Execution

A6-2a The Contractor shall visit all line segments proposed for rehabilitation and notify COUNTY in writing of any site conditions or visible problems, such as access, which would prevent the accomplishment of the work.

A6-2b After receiving the Notice to Proceed, a notification letter and door hanger, provided by the Contractor and approved by COUNTY, shall be delivered by the Contractor to each residence affected by the installation process as specified in **SUB APPENDIX C** as soon as possible. Residents shall be informed when wastewater and/or water service interruption will take place and the approximate duration.

A6-2c The Contractor shall be on site with all necessary equipment in good working order no later than 7:00 a.m. on the day specified in the NTP. Every effort shall be made by the Contractor to complete all work by 5:00 p.m. The Contractor shall notify each residence affected by the construction activities, for which service has not been re-established by 5:00 p.m. of the estimated time the service reconnection will be complete. No work, unless required by an emergency and authorized by COUNTY, will be performed on weekends and holidays. Contractor shall schedule Traffic Control and Flow Management during non-peak hours whenever possible, so as to best accommodate the neighborhoods and traffic flow.

A6-2d Except for CIPP or alternate pipe rehabilitation/repair method, flow management operations, and manhole rehabilitation (protective coating), all work shall be scheduled on a 7:00am to 5:00pm workday, unless other hours are authorized or required by the COUNTY, with the exception of Flow Management, which shall be manned and operated on a 24 hour, 7 days per week basis until the completion of the project, and Emergency Repairs as required. Prior to commencement of Construction activities involving Cured In Place Pipes (CIPP), the Contractor shall notify Pima COUNTY Industrial Wastewater Control of the project schedule and will give them the opportunity to schedule sampling of the curing waters prior to discharging them back into the sewer system.

A6-2e The Contractor shall deliver the uncured resin impregnated liner to the site, provide all equipment required to install the liner into the conduit, expand the liner in accordance with the manufacturer's standard procedures, and cure it in place. The liner shall be impregnated with resin not more than 72 hours (or other time as defined and recommended by the product manufacturer) before the proposed time of installation and stored in accordance with the manufacturer's recommended procedures.

A6-2f The Contractor shall take steps to minimize the spread of noxious odors to the surrounding neighborhood. This shall include but not be limited to covering the tops of the manholes where flow management pumps are removing wastewater from the existing sewer line or discharging wastewater to the existing sewer line, and using portable odor abating devices (if required by the job order). All measures being employed shall first be reviewed and approved by COUNTY.

A6-2g Work performed shall be in accordance with local, state, and federal standards and requirements. Safety and maintenance of traffic are the responsibility of the Contractor. Site safety shall be maintained around the clock during the work performance.

A6-2h All debris resulting from construction activities shall be disposed in an approved landfill at the Contractor's expense.

A6-3 Maintenance of Sewage Flows:

A6-3a The Contractor shall be responsible for all sewage flow management around the pipe to be cleaned, televised, repaired, replaced or lined, or any manhole rehabilitation where bench work will be required, in accordance with COUNTY standards (see **SUB APPENDIX B** for detailed Flow Management Submittal requirements). Pump and flow management lines shall be of adequate capacity and size to handle 1.5 times the peak wet weather flow without affecting the service connections upstream of the sewer line being lined. The Contractor shall be responsible for cleanup, repair, and property damage costs and claims resulting from sewage overflow or backup caused by inadequate pumping or any other reason related to the Contractor's lining work. A certified maintenance person capable of starting, stopping, refueling, troubleshooting, and maintaining this equipment during the rehabilitation work shall continuously monitor pumps and equipment.

A6-3b The Contractor shall take appropriate steps to ensure that all pumps, piping, and hoses that carry raw sewage are protected from vandalism, vehicular traffic and pedestrian traffic.

A6-3c In the event, during any form of "Maintenance of Sewage Flows" that raw sewage is spilled, discharged, leaked or otherwise deposited in the open environment, due to the Contractor's work, the Contractor is responsible for any cleanup of solids and disinfecting of the area affected. This work shall be performed at the

Contractor's expense with no additional cost to COUNTY. The Contractor is also responsible for notifying COUNTY **immediately regardless of quantity** and complying with any and all regulatory requirements in regard to the spill with no additional cost to COUNTY. The Contractor shall be charged back for any fines, penalties, or other costs or damages imposed upon COUNTY by any agency or private party as a result of a spill or improper discharge by the Contractor.

A6-4 Cleaning of Sewer:

This contract may require cleaning of the sewers prior to CCTV activities, including manhole washdown and siphons. The Contractor and its Subcontractors shall provide all materials, labor and supervision, necessary to clean the collection system. The purpose of cleaning is so that all potential defects are visible and the true physical condition of the sewer can be ascertained.

A6-4a The Contractor shall supply equipment for sewer cleaning capable of removing sewage solids, sludge, roots, grease, grit, dirt, rocks, rags, and other deleterious materials and obstructions from sewers without damage to the existing sewer pipes. The Contractor shall use equipment that will efficiently clean the pipe and remove solids from the collection system in a minimum amount of time.

A6-4b Cleaning methods that may be used include, but are not limited to, high velocity hydraulic cleaners and power rodders. Other methodologies recommended by the Contractor or its Subcontractors must be approved by COUNTY. The Contractor shall protect the integrity of the collection system and all manholes from damage during the cleaning operations.

A6-4c The Contractor shall remove sewage solids, sludge, roots, grease, grit, dirt, rocks, rags, and other debris resulting from the cleaning operation at the next downstream manhole. The Contractor shall not pass material from an upstream segment to the next downstream segment. When hydraulic or mechanical cleaning equipment is used, the Contractor shall construct a weir, dam, or functionally equivalent structure in the downstream manhole to trap solids for removal. The Contractor must be vigilant in removing solids and must monitor the manhole to ensure that no harm comes from backing up the main. The Contractor shall coordinate the location of disposal of liquid material (decant) with COUNTY. Normally, the Contractor will be able to decant into a manhole from which debris has been removed. The Contractor shall obtain and complete all permits, documentation, and waste manifest to transport and dispose of solid materials to the Tres Rios Water Reclamation Facility (WRF). The Contractor shall be responsible for the transport and disposal of the material removed during cleaning at no additional cost to the County.

A6-4d The Contractor and its Subcontractors shall take adequate precautions to prevent, and shall be responsible for any structural flooding damage or sanitary sewer overflows (SSO's) that occur due to cleaning operations.

A6-4e If, during the CCTV inspection, the sewers and manholes are not, in the opinion of the COUNTY representative, adequately cleaned, the CCTV inspection shall stop and the areas in question shall be cleaned, or re-cleaned by the Contractor or its Subcontractors at no additional cost to the County.

A6-4f Because of the age and possible condition of the sewer lines, the Contractor and its Subcontractors shall exercise extreme caution when cleaning the sewers. The Contractor and its Subcontractors shall routinely use high velocity hydro-cleaning equipment preceding the CCTV activity. The Contractor shall protect the pipeline and its appurtenances from damage during the cleaning operation.

Any damage resulting from the cleaning operation shall be repaired by the Contractor, at no additional cost to the County, using repair methods approved by the COUNTY.

A6-4g Cleaning of Sewers will be required throughout the duration of the contract. Flow management shall be in operation and the sewer line dry before starting the cleaning operation. It shall be the responsibility of the Contractor to remove all internal debris, roots, and other protrusions from the sewer line that will prevent insertion of the liner or compromise the integrity of the finished product. The Contractor shall take adequate

precautions to prevent and shall be responsible for any flooding damage that occurs due to cleaning operations. If, during the TV inspection, the sewers are not, in the opinion of the COUNTY representative, adequately cleaned, the TV inspection shall stop and the areas in question shall be cleaned or re-cleaned by the Contractor. Because of the age and possible condition of the sewer, the Contractor shall exercise extreme caution when cleaning the sewers. The Contractor shall submit their proposed cleaning methods for approval before starting any cleaning operations. The Contractor shall not routinely use high velocity hydro-cleaning equipment immediately preceding the TV camera. The Contractor shall use high velocity hydro-cleaning equipment in conjunction with the TV inspection only when so directed by the COUNTY representative. In general, COUNTY will review and approve the method of cleaning being proposed by the Contractor based on the condition of the existing pipe.

A6-4h In addition, prior to television inspection and video recording, the sewer shall be cleaned to such a condition that the video camera can adequately discern structural defects, misalignments, and points of infiltration and exfiltration. Prior to pipe rehabilitation, all sand, rocks, gravel, mud, grease, and other debris that could interfere with or otherwise adversely impact the success of the rehabilitation shall be removed. Intruding laterals shall be cut prior to rehabilitation where applicable.

A6-4i Solids, wastewater, and debris resulting from the cleaning operation shall be captured and hauled by the Contractor to the Tres Rios WRF for decanting. Nothing shall be allowed to go to the respective WRF through the sewage system. Under no circumstance shall sewage or solids be dumped onto the surface, street, or into waterways, ditches, inlets, or storm drains.

A6-5 Television Inspection:

The required software for this contract is to be in accordance with the latest Granite Software edition used by Pima COUNTY. No substitutions will be allowed.

A6-5a After the sewer section to be lined has been cleaned, after liner installation and reinstatement of lateral connections or after sewer line repair or replacement has been completed, the line shall be inspected with a television camera able to provide a total view, up and down and side to side by panning a minimum of 275 degrees and rotating 360 degrees. Lighting for the camera shall be directed, and of sufficient intensity to provide a clear picture of the entire periphery of the existing sewer. The Contractor shall supply COUNTY with clear, viewable, color digital video disk (DVD) showing the line segment from the centerline of one manhole to the centerline of the next manhole, including service connections, before and after the lining process, and after sewer line repair or replacement, recorded back to back. A copy of all paper records, digital records, and DVDs shall be submitted to COUNTY upon request and shall be submitted to COUNTY on an as completed Job Order basis and prior to request for payment. Note: Contractor may select to record on removable hard drive and transfer data to DVD for submittal. If both pre- and post- rehabilitation video records are not presented prior to a payment request for a Job Order, payment for the work will not be made and the request will be rejected.

A6-5b The interior of the pipeline shall be carefully inspected to determine the location of any conditions, which may prevent proper installation of liner into the pipelines, and it shall be noted both on digital video recording and on log sheets so that these conditions can be corrected.

A6-5c The camera shall be moved through the line in either direction at a uniform rate, stopping when necessary to permit proper documentation of the sewer's condition and features in accordance with NASSCO Defect and Features Coding Standards. In no case shall the camera be pulled at a speed greater than 30 feet per minute. The camera shall be panned, tilted, and rotated as is necessary to best view and evaluate all features

and points of interest found. If, during the inspection operation, the television camera will not pass through the entire sewer segment, the Contractor shall set up the equipment so that the inspection can be performed from the opposite manhole. A blower shall be used, as needed, to defog the sewer line and promote a clear picture.

A6-5d Televising and digital video recording after rehabilitation and reinstatement of lateral connections shall be conducted without wastewater in the sewer lines.

A6-5e The digital video recording shall include a view into each service connection before use and, if possible, in use after the lining process. If the connection cannot be shown in use, a thorough video inspection of the connection will be required before moving on through the line and the digital video recording shall indicate "resident not available, flush test not possible". At service connections, the Contractor shall slowly scan the entire edge of the service connection (360 degrees).

A6-5f At a minimum, the CCTV equipment shall consist of a pan and tilt color camera capable of illumination and recording features. The CCTV equipment must be equipped with a radio frequency transmitter. The TV truck must include a radio frequency receiver to allow the operator to mark on the ground surface with spray paint, the location of the sewer line and or serious defects, which require immediate repair. The data collected shall be PC based, using the latest Pima COUNTY Granite software, capable of recording the CCTV logs. The camera shall be either transported by tractor or tagging and maintain centering of the camera in the pipe centerline.

A6-5g If during the television inspection of a manhole section, the camera is unable to pass an obstruction even though flow is unobstructed, televise the manhole section from the other direction (reverse setup) in order to obtain a complete recording of the line. Whenever such a condition arises, notify the Project Manager or designated representative.

A6-5h When the camera is being pulled from the other direction in order to inspect on either side of an obstruction, and a second obstruction is encountered away from the first obstruction, notify the Project Manager or designated representative and request a review of the recorded image.

A6-5i The County makes no guarantee that the sanitary sewer designated for television inspection is clear for the passage of the camera. Selection of the appropriate equipment, tools and methods for securing safe passage of the camera is the Contractors responsibility.

A6-5j If during CCTV inspection of a line segment the camera gets "stuck" inside the pipe and can't be pulled, the Contractor shall notify the Project Manager immediately. The Contractor will be required to remove its camera/equipment and will be responsible for all costs associated with retrieving its camera/equipment including excavation, trench safety, bedding, backfill, base, pavement, pipe replacement or repair in accordance with Pima County Standard Specifications.

A6-5k The inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by closed circuit television (CCTV). The CCTV Contractor has to be certified with the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) defect code usage. All pipeline features and defects shall be observed and annotated on the video, in accordance with NASSCO Defect and Features Coding.

A6-5l The Contractor's TV inspection operator shall provide and record audio comments on the digital video recording what the operator sees during the actual TV inspection. The audio comments shall note the

condition of the pipe and the location of connections to the sewer to supplement the visual information, shown on the TV recording, concerning the distance in feet through the pipe the TV camera has traveled. The COUNTY representative reserves the right, both at the time of the actual TV inspection and at the time of the receipt of the finished DVDs, to reject DVDs because of a poor picture quality (clarity, brightness, etc.). The Contractor shall re-televising, re-inspect, record, and resubmit new DVDs of those sewer segments that may have been rejected by COUNTY because of poor quality, all within the bounds of present state of the art televising capabilities. All sewer reaches that may have to be re-inspected will be done by the Contractor at no expense to COUNTY. At the beginning of each TV inspection, the Contractor's TV equipment operator shall both visually display using a video header, and orally note on the audio track of the DVD, the location, day, date and time of the TV inspection.

A6-5m Within manholes, both ends of the liner shall be televised and video recorded to determine proper cutting and to detect any leaks between the liner and the host pipe.

A6-5n The Contractor shall identify each line segment by street name, upstream and downstream manhole numbers, date, length of line, host pipe type, and in the case of rehab by the CIPP method, liner thickness. Each service connection will be identified by their respective house number and street name. This information shall be indicated on the video using audio and/or superimposed text.

A6-5o During televising and video recording, each line segment shall be measured to determine the exact length for billing purposes. Measurement for location of rehabilitation shall be by the footage meter on the cable (or a mutually agreed upon device), which shall appear continuously on the video picture and DVD. Footage meter shall be standardized to reflect the distance from the centerline of the starting manhole to the centerline of the ending manhole. Accuracy of the distance meter shall be checked by use of a walking meter, roll-a-tape, or other suitable device. Logs and DVDs shall indicate the location of all noted features, relative to the centerline of the manholes.

A6-5p The Contractor shall take adequate precautions to prevent and shall be responsible for any flooding damage that occurs due to cleaning operations. If, during the TV inspection, the sewers are not, in the opinion of the COUNTY representative, adequately cleaned, the TV inspection shall stop and the areas in question shall be cleaned or re-cleaned by the Contractor. Because of the age and possible condition of the sewer, the Contractor shall exercise extreme caution when cleaning the sewers. The Contractor shall not routinely use high velocity hydro-cleaning equipment immediately preceding the TV camera. The Contractor shall use high velocity hydro-cleaning equipment in conjunction with the TV inspection only when so directed by the COUNTY representative.

A6-5q CCTV operations shall comply with standard COUNTY CCTV inspection requirements. The Contractor shall label each individual Video Disk (DVD) and shall provide a separate written index of all DVDs submitted. The index shall list, by DVD, each sewer segment recorded thereon, and shall be accompanied by a

map that clearly indicates which DVD covers, which reach of, inspected sewer. In addition to paper logs, the DVDs shall include a log that relates each inspected sewer segment to the counter indication on the DVD showing a distance in feet from the manhole to each lateral connection or physical feature noted during that segment's TV inspection. Upon completion of the TV inspection, all DVDs shall be submitted to COUNTY and shall become the property of the COUNTY. All CCTV operations indexes and daily logs shall be compiled and included in the project's summary report.

A6-6 Sewer Preparation Prior to Liner Installation:

A6-6a Any protruding pieces of concrete, "dropped" joints, or broken pipe shall be corrected by trenchless methods or point repairs so that the host pipe is left in a clean, smooth condition ready for lining, unless otherwise jointly determined by the Contractor and COUNTY that the defect will not compromise the integrity of the liner. Prior to liner installation, all active leaks of a magnitude that may compromise the liner shall be stopped using chemical grout. If conditions, such as broken pipe and major blockages, are found that would prevent proper cleaning, or where additional damage could result if cleaning were attempted or continued, the Contractor, with the approval of COUNTY, shall perform the necessary point repair, and then complete the cleaning.

A6-7 CIPP Liner Installation

A6-7a Reference: Cured In Place Pipe (CIPP) Specifications, **SUB APPENDIX D.**

A6-8 Service Connections:

A6-8a The re-connection of service connections for CIPP rehabilitation Job Orders, shall be completed, unless otherwise specified, without excavation, from the interior of the pipeline by means of a television camera directed cutting device. All re-cut service connections shall be neat and smooth and free of all burrs, frayed edges, or any restrictions preventing free flow. Service connections shall be trimmed and wire-brushed to 100% of the original opening. No coupons, debris, or shavings shall be left inside the service connections or the lined pipe. COUNTY will provide the Contractor with the approximate location of house service connections in the CCTV videotapes provided with each Job Order package for both open cut or trenchless repair methods. During the pre-rehabilitation television inspection of the line, the Contractor shall confirm the house service connection location. There is the potential for inadequate connection reopening resulting in sewage back up in private homes. The Contractor shall be responsible for any and all damages to private properties due to defective work. All other repair methods where open cut repair or replacement of sewer lines is called for, will require the service be reinstated at the same time the sewer pipe is being repaired or replaced.

A6-8b The Contractor shall maintain a crew or a plumber capable of responding on short notice (one hour) to the affected residences for such emergencies that may occur as a result of the lining process. The Contractor shall provide a minimum of two 24-hour telephone numbers to be contacted in case of an emergency.

A6-8c The Contractor will be responsible for all costs incurred due to deficiencies related to the lining procedure or sewer line replacement. In the event a service connection is not properly reinstated, the Contractor shall rectify the defect without cost to COUNTY.

A6-8d The Contractor shall stop all visible leaks, including those at service connections, to achieve an acceptable watertight seal.

A6-8e During televising, the camera shall slowly scan the entire edge of the service connections (360 degrees).

A6-9 Utility Trench Pavement Patch:

A6-9a Pavement replacement shall be performed in conformance with the Pima Association of Governments (PAG) Standard Specifications and Standard Details for Public Improvements. The work includes, but is not limited to, removal of existing asphaltic concrete or cold patch; placement of new material; all striping and pavement markers.

A6-10 Chip Seal Coat

A6-10a Chip seal shall be performed in conformance with Section 404 of the Pima Association of Governments (PAG) Standard Specifications. In the event a double chip seal coat is required on a Work Order, the Contractor shall be paid the line item cost for chip seal multiplied by two (2).

A6-11 Manhole Construction:

A6-11a All manhole construction and installation shall be performed in compliance with COUNTY standards and specifications. Unless otherwise specified on the Work Order, all sanitary sewer manholes shall be precast units conforming to the requirements of ASTM C478 or ASTM D6783. Construction of new manholes shall consist of furnishing and installing all materials necessary, including but not limited to, manhole frames and covers, adjustment rings and steps, removal of existing pipe and the finishing of the bench and inverts. All new sanitary manholes shall be hydro tested or vacuum tested for water tightness as required by the Arizona Department of Environmental Quality (ADEQ), Section R18-9-E301.4.01 General Permit: Sewage Collection Systems.

A6-12 Manhole Rehabilitation:

A6-12a Reference: Manhole Coatings & Rehabilitation Specifications, **SUB APPENDIX F**.

A6-13 Manhole Adjustment and Reconstruction:

A6-13a Manhole adjustment is defined as the elevation change of the manhole structure in order to raise or lower the manhole to a specified elevation, but that does not require the addition or removal of the cone or barrel sections. Manhole adjustments shall be achieved by adding or removing manhole adjustment rings/bricks or the use of mortar (not to exceed 1/2 inch in thickness). The existing manhole frame and cover shall be removed, cleaned and reinstalled unless directed by COUNTY to replace the existing frame and cover with a new frame and cover. All work shall be performed in accordance with COUNTY Standard Details.

A6-13b Reconstruction of the manhole cone and/or barrel section occurs when the required amount of adjustment to the manhole causes a violation of the dimensional ranges noted in the appropriate COUNTY Standard Details for adjustment of brick, precast concrete and flat top manholes. All manhole reconstruction shall be done in accordance with the applicable COUNTY Standard Details. Any additional or replacement manhole sections shall be new material. In situations that require an increase in vertical height of the manhole, the Contractor shall re-use the existing cone section, if one originally existed, unless otherwise directed by the Engineer or his designated representative. Joints of new manhole sections must provide a suitable match (in configuration and performance) with the existing manhole section joint. The Contractor shall be responsible for the proper disposal of the existing manhole section(s). The costs associated with removal and/or proper disposal of an existing manhole section(s) shall be incidental to the appropriate RWRD Price Book Item.

A6-13c Reconstruction of a brick manhole will normally require the removal of bricks in the cone section to the straight wall of the manhole, where a new cone section can be added to achieve the desired manhole finish elevation. The Contractor may submit to the Engineer a plan to use precast concrete manhole sections in lieu of bricks in the reassembly of the manhole to be adjusted. This plan must receive the Engineer's approval prior to the ordering of the precast concrete manhole sections. Any additional or replacement manhole sections shall be

new material. The costs associated with the proper disposal of the removed, unused and remaining bricks shall be considered incidental to the appropriate RWRD Price Book Item.

A6-14 Manhole and Cleanout Frame and Cover and Existing Manhole Section Replacement and Salvage/Disposal:

A6-14a If an existing manhole frame and cover is replaced with a new manhole frame and cover, COUNTY shall direct the Contractor to either salvage and deliver the existing frame and cover to COUNTY's Operations Division

Yard (3355 N. Dodge Blvd.) or to properly dispose of the existing frame and cover. The Contractor shall coordinate deliveries to Conveyance Yard by calling 520-724-3400. The costs associated with salvaging the existing manhole frame and cover(s) and delivery to COUNTY shall be considered incidental to the appropriate RWRD Price Book Item.

A6-14b Replaced manhole sections shall remain the property of Pima COUNTY and shall be salvaged and delivered by the Contractor to a site specified by COUNTY and/or his designated representative. If the existing manhole section is deemed to not be salvageable by COUNTY or its designated representative, the Contractor shall be responsible for the proper disposal of the existing manhole section. The costs associated with removal, salvage and delivery to COUNTY or proper disposal of an existing manhole section(s) shall be incidental to the appropriate RWRD Price Book Item.

A6-15 Pot-Holing:

A6-15a If a feature cannot be located, the Contractor or its designated Subcontractor shall perform pot holing to determine its location. The Contractor shall be responsible for the proper disposal of the existing pot holing debris. The costs associated with removal and/or proper disposal of the existing pot holing debris shall be incidental to the appropriate RWRD Price Book Item.

A6-15b The Contractor shall coordinate with the appropriate regulating departments or agencies of all towns or jurisdictions included in Pima COUNTY. As a minimum, the Contractor shall contact each one of the appropriate Public Works or Transportation Departments of Marana, Oro Valley, Pima County, Sahuarita, South Tucson, and City of Tucson to comply with Blue Staking, all affected Utility Agencies, and permitting requirements.

A6-15c The Contractor shall comply with all Occupational Safety and Health Administration (OSHA) regulations pertaining to Pot-Holing operations.

A6-16 Cleanout Reconstruction:

A6-16a Reconstruction of existing cleanouts shall be done by replacement with a new manhole.

A6-17 Excavation and Backfill:

A6-17a Due to the existing condition of our sewer lines, it is expected that some of our lines will be encroached upon by private landscaping, vegetation overgrowth, alleyways and within public streets. On such conditions, the Contractor shall excavate to positively locate these lines.

A6-17b At a minimum Excavation shall be done to locate and identify sewer facilities within COUNTY designated sewer easements. The Contractor may be required to excavate the width of the easement and/or ROW and at a depth as deep as the nearest locatable downstream manhole.

A6-17c The Contractor shall coordinate with the appropriate regulating departments or agencies of all towns or jurisdictions included in Pima COUNTY. As a minimum, the Contractor shall contact each one of the appropriate Public Works or Transportation Departments of Marana, Oro Valley, Pima County, Sahuarita, South Tucson, and City of Tucson to comply with Blue Staking, utility coordination, and permitting requirements.

A6-17d The Contractor shall comply with all Occupational Safety and Health Administration (OSHA) regulations pertaining to excavation and backfilling operations.

A6-17e The Contractor shall comply with backfill and compaction requirements as set forth in PCRWRD Standard Specifications and Details for Construction.

A6-18 Manhole Bench Rehabilitation:

A6-18a Rehabilitation of the manhole bench occurs when the manhole channel(s) must be reconstructed, as to allow a smooth flow from the inlet pipe(s) to the outlet pipe(s). All manhole bench reconstruction shall be done in accordance with the applicable COUNTY Standard Details. The Contractor shall be responsible for the proper disposal of the manhole bench debris. The costs associated with bench rehabilitation safety equipment, removal and/or proper disposal of the existing manhole debris shall be incidental to the appropriate RWRD Price Book Item.

A6-18b The Contractor shall develop a written procedure for permit-required confined space entries in strict conformance with OSHA and all local, state and federal safety standards. This procedure shall be signed in ink by an official authorized to bind the Contractor to its provisions and submitted for approval prior to physically accessing any active sanitary sewer line or related facility. Pima County Wastewater Management, Confined Entry Procedure, Dec 1994 (Available upon request) shall be followed for all permit-required confined space entries, and all personnel shall be familiar with these procedures.

A6-19 Pipe Point Repair:

A6-19a Pipe point repairs and sewer line replacements will be required throughout the duration of the contract. The Contractor shall field verify the location and extent of the repair, which are otherwise authorized by COUNTY. All excavation and new pipe installation related work shall be performed in compliance with COUNTY standards and specifications. The Contractor shall be required to remove all defective portions of the pipe by cutting the pipe perpendicular to the pipe axis. The repair shall include all pipe, couplings (Smith Blair or approved equal by COUNTY), fittings, and other materials required for the repair/reconstruction of the sewer line.

A6-19b For point repairs on large diameter pipes for which solid profile pipe is not available, contact County for an approved list of pipe materials. The existing pipe shall be removed from the ground and properly disposed of at a Pima COUNTY landfill at the Contractor's expense. The new pipe shall be installed in the same location and at approximately the same slope in sand bedding per standard detail WWM 105. Where the pipe connects to manholes, a watertight seal shall be used such as link seals in combination with mortar. The pipe shall be air tested using the applicable ASTM Standards.

A6-19c For all other pipes, solid profile PVC pipe shall be used per the latest ASTM Standards. The existing pipe shall be removed from the ground and properly disposed of at an approved landfill at the Contractor's expense. The new pipe shall be installed in the same location and approximately the same slope per Pima COUNTY Standard Specifications. The Contractor is solely responsible for keeping the pipe to line and grade. Where the pipe connects to manholes, a watertight seal shall be used such as link seals in combination with mortar. Air testing may be required in certain circumstances, based on the project representative's direction, using the applicable ASTM Standards.

A6-19d Density tests, backfill specifications, and soil compaction shall be performed in accordance with Standard Specifications and Details for Construction.

A6-20 Clean-Up:

A6-20a The Contractor shall keep the work area in a neat and orderly condition by frequent removal of debris. Upon completion of the lining process or sewer line replacement at each location, all debris and unused material shall be promptly removed from the area. The area will be left in a condition similar to, or better than, before the work was performed.

A6-20b The Contractor may be required to perform various landscaping and/or hydroseeding based upon individual project requirements and as directed by the COUNTY.

A6-21 Concrete Sidewalks and Curb:

A6-21a Concrete Sidewalks and Curb Removal and Replacement shall be done per PAG Standard Specifications and Details unless otherwise required by the local jurisdiction.

A6-22 Property Damage:

A6-22a Any damage to COUNTY infrastructure or to private or public property will be immediately repaired or rehabilitated to COUNTY and/or the Property owner's satisfaction at no additional expense to COUNTY. The property owner and COUNTY (COUNTY) will be notified of the problem and the date of the repair. The property owner must acknowledge acceptance of the completed repairs by signing a form releasing the COUNTY and the Contractor from further claims.

A6-23 Punch List Items:

A6-23a The Contractor shall correct any problems found within 30 days of discovery. The Contractor shall maintain an updated list of Punch List Items, and shall submit it to COUNTY once a week. Delay in the completion of Punch List Items shall be grounds to stop the Job Order progress payment.

A6-24 Traffic Control

A6-24a The work under this section shall consist of providing flagging services and furnishing, installing, maintaining, moving, and removing barriers, barricades, warning signs, delineators, lights, signals, cones, pavement markings, impact attenuation devices, and other traffic control devices in order to provide safe and efficient passage through and/or around the work and protecting the public and workers from damage to person and property within the limits and for the duration of the project.

A6-24b All work shall conform to the requirements of the current edition of the Work Zone Standards and Guidelines published by the U.S. Department of Transportation, Federal Highway Administration as amended by the appropriate jurisdiction and, hereinafter, referred to as the traffic control standards for the protection of workers and the public.

A6-24c Traffic control, when required, shall be the Contractor's responsibility in strict accordance with each individual town, city, or jurisdiction's safety requirements and ordinances. When work takes place in the traveled portion of the public right-of-way such that, it is necessary to alter the normal pattern of traffic in order to safely accomplish the work, the Contractor, or its designated Subcontractor shall provide the required traffic control in accordance with PAG Standard Specifications unless required otherwise by the city or town where the work will be performed.

A6-24d The Contractor is advised that some Job Orders might be situated within the City of Tucson, Town of Marana, Town of Sahuarita, Town of Oro Valley, and City of South Tucson Right-of-Ways and as such, they will be under the jurisdiction of that city or town. All traffic plans and permits for those Job Orders shall be coordinated through that city or town as required. The Contractor shall prepare and submit a Traffic Control Plan to that city or town for their approval before commencement of work. Traffic control shall be in accordance with Section 701 of the most current version of the PAG Standard Details and Specifications for Public Improvements unless required otherwise by the city or town.

A6-24e Prior to the actual start of construction operations within a roadway, specific approval of traffic control, including possible detours, provisions for emergency services and public transportation access will be required. A copy of the approved traffic control plan shall be submitted to COUNTY. No separate payment shall be made for the preparation of traffic control plans. The cost shall be included in the overall cost of the project.

A6-24f COT has placed a recurring ban on traffic control (due to construction for example) on major Tucson traffic arteries during certain months (a portion of November, all of December, and a portion of January). The Contractor should verify the specifics of this ban with COT directly by calling Traffic Engineering, 520-791-4529. The COT Traffic Control Plan also applies to regular civic events including the Gem Show. COT evaluates the effect of project construction on the Gem Show on a case-by-case basis. The Gem Show occurs regularly during the third week of January through the first week of February. The Contractor is advised to verify the effect of the Gem Show restrictions on the Job Order construction, if any.

A6-24g Contractor shall schedule Traffic Control and Flow Management during non-peak hours whenever possible, so as to best accommodate the neighborhoods and traffic flow.

A6-24h Failure to have an approved Traffic Control Plan (if required) on site at all times will result in the JO being shut down until the approved Traffic Control is on site.

A6-25 *Section Reserved*

A6-26 *General Field Procedures*

A6-26a The Contractor is expected to access system features within public right of ways or easements while at the same time respecting to the largest degree viable private property rights. The Contractor and/or its Subcontractors shall perform all their operations with diligent safety standards for themselves and the general public. To minimize disruption to the public, ingress and egress to manholes shall follow the public sanitary sewer lines to the points where it crosses public access.

A6-26b The Contractor shall make every effort to clearly identify its personnel, equipment, and vehicles as COUNTY authorized agents for this project. Contractor and Subcontractor field personnel shall wear safety vests at all times and carry a copy of the notification letter at all times.

A6-26c All attempts shall be made to respect non-standard access to private property, and utmost professional courtesy when contacting the general public. In addition to the proximity of private property, the Contractor may expect that the majority of the involved easements are heavily vegetated or landscaped. This situation should be expected especially in or around residential neighborhoods where public easements are not clearly marked or established, and some degree of landscaping encroachment shall be expected and tolerated by the Contractor. Vehicular access shall be controlled and limited to existing right-of-ways and access roads in order to avoid and minimize damaging the existing vegetation.

A6-26d If trimming of vegetation is required, it shall be limited to the smallest possible area around the system feature requiring the CIPP installation, and that area only. In this event, the Contractor shall fully comply with all applicable local, state, and federal vegetation and riparian codes, ordinances, and regulations. All trimmed or disturbed vegetation shall be removed from the area, and disposed of in approved landfills or composting facilities at the Contractor's expense.

A6-26e The Contractor shall comply and follow all local, State and Federal safety, wildlife and vegetation conservation laws, codes, regulations, protocols and guidelines including but not limited to:

- Health, Noise, and Safety Regulations
- Dust Control Regulations
- Native Vegetation Ordinances
- Riparian Habitat Ordinances
- Endangered Species
- Flood Plain Ordinances

A6-26f The Contractor or Subcontractor employees are expected to physically enter the active public sanitary sewer system at some point in the Job Order performance, the Contractor shall be responsible to inform its personnel of the fact that most of the field work in this contract is to be carried out on/within operating, active

gravity sanitary sewer lines and related facilities (manholes, lift stations, meters). Confined entry certification shall be required for all personnel that might be in a position to work near, or enter any sanitary sewer feature. Any entry into the related sanitary manholes may involve, but not be limited to, exposure to one or more of the following hazards:

- Pathogenic microorganisms
- Oxygen-Deficient atmosphere
- Flammable atmosphere
- Toxic atmosphere
- Temperature extremes
- Engulfment hazards
- Excessive noise
- Slick or wet surfaces
- Falling objects
- Insects; including Bees, Spiders, Snakes, and Cockroaches
- Insect Pesticides
- Lifting heavy objects
- Climbing
- At the Pump Stations:
 - Old Sewage
 - Water depth at wet wells
 - Electrical Hazards

A6-26g The Contractor and Sub-Contractors shall maintain good housekeeping and cleaning practices at all times. Good general personal and equipment hygiene principles and protection shall be adhered to, and personal protection equipment (PPE) shall be available to all employees to prevent or minimize the exposure to raw sewage at all times. The Contractor shall comply with all applicable local, state, and federal safety regulations. Particular attention must be directed toward OSHA confined space entry rules. The Contractor shall develop a written procedure for permit-required confined space entries in strict conformance with OSHA and all local, state and federal safety standards. This procedure shall be signed in ink by an official authorized to bind the Contractor to its provisions and shall be submitted for approval to COUNTY prior to physically accessing any active sanitary sewer line or related facility. Pima COUNTY Wastewater management, Confined Space Entry Procedure (current version) shall be followed for all permit-required confined space entries, and all Contractor personnel shall be familiar with these procedures. The Contractor shall provide all equipment necessary to make an OSHA acceptable confined space entry. All costs associated with safety equipment and confined space entry(s) shall be considered appurtenant to the appropriate line item, and no additional payment shall be made for these costs. No entrance, for any reason, into the public sanitary sewage system's confined spaces shall occur without the expressed consent of COUNTY (Operations Division) and the utilization of the required safety provision. The written procedure shall include certification of training for all personnel assigned to the project.

A6-26h The Contractor shall provide a CONSTRUCTION SAFETY PLAN. A suggested outline can be found in **Sub Appendix G**. The Contractor shall provide a knowledgeable, full time, safety officer to monitor and assure that all work is being performed in strict accordance with all applicable city, COUNTY, state, and federal safety standards and in strict compliance with the submitted CONSTRUCTION SAFETY PLAN. The safety officer shall be present at all times during construction activities.

A6-27 ***Scheduling of Work***

It shall be the Contractor's responsibility to schedule all activities so as to maximize the efficiency of its operations. It is preferred, to minimize the interruptions and disruptions of each Job Order upon the neighborhood, that the Contractor coordinates all activities in sequence, as to prevent re-visiting the same area on a later date. As a minimum, the schedule shall consider the following:

- Affected jurisdictions
- Insure the procurement of all required excavation permits (If and where applicable)
- Traffic control plans and permit requirements where applicable/required

- Where applicable, contact all affected utilities located in the area
- Blue Stake for utility locations (If and where required)
- Access/Easements limitations or restrictions
- Additional public notifications for future operations (If required)
- Availability of pot-holing Contractor
- Availability of point repair Contractor
- Availability of manhole reconstruction/rehabilitation Contractor

A6-27a Existing Utilities

Under State Law (ARS 40-360-21) the Contractor is required to contact all utilities in order to determine the locations of their respective utilities prior to any excavation. The Contractor is responsible for any damages to existing utilities and will make any necessary repairs at his expense. The Contractor shall brace and/or support existing utilities as necessary to protect the existing facility from disturbance/damage.

A6-27b The Contractor shall contact Blue Stake (Arizona 811) two (2) working days prior to any excavation.

A6-27c The Contractor shall contact Tucson Electric Power Company at least ten (10) days prior to excavation within ten (10) feet of any power pole. Tucson Electric Power Company shall provide relocation or bracing of said pole.

A6-27d All gas line relocation required, including trenching, will be performed by Southwest Gas Corporation or their Contractor. Southwest Gas will determine actual location of new and/or relocated gas lines.

A6-27e Any required utility relocation shall be accomplished in cooperation with and to the satisfaction of the company or agency having jurisdiction over the particular utility. All costs associated with any utility relocation made by the Contractor shall be negotiated under PAG Standard Specifications section 109-5, Force Account Work. Where utilities are relocated by the utility owner or their representative, payment shall be made per utility relocation bill amount from the Utility Owner, with no markup allowed, out of the Utility Relocation Line Item.

A6-27f Any required water line relocation shall be performed by the utility or by Contractor at the utilities option. All water line relocation shall be in accordance with appropriate water utility Standard, Specifications and Details and ADEQ Bulletins.

A6-27g The Contractor shall maintain utility and sewer service during construction to all parties and establishments tributary to the work. The equipment, material and manner with which any required temporary sewer flow management is constructed shall assure continuous sewer service without spill or discharge of raw sewage during operation, installation or removal of the sewer flow management equipment. The Contractor shall submit a plan and associated details of any proposed flow management for review by COUNTY and the Engineer. See **SUB APPENDIX B** of this Contract for additional information.

A6-28 Immediate Maintenance Requirements

The release of sanitary sewage is considered a violation of Federal Environmental Regulations, and can result in fines and criminal penalties from the Environmental Protection Agency (EPA). The highest priority of the Contractor shall be to insure the proper operation of the public sanitary sewer system.

During this subtask the Contractor shall identify and report to COUNTY any abnormal condition found on the system requiring maintenance. There are two categories of abnormal conditions, emergency and non-emergency. The difference is that emergency conditions affect the flow or public health and shall be reported immediately. The non-emergency conditions are all other conditions that, although abnormal, can be notified at the end of the day because they are not critical to the system's operation. When an emergency situation is found, the Contractor's responsibility is to report IMMEDIATELY to:

See **SUB APPENDIX B** for further requirements.

As a minimum, the following information shall be provided:

- Facility feature number
- Address
- Location
- How to access the area, and if there are any special conditions that the response team needs to know about the area (Private property, gates, fences, or vehicle size limitations)
- Best description of the situation

Emergency conditions include but are not limited to:

- Any release of any amount of Wastewater from the system is an emergency condition.
- Partial and full line blockages
- Surcharging manholes
- Collapsed structures (benches, crowns, and walls)
- Missing or damaged manhole covers, frames, and cement collars
- Bee Hives/Africanized Bee Attacks

Once notified, COUNTY personnel will make the determination of what actions are required.

In the event that it is determined that the Contractor failed to follow these notification procedures in **SUB APPENDIX E** by either neglect or lack of due diligence, resulting in COUNTY being sued or fined by any of the monitoring agencies, the Contractor will be charged for all associated costs (e.g. COUNTY mitigation, fines, legal costs).

A6-29 Grouting of Cavities

A6-29a Grouting will be required throughout the duration of the contract. The Contractor shall field verify the location and extent of the grouting, which are otherwise authorized by COUNTY. All grouting related work shall be performed in compliance with COUNTY standards and specifications.

A6-29b When the pipe rehabilitation is completed, grouting of any cavities between the new CIPP liner and the existing ground, shall be completely filled with a COUNTY approved, Controlled Low Strength Mix (CLSM) #1 grout. The grout can be injected through a cored hole from within the rehabilitated pipe or boring from the surface to the cavity to be pressure grouted.

A7 RWRD Price Book Unit Measurement /Payment

RWRD Price Book unit prices will include ALL COSTS (with the exception of sales taxes), including labor, materials, equipment, overhead, bonding, pre-construction, indirect costs, etc., incidental to performing the work and completing the Job Order with the exception of any Change Orders deemed necessary and directed by the Owner. Sales tax will be a reimbursable item based upon actual cost. Mobilization costs will be a separate unit cost.

The amount of work to be done may be more or less than the estimated quantities and may be increased or decreased by the COUNTY as circumstances may require. The increase or decrease in any quantity shall not be regarded as grounds for an increase in the unit price or in the time allowed for the completion of the work, except as provided in the Contract Documents.

A7-1 RWRDPB Price Book (RWRDPB) Items:

RWRDPB Item Numbers 1-20: Furnish and Install CIPP Liner in Existing 6"- 78" Dia. Host Gravity Sewer Pipe: The pipe will be measured for payment along the center line of the pipe from the center of manhole to center of manhole. The respective unit prices specified to be paid, per LINEAL FOOT, of rehabilitated pipe, shall be compensation in full for furnishing all pipe, sewer fittings and other materials required for rehabilitating pipe lines by trenchless technology; for laying, setting, and jointing of all pipes and fittings; for all testing, including leakage tests; de-watering by any and all methods; any excavation, backfill and recompaction, pavement removal and replacement required to rehabilitate existing sewer main; all cleaning up; all labor, tools, and construction equipment; and for all other work and incidental expenses. Payment includes all costs for water required for liner installation and curing, all costs for root removal, applicable taxes, and public notifications per.

Resin: The resin system shall be isophthalic polyester meeting the requirements of ASTM F1216, section 5.2 except as modified herein.

However, Pima County may allow the use of vinyl ester resin, along with the associated changes in design values for that type of resin, conditioned upon County review and approval by shop drawing submittal.

RWRDPB Item Numbers 21-95: Point Repairs, Line Replacements, and Associated Appurtenances: Measurement on this item shall be per point repair schedule for point repairs provided and installed. Payment shall be compensation in full for furnishing all materials (including engineered backfill if required), labor and equipment necessary to construct and install the point repairs and all required pipe or density testing as described on the Job Order and specifications, applicable taxes, and public notifications.

RWRDPB Item Numbers 96-110: Point Repair Couplings: Measurement on this item shall be per EACH coupling (Smith Blair or approved equal by COUNTY) installed complete.

RWRDPB Item Numbers 111-112: HCS Reinstatement for CIPP Method: Measurement on this item shall be per EACH reinstated HCS (house connection sewer) of the host pipe rehabilitated by the CIPP method. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to accomplish the HCS reinstatement.

RWRDPB Item Number 113: HCS Reinstatement for Open Cut Method: Measurement on this item shall be per EACH for reconnection of existing, exposed, service connections to the sewer main. Reconnection of services to new pipe shall be accomplished via wye connection; reconnections to existing pipe can be accomplished via saddle connection (*as approved by County*). Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to accomplish the HCS reinstatement.

RWRDPB Item Numbers 114-126: Mobilization: Measurement on this item shall be by LUMP SUM for project mobilization for the applicable host pipe diameter range. Payment shall be compensation in full for furnishing all labor, materials, and equipment necessary to accomplish the project mobilization for a given Job Order using either the manhole installation, CIPP liner, or spot repair method, or a combination of one or more methods in one Job order. ***separate mobilization for CIPP, point repair, manhole rehabilitation manhole adjustment***

Flow Management

RWRDPB Item Numbers 127-131: Flow Management Pumping Portion Mobilization: Measurement for this

item shall be Pump Mobilized, for the transportation to the job site, site preparation, and pump/pipe connections of each pump and ancillary equipment determined to be required for successful flow management for completion of the Job Order in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide, transport to the site, and make necessary connections for the flow management pumps and ancillary equipment.

RWRDPB Item Numbers 132-141: Flow Management Pumping Portion: Measurement on this item shall be per Pump discharge hose diameter mobilized at the most economical rate (on hourly, daily or weekly rate) as the Job Order schedule requires. This item includes operating the pumps for the flow management pumping portion of the system, in accordance with the Job Order plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to, maintain and operate the flow management pumping portion of the system.

RWRDPB Item Numbers 142-146: Flow Management HDPE Piping and Materials Portion: Measurement on this item shall be per LF for providing, installing, and operating the flow management piping and materials portion of the system, in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide, install, operate, flush and remove from the site the flow management piping and materials portion of the system per Job Order.

RWRDPB Item Numbers 147-149: Flow Management Aluminum Piping and Materials Portion: Measurement on this item shall be per LF for providing, installing, and operating the flow management piping and materials portion of the system, in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide, install, operate, flush and remove from the site the flow management piping and materials portion of the system per Job Order.

Pavements

RWRDPB Item Numbers 150: Utility Trench Pavement Patch TYPE 1: Measurement on this item shall be per SY (square yard) for providing and installing pavement patch of Type 1 AC layer, per PAG Std Dtl 216, in accordance with the standard specifications for public improvements. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to complete the installation of the pavement patch Type 1 including striping, markers, traffic control, and any removal and disposal of existing material required.

RWRDPB Item Numbers 151: Utility Trench Pavement Patch TYPE 2: Measurement on this item shall be per SY (square yard) for providing and installing pavement patch of Type 2, with 2 inch thick AC layer, per PAG Std Dtl 216, in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to complete the installation of the pavement patch Type 2 including striping, markers, traffic control, and any removal and disposal of existing material required.

RWRDPB Item Numbers 152: Utility Trench Pavement Patch TYPE 3: Measurement on this item shall be per SY (square yard) for providing and installing pavement patch of Type 3, with 2 inch thick AC layer, per PAG Std Dtl 216, in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to complete the installation of the pavement patch Type 3 including striping, markers, traffic control, and any removal and disposal of existing material required.

RWRDPB Item Number 153: Chip Seal Coat: Measurement on this item shall be per SY (square yard) for providing and installing chip seal coat per Section 404 of PAG Std Specs, and in accordance with the

standard specifications for public improvements. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to complete the installation of the chip seal coat including, traffic control.

RWRDPB Item Number 154: Asphaltic Concrete Finish Course (Mix #3): Measurement on this item shall be per SY (square yard) for providing and installing the asphaltic concrete finish course (mix #3), with 2 inch thick layer incremental adjustment to the thickness stated in RWRDPB Items 1-3, per Section 406 of PAG Std Specs, and in accordance with the standard specifications for public improvements. Payment shall be

compensation in full for furnishing all materials, labor and equipment necessary to complete the installation of asphaltic concrete finish course (mix #3).

RWRDPB Item Number 155: Metal Plate (8' x 10' x 1"): Measurement on this item shall be per DAY for providing and installing the plate to the job site, applying cold mix around the plate as required, complete in place, and in accordance with the standard specifications for public improvements. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide installation and removal of the plate on site.

RWRDPB Item Number 156: Metal Plate (8' x 10' x 1"): Measurement on this item shall be per WEEK for providing and installing the plate to the job site, applying cold mix around the plate as required, complete in place, and in accordance with the standard specifications for public improvements. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide installation and removal of the plate on site.

Manholes & Bases – New

RWRDPB Item Numbers 157-159: Furnish and Install New Standard/Non Reinforced Manhole Base 4' and 5' Diameter: Measurement and payment on these items shall be at the unit price bid EACH, for the specified manhole base diameter. Payment shall be compensation in full for furnishing all materials, labor, and equipment necessary to furnish and install the base, complete. This shall include, but not limited to, compensation for any unforeseen obstructions of difficulties which may be encountered in construction of the base; for all excavation; pot-holing cost; placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup; hauling and proper disposal of debris at an authorized landfill; all disposal fees; costs for all other work and incidental expenses necessary to construct and install the manhole base as called for on the assigned Job Order and in accordance with COUNTY Standard Details and Specifications and the Contract Special Provisions.

RWRDPB Item Numbers 160-163: Furnish and Install New Reinforced Manhole Base 5'Diameter: Measurement and payment on these items shall be at the unit price bid EACH, for the specified reinforced manhole base diameter. Payment shall be compensation in full for furnishing all materials, labor, and equipment necessary to furnish and install the reinforced base, complete. This shall include, but not limited to, compensation for any unforeseen obstructions of difficulties which may be encountered in construction of the base; for all excavation; pot-holing cost; placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup; hauling and proper disposal of debris at an authorized landfill; all disposal fees; costs for all other work and incidental expenses necessary to construct and install the manhole base as called for on the assigned Job Order and in accordance with COUNTY Standard Details and Specifications and the Contract Special Provisions.

RWRDPB Item Number 164: Furnish and Install New Shallow Manhole: Measurement on this item shall be unit bid EACH, for the specified new 30" diameter shallow manhole. Payment shall be compensation in full for furnishing all materials, labor, and equipment necessary to furnish and install the shallow manhole, complete. This shall include, but not limited to, compensation for any unforeseen obstructions of difficulties which may be encountered in construction of the manhole; for all excavation; pot-holing cost; placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup; hauling and proper disposal of debris at an authorized landfill; all disposal fees; costs

for all other work and incidental expenses necessary to construct and install the manhole as called for on the assigned Job Order and in accordance with COUNTY Standard Details and Specifications and the Contract Special Provisions.

RWRDPB Item Numbers 165-172: Furnish and Install New Manhole Material for 4' and 5' Diameter Manholes: Measurement and payment on these items shall be at the unit price bid per VERTICAL FOOT, for the specified manhole diameter within the specified range of depth, measured to the nearest tenth (0.1) of a foot of the manhole height. The manhole height shall be measured from the manhole base invert elevation to the top of the rim elevation. Payment shall be compensation in full for furnishing all materials,

labor, and equipment necessary to furnish and install manhole material, complete. This shall include, but not limited to, compensation for the shaft, cone and/or flat top slab, grade rings, steps, and manhole frame and cover, complete; any unforeseen obstructions of difficulties which may be encountered in construction of the manhole material; for all excavation; pot-holing cost; placement and compaction of backfill material; for all testing including material testing and watertight testing; transportation of construction materials and excess materials; all cleanup; hauling and proper disposal of debris at an authorized landfill; all disposal fees; costs for all other work and incidental expenses necessary to construct and install the manhole materials as called for on the assigned Job Order and in accordance with COUNTY Standard Details and Specifications and the Contract Special Provisions

Manholes & Bases - Rehabilitate

RWRDPB Item Numbers 173-174: Rehabilitate and Coat Existing Manhole Base 4 or 5 Ft Dia (Std Dtl 200): Measurement on this item shall be per EACH existing 4 or 5 foot diameter rehabilitated and coated existing manhole base, complete, in place, per RWRD Std Dtl 200, in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to complete the rehabilitated manhole base.

RWRDPB Item Number 175: Rehabilitate and Coat Existing Manhole Base 5 Ft Dia. (Std Dtl 200): Measurement on this item shall be per EACH existing 5 foot diameter rehabilitated and coated manhole base, complete, in place, per RWRD Std Dtl 200, in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to complete the rehabilitated manhole base.

Manhole - Coating

RWRDPB Item Number 176: Provide Protective Coating For Existing Manhole: Measurement on this item shall be per S.F. of existing manhole coated on its walls, ceiling, and riser sections, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the coating in the existing manhole, except the base and frame and cover.

RWRDPB Item Number 177: Provide Protective Coating For New or Existing Manhole Ring and Cover: Measurement on this item shall be per EACH new or existing manhole ring and cover section coated, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the coating on the manhole ring and cover.

Manhole - Frames & Covers

RWRDPB Item Number 178: Provide 14" Cleanout Frame and Cover: Measurement on this item shall be per EACH new cleanout frame and cover provided and installed, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the new cleanout frame and cover.

RWRDPB Item Number 179: Provide 24" Dia. Manhole Frame and Cover: Measurement on this item shall be per EACH New 24 inch diameter manhole frame and cover provided and installed, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the 24 inch diameter manhole frame and cover.

RWRDPB Item Number 180: Provide 30" Dia. Manhole Frame and Cover: Measurement on this item shall be per EACH New 30 inch diameter manhole frame and cover provided and installed, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the 30 inch diameter manhole frame and cover.

RWRDPB Item Number 181: Provide 24" Dia. Waterproof Manhole Cover and Frame: Measurement on this item shall be per EACH New 24 inch diameter manhole cover and frame provided and installed, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the 24 inch diameter waterproof manhole cover and frame.

RWRDPB Item Number 182: Provide 30" Dia. Waterproof Manhole Cover and Frame: Measurement on this item shall be per EACH New 30 inch diameter manhole cover and frame provided and installed, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the 30 inch diameter waterproof manhole cover and frame.

RWRDPB Item Number 183: Provide 24" Dia. Bolted Waterproof Manhole Cover and Frame: Measurement on this item shall be per EACH New 24 inch diameter bolted waterproof manhole cover and frame provided and installed, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the 24 inch diameter bolted waterproof manhole cover and frame.

RWRDPB Item Number 184: Provide 30" Dia. Bolted Waterproof Manhole Cover and Frame: Measurement on this item shall be per EACH 30 New inch diameter bolted waterproof manhole cover and frame provided and installed, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the 30 inch diameter bolted waterproof manhole cover and frame.

Manhole - Concrete Collar

RWRDPB Item Number 185: Provide Standard Concrete Collar: Measurement on this item shall be per EACH new manhole concrete collar provided and installed, complete, in place, per COUNTY Standards, , per RWRD Std Dtl 211. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the new manhole concrete collar.

RWRDPB Item Number 186: Provide Protective Concrete Collar: Measurement on this item shall be per EACH new manhole concrete collar provided and installed, complete, in place, per RWRD Std Dtl 212, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the new manhole concrete collar.

Manhole – Adjustment to Grade

RWRDPB Item Number 187: Adjust Existing 24" Dia. Frame and Cover For Brick Manhole: Measurement on this item shall be per EACH existing 24" diameter frame and cover for brick manhole adjusted to the finished grade, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to adjust the existing

brick manhole to the grade specified. This shall include, but not be limited to, compensation for any unforeseen obstructions or difficulties which may be encountered in adjustment of the manhole; for pot-holing costs; all excavation of existing material and placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup, hauling and proper disposal of debris at an authorized landfill; all landfill disposal fees; costs for all safety equipment; and all other work and incidental expenses necessary to adjust the existing manhole.

RWRDPB Item Number 188: Adjust Existing 30" Dia. Frame and Cover For Brick Manhole: Measurement on this item shall be per EACH existing 30" diameter frame and cover for brick manhole adjusted to the finished grade, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to adjust the existing brick manhole to the grade specified. This shall include, but not be limited to, compensation for any

unforeseen obstructions or difficulties which may be encountered in adjustment of the manhole; for pot-holing costs; all excavation of existing material and placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup, hauling and proper disposal of debris at an authorized landfill; all landfill disposal fees; costs for all safety equipment; and all other work and incidental expenses necessary to adjust the existing manhole.

RWRDPB Item Number 189: Adjust Existing 24" Dia. Frame and Cover For Reinforced Concrete Manhole: Measurement on this item shall be per EACH existing 24" diameter frame and cover for reinforced concrete manhole adjusted to the finished grade, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to adjust the existing precast manhole to the grade specified. This shall include, but not be limited to, compensation for any unforeseen obstructions or difficulties which may be encountered in adjustment of the manhole; for pot-holing costs; all excavation of existing material and placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup, hauling and proper disposal of debris at an authorized landfill; all landfill disposal fees; costs for all safety equipment; and all other work and incidental expenses necessary to adjust the existing manhole.

RWRDPB Item Number 190: Adjust Existing 30" Dia. Frame and Cover For Reinforced Concrete Manhole: Measurement on this item shall be per EACH existing 30" diameter frame and cover for reinforced concrete manhole adjusted to the finished grade, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to adjust the existing precast manhole to the grade specified. This shall include, but not be limited to, compensation for any unforeseen obstructions or difficulties which may be encountered in adjustment of the manhole; for pot-holing costs; all excavation of existing material and placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup, hauling and proper disposal of debris at an authorized landfill; all landfill disposal fees; costs for all safety equipment; and all other work and incidental expenses necessary to adjust the existing manhole.

Manhole – Reconstruction

RWRDPB Item Number 191: Reconstruct Existing Cleanout To Finished Grade: Measurement on this item shall be per EACH existing cleanout adjusted to the finished grade, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to reconstruct the existing cleanout to the grade specified and per COUNTY Standards and Appendix A – Engineering Resources.. This shall include, but not be limited to, compensation for any unforeseen obstructions or difficulties which may be encountered in adjustment of the manhole; for pot-holing costs; all excavation of existing material and placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup, hauling and proper disposal of debris at an authorized landfill; all landfill disposal fees; costs for all safety equipment; and all other work and incidental expenses necessary to reconstruct the existing cleanout.

RWRDPB Item Numbers 192-193: Reconstruct Existing 4 or 5 FT Dia. Brick Manhole To Finished Grade: Measurement on this item shall be per VF (vertical foot) existing 4 or 5 ft diameter brick manhole barrel/cone section adjusted to the finished grade, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to reconstruct the existing brick manhole to the grade specified. This shall include, but not be limited to, compensation for new manhole barrel and/or cone section, new grade rings, new steps, for any unforeseen obstructions or difficulties which may be encountered in reconstruction of the manhole; for pot-holing costs; all excavation of existing material and placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup, hauling and proper disposal of debris at an authorized landfill; all landfill disposal fees; costs for all safety equipment; and all other work and incidental expenses necessary to reconstruct the existing manhole.

RWRDPB Item Numbers 194-195: Reconstruct Existing 4 or 5 FT Dia. Reinforced Concrete MH To Finished Grade: Measurement on this item shall be per VF (vertical foot) existing 4 or 5 ft diameter reinforced concrete manhole barrel/cone section adjusted to the finished grade, complete, in place, and in accordance with the

project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to reconstruct the existing precast manhole to the grade specified. This shall include, but not be limited to, compensation for new manhole barrel and/or cone section, new grade rings, new steps, for any unforeseen obstructions or difficulties which may be encountered in reconstruction of the manhole; for pot-holing costs; all excavation of existing material and placement and compaction of backfill material; all material testing; transportation of construction materials and excess materials; all cleanup, hauling and proper disposal of debris at an authorized landfill; all landfill disposal fees; costs for all safety equipment; and all other work and incidental expenses necessary to reconstruct the existing manhole.

Manhole – Bench Rehabilitation

RWRDPB Item Numbers 196: 4 foot Diameter Manhole Bench Rehabilitation: Measurement on this item shall be per EACH manhole bench rehabilitated, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to rehabilitate the bench/channel(s) inside a manhole.

RWRDPB Item Numbers 197: 5 foot Diameter Manhole Bench Rehabilitation: Measurement on this item shall be per EACH manhole bench rehabilitated, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to rehabilitate the bench/channel(s) inside a manhole.

Pot Holing

RWRDPB Item Number 198: Pot-holing: Measurement on this item shall be per VF (vertical foot) of required Pot-holing, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor, and equipment necessary to locate COUNTY facilities.

Excavation and Backfill

RWRDPB Item Number 199: Excavation & Backfill: Measurement on this item shall be per CY (cubic yard) for excavation and backfill, using native soil for backfilling, required excavation and backfill that is not already addressed in another given RWRDPB Item, (use $CY = (Width * Length * Depth) / 27$ 0' to 4' deep). Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to accomplish the excavation and backfill work in accordance with the Plans and Specifications.

RWRDPB Item Number 200: Excavation & Backfill: Measurement on this item shall be per CY (cubic yard) for excavation and native backfill for required excavation and backfill that is not already addressed in another given RWRDPB Item, (use $CY = (Width * Length * Depth) / 27$ 4.1' to 10' deep). Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to accomplish the excavation and backfill work in accordance with the Plans and Specifications.

RWRDPB Item Number 201: Excavation & Backfill: Measurement on this item shall be per CY (cubic yard) for excavation and native backfill for required excavation and backfill that is not already addressed in another given RWRDPB Item, (use $CY = (Width * Length * Depth) / 27$ 10.1' to 15' deep). Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to accomplish the excavation and backfill work in accordance with the Plans and Specifications.

RWRDPB Item Number 202: Excavation & Backfill: Measurement on this item shall be per CY (cubic yard) for excavation and backfill of AB material for tasks that required excavation and backfill that is not already addressed in another given RWRDPB Item, (use $CY = (Width * Length * Depth) / 27$ 0' deep to 4' deep). Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to accomplish the excavation and backfill work in accordance with the Plans and Specifications.

RWRDPB Item Number 203: Excavation & Backfill: Measurement on this item shall be per CY (cubic yard) for excavation and backfill of AB material for tasks that required excavation and backfill that is not already addressed in another given RWRDPB Item, (use $CY = (Width * Length * Depth) / 27$ 4.1' deep to 10' deep. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to accomplish the excavation and backfill work in accordance with the Plans and Specifications.

RWRDPB Item Number 204: Excavation & Backfill: Measurement on this item shall be per CY (cubic yard) for excavation and backfill of AB material for tasks that required excavation and backfill that is not already addressed in another given RWRDPB Item, (use $CY = (Width * Length * Depth) / 27$ 10.1' deep to 15' deep. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to accomplish the excavation and backfill work in accordance with the Plans and Specifications.

Concrete Work

RWRDPB Item Numbers 205-211: Concrete Sidewalks, Concrete Driveways, PCCP Concrete, and Curb Removal and Replacement: Measurement shall be per CUBIC YARD of existing concrete sidewalk and concrete curb removed and replaced "in-kind" in accordance with the Standard Specifications and Standard Details numbers 200, 203, 209, 211, and 213 complete, in-place. Payment shall be at the unit price and shall be compensation in full for furnishing all labor, materials and equipment necessary to accomplish the concrete sidewalk and/or concrete curb removal and replacement, inclusive of saw cutting, removal and proper disposal of debris at an authorized landfill, subgrade compaction; furnishing and placing forms; furnishing and placement of Class "B" concrete, providing proper surface drainage, protection of existing utilities and other sundry improvements and all other work necessary to complete the items in conformance with the Standard Specifications and Standard Details.

Miscellaneous

RWRDPB Item Number 212-213: Porta Potties: Measurement on this item shall be per EACH MONTH for a porta potty provided and installed, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the porta potties.

RWRDPB Item Number 214: Grouting of Cavities: Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to inject grout; includes mobilization of grouting equipment, grout material and transportation of the material to the site, boring or coring to access the cavity, injection of the grout, complete in place, with no allowance for wasted material, repair of the cored pipe using a COUNTY approved method, repair of the bored surface opening by a COUNTY approved method, clean up and, demobilization of the equipment used.

RWRDPB Item Numbers 215-217: CCTV: Payment shall be made per linear foot of successfully televised pipe, complete, in place, to COUNTY Standards.

RWRDPB Item Numbers 218-220: Pipe Cleaning: Payment shall be made per linear foot of successfully cleaned pipe, complete in place, to COUNTY Standards.

RWRDPB Item Number 221: Provide As-Built Documents: Measurement on this item shall be per SHEET for providing as built documents, sealed by an AZ Registered Land Surveyor, complete, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the required as built documents.

RWRDPB Item Number 222: Provide Construction Staking: Measurement on this item shall be per LINEAR FOOT for providing construction staking, complete, in place, and in accordance with the project plans and specifications. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the required construction staking.

RWRDPB Item Numbers 223: Asbestos Cement Pipe Removal and Proper Disposal: Measurement on this item shall be per TON for the removal and disposal of ACP, in accordance with all regulations regarding the approved procedures for removal and disposal of asbestos cement pipe materials. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to remove and dispose.

RWRDPB Item Numbers 224-227: Remove and Install Security Fencing: Measurement on this item shall be per LINEAR FOOT for the removal and/or installation of barb wire and chain link fencing, per COUNTY standards. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to remove and/or install the required fencing.

RWRDPB Item Number 228-229: Remove and Install 20' Security Gate: Measurement on this item shall be per EACH 20' security gate that is removed and/or installed, per COUNTY standards. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the required gate removal and replacement.

RWRDPB Item Numbers 230-231: Remove and Replace 6' and 8' CMU Wall: Measurement on this item shall be per SQUARE FOOT CMU wall that is removed and replaced, per COUNTY standards. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the required CMU wall removal and replacement.

RWRDPB Item Number 232: Archaeological Monitoring: Measurement on this item shall be per HOUR as required, per County standards. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the necessary monitoring services.

RWRDPB Item Number 233: Hydroseeding: Measurement on this item shall be per ACRE for Hydroseeding services as required, per County standards. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the Hydroseeding services.

RWRDPB Item Number 234: Shop/Engineering Drawings: Measurement on this item shall be per SHEET for providing Shop/Engineering Drawings as required, per County standards. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the Drawings.

RWRDPB Item Number 235: Rip-Rap: Measurement on this item shall be per SQUARE YARD for providing D₅₀ 6" rip-rap as required, per County (*Blue Book*) standards. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the rip-rap.

RWRDPB Item Number 236: Install Survey Monument per Standard Detail RWRD 503: Measurement on this item shall be per EACH to provide and install Survey Monuments, per County standards. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide and install the Survey Monument.

RWRDPB Item Number 237: Provide miscellaneous services, construction materials and installation by Force Account: Measurement and payment for miscellaneous construction, materials and equipment required for work which is outside of the scope of the contract shall be done as outlined in Section 109-5 EXTRA AND FORCE ACCOUNT WORK of the PAG Standard Details and Specifications for Public Improvements. Examples of such work are as follows: Force Main Repair, Flush Tank Removal, Lamphole Abandonment, Use of Approved Test Products (including UV Point Repair and Carbon-Fiber Manhole Coating), Surveying, Traffic Control, Permits, Utility Relocation, SWPPP, and Landscaping. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the required Surveying services. Work under this item must be authorized by COUNTY prior to the commencement of the work. This item will only be used as needed; all the monies for this item may not be spent during the course of construction on this project.

A8 ADMINISTRATIVE PROVISIONS:

It shall be the Contractor's responsibility to provide the requested services and to produce and assemble the documents described herein. The formal work relationship between the Contractor and COUNTY shall be maintained between the Contractor's Project Manager and COUNTY's Project Manager. This formal relationship shall include the passage of all written forms of correspondence, requests for information, notifications, submittals, and claims for payment.

A8-1 Availability of Applicable Information

The COUNTY staff will provide or coordinate the available information applicable to the work of the Contractor that is not otherwise available to the public. The Contractor shall make inquiries to the COUNTY Project Manager to resolve if possible, any inconsistencies or deficiencies found within the information supplied.

A8-2 Coordination and Approvals

It shall be the Contractor's responsibility to provide all coordination with involved utilities, governmental agency, private owner or company, and regulatory agencies with jurisdiction over the location of the project, and to resolve any issue requisite to providing the services and documents required herein.

A8-3 Quality Control

A8-3a The Contractor has total responsibility for the accuracy, timeliness and completeness of the work and the documents it is to furnish under this contract. COUNTY will review the submittals to determine if quality control procedures are being applied and if they are adequate and appropriate for the work presented.

A8-3b Submittals of the work and supporting documentation thereof as provided below shall be accomplished by documentation, which shows the Contractor has established and is following quality control procedures. Such documentation may be in the form of copies of appropriate deliverables lists, tables, checklists, etc. which show columns for checking, revision, re-checking, and quality control reviews, as appropriate. Submittals to COUNTY not accompanied by documentation, which verifies the use of quality control procedures, may be returned to the Contractor if it appears to COUNTY that quality control procedures are not being followed. Documentation of the application of quality control procedures may be considered to be a requisite element of each review submittal.

A8-4 Submittals

A8-4a Formal submittals of the work are considered to be milestones. The submittals are due at the beginning of the requiring Phase. The Contractor shall conduct the work to complete the tasks in accordance with the respective approved schedules.

A8-4b The Contractor submittals for COUNTY approval or review shall include, but not be limited to the following:

Submittals Schedule		
Item No.	Description	Applicable Section
1.	Coating applicator's certifications and qualifications	After award
2.	Confined space entry procedures for the main Contractor's personnel and all Subcontractor's personnel requiring entrance to the sewage system (Cleaning, Manhole Rehabilitation, Manhole Reconstruction, Closed Circuit Televising (CCTV))	After award

3.	All relevant information for the proposed (CIPP) liner from the resin manufacturer (specifications, characteristics, properties, and methods of application). Ref: Cured In Place Pipe (CIPP) Specifications, Sub Appendix D.	After award
4.	Draft of Residents Notification Letter/Door hangers	After award
5.	Spill Prevention Plan	After award
6.	WO Schedule	Phase II
7.	Coating applicator's certifications and qualifications	Phase II
8.	Cleaning of Sewer Proposed Method Submittal	Phase II
9.	Copies of CCTV personnel National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) defect code usage	Phase II
10.	Design Data and Specification data sheet listing all parameters used in the CIPP design and thickness calculations based on Appendix XI of ASTM F-1216	Phase II
11.	Pricing based on Bid Schedule; this pricing will be stated as a computation of prices for each item times the quantity and will give an over-all Not To Exceed amount	Phase II
12.	Certified test report to demonstrate compliance of the proposed CIPP with the specified ASTM Standards	Phase II
13.	Manufacturers storage and handling instructions for the liner tube and resin	Phase II
14.	Installation, heating, curing, and cool-down schedule plan for each inversion	Phase II
15.	Resin manufacturer data sheet	Phase II
16.	Description of methods for avoiding liner stoppage during installation and plans for protecting downstream sewer that have previously been lined	Phase II
17.	Traffic Control Plan (If Required)	Phase II
18.	Resident Notification Letter for approval.	Phase II
19.	Submittal for seals and grouts.	Phase II
20.	Product specifications on inversion lubricants (if used)	Phase II
21.	Manhole rehabilitation coating products submittals	Phase II
22.	Manhole reconstruction shop drawings & material submittals	Phase II
23.	Flow Management Plan	Phase II
24.	Point repair proposed procedures, materials, and shop drawings.	Phase II
25.	Personnel certifications for Confined Spaces, and Pump Operators	Phase II
26.	Photos and video of the proposed construction area (before construction)	Phase II
27.	Proposed lay down are for construction activities	Phase II
28.	Contractor daily reports	Phase IV
29.	A copy of the "wet-out" and "Cure" reports in an approved format immediately after curing of each liner is completed.	Phase IV
30.	Updated list of punch list items	Phase V
31.	Job Order Completion Report	Phase V
32.	Records and DVDs documenting line cleaning and television inspection of completed work.	Phase V
33.	Actual resin volume used, and test results of infrared spectrum analysis conducted on each lot of resin.	Phase V
34.	Copy of cured liner samples test result reports	Phase V
35.	Photos and video of the proposed construction area (after construction)	Phase V
36.	Notification of any property damage	As Needed
37.	Monthly WO Meeting Minutes	Monthly Meeting

A8-5 Force Account

Work that is considered by county to be out of the scope of work of this contract shall be paid for as a force account item following PAG section 109-5 guidelines, unless agreed or specified otherwise within the contract documents.

A8-6 Invoicing and Payment

Contractor will submit to COUNTY, within a reasonable timeframe, invoices for payment in a format and method that is acceptable to COUNTY, including any itemization or formatting as required. Typically, invoices shall be submitted monthly, or within 30 days of project completion.

No payment shall be made for stored materials, unless specifically allowed for a specific item in a particular Job Order issued, in which case payment for the agreed stored material will only be made for the specific Job Order. The stored material shall be **owned** by the Contractor, no third party payments will be processed.

A8-7 COUNTY Responsibilities

The COUNTY will perform the following functions during the execution of this Contract:

- Designate a Project Manager to direct the Contractor and serve as a single point of contact for all of the Contractor's formal contacts with the COUNTY. Said Project Manager may be changed by written notification to the Contractor;
- Secure the necessary reviews and approvals from COUNTY Staff reviewers
- Provide the required Notices-To Proceed without unnecessary delays
- Provide timely payment of the Contractor's reimbursement vouchers
- Provide copies of any relevant, available studies, reports, or other documentation prepared by or for COUNTY or other agencies which may bear on the work unless such studies, reports or documents have been published separately and are available publicly
- Provide the Contractor with all information stated to be provided the Contractor under this Contract.

SUB APPENDIX "A"
ENGINEERING RESOURCES

Current Engineering Design Standards, Details and Directives are available at
<http://webcms.pima.gov/government/wastewaterreclamation/designstandards/>
and are hereby referenced.

SUB APPENDIX "B"

PROCEDURES IMPLEMENTATION OF WASTEWATER FLOW MANAGEMENT

Wastewater Flow Management Goal: To provide for the uninterrupted flow of wastewater around the section or sections of pipe where construction work will be performed. To eliminate spills associated with by pass pumping operations and to contain and promptly clean up SSO's caused by flow management activities.

Current Engineering Design Standards, Details and Directives are available at

http://webcms.pima.gov/UserFiles/Servers/Server_6/File/Government/Wastewater%20Reclamation/Engineering/SSDC_2016.pdf

and are hereby referenced.

SUB APPENDIX "C"

RESIDENTIAL/BUSINESS NOTIFICATIONS

When interruption of customers sanitary service is required due to a Job Order, the contractor must follow the guidelines set in section 2.8 of the 2016 RWRD Standard Specifications for Construction.

Current Engineering Design Standards, Details and Directives are available at

http://webcms.pima.gov/UserFiles/Servers/Server_6/File/Government/Wastewater%20Reclamation/Engineering/SSDC_2016.pdf

and are hereby referenced.

If COUNTY determines that a neighborhood meeting is required, the Contractor and Pima County Wastewater Management shall jointly hold a neighborhood meeting a minimum of five (5) calendar days prior to commencement of work on the project. The Contractor's Superintendent and COUNTY staff shall be in attendance at the meeting. The purpose of the meeting is to discuss the parameters of the project, and how it will affect the neighborhood residents/businesses. Identification of special requirements for handicapped persons will be addressed.

Prior to commencing work, the Contractor shall notify all residents/businesses whose service connections will be interrupted by means of a bilingual door hanger, at least 48 hours in advance of the service interruption. This notification shall be in person, whenever possible, and shall include a pamphlet describing the Job Order, the method of construction, and the approximate date and length of time that the interruption of service will occur. The Contractor's proposed written notification shall be submitted to COUNTY for review and approval prior to distribution to the public. The Contractor shall confirm the notification again verbally, whenever possible, at least 24 hours before the interruption actually happens. The 24-hour bilingual notifications shall include an "Official Notification/Notificación Oficial" approved by the COUNTY. The Contractor shall maintain a notification log, which will include the date and time of the notification for all the involved properties, the contact person's name, or if no contact was made, that the information was left at the door. This notification log shall be submitted to COUNTY prior to construction.

During the course of the project, if the original time for the construction activity is accelerated or delayed, the Contractor will notify the COUNTY PM, Community Relations, as well as residents to commencement of any work schedule change 24 hours in advance.

SUB APPENDIX "D"

**CURED-IN-PLACE PIPE (CIPP) SPECIFICATIONS
&
SPECIAL PROVISIONS FOR CURED-IN-PLACE SECTIONAL LINER (CIPSL)
(Trenchless point repair for gravity sewer pipelines)**

Dated October 2014

*These Special Provisions are Generic in nature and intended to apply to any and all Job Order Contracts

SPECIAL PROVISIONS-CURED IN PLACE PIPE (CIPP)

SECTION

SECTION 701 - PRIORITY OF SPECIFICATIONS

SECTION 702 - LOCATION OF WORK

SECTION 703 - DESCRIPTION OF WORK

SECTION 704 - EXISTING UTILITIES

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SECTION 720 - PERMITS AND SUBMITTALS

SECTION 721 - ASBESTOS CEMENT PIPE REMOVAL AND DISPOSAL

INTENT AND PURPOSE

Intent and purpose of these Special Provisions is to interpret and/or supplement all Pima County Regional Wastewater Rehabilitation Department (PCRWRD) Standard Specifications and Details for Construction 2016 Edition, PCRWRD Engineering Design Standards 2016 Edition, and the Pima Association of Governments (PAG) Standard Specifications and Standard Detail Drawings for Public Improvements, updated November 2011, to the extent and in the manner referred to and to provide additional Specifications.

SECTION 701 - PRIORITY OF SPECIFICATIONS

In the event of any conflict, seeming or real, between these Special Provisions and the PCRWRD Standard Specifications and Details for Construction 2016 Edition, or the Pima Association of Governments (PAG) Standard Specifications and Standard Detail Drawings for Public Improvements, updated November 2011, these Special Provisions shall prevail, and the order in which they govern shall be:

1. Special Provisions
2. Project Plans
3. PCRWRD Standard Details for Construction, 2016 Edition
4. PCRWRD Standard Specifications for Construction, 2016 Edition
5. PAG Standard Specifications for Public Improvements, updated November 2011
6. PAG Standard Detail Drawings for Public Improvements, updated November 2011

The Contract Drawings which accompany and form part of these Special Provisions bear the title "***Project Title and G/R Number***".

SECTION 702 - LOCATION OF WORK

This project is known as the "***Project Title and G/R Number***". The project is located within Sections ***Project Specifics***, Pima County, Arizona. The project is bordered on the north by ***Project Specifics***. The location is depicted in the Contract Drawings accompanying these Specifications.

SECTION 703 - DESCRIPTION OF WORK

703.1 The work to be performed consists of furnishing all materials, equipment and supplies, and performing all labor in connection with the rehabilitation of a sanitary sewer and other work shown on Plan No. ***Project Specifics***, complete in place, in strict accordance with the Standard Specifications, Standard Drawings, Contract Documents, and these Special Provisions. One Contractor shall perform entire rehabilitation project utilizing one or more lining technology.

703.2 The rehabilitation work in this project shall include but not limited to:

- Flow Management
- Cleaning
- Close Circuit Television (CCTV)
- Point Repairs
- Cured-in-place pipe (CIPP)
- Manhole Rehabilitation
- Bench/Channel Rehabilitation
- Construction of Required Structures

703.3 The rehabilitation consists of approximately **XX,XXX** linear feet of existing **X**, and **XX**-inch gravity sewer pipe and rehabilitation of approximately 100 manholes. The existing gravity sewer includes asbestos cement (AC), vitrified clay (VC), reinforced concrete pipe (RC), and ductile iron (DI) pipes, and reinforced concrete man holes.

703.4 The PCRWRD approved trenchless technology for this specific job is installation of a thermosetting resin-impregnated, felt fiber tube inserted, inflated, and water cured in the existing conduit, henceforth

referred to as cured-in-place pipe (CIPP).

703.5 The PCRWRD approved manhole rehabilitation technology is **Project Specifics** coatings.

703.6 **Project Specifics:** There are **X** new manholes and **XX** feet of new **X"** (*polyvinyl chloride (PVC), reinforced concrete pipe (RCP)*) gravity sewer pipe to be installed.

SECTION 704 - EXISTING UTILITIES

704.1 Under State Law Arizona Revised Statute (ARS 40-360-21) the Contractor is required to contact all utilities in order to determine the locations of their respective utilities prior to any excavation. The Contractor shall be responsible for any damages to existing utilities and shall make any necessary repairs at his expense. The Contractor shall brace and/or support existing utilities as necessary to protect existing facilities from disturbance and/or damage.

704.2 Contractor shall verify locations and elevations of all existing utilities prior to any construction. The Contractor shall call Blue Stake at 811 or 1-800-782-5348 two (2) full working days prior to any excavation. Saturdays, Sundays, and holidays are not considered to be working days. The Contractor shall provide the PCRWRD inspector a copy of the Blue Stake Ticket(s) and all utility coordination records performed for all required construction activities for this project at least two (2) working days prior to commencing work.

704.3 The Contractor shall contact Tucson Electric Power Company at least ten (10) working days prior to excavation within ten (10) feet of any power pole. Tucson Electric Power Company shall provide relocation or bracing of said pole.

704.4 All gas line relocation required, including trenching, will be performed by Southwest Gas Corporation or their Contractor. Southwest Gas Corporation will determine actual location of new and/or relocated gas lines.

704.5 Any required utility relocation shall be accomplished in cooperation with and to the satisfaction of the company or agency having jurisdiction over the particular utility. The Contractor shall be responsible for all costs associated with any utility relocation. The Contractor shall provide the PCRWRD inspector a copy of all utility plans and coordination records performed for all required construction activities for this project at least two (2) working days prior to commencing work.

704.6 Any water line relocation(s) required shall be performed by the Contractor or by the Water Company's Contractor. All existing water lines are part of the **Utility Specific** (*Tucson Water, Metro Water, etc.*). All water line relocation shall be in accordance with **Utility Specific** Standard Specifications and Details and Arizona Administrative Code of the Department of Environmental Quality (ACC ADEQ) Title 18, Chapter 5, except as modified on the Plans. See Section 709, "TEMPORARY UTILITIES" of these Special Provisions, regarding construction water for the project.

704.7 The Contractor shall maintain utility and sewer service during construction to all parties and establishments tributary to the work. The equipment, material and manner with which any required temporary sewer Flow Management is constructed shall assure continuous sewer service without spill or discharge of raw sewage during operation, installation or removal of the sewer flow management equipment. The Contractor shall submit a plan and associated details of the proposed FMP for review to PCRWRD in accordance with Section 2 of the PCRWRD Standard Specifications and Details for Construction 2012 Edition. See Section 712, "Wastewater Flow Management Plans" of these Special Provisions for additional information.

SECTION 705 - WORK WITHIN RIGHTS-OF-WAY, PRIVATE STREETS, AND EASEMENTS

705.1 This work is to be done within existing public rights-of-way of Pima County and City of Tucson, private streets, and public sewer and utility easements, as shown on the plans. It shall be the responsibility of the Contractor to obtain any and all necessary permits to conduct the work within the rights-of-way shown in the plans, including any permits required for temporary pavement cuts within the roadway. The Contractor shall prepare and provide all required plans, including but not limited to traffic control and temporary sewage flow management. In addition, the Contractor shall provide dewatering plans if

necessary should ground water be encountered. The Contractor shall provide the PCRWRD inspector a copy of all required plans and coordination records performed for all required construction activities for this project at least two (2) working days prior to commencing work.

705.2 The Contractor shall make every effort to minimize damage to existing improvements during all work operations. Any existing improvement which requires removal for work access shall be replaced "in kind" by the Contractor to the satisfaction of the right of way or easement owner. All costs associated with the above work within rights-of-way, private streets, and easements shall be included in pipe installation costs, except as provided for by specific items in the proposal. Any existing improvement which is damaged or removed by the Contractor outside the rights-of-way, private streets, and easements shall be replaced "in kind" and to a condition equal to or better than the original at the Contractor's expense. The Contractor shall provide to the PCRWRD inspector a copy of all records related to the resolution of these situations including acceptance by the affected parties, any ancillary actions, remedies, and any other pertinent information/work related to the original incident within ten (10) working days after the work has been completed.

SECTION 706 - TEMPORARY UTILITIES

706.1 The Contractor shall provide, at no additional cost to PCRWRD, all construction power used at the site. He shall make all arrangements with the electrical utility for power takeoff points, voltage and phasing requirements, transformers and metering and shall pay all costs and fees arising there from. It shall be the Contractor's responsibility to provide all special connections required for his work.

706.2 The Contractor shall provide, at no additional cost to PCRWRD, all construction water used at the site. The Contractor shall make all arrangements with Tucson Water for water takeoff points and metering and shall pay all costs and fees arising there from. It shall be the Contractor's responsibility to provide all special connections required for his work. The Contractor shall make provisions for delivering the water from the connection(s) to the point(s) of use. The Contractor shall also be responsible for making provisions to locate water supply hoses below surface grade when it is necessary to extend hoses across roadways. For some above ground installations, the Contractor may consider using hose-wheel ramps to protect the hoses from vehicle traffic. The Contractor shall coordinate all hose installations within the right-of-way with Pima County or City of Tucson and PCRWRD. PCRWRD may require below grade placement at some locations independent of Pima County and City of Tucson requirements. The Contractor shall coordinate with the PCRWRD Field Engineering Unit (FEU) early in the coordination process to ensure the project-specific requirements of PCRWRD FEU are clearly understood and provisions made for implementation thereof. The Contractor shall provide the PCRWRD inspector a copy of all required plans and coordination records performed for all required construction activities for this project at least two (2) working days prior to commencing work.

SECTION 707 - DAMAGE TO WORK DURING CONSTRUCTION

The Contractor shall make every effort to prevent damage to the sewer and related appurtenances during construction. Any and all damage to the sewer and/or appurtenances resulting from negligence on the part of the Contractor shall be rectified by the Contractor to the satisfaction and approval of PCRWRD at the expense of the Contractor. It shall be the Contractor's responsibility to protect the sewer and related appurtenances from all reasonably foreseeable potentially damaging events until final approval and acceptance by PCRWRD.

SECTION 708 - TRAFFIC CONTROL, DETOURING, AND ACCESS TO ADJACENT PROPERTIES

708.1 The Contractor is advised that this project is situated within Pima County and City of Tucson Right-of-Ways and is under the jurisdiction of the Pima County and City of Tucson Departments of Transportation. All traffic plans and right-of-way permits shall be coordinated through the appropriate DOT. The Contractor shall prepare and submit a Traffic Control Plan to them for their approval before commencement of work. Traffic Control Plans shall be in accordance with the most current version of the *appropriate jurisdiction's* Standard Details and Specifications.

708.2 Prior to the approval of construction operations within a roadway, specific approval of traffic control, including possible detours, provisions for emergency services and public transportation access, will be required. A copy of the approved traffic control plan shall be submitted to the PCRWRD inspector at least two (2) working days prior to commencing work.

SECTION 709 - AS-BUILT RECORDS

709.1 The Contractor shall maintain a complete set of As-Built Record Drawings that are acceptable to PCRWRD. The As-Built Records shall be kept up-to-date throughout the project and will be available for examination by PCRWRD personnel and their representatives upon request.

709.2 Upon completion of sewer rehabilitation, the Contractor shall forward a complete set of As-Built Record Drawings to PCRWRD FEU in accordance with Section 1.4.7 of the PCRWRD Standard Specifications and Details for Construction, 2016 edition and ARS 32-152. The Contractor shall also identify locations of reinstated Active House Connection Sewer (HCS) openings. These drawings shall indicate deviations, including CIPP thicknesses less than that for fully deteriorated pipe, from Special Provisions, Plans, and Specifications. Contractor shall provide the Contractor's Completion Date and Contractor's Comments for each sewer reach on all of the plan sheets. Final approval and payment of the project will not be provided until after the As-Built Record Drawings are accepted by PCRWRD.

SECTION 710 - NOTIFICATION OF WORK TO PROPERTY RESIDENTS/OWNERS

710.1 The Contractor shall notify the property residents/owners within the area of the proposed work, using a PCRWRD approved Official Notification form. The notification process is usually done in three steps:

- An official notification form (Sample in Appendix A) sent by PCRWRD, usually 30 calendar days prior to start of work in all affected areas.
- An Official Contractor's notification sent by the Contractor, usually 3 calendar days prior to start of work in the affected areas.
- An official Door hanger (Sample in Appendix A) in the affected area, usually 24 hours before start of work in the affected areas.

All of the notifications shall be written in both English and Spanish languages and distributed to residents/owners

710.1 **Schedule and Notification Letter:** The Contractor shall develop a list of all the affected area residents and Mailings shall be prepared and sorted in compliance with United States Postal regulations. Residents/owner addresses are available on the Pima County Department of Transportation (PCDOT) GIS website.)

710.1.1 Due to the large area to be rehabilitated, the work shall be performed in sequence by areas. The

Contractor shall present and submit for PCRWRD approval the proposed schedule along with mailing addresses of all affected residents/owners. Once the schedule and notification letter are approved by PCRWRD, the contractor shall hand-deliver or mail the notifications using stationary and envelopes from PCRWRD.

710.1.2 For the duration of the project, contractor field crews shall carry a copy of the notification letter at all times. The notification letter shall list a Contractor phone number for notification during the day as well as an "after-hours" cell phone number in the event of an emergency between the hours of 5:00 p.m. and 8:00 a.m.

710.2 **Public Meetings:** The Contractor and PCRWRD shall jointly schedule a minimum of one neighborhood meeting prior to commencement of work on the project. The Contractor's Superintendent, their subcontractors, and PCRWRD staff shall be in attendance at these meetings. The Contractor and PCRWRD shall jointly hold a public meeting by the affected areas 30 days prior to commencement of work on the project. The purpose of the meeting will be to discuss parameters of the project and impacts on neighborhood residents/businesses. Due to the large area to be rehabilitated, the work may be performed in sequence by areas and more than one meeting may be required. The contractor's superintendent, all their subcontractors, and PCRWRD staff shall be in attendance at the meeting(s). Requirements of special needs of individuals will be documented and addressed at the meeting.

710.3 **Active Service Connections:** Prior to commencement of work affecting tributary systems, the Contractor shall be responsible for determining locations of all active connections, then further identify any business, commercial, high flow, or any other service connections in which flow cannot be interrupted. CCTV records of most tributary reaches are available at PCRWRD Conveyance Division. If any discrepancies arise in the field, records are available to the contractor in PCRWRD Permits Section located on the 1st floor of the Public Works Building, 201 North Stone Avenue. If the information is not available in the Permits Section, the Contractor shall determine the locations by visiting the site, CCTV, dye testing, consulting with the owner/resident, or by other approved methods. The Contractor shall submit a proposed plan for maintaining uninterrupted use of these service connections for the Engineer's approval at least two (2) working days prior to commencing work.

710.4 **Bilingual Door Hanger:** By means of a bilingual door hanger (Sample in Appendix A), the contractor shall notify all residents/businesses whose service connections will be interrupted at least 24 hours in advance of the service interruption. This notification shall be in person, whenever possible, and shall include the approximate date and length of time that the interruption of service will occur. The Contractor's proposed written notification shall be submitted to PCRWRD for review and approval prior to distribution to the public. The Contractor shall confirm the notification again verbally, whenever possible, at least 24 hours before the interruption. The 24-hour bilingual notifications shall include an "Official Notification/Notificacion Oficial" approved by the PCRWRD.

710.5 **Notification Log:** The Contractor shall maintain a notification log, which will include the date and time of the notification for all involved properties, the contact person's name, or if no contact was made, that the information was left at the door. The notification log shall be made available to the PCRWRD inspector upon request.

710.6 **Temporary Portable Restroom Facilities:** The Contractor shall provide temporary portable restroom facilities at the beginning of, and for the duration of the service interruption. The number of facilities shall be not less than one (1) portable restroom per four (4) residential units and one (1) portable restroom per business. The portable temporary restroom facilities shall be structurally stable, shall be kept clean, and shall include hand washing stations. The Contractor shall accommodate the special needs including Americans with Disabilities Act (ADA) requirements, if any, for the continuance of sewer service of all the residents/owners.

If sewer service cannot be effectively/fully restored within 24 hours after interruption, physical flow management pumping for the house connection must be provided.

SECTION 711 - WASTEWATER FLOW MANAGEMENT PLANS

711.1 The sewer to be rehabilitated under this project is an active line in a deteriorated condition. The Contractor shall develop, and submit for PCRWRD approval, as many wastewater Flow Management Plans (FMP) as required to provide uninterrupted flow around the section or sections of pipe designated to be

rehabilitated and are affected by the construction work.

711.2 The purpose of the FMP is to provide full unobstructed view of the interior of the line during the CCTV operations and allow maximum access to the sewer system to perform the required rehabilitation activities. All required FMP work shall be in accordance with Section 2 of the PCRWRD Standard Specifications and Details for Construction 2016 Edition.

- 711.3 Activities requiring FMP shall include but not limited to:
- Initial CCTV Pipeline Inspection and Condition Assessment
 - Removal of line obstructions
 - Cleaning
 - CIPP Installation
 - Post Inversion CCTV
 - Manhole Rehabilitations

711.4 The Contractor shall prepare and submit for PCRWRD approval one original and two copies of their wastewater FMP, showing the method for each affected reach of project sewer. Wastewater FMP submittals shall be made, before a Notice to Proceed is issued, to:

Field Engineering Manager
Pima County Regional Wastewater Rehabilitation Department
1313 S. Mission Road
Tucson, Arizona 85713

711.5. **Wastewater flow management operations shall not be performed by the Contractor until receipt of written approval from PCRWRD.** PCRWRD Field Operations (520-724-3400) and the affected treatment facility Tres Rios WRF (520-724-6100), Agua Nueva WRF (520-443-6464), must be notified at least 72 hours prior to commencement of any FMP.

711.6 The Contractor shall, at his expense, obtain all permits necessary for the installation and operation of the wastewater flow management equipment.

711.7 For wastewater FMPs gravity type designs are typically preferred over pumped type designs. However, the most appropriate type of wastewater flow management should be used for the project.

711.8 The flow management equipment shall be quiet running and shall be equipped with noise suppression apparatus, including, but not limited to sound boards and engine mufflers. Contractor shall be required to meet the noise abatement requirements of Pima County.

711.9 Prior to start of construction, the Contractor shall also prepare a Sanitary Sewer Overflow (SSO) spill prevention plan, to be included with his wastewater FMP submittal, and obtain plan acceptance from PCRWRD FEU.

- 711.10 For gravity type wastewater FMPs the following specifications apply:
- Show influent & discharge points with elevations & stationing on the design plans
 - Survey, blue stake, and show the plan and profile on the design plans
 - Design sewer pipe plugs for expeditious removal during startup testing

- 711.11 For pumped type wastewater FMPs the following specifications apply:
- Show suction & discharge points with elevations & stationing on the design plans
 - Provide pump performance curves
 - Submit calculations to verify suction lift of pumps has not been exceeded
 - Suction lines shall be steel reinforced pipe or better
 - Structural calculations are required for all aluminum pipe designs
 - Use separate intakes for each pump with debris control
 - Intake manifolds are not acceptable
 - Provide adequate intake line spacing (center to center) to avoid vortexing
 - Provide high level alarm notification to pagers or cell phones
 - Discharge manifolds are acceptable
 - Provide redundant air release valves and discharge force mains

- Provide multiple fuel tanks with 24 hours of fuel supply
- Provide containment under each pump and manifold
- Protect discharge piping from vandalism and vehicular damage
- Butt-fused HDPE (Minimum thickness SDR11, 160 psi) is the required material for the discharge piping

711.12 The Contractor shall be responsible for insuring that there is no unauthorized discharge or spill of raw sewage as a result of the flow management operation. In the event of a sewage spill the Contractor shall:

- Notify the PCRWRD Field Operations Division (520-724-3400)
- Be responsible for the prompt cleanup and disinfecting of the spill using an on-site disinfectant meeting EPA and PCRWRD specifications for SSO mitigation to the satisfaction of the PCRWRD Operations Manager.

711.13 In cases where the Contractor is not in compliance with mitigation efforts, any assistance provided by PCRWRD will be billed to the Contractor. The Contractor shall compensate PCRWRD for the cost of any fines levied as a result of a spill or unauthorized discharge.

711.14 For information regarding measured sewage and storm flows in the subject sewer line, the Contractor shall contact PCRWRD Metering Section at (520) 724-6180. The Contractor shall be responsible for verifying this information and then providing a sufficient number of pumps to handle the normal peak flows with additional reserve capacity to handle wet weather flows and pump malfunctions.

711.15 The Contractor shall provide backup pumps equal in number to 50% of the number of pumps being used and of the same discharge capacity. Any fractional number of pumps shall be rounded up to the next higher whole number. Flow management pumps shall be manned 24 hours per day. No unattended operation will be permitted. The Contractor shall be responsible for the periodic inspection of the flow management pipelines and shall provide a written log documenting the time of each inspection in accordance with Section 2.6.2.b, of the PCRWRD SSSC 2016 edition.

711.16 "Lay-flat" hoses are not authorized. Where flow management pipelines cross existing paved residential roads, a ramp over the pipes will be constructed or other arrangements made to insure that local access is maintained to homes and businesses. A minimum of 12 inches of cover will be provided over the top of the flow management pipelines located in areas where vehicular traffic must cross over them. This cover requirement may be reduced if approved in writing by PCRWRD, after the Contractor submits an acceptable cover design. The pipelines at the crossing shall be designed for an H-20 truck loading and have a slope that will permit large tractor trailer and fire apparatus to cross over the ramp safely.

SECTION 712 - CLOSED CIRCUIT TELEVISION (CCTV) SPECIFICATIONS

712.1 The CCTV Contractor shall be a qualified firm experienced in televised inspection of sanitary sewers. All inspection of pipelines shall be in color format performed by NASSCO certified personnel trained in locating breaks, obstacles and service connections by closed circuit television (CCTV). A copy of the training certificates shall be submitted to the PCRWRD inspector at least two (2) working days prior to commencing work. All CCTV inspection of pipelines shall be performed while the pipeline is dry with no flows in the pipeline to provide full unobstructed view of the interior of the line during the CCTV operations. The CCTV Contractor shall perform all support activities related to the rehabilitation efforts for this project to include but not limited to:

- Initial Inspections and Pipeline Assessment, requirement validation
- Cleaning and Pre-Inversion Video
- Post-Inversion Video

712.2 The Contractor shall provide for the uninterrupted flow of sewage around the section or sections of pipe designated for pre and post-CCTV work so that a full, unobstructed view of the pipeline and newly installed liner can be obtained. The camera shall be properly setup so that it is approximately in the center of the pipeline and that the lighting is attenuated such that it will produce an accurate image of the finished CIPP. If accumulated sediments are suspected or if so determined by the PCRWRD representative, the Contractor shall clean the sewer line in order to facilitate an accurate and reliable camera operation. If the Contractor does not have the cleaning capability, then it shall engage a qualified firm experienced in flushing

of sanitary sewers to perform the work.

712.3 All video recordings shall be formatted to be compatible with the latest version of Granite XP in use by PCRWRD, in full color format, conform to current NASSCO-PACP standards, show the entire reach, and be of sufficient quality to clearly detect imperfections and/or defects in the installed liner. At a minimum, the CCTV equipment shall consist of a pan and tilt color camera, with an optic zoom, capable of illumination and recording features. The camera shall be a tractor capable of centering the camera in the center of the pipeline. **The required software** for this contract is **Granite Net** (Version shall be determined by PCRWRD). **Granite Net** requires an ESRI Arc license to be installed. PCRWRD will provide the SQL database for Granite Net to be used on any Pima County inspections. **No substitutions will be allowed.**

712.4 The Contractor shall meet with PCRWRD Conveyance personnel to validate these requirements and procedures before project start. The project superintendent, CCTV Foreman, and the CCTV operators shall be present.

712.5 **Initial Inspection and Assessment of Pipelines:** The interior of the pipeline(s) shall be carefully inspected to determine the location of any conditions which may prevent proper installation of the proposed liner into the pipelines. Any conditions which may prevent proper insertion of the liner shall be noted and corrected prior to proceeding with liner installation. During inspection of the pipeline interior, the locations of any service connections shall be noted and accounted for on the log sheets.

712.6 **CCTV Lengths:** The following is an estimate of the total lengths of CCTV requirement for the project:

Pipe Diameter (in inches)	Total Reach Length (LF)
15"	5,123
18"	3,517
21"	278
24"	571
27"	7,998
30"	11,972
33"	12,856
36"	9,519
TOTAL LENGTH	51,834

712.7 **Sewer Inspection Reporting:** At the completion of the project the Contractor shall provide PCRWRD with one (1) copy of the CCTV indexed videotapes and paperwork forms for each trunk/interceptor, with a final Project Summary report with the video inspection on CD-ROMs. The report will serve as a reference book for the project and for future engineering evaluation. The report shall contain the following elements:

1. Cover page identifying the subject sewer(s) in the report and the dates of CCTV work;
2. Base map identifying the general location of the sewer lines in the report;
3. Reference map identifying the report subsections as a part of the whole report along with the corresponding Project As Built Drawings sheets from the Project Plans;
4. Labeled tabs for each subsection;

5. Reference list of all reaches (using PCRWRD identifiers) in the subsection, in the order of upstream to downstream, with a comment column to document any major issues with each reach, and a column identifying the media number it resides on;
6. List of all VCR/DVD/CD media numbers and a subheading of all reaches contained in each unit in recorded order;
7. List of all reaches with a subheading of all digital images recorded for that reach;
8. Copies of all CCTV logs acquired for that subsection, in the order of the reference list.

712.8 **Report Deliverable:** The report shall be compiled in a 3-ring binder format. One (1) copy of the report shall be submitted to the PCRWRD PM within three (3) weeks after completion of the report area.

712.9 **Final Summary Report:** The final report shall summarize the entire project, including a time-line of start and completion dates for the CCTV work detailed in each separate report. All contract issues, project difficulties, scheduling problems, or other specific information relating to the execution of this contract shall be communicated and summarized. Receipt of the final report shall constitute completion of the project.

SECTION 713 - CURED-IN-PLACE PIPE (CIPP) INSTALLATION PROCEDURES

713.1 **Specification for CIPP:** This section covers the rehabilitation of pipelines and conduits by the installation of a resin-impregnated flexible tube that is inserted and inflated into the original conduit by use of a hydrostatic head or air pressure. When cured by hot water or steam, the finished CIPP pipe shall be continuous and formed to the original pipeline or conduit.

713.2 **ASTM References:** This specification references ASTM F1216 and/or ASTM F1743 which is made a part hereof by such reference and shall be the latest edition and revision thereof. ASTM F 1216 and/or ASTM F1743 shall govern when this specification does not address installation methods and materials. If there is a conflict between ASTM F1216 or ASTM F1743 and this special provision, this special provision shall govern.

713.3 **Safety:** The Contractor shall insure that all personnel are aware of the potential for pipeline collapse before commencing work and shall take appropriate safety precautions to protect both the workers and the pipeline. The Contractor shall carry out his operations in strict accordance with all applicable OSHA standards and shall be responsible for providing a safe work environment at the work site. Prior to issuing the project's Notice to Proceed the Contractor shall develop and submit a written plan covering procedures for confined space entry and styrene protection and require all personnel, including subcontractors involved with the project, to be familiar with it in strict accordance with OSHA and all local, state, and federal safety standards. These plans shall be signed in ink by an official authorized to bind the Contractor to its provisions and shall be submitted for PCRWRD FEU approval prior to physically accessing any active sanitary sewer line or related facility. The plan shall include certification of training for all personnel assigned to the project.

713.3.1 **Confined Space Entries:** Particular attention is drawn to those safety requirements involving working with confined space entries. All Contractor and subcontractor personnel shall be made aware of the fact that work for this project is to be carried out within an operating gravity sewer line(s). Any entry into the sewer line(s) or appurtenant manhole(s) may involve but not be limited to exposure to one or more of the following hazards:

- Pathogenic microorganisms
- Oxygen-deficient atmosphere
- Flammable atmosphere
- Toxic atmosphere
- Temperature extremes
- Engulfment hazard
- Excessive noise
- Slick or wet surfaces
- Falling objects

No entrance, for any reason, into the public sanitary sewage system's confined spaces shall occur without the expressed consent of PCRWRD's Conveyance Division and the utilization of the required safety provisions.

713.4 Safety Equipment: The Contractor shall be responsible to provide all required equipment to carry out his operations in strict accordance with all applicable OSHA standards and shall be responsible for providing a safe work environment at the work site. In addition to the confined space entry requirements the Contractor shall provide monitoring of styrene concentrations in all enclosed or partially enclosed work spaces during construction operations and maintain a monitoring log to demonstrate to PCRWRD FEU that employees are NOT exposed to concentrations of styrene which are above the OSHA limits for the time weighted average (TWA) or short term exposure levels (STEL). **The monitoring log shall be made available to the PCRWRD inspector upon request.**

713.5 Work Site Air Quality Monitoring: In addition to the confined space entry monitoring requirements, the Contractor shall also monitor the work site and maintain a monitoring log for styrene migration. In accordance with Title 17, Air Quality Control, of the Pima County Code, the Contractor shall comply with air monitoring of the work site during the installation of the CIPP, to test for any offsite migration of styrene. The Contractor shall contact Pima County to verify these requirements. **The monitoring log shall be made available to the PCRWRD inspector upon request.**

713.5.1 Odor Mitigation: In addition to the monitoring the Contractor shall consider using the following styrene odor mitigation techniques:

713.5.1.1 Hydraulic turbulence increases the rate of release of dissolved gases, release the heated cook water slowly to reduce/avoid hydraulic turbulence.

713.5.1.2 Lower the liquid temperature of the cook water before the release to inhibit styrene gas from escaping into the sewer atmosphere. This could be the result of either increased solubility of styrene gas or liquefaction of the styrene gas (phase change) at the lower cook water release temperature.

713.5.1.3 Use of blowers (fans) mounted over downstream manholes to pull out contaminated sewer atmosphere and release at street grade level. This will prevent the contaminated sewer atmosphere from finding an unprotected HCS line and migrating into a residence or business. A dry p-trap would cause an unprotected HCS line.

713.5.1.4 Addition of food flavoring to the resin or any PCRWRD approved masking agent.

713.6 Existing Pipe Condition: The sewer to be rehabilitated under this project is in a fully deteriorated condition. The Contractor shall insure that all personnel are aware of the potential for collapse before commencing work and shall take appropriate safety precautions to protect both the workers and the pipe. All inspection and obstruction removals/corrections of pipelines shall be performed while the pipeline is dry with no flows in the pipeline. The Contractor shall follow all FMP requirements as per Section 712, of these Special Provisions and the latest PCRWRD Standards.

713.7 Inspection and assessment of Pipelines: All inspection of pipelines shall be performed by NASSCO certified personnel trained in locating breaks, obstacles and service connections by closed circuit television (CCTV) in accordance with Section 712, of these Special Provisions and the latest PCRWRD Standards.

713.8 Line Obstructions: It shall be the responsibility of the Contractor to clear the line of all obstructions such as solids, offset joints, protruding service connections, protruding mortar at joints or service connections, protruding reinforcement steel bars, or collapsed pipe that will prevent the insertion of the liner. If inspection reveals an obstruction that cannot be removed by conventional sewer cleaning equipment, then, upon receipt of written approval and direction from the PCRWRD PM, the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Payment for point repairs shall be in accordance with Section 109, Extra and Force Account Work, of the PAG Standard Specifications for Public Improvements.

713.9 Cleaning of Sewer Line: It shall be the responsibility of the Contractor to remove all internal debris, roots, and other material from the sewer line as a result of the removal of all obstructions found during the

initial inspection. The Contractor is responsible for determining the appropriate method of cleaning based on the condition of the existing pipe. The cleaning shall be performed accompanied by the CCTV camera to insure a clean line. The pre-insertion videos and log sheets shall be submitted to PCRWRD FEU for review prior to receiving a notice-to-proceed (NTP) from PCRWRD for the particular insertion work.

713.9.1 Pipes with T-Lock Lining: For pipes with diameters of between 30-42", the Contractor shall remove minimum 5' of the T-Lock liner at each end. This is to assist in the mechanical lock of the CIPP liner to the host pipe.

713.10 Monitoring Temperatures and Curing: Temperature sensors shall be placed at the upstream and downstream ends of the reach being lined to monitor the pressurized fluid's (air or water) temperature during the curing process.

713.10.1 To monitor the temperatures inside the liner walls and to verify proper curing, temperature sensors shall be placed between the host pipe and the liner in the bottom of the host pipe (invert) throughout the reach to record the heating and cooling that takes place on the outside of the liner during processing. The sensors shall be spaced apart at intervals no greater than 20-feet for pipe sizes up to 15-inches in diameter; and no greater than 10-feet for pipe sizes 18-inches and larger. Additionally, sensors shall be strategically placed at points where a significant heat sink is likely to be anticipated. The monitoring of these sensors shall be by a small computer which can record the temperatures at this interface throughout the processing of the CIPP utilizing a tamper-proof database. The proposed temperature sensor monitoring system and related software shall be as manufactured by ZIA Systems (www.ziasystems.com/) or approved equal.

713.10.2 Prior to installing the liner in the host pipe, the temperature monitoring system's proper functioning shall be confirmed by hooking it up to the computer and seeing that the sensors are reporting their ambient temperatures. No more than two sensors in sequence can be found faulty during this test. If three or more sensors in sequence are discovered faulty, a new sensor array shall be pulled into the host pipe replacing the previously installed array; and the new array shall be again tested for its proper functioning. **The sensor monitoring system function confirmation report shall be made available to the PCRWRD inspector upon request.**

713.10.3 Curing of the resin system shall be as per the directions of the CIPP System Manufacturer of the CIPP product. The temperatures achieved and the duration of holding the liner at those temperatures shall be per the System Manufacturer's established procedures. If any sensor or sensors along the reach indicates that there is a localized issue with respect to achieving proper curing per the written installation procedure, the Installer shall address the issue immediately using previously established protocols for such an event. The sensor array's database required in the above paragraph shall have an output report that identifies each sensor by its station in the reach and shows the maximum temperature achieved during the processing of the CIPP and the time sustained at or above the Manufacturer's required curing temperature at each sensor. The Contractor shall provide remote access to the temperature Monitoring system for PCRWRD inspector immediate feedback on site at all times during the curing process.

713.10.4 **Pipes with T-Lock Lining:** In sections where the host pipe has T-Lock liner, the contractor shall allow the water curing temperature to drop to 90°F before releasing the water, to aid with the anchoring/locking of the CIPP liner to the host pipe and decrease the possibility of shrinkage of the installed CIPP liner.

713.11 Wet out Logs: The Contractor shall make available to the PCRWRD Inspector the wet out logs (either from the plant, over the hole, or on site facilities) for all inversions during this project. At a minimum, logs shall include:

- Project Name and Number,
- Date of wet out, dry liner thickness, dry liner length and length after wet out,
- Length of time for the preparation, mixing, and filling time, including the total time from preparation to storage of the wet out liner,
- The diameter of the liner, total weight in pounds of the mixture, and the total weights of the materials used to make the resin and how many ponds per lf were injected,
- Liner inversion number, resin batch number used for the impregnation,
- The reaches included in the inversion with the appropriate MH numbers and the size of the pipelines

being rehabilitated.

The wet out logs shall be made available to the PCRWRD inspector upon request.

713.12 Tube Installation: The tube material shall meet the requirements of ASTM F1216, Section 5. The tube shall be sized for the final position in the pipe and shall be fabricated to a size that when installed will form to the internal circumference and length of the original pipe with no noticeable bulges or folds present. Allowance should be made for variations in internal pipe diameters and circumferential stretching during inflation. Stretching and cut of liner shall be within the range of the manufacturer's recommended tolerances. Should inserted liners at the beginning of the project indicate excessive bulges or folds, PCRWRD shall be permitted to request changes in the Contractors tube fabrication to eliminate said defects.

713.12 CIPP Sample Collection: The Contractor shall prepare a minimum of 1 sample of the CIPP from each insertion of CIPP that is undertaken. The samples shall be restrained samples for diameters of CIPP less than 18"; and flat plate samples for diameters of CIPP 18" and larger. All CIPP samples shall be properly marked with the date of inversion or insertion and the inversion or insertion number, once the sample is removed from the source. The PCRWRD inspector must be present during all sample taking. Sample testing shall be compliance with ASTM F 1216, Section 8, as applicable. The samples shall be tested for thickness and initial physical properties as per Section 715.9 of these Special Provisions. A certified copy of these test results shall be delivered within ten (10) days of the inversion to the PCRWRD Inspector.

713.12.1 For small line (<18") projects, restrained samples shall be produced by lining through a short piece of pipe of the same diameter of the existing sewer. The form must be maintained in a reasonably horizontal orientation with a proper heat sink (i.e. sandbags). Each sample shall be cut in half and each half shall be signed and dated by both the Contractor and PCRWRD Inspector. The Contractor shall retain one signed sample and provide the other signed sample to the PCRWRD inspector. The Contractor shall submit their samples to a laboratory for testing. The sample shall be taken preferably from an intermediate manhole or the receiving manhole.

713.12.2 For large line (≥ 18 ") projects, the length of the form shall be a minimum of two times and preferably three times the sample length required by the testing lab. The flat plate samples shall be taken directly from the wet out tube, clamped between flat plates, and cured in the down tube. Each sample shall be cut in half and each half shall be signed and dated by both the Contractor and PCRWRD Inspector. The Contractor shall submit their samples to a PCRWRD pre-approved laboratory for testing.

713.13 Project Specific: Reinstatement of House Connection Sewers: After the curing of the CIPP is complete and inspected, existing house connection sewers shall be re-opened without excavation, utilizing a remotely controlled cutting device, monitored by CCTV. The cut liner shall have no jagged edges and shall be trimmed smooth. **Project Specific** The contractor shall provide a "top hat" seal, recommended by the lining manufacturer, at each house connection sewer so that no leakage of fluids may infiltrate between the liner and the existing sewer pipe surface. The Contractor shall have a minimum of two (2) complete functional cutters plus key spare components on the jobsite before each installation or in the immediate area of the jobsite that can be quickly obtained. **Existing capped house connection sewers shall not be re-opened.** Unless directed by the Engineer or his authorized representative, all existing house connection sewers shall be reinstated. No additional payment shall be made for excavations for the purpose of re-opening existing house connection sewers unless prior approval is obtained from the Engineer. The Contractor shall be responsible for all costs and liability associated with any excavation and house connection restoration work not approved by the Engineer.

713.14 Project Specific Demonstration Section(s): Prior to embarking on the entire CIPP project the Contractor shall install CIPP in at least one sewer reach test section determined by the PCRWRD PM to demonstrate the Contractor's understanding of PCRWRD's acceptable criteria. This demonstration section work shall include cleaning, pre-installation CCTV, liner installation, post CCTV, and submittal of a Post-Installation video recording and a sample of the completed CIPP test section. Upon acceptance of the demonstration section(s) by the PCRWRD PM, the Contractor may proceed with the project.

713.15 Post-Installation Inspection: In addition to physically sampling the finished CIPP and upon completion of each CIPP sewer reach, the Contractor shall conduct a post-installation CCTV quality control assessment of the completed work in accordance with Section 712 of these Special Provisions. The CCTV

inspection should be used to confirm tightness of the fit of the CIPP to the host pipe and to identify any imperfections or conditions in the new CIPP. The flow shall be bypassed during the post-TV work so that a full, unobstructed view of the newly installed liner can be obtained. The camera shall be properly setup so that it is approximately in the center of the pipeline and that the lighting is attenuated such that it will produce an accurate image of the finished CIPP. PCRWRD may require a FEU Inspector present during the post-CCTV recording. The finished liner shall be continuous over its entire length and be free from visual defects such as foreign inclusions, dry spots, holes, wrinkles, seam separation, discoloration, and delamination. All observed conditions shall be logged using the same standardized coding system (NASSCO) as was used for the pre-TV survey. A copy of the Post-Inversion CCTV survey, including the coding log, shall be delivered to the PCRWRD Inspector.

713.15.1 Once the liner insertion and curing process is completed for a sewer reach deemed acceptable by the Contractor, the Contractor shall present the PCRWRD inspector, within two (2) working days of liner completion, the CCTV video recordings of all acceptable CIPP installation and suitable logs for evaluation.

713.15.2 If after the liner insertion and curing process is completed for a sewer reach, the reach is deemed unacceptable by the Contractor, the Contractor, within five (5) working days of liner completion, shall submit a written statement to PCRWRD of a list of defects within the sewer reach and proposed corrective measures of the defects for PCRWRD review/acceptance.

713.16 Any defects which will affect the integrity or strength of the CIPP or adversely affect the hydraulic capacity of the CIPP shall be repaired or replaced at no cost to PCRWRD. These defects shall be repaired or liner replaced, at the discretion of PCRWRD PM, per liner manufacturer's recommendations by the Contractor at no cost to PCRWRD.

713.16.1 **Finish:** The finished CIPP shall be continuous over the entire length of an insertion run and be as free as commercially practicable from visual defects such as foreign inclusions, dry spots, pinholes, wrinkles, seam separation, discoloration, and delamination. During the warranty period any defects which will affect the integrity or strength of the CIPP shall be repaired at the Contractor's expense, in a manner mutually agreed by PCRWRD and the Contractor. Methods of repair shall be proposed by the Contractor and submitted to PCRWRD PM for review and approval before proceeding with the repairs.

713.16.2 **Wrinkles:** Wrinkles in the finished project which cause a backwater of one (1) inch or more or reduce the hydraulic capacity of the pipe between the 4:00 and 8:00 O'Clock pipe positions and wrinkles which exceed five per cent of the pipe diameter are unacceptable and shall be removed or repaired by the Contractor at no additional cost to PCRWRD. Wrinkles in the finished liner that reduce the structural stability of the existing sewer pipe are unacceptable. If a void is discovered between the liner and the existing pipe in the location of the wrinkle, the Contractor shall repair or replace that section of liner at no additional cost to Pima County. Methods of repair shall be proposed by the Contractor and submitted to PCRWRD PM for review and approval before proceeding with the repairs.

713.16.3 **Separations of the seams:** Separations of the seams in the finished liner are unacceptable and shall be removed or repaired by the Contractor at no additional cost to PCRWRD. Methods of repair shall be proposed by the Contractor and submitted to PCRWRD PM for review and approval before proceeding with the repairs.

713.16.4 **Sealing CIPP at Manholes:** The CIPP shall make a tight fitting seal with the existing pipe(s) in the manhole.

713.16.4.1 All reaches shall include hydrophilic end seals, as well as epoxy anchor/end seals for tail, inversion, and line-thru manholes.

713.16.4.2 If due to broken or misaligned pipe at the manhole wall, CIPP fails to make a tight seal at any point, the Contractor shall apply a seal at that point. The seal shall be of a resin mixture compatible with the CIPP. The top half of the pipe shall be neatly cut off and not broken or sheared off, a maximum of four (4) inches and a minimum of two (2) inches from the walls, to allow for the liner to lock at the manhole opening and limit possible shrinkage of the liner. Cutting the liner flush with the face of the manhole walls shall not be allowed to prevent/limit liner shrinkage. The Contractor shall leave a maximum of two (2) inches of CIPP extending from the edge of the channel on both sides. The finished channel in the manhole shall be a smooth continuation of the pipe(s) and shall be merged with other lines or channels, if any to

provide easy flow transition. Channel cross-section shall be U-shaped with a minimum height of half pipe diameter to three-fourths of the pipe diameter for fifteen (15) inches and larger. The side of the channels shall be built up with mortar/concrete to provide benches at a maximum of 1 in 12 pitch towards the channel.

713.17 **Clean-Up:** Clean-Up-Upon acceptance of the installation work and testing, the Contractor shall clean and restore the project area to a condition at least equal to the original condition, as directed by the Engineer.

713.18 The initial acceptance of the completed CIPP is the responsibility of the Contractor and not PCRWRD. A final post installation CCTV video of the entire sewer reach (manhole to manhole or manhole to cleanout) shall be submitted to the PCRWRD PM after all defects are repaired to the satisfaction of PCRWRD. Acceptance of this final CCTV video recording is at the discretion of the PCRWRD CCTV Section and conduction of additional CCTV inspections due to the initial inspections not being in compliance with PCRWRD standards, shall be conducted by the Contractor at no cost to PCRWRD. PCRWRD reserves the right to CCTV any liner installation with Department personnel or representative.

713.19 **Emergency Action Plan:** The Contractor shall present to the PCRWRD PM a proposed Emergency Action Plan with corrective measures to be utilized should an inserted tube fail to extend through the entire pipe reach being rehabilitated. The proposed emergency action plan shall include details of any specialized equipment, materials, personnel and regulatory reporting and compliance requirements which may be required should one or more of the following situations occur:

713.19.1 Failure, blowout or collapse of inserted tube during the curing process.

713.19.2 Boiler or heater mechanical failure during the curing process.

713.19.3 Aborting, removing, handling and proper disposal of resin impregnated tube after insertion into carrier pipe but prior to curing.

713.19.4 Mechanical failure of sewage flow management equipment prior to a rehabilitated pipe reach being placed back into service.

713.19.5 Finding of incorrect measurement(s) or fabrication error(s) after tube has been inserted into pipe.

713.19.6 Emergency action spill plan for wastewater spill.

Submission and approval of the aforementioned emergency action plan by the Contractor shall not relieve him of his responsibilities to take action for any other emergency, not specifically stated herein, which may arise during the course of the work.

SECTION 714 - CIPP MATERIALS

714.1 **Suitability of Material:** Proposed materials shall be suitable for use in the environment and conditions of the project.

714.1.1 **Tube:** The tube shall consist of one or more layers of a flexible needled felt or an equivalent nonwoven or woven material (such as fiberglass), or a combination of nonwoven and woven materials, capable of carrying the prescribed quantity of resin, withstanding the required installation pressures and curing process temperatures. The tube's materials of construction should be compatible with the resin system to be used on this project. The material should be able to stretch to fit irregular pipe sections, negotiate minor bends, and dimple at any service or branch connections.

714.1.1.1 The tube shall contain no intermediate or encapsulated impervious elastomeric layers that would prevent the resin from migrating and filling the annular spaces between the host pipe and the cured liner. No materials shall be included in the tube that is subject to delamination in the cured CIPP.

714.1.2 **Resin:** The resin system shall meet the requirements of ASTM F1216, section 5.2 except as modified herein. In addition, the resin shall be high-grade corrosion resistant specifically designed for the

CIPP being installed. The wall color of the interior pipe surface of the CIPP after installation shall not be of a dark or non-reflective nature that could inhibit proper closed circuit television inspection. No fillers shall be added to the resin without the specific approval of PCRWRD.

714.1.3 **Caulking/Seal:** The caulking/seal shall be of a resin mixture compatible with the CIPP and in accordance with the CIPP manufacturer's recommendations.

714.2 **Color of Liner Material:** The liner material shall not be made of a dark or non-reflective material that would inhibit proper CCTV inspection.

714.3 **Manufacture:** The tube should be fabricated to a size that, when installed, will tightly fit the internal circumference and the length of the original pipeline or conduit. Allowances should be made in its manufacture for the longitudinal and circumferential stretching that occurs during the placement of the tube.

714.3.1.1. The tube shall be uniform in thickness and, when subjected to the installation pressures, will meet or exceed the designed finish wall thickness throughout its length.

714.3.1.2. Any plastic film applied to the tube on what will become the interior wall of the finished CIPP shall be compatible with the resin system used, translucent enough that the resin saturation is clearly visible, and shall be firmly bonded to the felt material. (Tubes with removable calibration tubes such as those used in UV light-cured CIPP do not have to meet this bonding requirement.)

714.3.1.3. The tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 feet. Such markings shall also include the CIPP System Manufacturer's name or identifying symbol (brand), the tube number, and pipe diameter.

714.4 **Approved Manufacturers:** Liner pipe approved for this project is CIPP as manufactured by Insituform Technologies Inc., First Liner USA, Spiniello Liner, Invert-A-Pipe, MTC, Applied Felts, and Inliner Technologies. These are the only approved manufacturers of CIPP liner pipe. No substitution is permitted. Rehabilitation of the existing pipelines shall be by insertion with CIPP. The CIPP system used must have a minimum proven performance record of 250,000 LF of successful CIPP installation in the United States.

714.5 **Contractor:** The licensed Contractor must have successfully installed a minimum of 50,000 feet of CIPP liner in sewers with nominal diameters of 15 inches and larger. In addition, the Contractor must have successfully installed an individual length of CIPP in excess of the longest length between manholes in this project. This qualifying experience must have been completed in the United States and within the past 5 years. The Contractor Experience Form and the Superintendent Experience Form are required to be submitted at the same time with the Contractor's Bid Schedule.

SECTION 715 - STRUCTURAL REQUIREMENTS

715.1 **Design Criteria:** All liner pipe used to line the existing sewer shall be designed to have a minimum service life of 50 years and to withstand the total vertical and lateral loads, including, but not limited to, soil load, live loads and hydrostatic loads. Design shall be based on the assumption that the existing carrier pipe provides no structural support to the liner pipe, except for transmitting loads. No design shall rely on bonding to the existing carrier pipe wall. The following design criteria shall be utilized to develop suitable structural and corrosion resistant design for the pipe:

715.1.1 **Dead Loads:** Design is to be based on the actual depth of soil cover above the top of the pipe. The Contractor shall use the manhole depths and pipe diameters (listed on the plan set) to approximately calculate the actual depth of soil cover near the manholes. Assume a soil weight of 120 pounds per cubic foot and a modulus of soil reaction (E's) of 1,000 psi. The assumed minimum depth of cleanouts and terminal man holes is four (4) feet. If As Built drawings exist and show soil borings for the project area, include as attachment for design calculations.

715.1.2 **Live Loads:** Are based on HS20-44 (A.A.S.H.T.O Latest Edition).

715.1.3 **Corrosion:** Corrosion-All liner pipe, joints, and fittings to be furnished shall be suitable for continuous service in sewage environments with 10% sulfuric acid at an average wastewater temperature

of 84 degrees Fahrenheit.

715.1.4 **Buckling:** Pipe design shall incorporate a safety factor of 2.0 for external loads in accordance with ASTM F 1216 Appendix XI.

715.1.5 **Hydrostatic Pressure:** Water table shall be construed as being two (2.0) feet below finished grade extending over the entire project length. Because the depth of soil cover varies over the entire project length, the calculated hydrostatic pressure will vary over the entire project length. After calculating the approximate depth of soil cover near each manhole, the Contractor shall subtract two (2.0) feet to get the resulting assumed water table elevation near each manhole.

715.1.6 **Ovality:** Percentage ovality of original pipe equals 5%.

715.1.7 **Long-Term Modulus of Elasticity:** Assume this value to be 50% of the initial modulus of elasticity.

715.1.8 **Flexural Strength:** Minimum value of 4,500 psi.

715.1.9 **CIPP Liner Thickness:** The minimum CIPP liner thickness for use on this project, measured in all cases with the plastic coating or pre-liner tube excluded, shall be the Minimum Liner Thickness as per PCRWRD approved design.

715.1.10 Existing sewer pipe is assumed to be fully deteriorated.

715.2 **Submittals:** Before commencing any work, the Contractor shall submit the following:

715.2.1 **Material Certifications:** Certifications of the materials including the cell classifications, grades, types of resins, glass fibers, and all other materials used in the manufacture of the liner pipe.

715.2.2 **CIPP Design Calculations:** Complete calculations including list of parameters, all formulas and all other data which are necessary for the design of the liner pipe. Calculations submitted shall use a design temperature of 73.4 (+/- 3.6) degrees Fahrenheit and shall include, but not be limited to: soil loads, live loads, hydrostatic loads, pipe stiffness (PS), Dimension Ratio (DR), flexural modulus, initial and long term (50 years) values of pipe deflection after installation, pipe bending strain, hydrostatic collapse resistance, constrained buckling strength, ovality reduction factor, and allowable installation length. Drawings showing the cross sectional profile of the liner pipe wall and pipe joint details shall also be submitted.

715.2.4 **Manufacturer's Specifications:** Relevant information from the resin manufacturer shall include specifications, characteristics, properties, and methods of application. A written certification that the resin material complies with the required application, along with curing temperature, and duration of the temperature depending upon the sewer size and CIPP Liner thickness as determined for the project shall be submitted. A blanket letter shall not be sufficient in case of varying CIPP Liner thickness and lengths. This information shall be used during field inspection to verify that proper curing procedures are being followed.

715.2.4 **Temperature/Time Logs Forms:** The Contractor shall submit the format of the curing Temperature/Time Log sheets for review and approval. At a minimum the log shall contain the inversion number, the manhole numbers of the reach(es) included in the inversion, design liner thickness, resin and liner been used, and the date of the inversion. Information on the temperature range and cure times recommended by the resin manufacturer shall also be submitted for each run of CIPP installed.

715.2.5 **Previous CIPP Field Samples:** To verify past performance, the manufacturer shall submit a minimum of 5 test results from previous field installations of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the CIPP physical properties as specified in Section 715 of these Special Provisions have been achieved in previous field applications. New resin systems can be used by obtaining prior approval from PCRWRD and arranging to have testing done in an independent testing lab utilizing the proposed resin system and tube materials to confirm that these same physical properties can be obtained. In this case of a new resin system, only one test value shall be required. The previous field samples or the new resin system samples (as the case may be) shall be

provided to PCRWRD as shop drawing type submittals.

715.2.6 **Test Reports:** Submit certified copies of test reports on physical and chemical properties of the resin and flexible tube.

715.3 **Testing Requirements:** All CIPP samples shall be collected in accordance with Section 713.12 of these Special Provisions for each inversion or insertion marked with the date of inversion or insertion, and properly marked with the inversion or insertion number, once the sample is removed from the source. **The PCRWRD inspector must be present during all sample taking.** The Contractor can use the following pre-approved laboratories for CIPP sample testing:

Microbac
4750 Nautilus Court South
Boulder, Colorado 80301
Tel: (303) 581-0079
Fax: (303) 581-0195
HTS Pipe Consultants
420 Pickering
Houston, TX 77091
Tel: (713) 692-8373

Ramtech Laboratories
14104 Orange Avenue
Paramount, California 90723
Tel: (562) 633-4824
Fax: (562) 633-4128

715.3.1 **Thickness:** It is the responsibility of the Contractor to demonstrate to the PCRWRD PM that the CIPP liner wall thickness measured from the flat plate sample, is not less than the minimum thickness as per PCRWRD approved design. If necessary, the Contractor shall do an additional liner insertion, approved by Pima County, to meet the minimum liner thickness specification requirement or else pay a penalty based on the amount of liner thickness deficit. The monetary penalty option will only be allowed at PCRWRD's discretion and then only after it has been demonstrated that the installed liner can handle the structural loads imposed upon it.

715.3.1.1 The monetary penalty for liner thickness deficit shall be calculated as follows:

Penalty per l.f. = (Amount of liner thickness deficit in mm/minimum liner thickness specified in mm) x (l.f. bid price of installed liner)

715.3.2 **Chemical Resistance:** The CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical testing requirements.

715.3.3 **Physical Properties:** A minimum of one (1) sample of the CIPP from each insertion shall be tested for flexural strength and the flexural tangent Modulus of Elasticity in accordance with the latest version of ASTM D790, Procedure A. These tests shall be done utilizing the full thickness of the CIPP and with the plastic coating or pre-liner tube removed. If the tests cannot be run on the full thickness of the CIPP in one test, then the testing laboratory shall coordinate with PCRWRD to determine what should be done.

715.3.3.1 If the minimum Modulus of Elasticity is not met, then the following penalties will apply at the option of PCRWRD:

Modulus of Elasticity Deviation	Penalty
1 to 9,999 psi	\$10/linear foot reduction in payment
10,000 to 24,999 psi	\$20/linear foot reduction in payment
25,000 to 49,999 psi	\$30/linear foot reduction in payment
50,000 to 74,999 psi	\$40/linear foot reduction in payment
75,000 psi and greater	Add additional liner thickness to meet the required thickness of liner calculated using the lower modulus of elasticity.

715.3.3.2 If the minimum flexural strength is not met, then the following penalties will apply at the option of PCRWRD:

Flexural Strength Deviation	Penalty
1 to 199 psi	\$10/linear foot reduction in payment
200 to 399 psi	\$20/linear foot reduction in payment
400 to 599 psi	\$30/linear foot reduction in payment
600 psi and greater	Insert new liner that meets the minimum flexural strength requirements.

If an additional liner is installed over an existing liner, the Contractor must utilize a procedure whereby the additional liner will adhere to the existing liner in a manner acceptable to PCRWRD. Methods of repair shall be proposed by the Contractor and submitted to PCRWRD PM for review and approval before proceeding with the repairs.

SECTION 716 - REHABILITATION OF EXISTING MANHOLES-(section not used)

SECTION 717 - PAVEMENT REMOVAL AND REPLACEMENT-(section not used)

SECTION 718 - MISCELLANEOUS OTHER WORK

Miscellaneous other work shall consist of the removal and the replacement of existing improvements that will be encountered within the area of the construction of the project and items of work which are necessary for the completion of the project work and necessary to protect, maintain, serve, and restore the property of the owner to its original and intended use and for other items of work which are not included in any of the bid items of the contract work. This work shall be considered incidental to the Contract work and no measurement or payment shall be made unless expressly approved PCRWRD, in which case it shall be paid for as a FORCE ACCOUNT item.

SECTION 719 - MEASUREMENT AND PAYMENT

719.1 General: The method of measurement and payment for the various items comprising the completed work follows. Payment for the items shall be compensation in full for the furnishing of all overhead, material, labor, tools, equipment, and using or installing appurtenances necessary to complete all the work in a good, neat, and satisfactory manner as shown on the plans or as specified. Each item, fixture, piece of equipment, etc. shall be complete with all necessary connections and appurtenances for satisfactory use or operation. No additional payment will be made for work on appurtenances related to each item unless particularly noted or specified. Measurement shall be made of the completed work in place with no allowance for waste. All work not particularly noted or specified to be included in a bid item is considered appurtenant to the appropriate bid item, and no additional payment shall be made.

719.2 The Contractor will receive and shall accept compensation provided for in the Contract as full payment for furnishing all material and for performing all work under the Contract in a complete and acceptable manner, and for all risk, loss, damage or expense of whatever nature arising from this Contract or prosecution of this work.

719.3 The **successful** Contractor shall prepare a Schedule of Values for this project and submit it after notification of recommendation for award of contract. The Schedule of Values is an itemized list that has a format similar to the contract Bid Proposal except that additional cost subdivisions are required for lump sum and other items that represent a combination of subordinate components. The purpose of the Schedule of Values is simply to provide Pima County with more detailed information regarding the component cost makeup of lump sum bid items and other combined items in the bid.

719.3.1 Bid Item No. 1: Mobilization: Mobilization will be measured for payment by the lump sum as a single

complete unit of work. The basis for payment shall be in accordance to Section 901, Mobilization, of the PAG Standard Specifications for Public Improvements, updated November 2011.

719.3.2 Bid Item No. 2: Furnish, Operate and Maintain Sewage Flow Management Systems/Equipment: Measurement on this item shall be by LUMP SUM for preparing each required FMP acceptable to PCRWRD and furnishing, operating, and maintaining sewage flow management systems/equipment necessary to accomplish the sewer rehabilitation work. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to provide the sewage flow management systems/equipment in accordance with the Plans and Special Provisions.

719.3.3 Bid Items Nos. 3 – 10: Furnish and Install CIPP Liner in Existing 15", 18", 21", 24", 27", 30", 33", and 36" Gravity Sewer Pipe: The pipe will be measured for payment along the center line of the pipe from the center of manhole to center of manhole. The respective unit prices specified to be paid, per LINEAR FOOT, of rehabilitated pipe, shall be compensation in full for furnishing all liner, and other materials required for rehabilitating pipe lines by trenchless technology; for laying, setting, and jointing of all pipes and fittings; for rehabilitating man holes; for all testing, including leakage tests; de-watering by any and all methods; any excavation, backfill and re-compaction, pavement removal and replacement required to rehabilitate existing sewer main (i.e. for point repairs); all cleaning up; all labor, tools, and construction equipment; and for all other work and incidental expenses, and for reconnecting service connections and laterals if any. Payment includes all costs obtaining necessary permits, water required for liner installation and curing, all costs for root removal and cleaning before, CCTV before and after of lines to be rehabilitated, temporary and all costs for providing traffic control. Any new manholes needed to accomplish the rehabilitation of the sewer pipe other than those shown in the bid proposal shall be included in this bid item. These additional manholes shall be coated in accordance with Section 716 of these Special Provisions. When the Contractor requests payment from PCRWRD for constructing a portion of the CIPP pipe, he is required to submit (with the invoice) redlines of project plans and specifications which show the as-built information for the completed CIPP pipe.

719.3.4 Bid Item No. 11: Reinstatement of House Connection Sewer: Measurement for this item shall be for EACH reinstatement of existing house connection sewer. Payment shall be compensation in full for furnishing all materials, labor and equipment necessary to re-open and seal each house connection sewer in accordance with the Plans and Specifications.

719.3.5 Bid Item No. 12: Manhole Rehabilitation: The manhole will be measured for payment from pipe invert to manhole cover. The respective unit prices specified to be paid per VERTICAL LINEAR FOOT (VLF) of rehabilitated manholes shall be compensation in full for furnishing all materials, labor and equipment necessary to provide all required cleaning, including sand blasting and wet abrasive blasting, all flushing, all applications of hydraulic cements and coatings, all caulking, carbon fiber, epoxy coatings, and all testing of the finished coatings on all parts of the manhole in accordance with the Plans and Specifications.

719.3.6 Bid Item No. 13: Force Account: Measurement and payment for miscellaneous labor, construction, materials, and equipment required for work which is outside of the scope of the contract as bid shall be done as outlined in Section 109-5 EXTRA AND FORCE ACCOUNT WORK of the PAG Standard Specifications for Public Improvements, updated November 2011. Work under this item must be authorized by the Engineer or his designated representative prior to the commencement of the work. This item will only be used as needed; all the monies for this item may not be spent during the course of construction on this project.

SECTION 720 - PERMITS AND SUBMITTALS

720.1 The Contractor is required to obtain all necessary permits before starting project construction, including but not limited to: PCRWRD Project Construction Permit, PCDOT Right-Of-Way Permit, Arizona Department of Water Resources DWR Permit to Withdraw Groundwater – Form 518 (temporary de-watering), PDEQ Air Quality Permit, and Tucson Water Construction Water Permit, a PC Floodplain Use Permit, OR A PC Floodplain Use Permit is not required, however, the Contractor is to notify the Pima County Flood Control District prior to construction so that they may observe the construction.

720.2 There will be no direct payment to the Contractor for time and expenses related to obtaining the necessary permits. Payment for obtaining these permits is understood to be included in the total contract price awarded to the Contractor.

720.3 Formal submittals of the work are considered to be milestones. The periods of time at which these submittals are due are in calendar days and are firm to the extent that the due date will be extended to the next PCRWRD business day should the scheduled due date fall on a Saturday, Sunday, or Holiday. The Contractor shall conduct the work to complete the tasks in accordance with the respective approved schedules.

The Contractor submittals for PCRWRD approval shall include, but not limited to the following:

SUBMITTALS SCHEDULE CIPP REHABILITATION			
Item No.	Description	Applicable	
		Yes/No	Section
WITH BID			
	Contractor Experience Form		714.5
	Superintendent Experience Form		714.5
PRIOR TO NOTICE TO PROCEED			
	Wastewater Flow Management Plan(s)		711.4
	Confined Space Entry and Styrene Protection Procedures		713.3
	Emergency Action Plan		713.19
	Contractor Certification by Manufacturer		MH Rehab
PRIOR TO START OF CONSTRUCTION			
	Blue Stake Ticket		704.2
	Other Utilities Plans and Coordination Records		704.5
	Right of Ways/Easement Work related Construction Permits		705.1
	Temporary Utilities		706.2
	Traffic Control Plan		708.2
	Residents' Notification Letter And Schedule		710.1
	Active Service Connections		710.3
	Notification Door Hanger		710.4
	Notification Log		710.5
	SSO Spill Response Plan		711.9
	CCTV Operators NASSCO Certificates of training		712.1
	Contractor's Calculations for Liner Thickness		713.7.2
	Operational Plan for Inspection & Cleaning of Sewer		714.1.05.b

	Procedure/Information on Mitigating Shrinkage & Wrinkling		712.8 & 714.1.05.d
	References from Public Wastewater Service Providers		714.1.05.e
	Certified Laboratory Test Reports physical properties for resin and flexible tube		713.7.3
	Resin Manufacturer's Information and Certification of Compliance		713.7.4
	Certifications of Compliance Materials used in CIPP		713.7.1
	Test Results from Previous Field Installations		713.8.4
	Material Safety Data (MSD) Sheets for Components of CIPP		712.1.3 & 714.1.05.j
	PCRWRD Project Construction Permit		718
	ADEQ Discharge Authorization Permit		718
	PCDEQ Fugitive Dust Activity Permit		718
	Plan for Maintaining Service connection use		712.4 & 714.1.13
PRIOR TO CIPP INSTALLATION			
	Line Obstructions		713.8
	Pre-Insertion Videos and Log Sheets		713.9
	Temperature sensor system function test		713.10.2
	Wet Out Logs		713.11
POST CIPP INSTALLATION			
	Styrene Monitoring Logs		713.4
	Site Air Quality Monitoring		713.5
	CIPP Samples		713.12
	Certified Copy of CIPP Test Results		713.12
	Chemical resistance, & physical properties		713.8.5.3 thru 713.8.5.5
	Curing temperature/time log sheets		712.9
	Monitoring Temperatures and Curing Logs		713.10
	Post-Inspection Acceptance Statement and/or List of Defects with Corrective Plan		713.15.1 & 713.15.2
	Post Inversion CCTV Records		713.15
PRIOR TO FINAL ACCEPTANCE OF PROJECT			
	Existing Improvements Damages		705.2
	Record As-Built Drawings		709.2
	Final Summary Report		712.8/712. 9

ASBESTOS CEMENT PIPE REMOVAL AND DISPOSAL

721.1 The Contractor is advised that the transite pipe to be removed contains asbestos. This pipe is classified as a Category II Regulated Asbestos-Containing Material. The Contractor shall apply for and obtain an Asbestos NESHAP Activity Permit from the Pima County Department of Environmental Quality. All work under this Section shall comply with Section 940 of the PAG Standard Specifications For Public Improvements. A copy of the permit shall be provided.

721.2 Prior to commencement of work, the Contractor shall provide training certificates for all personnel and/or any Asbestos Abatement Contractor working on asbestos abatement. In addition, the Contractor shall provide the Engineer a signed statement to the fact that workers have been notified that (a) asbestos containing materials are present at the work site and (b) they are removing asbestos containing materials (as applicable to the employees).

721.3 Air monitoring test results shall be provided to the Engineer.

721.4 Disposal of transite pipe shall be at an Agency approved facility. Waste shipment records of transite pipe removed from the site complete with the receiving disposal site operator's signature and date shall be provided to the Engineer.

721.5 This work shall be considered incidental to the Contract and no measurement of payment shall be made.

SUB APPENDIX "E"

Procedure for Reporting Unauthorized Discharges/Releases

During any Unauthorized Discharge or Release of Sanitary Sewer Effluent **immediately call Pima County Regional Wastewater Reclamation at 520-724-6047**

Identify yourself and company name, state that the discharge is from "**Job Order Number and Location**" Flow Management Setup, and PCRWRD Permit Number

Give clear directions as to where the discharge is located (directions from nearest cross street if no address is available).

State any pertinent details such as volume of discharge, did it enter the wash, residence address, is discharge ongoing or it has stopped, etc.

Should any RELEASE occur from any portion of the Flow Management Setup, you are to follow these procedures immediately!!

SUB APPENDIX "F"

TECHNICAL SPECIFICATIONS FOR MANHOLE REHABILITATION AND CORROSION PROTECTIVE COATING APPLICATION

Dated December 2016 V2

A. GENERAL

It is the responsibility of the contractor to know and understand these specifications, to have them on site during the performance of any and all work, and to adhere to them at all times.

In this Pima County (PC) Regional Wastewater Reclamation Department (RWRD) specification, the words "coating" (or "coatings") and "lining" (or "linings") are used interchangeably. Similarly, "to coat" is used interchangeably with "to line" (or other variations of these words). In this specification, an "approved coating system" is one that has been selected by the PCRWRD Product Selection Committee (PSC) for use in the public sewer system operated by PCRWRD and is included in the PCRWRD List of Approved Products (LAP) for Public Sanitary Sewer Conveyance Facilities.

In this specification, unless otherwise specifically noted, the word "manhole" shall mean "sanitary sewer structure" and shall encompass sanitary sewer manholes, sewage lift station wet wells, sanitary sewer diversion structures, sanitary sewer junction structures, and other sanitary sewer facilities as indicated in the project documents. It also encompasses sanitary sewer pipes (or portions thereof, including inverts) that are located within the sanitary sewer structure, but does not include sanitary sewer pipes (or portions thereof) that are located outside of the limits of the structure.

In this specification, "existing manholes" shall mean those manholes that are currently owned and previously accepted by RWRD. "New manholes" shall mean those manholes that are constructed as either brand new or as in-kind replacement for manholes that are not candidates for rehabilitation.

"Rehabilitating" existing manholes and "applying corrosion protective coating" to such manholes shall include, but will not be limited to, the following activities:

- Cleaning the manhole and removing corroded/deteriorated materials from the manhole and otherwise preparing the manhole for one of the approved coating systems.
- Applying one of the approved coating systems, as specified herein.
- Testing the finished underlayment and surface coating, as required herein.
- Other related activities, as noted herein.

Applying "corrosion protective coating" to the new manholes installed as part of this project shall include, but will not be limited to, the following activities:

- Cleaning and preparing the manhole for one of the approved coating systems.
- Applying one of the approved coating systems, as specified herein.
- Testing the finished underlayment and surface coating, as required herein.
- And other related activities, as noted herein.

Where required by the approved construction documents, new manholes shall be coated and/or existing manholes shall be rehabilitated and an approved corrosion protective coating applied to their interior surfaces, as specified herein. The approved coating system (as specified herein) shall be applied to all exposed brick, concrete, grout, mortar, and cementitious surfaces within the manhole, including unlined concrete pipes within the manhole, bench-to-pipe transitions, bench, risers, cones, adjusting rings, etc. Coating of the metallic manhole frame and cover shall only be required if noted on the construction documents.

For projects containing more than five (5) manholes requiring coating, an example manhole procedure shall be followed. In such cases, prior to the start of any manhole rehabilitation or coating work, the RWRD Field Engineer will identify one manhole within the project that will be used as an example manhole. The example manhole will require rehabilitation and shall be rehabilitated by the contractor using the approved coating system, in conformance with these specifications. The manhole will be completed using the milestones listed in Section I of this specification. Upon completion and final acceptance of the example manhole by the RWRD Field Engineer, it shall be used as the standard for all project manholes.

B. APPROVED CORROSION PROTECTIVE COATING SYSTEMS:

The approved corrosion protective coating systems for application to existing manholes shall be as identified in the LAP. Each of the approved coating systems has an underlayment material and a surface coating material. The underlayment material (if required) and the surface coating material installed in any one manhole shall be from the same coating system and specified as compatible by the manufacturer.

Sprayable or trowelable formulations of Approved Products are acceptable. If "sprayable", the product shall be applied by an airless sprayer or spincaster. Regardless of the installation method, the final surface texture throughout the entire manhole, as judged solely by the RWRD Inspector, shall have a Concrete Surface Profile (CSP) value of 1 to 3, as defined by the International Concrete Repair Institute (ICRI). The Contractor shall not re-use or apply rebounded, spilled or over-sprayed material.

No substitutions outside the LAP are permitted without the approval of the RWRD Field Engineer. All coating systems shall be applied in conformance with these specifications.

C. COATING APPLICATORS:

The Contractor performing the work covered by this specification (also referred to herein as "the coating applicator") shall have a minimum of five (5) years' experience performing sewer manhole rehabilitation and corrosion protective coating work and shall have completed a minimum of five (5) such projects within the last five (5) years, one of which shall have been completed within the last 60-days using one or more of the RWRD Approved Products. The coating applicator shall document said project experience on the "Performance History" form included in this specification. The contractor shall submit the completed Performance History form to the RWRD Field Engineer for approval. The coating applicator shall report on the form any failures that occurred on any of the listed projects within five (5) years after final acceptance. The coating applicator shall also report any remedial action taken to address said failures and the final resolution. The coating applicator may attach additional sheets as necessary. An unacceptable performance history (e.g., having less than five (5) years of experience, having fewer than five (5) completed projects within the last five (5) years, and/or having failures within five (5) years after final acceptance on any of the listed projects that have not been corrected by remedial action), as determined by the RWRD Field Engineer, shall serve as the basis of rejection of the coating applicator.

The Contractor shall also submit a signed and dated certification letter from the manufacturer of the product (e.g., one of the Approved Products) that the applicator intends to install in the manhole(s). The certification letter shall state that the coating applicator has been trained and is certified and approved by the manufacturer to apply the manufacturer's coating in sewer manholes. The certification letter shall include the name of the Certified Applicator employed by the Contractor, date of training and certification expiration date. Failure to supply a valid certification letter shall result in the disqualification of the Contractor from installing said product in the RWRD system.

D. COATING SYSTEM APPLICATION:

1. Cleaning and Preparation Activities:

- a. Unless otherwise noted on the construction documents, for existing manholes lined with an existing PVC liner (e.g., T-lock liner), the Contractor shall remove the existing PVC liner prior to other cleaning activities at no cost to Pima County.
- b. Unless otherwise noted on the construction documents, existing or new liners on pipelines connecting to or passing through the manhole shall be left intact and in-place.
- c. Unless otherwise noted on the construction documents, for existing manholes lined or coated with a previously applied corrosion protective coating, the Contractor shall entirely remove the existing liner/coating (including any underlayment layers) prior to performing other cleaning activities at no cost to Pima County.
- d. Steps in the existing manholes shall be replaced at the discretion of the RWRD Inspector. Should the Inspector require the steps to be replaced, they shall be removed after the existing concrete has been water blasted and the final existing concrete surface profile has been exposed. The steps shall be cut flush with the concrete surface profile before re-surfacing begins. No portion of the remaining embedded steps shall protrude above the surface of the concrete. The steps shall then be replaced per PCRWRD Standard Detail RWRD 210 before final coating.
- e. Prior to application of the approved coating, all portions of the manhole to be coated shall be cleaned of all dust, loose particles, corroded or damaged materials, oils, grease, curing compounds, chemical contaminants, previously applied paints, insecticide coatings, and any other material indicated by the Inspector. The Contractor shall clean the manhole by abrasive blasting, followed by water blasting. Both abrasive blasting and water blasting shall be required. Abrasive blasting may be either wet or dry. Abrasive blasting equipment shall be rated for a minimum of 90 pounds per square inch (psi). Water blasting shall be performed with water blasting equipment capable of a minimum of 5,000 psi at 4 gallons per minute (gpm). The Contractor shall remove all sand, or other abrasive material, and all debris from the manhole with an industrial vacuum cleaner or other means approved by the RWRD Inspector.
- f. Other manhole cleaning methods may be used in addition to abrasive blasting and water blasting, as necessary to properly clean and prepare the manhole, but shall not be used as a substitute for abrasive blasting and water blasting without prior approval of the RWRD Field Engineer. Subject to RWRD Inspector approval, other methods that may be used in addition to abrasive blasting and water blasting (but not as a substitute for them) are high pressure water jetting, shot blasting, grinding, mechanical removal methods, chemical cleaning, detergent cleaning, hot water blasting and acid etching. If chemical cleaning or acid-etching are used, the substrate shall be neutralized and washed of residue.
- g. The Contractor shall be aware that manhole cleaning and preparation activities (e.g., water blasting and abrasive blasting) may cause damage to certain materials and finishes. The Contractor shall be solely responsible to protect portions of the manhole (including appurtenances and attachments) that are not designated for such cleaning and preparation activities from damage and shall be responsible to repair any damage caused by their activities at no cost to Pima County. Furthermore, the Contractor shall protect portions of the manhole on which the Contractor has previously applied the corrosion protective coating from any subsequent preparation or repair activities.

- h. Any and all products to be used for the work shall be identified in a detailed submittal provided by the Contractor to the RWRD Field Engineer for approval. Approval, in writing, from the RWRD Field Engineer must be received by the contractor prior to any products' use. Chemical use shall conform to local, state and federal laws and regulations. Safety Data Sheets (SDS) for all chemicals shall be hard-copied and available on site at all times.
- i. For new manholes, a manhole suitably prepared for coating shall have a uniform surface texture conforming to an ICRI CSP value of 2 to 3, and shall be free of laitance or other irregularities. For existing manholes, a manhole suitably prepared for coating shall have all loose, soft, discolored or otherwise deteriorated material removed from the manhole and the surface of the manhole shall have a texture at least as rough as ICRI CSP value of 4. The RWRD Inspector may use one or more of the following observations/tests to determine whether the manhole has been properly cleaned and prepared:
 - 1. Visual appearance of the manhole – The prepared substrate shall have the appearance of sound concrete (or brick and/or mortar), free from discolored, white, chalky and cracked areas.
 - 2. Aural observations – When struck with a metal hammer or tool, the prepared substrate shall exhibit the characteristic sound of solid, competent concrete (or brick).
 - 3. Mechanical abrasion tests – The substrate should be competent enough such that it cannot be scraped off with the claw of a hammer or similar metal tool.
 - 4. PH testing – The Inspector may use wetted litmus paper applied to the surface of the substrate to ensure that the pH of the substrate is 10 or higher. Any cleaning required after the pH testing will be done at no cost to Pima County.
 - 5. Phenolphthalein testing – The Inspector may apply a few drops of phenolphthalein to the surface of the concrete, whereby sound concrete should yield a purple color. Cleaning and removal of the phenolphthalein residue after testing will be done at no cost to Pima County.
- j. The RWRD Inspector may elect to use one or more of the above tests. The selection of test methods shall be at the sole discretion of the RWRD Inspector.
- k. If after cleaning, a new or existing manhole does not meet the requirements under section E.1.h, the RWRD Inspector shall have the authority to require that additional effort be made to adequately prepare the manhole. For existing manholes, the RWRD Inspector may also require removal of deteriorated concrete or other substrate materials that do not pass one or more tests as described under section E.1.h. These additional requirements shall be at no cost to Pima County.
- l. The Contractor shall remove loose material from the manhole. The Contractor shall take all necessary precautions to prevent debris from damaging the manhole and/or entering the sewer at no cost to RWRD. The RWRD Inspector shall approve the Contractor's precautions prior to any work being conducted.
- m. Any visible water infiltration or seepage through joints or seams in the existing manhole walls shall be eliminated at no cost to Pima County, using a material approved by the RWRD Field Engineer and compatible with the approved coating system. A letter from the underlayment material manufacturer and finish surface coating material manufacturer stating that the material used to stop the infiltration is compatible with their product shall be submitted to the RWRD Field Engineer for approval before any such material may be used.
- n. After the manhole is properly cleaned and prepared, the Contractor shall drill a hole no larger than ½-inch in diameter that penetrates a minimum of 2-inches into the concrete (or other manhole wall surface type). The Contractor shall then install a 3/8-inch diameter 316 stainless steel expansion bolt into the hole. The bolt shall penetrate a minimum of 2-inches into the

manhole wall, but shall be long enough that a minimum of 1-inch length (but no more than 2-inches length) of the bolt will be exposed after the finished manhole coating system is installed. The hex-head end of the bolt shall be the exposed end. Unless otherwise directed by the RWRD Inspector, the bolt shall be installed on the manhole riser section at a location approximately 12-inches below the point where the manhole cone and manhole riser meet. The RWRD Inspector will direct the Contractor where to install the bolt around the circumferential inner perimeter of the manhole. The various layers of the coating system shall be installed securely up to and around the base of the bolt to seal the bolt penetration off as a pathway for corrosion. This bolt will be used to provide grounding for spark testing procedures described later in this specification.

- o. The time between manhole cleaning and preparation activities and application of the first coating layer shall not exceed two (2) hours without repeating the 5000 psi at 4 gpm water blasting process.
- p. The Contractor shall properly dispose of all debris resulting from the manhole cleaning and preparation activities at no cost to Pima County. Said disposal shall be in accordance with all local, state and federal laws and regulations. Debris disposal into the sewer system is entirely prohibited.

2. Underlayment Material Application:

The requirements of this section apply to both existing and new manholes, as dictated by project requirements to produce an acceptable coating system installation.

- a. Prior to any surface coating work, the Contractor shall fill all voids (including any irregularities left by the removal of PVC liner tees) and restore the manhole surface to an even and uniform surface profile using an underlayment approved by the coating manufacturer as compatible with the coating system being applied.
- b. The underlayment shall be installed over a clean surface prepared in accordance with the requirements of this specification. The Contractor shall employ whatever means necessary (e.g., humidity control, temperature control, additional blasting, mechanical surface preparation, etc.) to ensure proper curing of the underlayment layer, strong adherence of the underlayment layer to the prepared manhole surface, and strong adherence to any layer installed over the underlayment layer.
- c. After installation, the underlayment shall be uniform, free of trowel marks and irregularities. Irregularities shall be defined as any void, depression, ripple, wave, bubble, bump or crack anywhere within the underlayment material. It is the responsibility of the Contractor to identify conditions that may require additional underlayment thickness in order to meet the requirements of this specification. The additional underlayment work will be done at no additional cost to Pima County.
- d. This paragraph shall apply to those manholes where one or more adhesion tests are required. (Refer to the section herein titled "ADHESION/BOND TESTING"). For such manholes, after the underlayment layer has cured for a minimum of 4 hours but before the surface coating has been applied over the underlayment layer, the Contractor shall test the underlayment layer for proper adhesion to the underlying substrate in accordance with the section herein titled, "ADHESION/BOND TESTING ". Only if the underlayment layer in a manhole passes the adhesion test(s) in that manhole shall the Contractor progress to the next step of surface coating application. If the underlayment layer does not pass the adhesion test(s), the Contractor shall perform the remedial and retesting procedures described in the "ADHESION/BOND TESTING" section. The remedial and retesting procedures shall be performed at no additional cost to Pima

County and shall be completed prior to progressing to the next step of surface coating application.

- e. The final underlayment surface shall be consistent with an ICRI CSP value of 2 to 3.
 - f. If offset barrel sections are present in a manhole, the offsets shall be corrected using a fillet of approved material to create a smooth transition. The final angle of the filleted surface shall be no steeper than 1:12.
3. Surface Coating Application:
- a. Prior to applying the surface coating, the underlayment shall be cleaned by water blasting at a minimum of 5,000 psi at 4 gpm.
 - b. The approved surface coating shall be mixed in a clean, dry mixing container or tank/vessel when part of a specialized application assembly.
 - c. The Contractor shall ensure strong adherence of the surface coating layer(s) to the underlying substrate and proper curing of the surface coating layer(s), using methods that are approved by the coating manufacturer. If the surface coating is applied in two or more layers, the time between applications of the various layers shall be controlled, as specified by the coating manufacturer, to ensure proper bonding between layers.
 - d. For all coatings, trowel marks and other surface irregularities shall be removed by using a short nap mohair paint roller. The short nap mohair shall be dampened with water. Excess water shall be shaken off prior to use. The contractor shall submit an alternate procedure, approved by the coating manufacturer, to the RWRD Field Engineer for approval prior to using a different procedure.
 - e. The surface coating shall be carefully butted against and then feathered over (4-inches minimum) any PVC liners that exist on pipes passing through or connecting to the manholes to create a continuous corrosion barrier.
 - f. The required total cured thickness for the surface coating layer (not including the thicknesses of any underlayment or priming layers) for all coating systems shall be 3/16-inch or (187.5 mil).
 - g. Coating components that have begun to set shall not be recovered by adding additional liquid but shall be discarded.
 - h. Do not allow flowing water, chemicals or other liquids on the approved, applied coating for a minimum of 4-hours after installation, or a longer period if recommended by the coating manufacturer. Any request for a deviation from the 4-hour minimum shall be made, in writing, to the RWRD Field Engineer at least 10 business days prior to the start of any activity.
 - i. After installation, the final coating shall be uniform, free of trowel marks and irregularities that may interfere with the procedures and methods for the required final testing. Irregularities shall be defined as any void, depression, ripple, wave, bubble, bump or crack anywhere within the final coating material. No sag or run in the final coating that creates a void or thinning of the material or other irregularity that detracts from the even and uniform surface shall be accepted. The final surface profile shall be consistent with an ICRI CSP value of 1 to 2. Any of the aforementioned irregularities or other issues that detract from a uniform final coating and are not consistent with an ICRI CSP value of 1 to 2, shall be considered defects and shall be repaired using a manufacturer-approved method. The repairs shall be done at no cost to Pima County.

- j. All coating termination edges shall be locked in to the substrate with a termination groove "key" cut into the substrate. The "key" shall be a minimum of 1/8" wide x 1/4" deep.
- k. If offset barrel sections are present in the manhole, the offsets shall be corrected using a fillet of approved material to create a smooth transition. The final angle of the filleted surface shall be 1:12.

E. ADHESION TESTING:

Adhesion testing shall be performed at two different stages of the work. Adhesion of the underlayment layer to the underlying substrate shall be tested before the surface coating layer(s) are applied. Later, after the surface coating layer(s) have been applied, the adhesion of all applied layers in the coating system to one another and to the underlying substrate shall be tested. The adhesion testing shall be completed as follows:

1. The number of required adhesion tests shall be based on the type and number of structures included in the work. In the case of manholes (as differentiated for the purposes of this item only from other sewer structures), there shall be a minimum of one (1) underlayment adhesion test and one (1) finished coating system adhesion test for every four (4) manholes. To determine the number of adhesion tests required, take the number of manholes included in the project, divide by four, and if the result is not a whole number, then round up to the next whole number. In the case of other sewer structures (e.g., sewer diversion structures, pump station wet wells, metering stations, etc.), there shall be a minimum of two (2) underlayment adhesion tests and two (2) finished coating system adhesion tests for every such sewer structure.
2. The manholes to be subjected to adhesion testing and the specific test locations within each manhole shall be selected by the RWRD Inspector. The RWRD Inspector will be present to observe all adhesion testing.
3. The need to repeat an adhesion test due to an error in the performance of the adhesion testing (e.g., a dolly coming off prematurely) or due to a failure in the coating system before the required full test tensile load is applied (i.e., a "not pass" test result) shall not count as an additional test for the purposes of determining compliance with the minimum number of tests required per Item No. 1, but shall rather be designated and documented as a "repeat test". Repeat tests shall be done at no cost to Pima County.
4. After the underlayment layer has cured for a minimum of 4 hours (unless otherwise approved by the RWRD Field Engineer) but before the surface coating has been applied over the underlayment layer, the Contractor shall test the underlayment layer for proper adhesion to the underlying substrate. The Contractor shall perform the adhesion testing in-place and in accordance with ASTM Standard C1583-04 and the requirements of this section.
5. After the approved coating has been applied to all specified surfaces and has adequately cured (as determined by the manufacturer, but no more than 4 days), the Contractor shall test the finished coating system for adequate adhesion between the underlying substrate and the coating system, and between the various layers of the coating system. Said test shall be performed in-place and in accordance with ASTM Standard D7234-12, with the exception of the flat surface requirement in section 7.1.1, and the requirements of this section.

The remaining paragraphs of this section apply to both the adhesion testing of the underlayment layer and the adhesion testing of the finished coating system.

6. The Contractor shall perform the adhesion testing discussed in this section using a DeFelsko Positest Pull-off Adhesion Tester Model AT-C or an equal approved by the RWRD Field Engineer. All required test equipment and materials shall be provided by the Contractor. The Contractor shall supply 50 mm-diameter dollies (as sold by DeFelsko, one dolly for each adhesion test, not re-usable) and the appropriate adhesive for the dollies as needed to perform all of the required tests. The Contractor shall also provide the equipment and tools to core drill around the test location in conformance with test procedure.
7. If delamination or any other failure occurs between or within any of the coating system layers and/or the underlying concrete substrate prior to the application of the full, sustained test tensile load of 80 psi, the test shall be classified as "not pass". However, if the dolly comes off the surface of the coating and no other delamination or failure occurs between or within any of the coating system layers and/or the underlying concrete substrate, the test will not be classified as a "failure" or "not pass", but the test shall be repeated at no additional cost to Pima County. If delamination or other failure occurs but only when the sustained, applied tensile load is in excess of 80 psi, the test shall also be judged to be a "pass". The contractors shall not stop the test or retest(s) once they exceed the 80 psi load, but shall continue the test to failure and the final break location and load recorded.
8. For tests that are classified as "not pass", the RWRD Inspector may require additional testing and/or remedial action. Remedial action may include removing the entire coating system, or select components, from the entire manhole, re-cleaning of the manhole, reapplication of the coating system to all required surfaces, and retesting. Said additional testing and/or remedial action shall be at no additional cost to Pima County.
9. After the adhesion tests have been performed, the Contractor shall mechanically grind down the test locations to the underlying substrate and re-apply the underlayment and/or coating system (whichever has been installed up to that point in the manhole) in accordance with these specifications to patch the area. Said repair work shall be at no additional cost to Pima County. The Contractor shall not use acetone, MEK or other chemicals to dissolve the underlayment or coating system as a substitute for mechanical grinding of the test area.
10. If it is determined by the RWRD Field Engineer that excessive failures within the coating system or its individual parts are occurring, or if the results of adhesion testing indicate other deficiencies in the coating, the RWRD Inspector may direct the contractor to perform adhesion tests in additional manholes in order to resolve such issues. In the case of testing failures, said testing and remedial action shall be at no cost to RWRD or Pima County.

F. SPARK TESTING:

Spark testing is required only on the fully-installed finished coating system.

1. After the approved coating has been applied to all specified surfaces, the Contractor shall spark test the coated surfaces. The Contractor shall provide, at no cost to Pima County, a third-party, NACE Certified Level 3 Coating Inspector (with active certification in good standing) to conduct the spark testing. All specialized testing equipment necessary to perform said testing shall be furnished by the third-party Coating Inspector and shall be in good condition. The Contractor shall be responsible for supplying all support services and equipment required to facilitate the third-party inspection at no additional cost to Pima County.
2. The third-party Coating Inspector's NACE Level 3 certification and qualifications shall be submitted to the RWRD Field Engineer for approval prior to the start of testing. For the purposes of this specification, NACE refers to the National Association of Corrosion Engineers International.

3. Holiday testing of coatings shall be conducted at no less than 100 Volts per mil thickness of installed coating unless pre-approved, in writing, by the RWRD Field Engineer. A request to deviate from the 100 Volts per mil minimum standard shall be submitted no less than 10 business days prior to the start any activity.
4. The wire brush and test electrodes shall be maintained in proper condition (i.e. no deformed bristles, bent or dirty brushes, etc.) so as to maintain constant contact with the coating surface. Should the RWRD Inspector determine that the brush being used does not conform to the criteria of this section, the brush shall be replaced at no expense to Pima County before spark testing may continue. The entire brush shall be in constant contact with the coating surface during spark testing.
5. All holidays, pinholes or other deficiencies identified by the third-party Coating Inspector, shall be repaired following the coating manufacturer's recommendations and shall affect the smallest surface area possible. Repair procedures shall be submitted to the RWRD Field Engineer for approval before starting any activity.
6. If after two repeated repair attempts are completed, the coating system fails to pass the spark test, the RWRD Inspector will notify the RWRD Field Engineer. All additional costs incurred to RWRD for having RWRD personnel on site for further repairs and inspections will be at the coating applicators cost.

G. CLEAN-UP:

Any spilled or over-sprayed material shall be removed prior to curing. After curing has occurred, clean-up may be accomplished by chipping or blasting. All discarded materials, including trash, shall be disposed of properly. Clean-up and disposal of discarded material and trash left by the crew shall be at no cost to Pima County. The clean-up area includes the area around the manhole, all Contractor vehicles and equipment, and any area where work materials have been left, stored or placed.

H. MATERIALS:

Materials shall be delivered to the site in factory sealed and labeled containers. Date of manufacture shall appear on each container. Materials shall be handled and stored according to the strictest requirements of the manufacturer and in accordance with all local, state and federal laws and regulations. Improperly stored or otherwise mishandled materials may be disallowed from use for the project at the sole discretion of the RWRD Inspector. A bill of lading for any shipment of material shall be provided upon request of the RWRD Inspector.

I. MILESTONES:

At each manhole, the RWRD Inspector shall inspect the work completed to date at the conclusion of each milestone listed below before the Contractor shall commence work on the next milestone. It is the contractor's responsibility to contact the RWRD Inspector when ready for inspection. Both the contractor and the RWRD Inspector will meet at a time mutually agreed upon to conduct the milestone inspections. Failure to have inspection performed prior to moving to the next step/milestone may result in corrective action involving removal of completed work to the point of the last inspection. For example, not having the underlayment inspected before installing the surface coating may require the surface coating to be removed to expose the underlayment layer for inspection. The required corrective action will be at the sole discretion of the Field Engineer and shall be at no cost to Pima County. The inspection milestones are as follows:

1. Completion of the cleaning and surface preparation activities required by these specifications.
2. Completion of all void-filling activities and underlayment application, prior to surface coating application, including the associated adhesion testing of the underlayment layer.
3. Completion of the surface coating installation prior to testing.
4. Adhesion/bond testing of the finished coating system as required by these specifications.
5. Holiday (spark) testing of the final surface coating as required by these specifications.
6. Final clean-up of the area.

J. WARRANTY AND BONDING:

- A. The contractor shall provide a renewable maintenance bond to cover all workmanship and all materials for each manhole or structure coated with an approved corrosion protective coating, renewed as-needed to comply with this specification, which shall be in effect for a period of not less than three (3) years from the date of Final Acceptance of the project.
 1. The contractor shall submit their Bond and Warranty to the RWRD Field Engineer through the RWRD Inspector prior to and as a condition of project Final Acceptance.
 2. Warranty also applies to repair materials, primers, or any other products used in the application.
 3. The bond shall also be unconditional in nature covering any type of failure in the coating and agreeing to repair or replace at no additional cost to PCRWRD at any point during the 3-year period.
- B. The contractor shall provide a 5-Year Warranty from the Coating Manufacturer that is addressed to PCRWRD.
- C. Coating failure is defined as blistering, cracking, embrittlement, bubbling, softening, or failure to adhere to the substrate. The RWRD Field Engineer shall be the sole judge of coating failure.
- D. Testing performed by PCRWRD during construction (e.g., spark testing, adhesion testing, and/or other testing) does not in any way modify the Warranty, nor relieve the Contractor from the responsibility for responding and correcting defects during the Warranty period.

K. MAINTAIN & PROTECT EXISTING SEWER FLOWS:

The Contractor shall be aware that the existing manholes included in this project are active, functioning manholes. The Contractor shall be required to maintain existing sewer flows in conformance with the Approved Flow Management Plan (FMP) for the project. Flow management operations shall never be implemented, modified, or discontinued without the explicit permission of the RWRD Inspector.

For new sewer lines installed as part of this project, no sewer flows shall be permitted within said sewer lines until the requirements of this specification are fully satisfied for all manholes that are required to be coated and the work has been accepted by the Field Engineer.

The Contractor shall take all necessary precautions to prevent debris from damaging the manhole and/or entering the sewer at no cost to Pima County. The RWRD Inspector shall approve the Contractor's precautions prior to any work being conducted. The Contractor shall immediately remove from the sewer lines any material that enters the sewer lines due to his operations, at no cost to Pima County.

PERFORMANCE HISTORY

INFORMATION REQUIRED FROM SUCCESSFUL BIDDER ONLY (MUST BE COMPLETED AND SUBMITTED AFTER THE BID OPENING)

PERFORMANCE HISTORY FOR THE APPLICATION OF THE SPECIFIED OR SIMILAR COATING SYSTEM IN SANITARY SEWER STRUCTURES:

(Attach additional sheets as necessary.)

Contractor Name:

Project:

Date:

Locations:

Client:

Client Phone No.:

Material Applied:

Failures and Remedial Action:

SUB APPENDIX "G"
CONSTRUCTION SAFETY PLAN OUTLINE

Introduction

The following outline will assist the Contractor in the development of a **Safety Plan** for maintaining a safe and healthful worksite while performing construction activities for Pima COUNTY Wastewater Management. The pre-construction meeting will identify specific safety requirements of the project and overall safety concerns. Items identified shall be included in the safety plan.

The safety plan should be tailored to the particular project as detailed in the construction specification and drawings. The Contractor shall impose this plan on his Subcontractors and their employees working on all projects for Pima COUNTY Wastewater Management.

Please number the pages and indicate the safety plan revision number and date on the cover, table of contents, or other suitable page, preferably on all pages.

Safety Plan Outline: The following items should be addressed as appropriate to the project.

G1 Applicable Regulations

- OSHA 29 CFR 1926 "Safety and Health Regulations for Construction".
- OSHA 29 CFR 1910 "General Industry Safety and Health Regulations Identified as Applicable to Construction".
- All other applicable regulations.

G2 Required Submittals

- Crane Operator and equipment.
- Welding - American Welding Society (AWS) Certification.
- Pressure vessels - Meeting ASTM standards.
- Asbestos - Licenses, Medicals, Fit Tests, Respiratory Protection Program.
- Rigging Plan.
- Excavation Plan, Cave-in Protection, Dewatering Plan, Utilities Support.
- Confined Space Entry Procedure
- Fall Protection Plan.
- OSHA 200 Logs.
- Environmental Protection (See Flow Management) Plan
- Certificates of Insurance with COUNTY identified as additional insured. Include Motor Vehicle Insurance.
- Competent Person Qualifications. ie. Excavations, Scaffolds, etc.
- Safety Representative's Qualifications.
- Personnel Qualifications for working on energized electrical circuits; Union cards or equivalent.
- Respiratory Protection Program.

G3 General Information

H3-1 Safety Performance:

- Copy of the company record of injuries and accidents (OSHA 200 logs).
- Insurance experience modification rate for the past two years.

H3-2 Contractor's Name:

- Name of project superintendent
- Phone number to contact project superintendent (on and off site)
- If a project manager is assigned, name and phone number

H3-3 Project Name:

- Building Number
- Job Number

- H3-4 Contractor's Designated Safety Representative:
- Phone number to contact safety representative
 - Alternate
 - Safety Training Documentation

G4 Responsibilities

G4-1 Prime Contractor:

- Ultimate responsibility for all safety including safety of Subcontractor.
- Designates safety representative.
- Ensure that safety plan is part of contract with all Subcontractors.
- Coordinates and plan work activities among all Subcontractors.
- Meet the requirements of the applicable regulations.
- Establish company safety rules and policies.
- Correct safety deficiencies when noted in safety inspection.

G4-2 Contractor's Safety Representative:

- Inspect work areas, including Subcontractors for unsafe conditions, including tools, equipment, and proper protective clothing. Establish inspection frequency. (See Checklist)
- Inspects work areas, including Subcontractors for unsanitary conditions, poor housekeeping, etc. Establish inspection frequency. (See Checklist)
- Ensures that any unsafe and/or unsanitary condition is corrected.
- Initiates method of reporting unsafe conditions to prime Contractor for correction, include remedial action to be taken. Copies of safety inspection to be sent to the Project Manager.
- Proposed follow-up on changes, corrections and other actions necessary to correct unsafe conditions.
- Coordinates activities with Subcontractors to ensure work proceeds in accordance with applicable safety requirements.
- Reviews possible safety hazards, construction activities, etc. with their employees and Subcontractors.
- Coordinates certifications, training, record keeping, etc. Keeps records in central area available for review.

G4-3 Subcontractors:

- Responsible for safety of their employees.
- Reviews possible safety hazards, construction activities, etc. with their employees.
- Ensures that their foreman and employees understand precautions to be taken.
- Inspects hand tools and equipment regularly that are used in construction activities.
- Corrects safety deficiencies when identified and notified.
- Inform prime Contractor immediately of any unsafe condition or activity.

G5 Fire, Medical, and Environmental Emergencies

For COUNTY work area emergency services, fire, medical and spill response, identify within the safety plan the providers of these services for any emergencies arising while performing work for COUNTY:

- Site and Facility-specific information and training detailed within the safety plan.
- Identify the provider of emergency medical transportation.
- Identify local emergency phone numbers within the safety plan and conspicuously posted at the jobsite.
- Immediately notify the Pima COUNTY Wastewater management Project Manager in the event of any emergency. Project Manager phone and pager number identified within the safety plan and clearly posted in a conspicuous location.

G5-1 Serious injuries:

- For ambulance, the appropriate emergency number.
- Appropriate steps to be taken by prime Contractor first aid station until arrival of ambulance.
- Immediately notify Project Manager, Construction Inspector, or Field Engineering Office at (520) 740-2651.

G5-2 Fire Protection and Prevention:

- Fire protection equipment provided by prime Contractor, one fire extinguisher for each vehicle.
- Fire protection equipment provided for special construction activities, i.e., welding, flame cutting, etc., one fire extinguisher for each operation.
- Welding/cutting permit.
- One fire watch with no other duties assigned per open flame operation.
- For any fire notify the proper emergency number.
- Immediately notify Project Manager, Construction Inspector or Field Engineer Office at 740-2651.
- Within 72 hours of incident, submit written narrative report to Project Manager indicating:
 - o Type
 - o Cause
 - o Planned remedial action
 - o Injuries

G5-3 Environmental Protection (Spill Prevention)

- Use of containment
- Storage and handling of hazardous materials
- Operation, maintenance and repair of equipment
- Daily equipment inspection for leaking or loose fluid retention systems

G5-4 Housekeeping

- Daily requirements
- Removal of combustible debris
- Collection containers
- Handling asbestos or lead

G5-5 Illumination

- Areas illuminated
- Maintenance of equipment
- Separate circuits for lighting and power

G5-6 Sanitation

- Equipment provided
- Maintenance of equipment

G5-7 Protective Equipment

- Type required for project
- Responsibility for use
- Appropriate construction attire; shirts with sleeves, long pants, safety shoes
- Respiratory Protection and associated written program

G5-8 Safety Training and Education

An outline of training to be provided to company and Subcontractor employees. Outline shall include:

- The topics to be discussed.
- Frequency of training.
- Personnel to receive training
- The training provider whether it be an employee (ie. Contractor safety representative, etc.) or a Subcontractor. For example, all newly hired employees should receive initial training in the OSHA

construction safety and health requirements, hazard recognition and avoidance for their particular job category.

- Prior to each change in project phase a safety awareness meeting should be held with all affected employees and Subcontractor employees.
- Toolbox safety talks should be held at least weekly to discuss the hazards of that particular week's activities.
- Safety - oriented posters and signs
- Contractor and Subcontractor employee safety training
- Training records shall be kept at the jobsite and forwarded to BNL.

G5-9 Safety Records

Safety Records shall include:

- Accident investigation and reporting procedure.
- Accident log.
- Notification of any accidents to Project Manager, Construction Inspector or Field Engineer Office at 740-2651.

G5-10 Electrical Safety

- Ground-Fault Circuit-Interrupters (GFCIs).
- Lock-out/Tagout (LOTO) of Electrical sources.
- Extension cord inspection and condition.
- Working on energized circuits permits, procedures, and personnel qualifications.

G5-11 Confined Spaces

- Permits.
- Oxygen deficiency monitoring.
- Hazardous gases/vapors monitoring.
- LOTO of hazardous energy sources.
- Entry and exit procedures.
- Two man rule and communication.
- Emergency rescue equipment.

G5-12 Hazard Communication

- Name the individual responsible for maintaining this information and his/her responsibilities.
- Location and availability of the written Hazard Communication Program.
- Location and availability of Material Safety Data Sheets (MSDS) for all materials onsite.
- The type and frequency of Employee training.

G5-13 Mobile Equipment

- Registered vehicles, license plates.
- Operator qualifications, Commercial Driver's License (CDL) or equivalent.
- Operator's manual with all material handling equipment.
- Daily inspection for fluid levels and leaking or loose fluid retention systems.
- Backup alarms.
- Tarp Loads.
- Rollover Protective Structure (ROPS) cab.
- Leak-free.
- Maintain and repair offsite.

G5-14 Fall Protection

- Fall protection plan specific to job.
- Body harness inspection.
- Lanyard inspection.
- Anchor points, types and locations.

- Guarding system. Roof edges, floor holes, wall openings, scaffolds, peaked roofs, work platforms (powered or stationary).
- Training.

G5-15 Excavation

- Digging Permit.
- Excavation Plan describing the method to protect workers from cave-ins.
- Dewatering plan.
- Competent Person qualifications. Training, Hazard Identification, Authority
- Barricading against people and vehicles.
- Confined Space permit (where required).
- Hand-dig near utilities.
- Cave-in protection if five feet or deeper.
- Rigging plan for materials in and around the excavation.
- Contingency plan for discovery of contaminated soils.

G5-16 Rigging

- Rigging plan describing the proposed methods for handling materials and equipment at the jobsite.
- Operator's manual with all material handling equipment.
- Documented inspection for compliance with OSHA requirements within 48 hours of notification of intent to perform Rigging Operations.
- Arizona Crane operator's license.
- Load Charts for all lifting machinery.
- Swing radius and barricading.
- Staging and path of material movements.
- Sling inspections.
- Sling tags.
- 48 hour notification to Project Manager prior to lift.
- Potential kiteing effects and calculations.
- Tag lines and location of line handlers.
- Weight of the load or lift.
- Center of gravity marked on item to be lifted.
- Valid Arizona driver's license for forklift operators.

G5-17 Temporary Services

- 48 hours notification to Project Manager.
- All requests and approvals made through Project Manager.
- Construction trailer service line height and code requirements per National Electric Code (NEC).
- Coordinate temporary services with Subcontractors.
- Toilet facilities.
- Telephone services.

G5-18 Asbestos/Lead

- Inspection.
- Contingency plan for discovery.
- Awareness training.
- Respiratory protection program.

G5-19 Drug-Free Workplace

Written Drug-Free Workplace Program to Include:

- Policy Statement ii) Prohibited activities
- Supervisor and Employee Responsibilities
- Enforcement and consequences for violations

Ongoing drug-free awareness training program for Supervisors and Employees to Include:

- Intervention Procedures - employee and supervisor.
- Identification - Signs and Symptoms
- Corrective action
- Employee Assistance Options

SAFETY CHECKLIST

PROJECT:

JOB #:

DATE:

TIME:

Indicate the corrective action taken, date, initial

INSPECTION ITEM

1. Access
2. Ramps/Walkways
3. Cylinders Concrete & Masonry
4. Cranes & Hoists
5. Electrical
6. Excavation & Trenching Fall Protection
7. Confined Space Entry
8. Environmental Protection (Spill Prevention)
9. Fire Protection & Prevention Flammable & Combustible Liquids
10. Floor & Wall Openings
11. Hazard Communication
12. Heavy Equipment
13. Housekeeping
14. Illumination
15. Ladders & Scaffolds
16. Material Handling, Storage & Use Occupational Health & Environmental Controls
17. Personal Protective Equipment
18. Radiation Safety
19. Signs & Barricades
20. Steel Erection
21. Tools, Hand & Power
22. Welding & Cutting
23. Other (Postings)
24. Comments

INSPECTOR:

DATE:

CC:

PHASE-HAZARD ANALYSIS

WORK PHASE*	HAZARD	PREVENTION/CONTROL
Mobilization/Staging		
Site Clearing		
Demolition		
Excavation		
Concrete/Masonry		
Structural Steel		
Masonry/Exterior Work		
Roofing		
Flooring		
Utilities		

* Use Safety Checklist as a guide to identify activities and hazards requiring attention within each work phase.

END EXHIBIT "A" - SCOPE OF SERVICES

EXHIBIT "B" (11 pages) GENERAL CONDITIONS

ARTICLE 1 – DEFINITIONS

Whenever in these Specifications, or in any document of instructions where these Specifications govern, the following terms or pronouns in place of them are used, the intent and meaning will be interpreted as follows:

Bid: The offer of the Bidder for the work when properly made out on forms containing the Bid for Lump Sum Construction supplied by COUNTY and properly submitted, signed and guaranteed.

Bid Documents: All Drawings, Technical Specifications, Supplementary General and/or General Conditions, Bid Schedule, Construction Contract and Bonds, and Contract Documents.

Bidder: Any individual, firm or corporation, qualified as herein provided, legally submitting a Bid for the work contemplated, acting directly or through an authorized representative.

Board: The Board of Supervisors, Pima County, Arizona, acting under authority of the laws of Arizona.

Building Code: The directions, provisions, and requirements contained in the current edition of the Building Codes, with Amendments, as adopted by Pima County, supplemented by such special provisions as may be necessary, pertaining to the method and manner of performing the work, quality and quantity of material to be furnished and measurement for payment of same.

Contract: The written Agreement between COUNTY and CONTRACTOR covering the performance of the work and the furnishing of labor, equipment, and materials in the construction of the work.

Contract Bond: The approved form of security furnished by CONTRACTOR and its Surety as a guarantee on the part of CONTRACTOR to execute the work in accordance with the terms of the Contract.

Contractor: The party who undertakes to execute the work, acting directly or through an authorized lawful agent or employee.

COUNTY: Pima County, Arizona, a body politic and corporate, the owner of the work.

Department: The Pima County Department of Transportation.

Director: The Pima County Department Director, an assistant or other representative duly authorized by a Department Director to act on their behalf.

Extra Work: Work, including materials, for which no price agreement is contained in the Contract and which is deemed necessary for the proper completion of the work.

Item: A detail of work for which separate payment is made.

Laboratory: The established laboratory of the Department or other laboratories authorized by COUNTY to test materials and work involved in the Contract.

Plans: The Contract drawings or exact representations thereof, which show the location, character, dimensions, and details of the work.

Project Manager, Engineer, or Architect: The person designated by COUNTY to oversee the project on its behalf.

Standard Specifications: The directions, provisions, and requirements contained in the current edition of the Pima Association of Governments Standard Specifications for Public Improvements, 2014 Edition with Amendments, as adopted by Pima County, supplemented by such special provisions as may be necessary, pertaining to the method and manner of performing the work, quality and quantity of material to be furnished and measurement of payment of same.

Supplementary Agreement: A written agreement executed by CONTRACTOR and COUNTY covering alterations to the project. A change order or a force account work request prepared on the approved form of the Department is a supplementary agreement.

Supplementary General Conditions or Special Conditions: The Supplementary General Conditions or Special Conditions are additional to the General Conditions, which are conditions or requirements peculiar to the project under consideration.

Surety: The corporate body which is bound with and for CONTRACTOR, who is primarily liable, and which (agrees) to be responsible for its payment of all debts pertaining to and for its acceptable performance of the work for which it has contracted.

The Work: All of the work specified in the Contract.

ARTICLE 2 – RESPONSIBILITY REGARDING EXISTING UTILITIES AND STRUCTURES

The existence and locations of underground utilities indicated on the plans are not guaranteed and will be investigated and verified in the field by CONTRACTOR before starting work. Excavations in the vicinity of existing structures and utilities will be carefully done by hand. CONTRACTOR will be held responsible for any damage to, and for maintenance and protection of existing utilities and structures.

COUNTY does not guarantee the existence and locations of underground utilities indicated on the plans and CONTRACTOR will investigate and verify the location of underground utilities in the field before starting work. CONTRACTOR will carefully perform excavations in the vicinity of existing structures and utilities. CONTRACTOR is responsible for any damage to, and for maintenance and protection of, existing utilities and structures. At least two full working days prior to commencing excavation, contractor must call blue Stake Center, 1-800-STAKE-IT, between the hours of 7:00 a.m. and 4:30 p.m., Monday through Friday for information relative to the location of buried utilities.

CONTRACTOR is fully responsible for costs incurred due to damage to utilities as a result of grading or excavation operations. Utility locations shown on the Plans are approximate, and not all utilities may be shown. The possibility of conflicts with existing utilities –in-place exists. If conflicting utilities interfere with CONTRACTOR'S normal progress toward completion of this project, COUNTY may, at its option, authorize CONTRACTOR to relocate said conflicting utilities by Force Account.

It is the responsibility of CONTRACTOR to contact the utility companies in order for them to determine if there is a need for any bracing or shoring of power to telephone poles during the construction of this project. If bracing or shoring is necessary, CONTRACTOR will effect this work to the satisfaction of the utility company. COUNTY will make no measurement or direct payment for bracing or shoring.

ARTICLE 3 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

- A. Laws to be Observed -- CONTRACTOR is presumed to be familiar with and at all times will observe and comply with all Federal and State laws and local ordinances, worker's compensation, occupational disease, and unemployment compensation laws together with the payment of all premiums and taxes therefor, also all laws, ordinances, and regulations in any manner affecting the conduct of the work and will indemnify and hold harmless COUNTY and its representatives against any claim arising from the violations of such laws, bylaws, ordinances or regulations, whether by CONTRACTOR or by CONTRACTOR'S employees.

- B. Permits and Licenses -- COUNTY will procure all County building permits, and sewer connection fees. CONTRACTOR will post required permits on site and give all notices necessary and incidental to the due and lawful prosecution of the work. CONTRACTOR will procure and pay for all other permits, fees, and applications for water, gas, electric and other utilities.
- C. Sanitary Provisions -- CONTRACTOR will provide and maintain in a neat and sanitary condition such accommodations for the use of its employees as may be necessary to comply with the requirements and regulations of the Arizona Department of Health Services or other authorities having jurisdiction therein.
- D. Public Convenience and Safety -- CONTRACTOR will have due regard for the public health and will conduct the work in such a manner as to provide and insure the safety and convenience of the public.

When special conditions prevail and extraordinary measures are necessary, the details will be set forth in the Technical Specifications or Special Provisions.

- E. Barricades, Danger, Warning, and Detour Signs -- CONTRACTOR will at its expense and without further order provide, erect, and maintain at all times during the progress or temporary suspension of the work such barricades, fences, warning lights, danger signals, reflectors, signs, or other protective devices as are required to insure the safety of the public, those engaged in connection with the work and the work itself.

Unless otherwise expressly stated in the Contract, no measurement or direct payment for this work will be made, but the cost of providing, erecting, and maintaining such protection devices, including guards, watchmen and/or flagmen as required will be considered as included and paid for in the contract prices for the work.

- F. Use of Explosives -- Prohibited
- G. Preservation and Restoration of Property -- CONTRACTOR will be responsible for the preservation of all public and private property on the surface or underground, along and adjacent to the work and will conduct its operations so as to insure the prevention of injury or damage thereto. No land monuments or property will be disturbed or moved until an authorized agent has witnessed or otherwise referenced their locations.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence or the non-execution thereof on the part of CONTRACTOR, CONTRACTOR will restore such property at its own expense to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring same, or it will make good such damage or injury in an acceptable manner.

- H. CONTRACTOR'S Responsibility for Work -- Until written final acceptance of the work by COUNTY, CONTRACTOR will have the charge and care thereof and will take every precaution against injury or damage to any part thereof by action of elements, or from any other cause, whether arising from the execution or non-execution of the work. CONTRACTOR will rebuild, repair, restore, and make good all injuries or damages of any portion of the work occasioned by any of the above causes before final acceptance and will bear the expense thereof.

In case of the suspension of work for any cause whatever, CONTRACTOR will be responsible for all work and materials and will take proper care of the work, storing all materials if necessary, and will provide suitable drainage of the work and erect necessary temporary structures.

- I. Waiver of Legal Rights -- COUNTY will not be precluded or be estopped, by any measurement, estimate, or certificate made either before or after the completion and acceptance of the work and payment therefor, from showing the true amount and character of the work performed and materials furnished by CONTRACTOR, or from showing that any such measurement, estimate, or certificate is untrue or incorrectly made, or that the work or materials do not conform in fact to the Contract. Neither the acceptance by COUNTY or by any representative of COUNTY nor any payment, nor acceptance of the whole or any part of the work, nor any extension of time, nor any possession taken by COUNTY will operate as a waiver of any portion of the Contract or of any power herein

reserved, or any right to damage herein provided. A waiver of any breach of the Contract is not a waiver of any other subsequent breach.

ARTICLE 4 – ACCIDENTS

CONTRACTOR will provide, at the site, such equipment and medical facilities as are necessary to supply first-aid service to anyone who may be injured in connection with the work.

CONTRACTOR must promptly report in writing to COUNTY all accidents whatsoever arising out of, or in connection with the performance of the work, whether on or adjacent to the site, which caused death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, CONTRACTOR will report the accident immediately by telephone or messenger to both COUNTY and the Board.

If any claim is made by anyone against CONTRACTOR or any subcontractor on account of any accident, CONTRACTOR will promptly report the facts in writing to COUNTY, giving full details of the claim.

ARTICLE 5 – RESERVED

ARTICLE 6 – DELAY

If the number of calendar days in CONTRACTOR'S schedule plus the grace period specified in the above paragraph equals or exceeds the number of calendar days for completion stated in the solicitation, then the completion period will be as stated in the solicitation and there will be no grace period.

COUNTY and CONTRACTOR have agreed upon the Project scope, total price, and schedule for the performance of the work. The agreed schedule represents a firm commitment by CONTRACTOR and COUNTY to complete the work within the schedule identified in this Contract, as it may be adjusted from time to time.

COUNTY and CONTRACTOR understand that events may occur that delay or disrupt the schedule or require a change in the level of resources or effort. Therefore, the Contract may be adjusted as follows for Delays:

1. A delay in the work attributable to COUNTY is an excusable delay for which an adjustment may be made to the schedule. In any such case the schedule of the affected task or activity may be extended one day for each day of COUNTY-caused delay; provided, however, that if the COUNTY-caused delay overlaps a period of delay attributable to any other cause, the extension for COUNTY-caused delay is limited to the number of non-overlapped days of COUNTY-caused delay.
2. There is no adjustment for any CONTRACTOR-caused delay in the work, including time to repair or replace defective work. In the event of a significant CONTRACTOR-caused delay exceeding three (3) workdays, CONTRACTOR will provide a recovery plan to COUNTY within five (5) days of COUNTY's request.
3. A delay in the work attributable to any other cause, including strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the control of COUNTY or CONTRACTOR and that arises without the fault or negligence of either, is an excusable delay for which COUNTY and CONTRACTOR agree to negotiate an appropriate schedule adjustment. If the period of delay attributable to any cause under this paragraph overlaps a period of delay attributable to any other cause, the adjustment under this paragraph will be made first and the delay attributed to such other cause will be limited to that occurring outside of the overlap.
4. If any of the causes of delay in Paragraphs 1 or 3 above affects a task or activity on the critical path, then the schedule adjustment may include adjustment to the completion date. If the cause does not affect a task or activity on the critical path, then the adjustment will be made from Float and the completion date shall not be changed.

5. If any of the causes of delay in Paragraphs 1 or 3 above results in material provable additional costs to the affected task or tasks as a result of disruption of the schedule, then the parties will negotiate an equitable adjustment therefor.
6. COUNTY and CONTRACTOR will negotiate an equitable adjustment of cost for any task or tasks for which there is any significant change in the level of effort arising from additional or changed work requested or directed in writing by COUNTY that materially deviates from or adds to the work.

CONTRACTOR must submit claims for extension of time in writing to COUNTY for review and approval no later than seven (7) days after the initiation of that delay. In the case of a continuing cause of delay, only one claim is necessary.

COUNTY will grant approval of time extension for delays only based on the verification of a daily log maintained by the superintendent at the job site. The daily log must segregate and document each individual delay occurrence, and then separately track the job costs attributable to changes in the work noted in Article 21. CONTRACTOR'S failure to maintain the daily logs in the manner described above will result in COUNTY'S denial of the claim for time extension.

If CONTRACTOR has requested detail drawings and instructions as noted in Article 9, COUNTY will not approve a request for delay on account of COUNTY'S failure to furnish drawings until two (2) weeks after demand for such drawings.

ARTICLE 7 – EXECUTION, CORRELATION AND INTENT OF DOCUMENTS

The Contract documents are complementary, and what is called for by any one will be as binding as if called for by all, and the most stringent requirement will apply. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. It is not intended, however, that materials or work not covered by or properly inferable from any heading, branch, class or trade of the specifications will be supplied unless distinctly so noted on the drawings. Materials or work described in words that so applied have a well-known technical or trade meaning will be held to refer to such recognized standards.

ARTICLE 8 – DETAIL DRAWINGS AND INSTRUCTIONS

COUNTY will furnish with reasonable promptness, additional instructions, by means of drawings or otherwise, necessary for the proper execution of the work. All such drawings and instructions will be consistent with the Bid documents, true developments thereof, and reasonably inferable therefrom.

ARTICLE 9 – COPIES OF DRAWINGS FURNISHED

COUNTY will provide, at no cost to CONTRACTOR, two complete sets of code approved construction documents in non-reproducible form.

COUNTY will provide, at no cost to CONTRACTOR, five (5) non-reproducible sets of construction documents used during the course of bidding the work (Bid Sets) for execution on the work. It will be CONTRACTOR'S responsibility to ensure that any modifications called for as a result of the permit process are transferred to the bid sets.

CONTRACTOR may purchase additional sets of code-approved sets or bid sets construction documents, at its expense.

ARTICLE 10 – ORDER OF COMPLETION

CONTRACTOR will submit at such times as may be requested by COUNTY, schedules which will show the order in which CONTRACTOR proposes to carry on the work with dates at which CONTRACTOR will start the several parts of the work and estimated dates of completion of the several parts.

ARTICLE 11 – CONSTRUCTION DOCUMENTS ON THE JOB SITE

CONTRACTOR will keep one copy of code approved construction documents on the job site, in good order, available to COUNTY and to COUNTY'S representatives. This set of documents will be kept current as to pending and approved changes in the work.

ARTICLE 12 – OWNERSHIP OF DRAWINGS

All drawings, specifications, and copies thereof furnished by COUNTY are the property of Pima County. They are not to be used on other work and with the exception of the signed Contract set, and are to be returned to COUNTY on request, at the completion of the work. All models are the property of COUNTY.

ARTICLE 13 – CONTRACTOR'S UNDERSTANDING

CONTRACTOR has, by careful examination, satisfied itself as to the nature and location of the work, the conformation of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this Contract. No verbal agreement or conversations with any officer, agent or employee of COUNTY, either before or after the execution of this Contract, will affect or modify any of the terms or obligations herein contained.

ARTICLE 14 – MATERIALS, APPLIANCES, EMPLOYEES

Unless otherwise agreed, CONTRACTOR will provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary for the execution and completion of the work.

Unless otherwise agreed, all materials will be new, and both workmanship and materials will be of good quality. CONTRACTOR will, if required, furnish satisfactory evidence as to the kind and quality of materials.

CONTRACTOR will at all times enforce strict discipline and good order among its employees, and will not employ on the work any unfit person or anyone not skilled in the work that CONTRACTOR assigns to that person.

ARTICLE 15 – ROYALTIES AND PATENTS

CONTRACTOR will pay all royalties and license fees. CONTRACTOR will defend all suits or claims for infringement of any patent rights and will hold COUNTY harmless from loss on account thereof, except that COUNTY will be responsible for all such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, but if CONTRACTOR has information that the process or article specified is an infringement of a patent it will be responsible for such loss unless it promptly gives such information to COUNTY.

ARTICLE 16 – SURVEYS, PERMITS, AND REGULATIONS

COUNTY will furnish all property surveys unless otherwise specified. CONTRACTOR will secure and pay for permits and licenses of a temporary nature necessary for the prosecution of the work except as noted in Article 3.b. COUNTY will secure and pay for easements for permanent structures or permanent changes in existing facilities unless otherwise agreed.

CONTRACTOR will give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work as drawn and specified. If CONTRACTOR observes that the drawings and specifications are at variance therewith, it will promptly notify COUNTY in writing, and any necessary changes will be adjusted as provided in the Contract for changes in the work. If CONTRACTOR performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to COUNTY, it will bear all costs arising therefrom.

ARTICLE 17 – PROTECTION OF WORK AND PROPERTY

CONTRACTOR will continuously maintain adequate protection of all its work from damage and will protect COUNTY'S property from injury or loss arising in connection with this Contract. It will make good any such damage, injury, or loss, except such as may be directly due to errors in the bid documents or caused by agents or employees of COUNTY. It will adequately protect adjacent property as provided by law and the bid documents. It will provide and maintain all passageways, guard fences, lights, and other facilities for protection required by public authority or local conditions.

If an emergency should occur affecting the safety of life or the work or of adjoining property, CONTRACTOR, without special instruction or authorization from COUNTY, is hereby permitted to act at his discretion, to prevent such threatened loss or injury, and CONTRACTOR will so act, without appeal, if so instructed or authorized. Any compensation claimed by CONTRACTOR on account of emergency work will be determined by COUNTY.

CONTRACTOR is responsible for equipment, materials, and supplies until completion of the project and acceptance by COUNTY.

ARTICLE 18 – INSPECTION OF WORK

COUNTY representatives will at all times have access to the work wherever it is in preparation or progress and CONTRACTOR will provide proper facilities for such access and for inspection.

If the specifications, COUNTY'S instructions, laws, ordinances, or any public authority, require any work to be specially tested or approved, CONTRACTOR will give COUNTY timely notice of its readiness for inspection and if the inspection is by an authority other than COUNTY, of the date fixed for such inspection. Inspections by COUNTY will be promptly made, and where practicable at the source of supply. If any work should be covered up without approval or consent of COUNTY, it must, if required by COUNTY, be uncovered for examination at CONTRACTOR'S expense.

Re-examination of questioned work may be ordered by COUNTY and if so ordered the work must be uncovered by CONTRACTOR. If such work is found to be in accordance with the bid documents, COUNTY will pay the cost of re-examination and replacement. If such work is found not to be in accordance with the bid documents, CONTRACTOR will pay such cost.

ARTICLE 19 – SUPERINTENDENCE - SUPERVISION

CONTRACTOR will keep on its work site during its progress a competent Superintendent and any necessary assistants, all satisfactory to COUNTY. The Superintendent will not be changed except with the consent of COUNTY, unless the Superintendent proves to be unsatisfactory to CONTRACTOR and ceases to be in its employ. The Superintendent will represent CONTRACTOR in its absence and all directions given to it will be as binding as if given to CONTRACTOR. CONTRACTOR will give efficient supervision to the work using its best skill and attention.

If CONTRACTOR, in the course of the work, finds any discrepancy between the construction documents and the physical conditions of the locality, or any errors or omissions in the construction documents or in the layout as given by points and instructions, it will be its duty to immediately inform COUNTY, in writing, and COUNTY will promptly verify the same. Any work done after such discovery, until authorized, will be done at CONTRACTOR'S risk.

Neither COUNTY nor CONTRACTOR, will employ an employee of the other without consent.

ARTICLE 20 – CHANGES IN THE WORK

In giving instructions, COUNTY will have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change will be made unless in pursuance of a written order by COUNTY and no claim for an addition to the Contract sum will be valid unless so ordered.

The value of any such extra work or change will be determined in one or more of the following ways:

1. By mutual acceptance of a lump sum, itemized and detailed with sufficient substantiating data, as requested by COUNTY, to permit evaluation.
2. By unit prices named in the Contract or subsequently agreed upon.
3. By cost and fixed fee.

If none of the above methods is agreed upon, CONTRACTOR, provided it receives an order as above, will proceed with the work. In such case and also under case (c), it will keep and present in such form as COUNTY may direct, a correct account of the net cost of labor and materials, together with vouchers. In any case, COUNTY will certify to the amount, including allowance for overhead and profit, due to CONTRACTOR. Pending final determination of cost, payments on account of changes will be made on COUNTY'S estimate.

The amount of CONTRACTOR'S overhead and profit allowed for any change order, whether increase or decrease, will not exceed the following limits for work by CONTRACTOR:

Overhead Limit: ten percent (10%) of direct cost;
Profit Limit: five percent (5%) of the sum of direct cost and overhead cost.

For any portion of the work for a change order that is performed by a Subcontractor or a Sub Subcontractor, CONTRACTOR'S combined overhead and profit limits allowed will not exceed five percent (5%) of the actual direct cost of the work.

CONTRACTOR'S cost for additional work or changes requested by COUNTY which result in an approved extension of time to the contract will be limited to the cost of the extra work determined in one or more of the three ways described previously in this Article, and the actual wage or salary paid for the on-site job superintendent in direct employ of CONTRACTOR in performance of the work. This amount will be prorated to the actual amount of extra time approved and will only include the direct amount paid to the superintendent plus actual cost of all overhead items applicable to payroll for that position, such as insurance, taxes, FICA, worker's compensation, and unemployment taxes and benefits.

ARTICLE 21 – CLAIMS FOR EXTRA COST FOR ADDITIONAL WORK

If CONTRACTOR claims that any additional instructions by drawings or otherwise involve extra cost under this Contract, it will give COUNTY written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work, except in an emergency endangering life or property. The procedure will then be as provided for in Article 20 "Changes in the Work". No such claim will be valid unless so made.

ARTICLE 22 – DEDUCTIONS FOR UNCORRECTED WORK

If COUNTY deems it not expedient to correct work injured or done not in accordance with the Contract, an equitable deduction from the Contract price will be made therefor.

CONTRACTOR will promptly remove from the premises all materials condemned by COUNTY as failing to conform to the Contract, whether incorporated in the work or not, and CONTRACTOR will promptly replace and re-execute its own work in accordance with the Contract and without expense to COUNTY and will bear the expense of making good all work of other CONTRACTORS destroyed or damaged by such removal or replacement.

If CONTRACTOR does not remove such condemned work and materials within a reasonable time, fixed by written notice, COUNTY may remove them and may store the material at the expense of CONTRACTOR. If CONTRACTOR does not pay the expense of such removal within ten days' time thereafter, COUNTY may, upon ten day's written notice, sell such materials at auction or at private sale and will account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by CONTRACTOR.

ARTICLE 23 – SUSPENSION OF WORK

COUNTY may at any time suspend the work, or any part thereof by giving three (3) days' notice to CONTRACTOR in writing. When the reason for such suspension involves safety, health or welfare issues, the three (3) day written notice requirement may be waived at the decision of the COUNTY Management. CONTRACTOR will resume the work within ten (10) days after the date fixed in the written notice from COUNTY to CONTRACTOR to do so.

ARTICLE 24 – COUNTY'S RIGHT TO DO WORK

If CONTRACTOR neglects to prosecute the work properly or fails to perform any provision of this Contract, COUNTY may, after three (3) days written notice to the CONTRACTOR, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due CONTRACTOR.

ARTICLE 25 – COUNTY'S RIGHT TO TERMINATE CONTRACT

If CONTRACTOR persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payment to subcontractors for material or labor, or persistently disregards laws, ordinances, or the instructions of COUNTY, or otherwise is guilty of a substantial violation of any provision of the contract, then COUNTY may, without prejudice to any other right or remedy and after giving CONTRACTOR ten (10) days written notice, terminate the employment of CONTRACTOR and take possession of the premises and of all materials, tools, and appliances thereon and finish the work by whatever method COUNTY may deem expedient. In such case CONTRACTOR will not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price will exceed the expense of finishing the work, including compensation for additional managerial and administrative service, such excess will be paid to CONTRACTOR. If such expense will exceed such unpaid balance, CONTRACTOR will pay the difference to COUNTY. COUNTY will certify the expense incurred by COUNTY as herein provided, and the damage incurred through the CONTRACTOR's default.

ARTICLE 26 – REMOVAL OF EQUIPMENT

In any case of annulment or termination of this Contract before completion from any cause whatever, CONTRACTOR, if notified to do so by COUNTY, will promptly remove any part or all of its equipment and supplies from the property of COUNTY, failing which COUNTY will have the right to remove such equipment and supplies at the expense of CONTRACTOR.

ARTICLE 27 – USE OF COMPLETED PORTIONS

COUNTY has the right to take possession of and use any completed or partially completed portions of the work, notwithstanding the time for completing the entire work or such portions may not have expired, but such taking possession and use is not an acceptance of any work not completed in accordance with the Bid documents. If such prior use increases the cost of or delays the work, CONTRACTOR will be entitled to such extra compensation, or extension of time, or both, as COUNTY may determine.

ARTICLE 28 – PAYMENTS WITHHELD

COUNTY may decline to certify payment or, because of discovered evidence or observations, may nullify the whole or any part of any certificate for payment previously issued, to such extent as may be necessary in its opinion to protect COUNTY from loss because of:

1. Defective work not remedied.
2. Third party claims filed or reasonable evidence indicating probable filing of such claims.
3. Failure of CONTRACTOR to make payments properly to Subcontractors or for labor, materials, or equipment.
4. Reasonable evidence that the work cannot be completed for the unpaid balance of the Contract sum.
5. Damage to another CONTRACTOR.

When the above grounds are removed, payment will be made for amounts withheld because of them.

ARTICLE 29 – WARRANTY

CONTRACTOR will provide a written guarantee covering all costs for repair or replacement of defective work for a period of two (2) years (or longer if noted elsewhere in the construction documents) from substantial completion. CONTRACTOR will complete repair, or respond to COUNTY in writing with repair solution, within seventy-two (72) hours of notification by COUNTY. COUNTY may make emergency repairs to ensure life safety or to prevent property loss, without invalidating the warranty.

ARTICLE 30 – LIENS

Neither the final payment nor any part of the retained percentage will become due until CONTRACTOR delivers to COUNTY a complete release of all liens arising out of this Contract, or receipts in full or in lieu thereof, and if required in either case, an affidavit that so far as it has knowledge or information, the release and receipts include all the labor for which a lien could be filed; but CONTRACTOR may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to COUNTY, to indemnify COUNTY against any lien. If any lien remains unsatisfied after all payments are made, CONTRACTOR will pay to COUNTY all monies that COUNTY may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

ARTICLE 31 – RIGHTS OF VARIOUS INTERESTS

Wherever work being done by COUNTY'S forces or other contractors is contiguous to work covered by this Contract the respective rights of the various interests involved will be established by the COUNTY to secure the completion of the various portions of the work in general harmony.

ARTICLE 32 – SEPARATE CONTRACTS

COUNTY reserves the right to let other contracts in connection with this work. CONTRACTOR will afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and will properly connect and coordinate its work with theirs.

If any part of CONTRACTOR'S work depends upon proper execution or results of the work of any other CONTRACTOR, CONTRACTOR will inspect and its report will constitute an acceptance of the other contractor's work after the execution of its work.

To insure the proper execution of its subsequent work, CONTRACTOR will measure work already in place and will at once report to COUNTY any discrepancy between the executed work and the drawings.

ARTICLE 33 – COUNTY'S STATUS

The COUNTY has general review of the work and has the authority to reject all work and materials that do not conform to the Contract.

ARTICLE 34 – RESERVED

ARTICLE 35 – CLEANING UP

CONTRACTOR will, as directed by COUNTY, remove from COUNTY'S property and from all public and private property, at its own expense, all temporary structures, rubbish, and waste materials resulting from its operation.

ARTICLE 36 – RESERVED

ARTICLE 37 – ARCHAEOLOGICAL FEATURES

Construction for this project may occur in an archaeological sensitive area. The COUNTY Office of Conservation and Sustainability Cultural Resources Division will determine prior to construction (other than emergencies) any special site monitoring requirements. Human burials, including human skeletal remains, cremations, and funerary objects are protected under A.R.S. section 41-844 on state, COUNTY, and municipal lands, and under A.R.S. section 41-865 on private lands. Should archaeological features and/or artifacts or human remains, including human skeletal or cremation remains be discovered, work at that location will cease immediately, and the area will be taped off and avoided until archaeological investigations are completed. Construction is subject to delay in that location pursuant to applicable State law, while consultation with the Arizona State Museum and appropriate documentation and data recovery takes place. To the extent permitted by law, all archaeological artifacts and other materials will belong to Pima County. No monetary compensation will be made to CONTRACTOR for any claims due to delays in the work schedule. Only the Contract construction time will be extended to permit the original scheduled number of days for completion of the project.

ARTICLE 38 – RESERVED

ARTICLE 39 – RESERVED

ARTICLE 40 – HAZARDOUS MATERIALS/ HAZARDOUS WASTES / HAZARDOUS SUBSTANCES ABATEMENT

Should CONTRACTOR uncover, or otherwise become aware of the presence of any Hazardous Materials, Hazardous Wastes or Hazardous Substances during the construction of this project, notice will be served immediately to the County Project Manager, and all work surrounding said materials or substances will be ceased until directed to proceed. Construction delays due to Hazardous Materials, Hazardous Wastes or Hazardous Substances abatement may occur.

If this contract does not otherwise require the services of a Hazardous Materials CONTRACTOR, abatement of such materials will be provided by Pima County, at its expense and independent of this contract.

If this Contract already employs the services of a Hazardous Materials CONTRACTOR, the cost to abate any such additional materials will be added to the contract as Additional Services, in accordance with the provisions of Article 21 "Claims for Cost of Additional Work", and time extensions granted in accordance with the provisions of Article 6 "Delays".

ARTICLE 41 – WASTE DISPOSAL FACILITIES

CONTRACTOR will legally dispose of all construction debris in appropriate COUNTY operated waste disposal facilities and pay any applicable fees. In the case of conflicts with the provisions of the Contract Specifications, this provision applies.

ARTICLE 42 – AS-BUILT DRAWINGS

CONTRACTOR will keep an accurate record of all changes and deviations from the Project Plans and Specifications and submit to COUNTY one set of "As-Built" drawings including dimension, location of underground utilities, etc., upon completion of the work. As-Built drawings will be drawn and submitted in such a format as prescribed by COUNTY.

ARTICLE 43 – RESERVED

END EXHIBIT "B" - GENERAL CONDITIONS

EXHIBIT "C" (19 pages)
SPECIAL CONDITIONS – MULTIPLE AWARD JOB ORDER CONTRACT

ARTICLE 1 – OVERVIEW AND DEFINITIONS

- A. Overview of Job Order Contracting Arrangement – This Agreement establishes a Multiple-Award, indefinite quantity, job order contracting Arrangement for such construction services within the scope of this Agreement as COUNTY may request from time to time by issuance of an individual Job Order Contract for each Project.

The Contract Price for each Job Order shall not exceed \$1,000,000.00, including any Change Orders. Therefore, to allow for Change Orders, the maximum initial amount of each Job Order will normally not exceed \$950,000.00. The expectation for this contract is that the majority of Job Orders will be in the \$50,000.00 to \$400,000.00 range, with the bulk of the Job Orders approximating \$150,000.00. COUNTY may select a Contractor for the award of a Job Order Contract for a Project expected to cost less than \$200,000 based on availability or such other criteria as COUNTY may determine at its sole discretion. Because of the specialized nature and environmental sensitivity of the work, wide range of potential projects, for individual projects, unit price books will be utilized for specific repair and rehabilitation projects estimated to cost less than \$200,000.00. The selection of the contractor for award of a Job Order Contract for a Project valued at \$200,000.00 or greater will be based on the responses to a simplified request for quotation covering either cost or cost and schedule from ALL Job Order Contractors. COUNTY reserves the right to compete Job Orders estimated at lesser amounts at its discretion.

There is no limit on the number of Job Orders COUNTY may issue to any CONTRACTOR during any twelve (12) month term of this Contract or during the entire period this Contract is in effect.

Generally, a CONTRACTOR may not refuse to quote any Job Order under this Agreement properly issued by COUNTY, unless CONTRACTOR can legitimately claim the scope of work is poorly defined, hazardous to health or safety, outside the bounds of the intended use of this Agreement, or the CONTRACTOR does not have the capacity to accept the Job Order and begin work in a timely manner.

COUNTY shall have the right to perform work of the types included in this Agreement itself or to have other contractors perform such work.

- A. Definitions – The following terms will have the following meanings when used in the Agreement. Other terms may be defined elsewhere in the Documents. Terms not defined in the Agreement shall have their ordinary meaning within the usage of the trade. The presence or absence of initial capitals does not indicate a change in meaning.

"Alternatives Analysis" means assessment of alternatives for design, means and methods or other scope considerations that are evaluated using value engineering principles and have the potential to reduce construction costs while still delivering a quality and functional Project that meets COUNTY requirements.

"Contract Price" means the price to be paid for the Work (and for Pre-Construction Services, if any) as specified in the Job Order. The Contract Price shall be a fixed, lump sum price, or a Not-to-Exceed Guaranteed Maximum Price, based on the CONTRACTOR'S accepted quotation.

"Contract Time" means the time for performance of the Work under a Job Order as specified in the Job Order commencing with the Start Date and ending with Final Completion Date set forth in the Job Order, as modified.

"Critical Path Method (CPM)" is a scheduling technique which identifies the logical sequence of the activities occurring in a construction project, the anticipated time required to complete each activity in the project, and the activities that must be completed on schedule to finish the project within the anticipated time. Typically, activities are arrayed in a network that shows both activities and their dependencies. CPM is also used as a management

technique which enables contracting parties to predict when activities may occur so that resources can be effectively used and limitations can be identified.

"Critical Path" means that sequence of dependent activities in a project that will take the longest time to complete. Any delay in the completion of any of these activities may extend the Substantial Completion date.

"Day" means calendar day unless specifically provided otherwise or required by law.

"Design Professional (DP)" means, as to a Job Order, the person, if any, who will perform Design Services relating to the Work under the Job Order and who is designated as the Design Professional in the Job Order.

"Drawings and Specifications" means, as to a Job Order, the drawings and specifications, if any, attached to the Job Order and specifications included in the Job Order Contract Documents. The Drawings and Specifications set forth the requirements for construction of the Project. Where there are no drawings and specifications for the Work prepared by a Design Professional, COUNTY will deliver to the CONTRACTOR line drawings and/or a written description of the Work and, in each such case, the line drawings and/or the written description shall be deemed the drawings for the Work for that Job Order for all purposes.

"Final Completion Date" means, as to a Job Order, the date by which CONTRACTOR shall have completed all Work under a Job Order, including, without limitation, all deficiency, correction and incomplete items (Punch List).

"Job Order" means the Contract for a Project executed by COUNTY under this Agreement, as it may be modified by Change Orders, if any, relating to the Project under the Job Order.

"Minor Change" means a change in the Work having no impact on cost or time or the COUNTY'S approved design intent, as determined by COUNTY.

"Notice to Proceed" means written notice given by COUNTY to the CONTRACTOR fixing the date on which the CONTRACTOR will start to perform the Work under that Job Order. The start date will be the Start Date stated in the Job Order.

"Plans and Specifications" means the plans and specifications upon which the Job Order's price proposal is based.

"Pre-Construction Services" means the performance under a Job Order requiring such services of alternatives analysis, cost or schedule estimating, value engineering, constructability or other design reviews or consultation in the review of a COUNTY or third-party design prepared by a COUNTY-provided design professional.

"Project" means each project of COUNTY as to which some or all of the work is to be performed under a Job Order.

"Qualifications/Proposals Documents" means the Solicitation for Qualifications issued by COUNTY for this Job Order Contract, all Addenda thereto, and all information and documents submitted by CONTRACTOR relating thereto including, without limitation, CONTRACTOR'S submission of formal sealed qualifications, and also including, without limitation, the subcontractor management plan submitted by the CONTRACTOR. It also includes all other qualifications/proposals documents: that is all documents and materials delivered by COUNTY to CONTRACTOR in connection with CONTRACTOR'S submission of qualifications and submission of a proposal for the contract.

"Sales Taxes" - Sales taxes are deemed to include all sales, use, excise, consumer, franchise, and other taxes which are legally enacted when negotiations of a Job Order Contract Price are concluded, whether or not yet effective or merely scheduled to go into effect. Taxes are actual costs and are a not-to-exceed reimbursable amount.

"Schedule of Values (SOV)" A spreadsheet with estimated costs organized by subcontract categories, allowances, bid contingency, general conditions costs, taxes, bonds, insurances, and the CONTRACTOR'S construction phase fee. The supporting document for the spreadsheet must be provided in an organized manner that correlates with the schedule of values. The backup information shall consist of the request for bids, bids received, and clarification assumptions used for the particular bid item listed on the schedule of values, if applicable. The SOV may be output from the Project Schedule if the Project Schedule is cost-loaded.

"Start Date" means, as to a Job Order, the date specified in the Notice to Proceed for that Job Order for CONTRACTOR to begin the Work.

"Subcontractor" means a subcontractor of the CONTRACTOR for any of the Work included in a Job Order or any subcontractor at any tier of such a subcontractor.

"Substantial Completion" means when the Work, or an agreed upon portion of the Work, is sufficiently complete so that COUNTY can occupy and use the Project or a portion thereof for its intended purposes. The conditions of Substantial Completion that apply to a specific Job Order will be listed in the Notice to Proceed Letter for that Job Order.

"Supplier" means a person providing materials, supplies or equipment to be included in the Work to CONTRACTOR or any Subcontractor.

"Technical Specifications" means the general provisions and the detailed specifications prescribed by COUNTY describing the materials and performance required for each individual Job Order.

"Work" and **"Work (Construction)"** mean all labor, materials, supplies, tools, equipment, transportation, site cleanup, storage and disposal of construction debris, supervision, management, overhead and profit, bonds, insurance, licenses and permits, taxes, intellectual property royalty and license fees, all other activities and items required to perform the Work under a Job Order as described in the Scope of Work in the Job Order. Work does not include Pre-Construction Services in connection with a Job Order.

ARTICLE 2 – JOB ORDER DEVELOPMENT

During the term of this Contract, COUNTY will identify specific Projects and COUNTY will issue an individual Job Order to Contractor for each Project. The steps for development of a Job Order will generally be the following:

1. When COUNTY identifies a need for performance of a Project under a Job Order, COUNTY will notify Contractor and also advise Contractor of the nature of the Work to be done. At the same time, COUNTY will advise Contractor whether Design Services will be needed as part of the Job Order. Within two (2) working days of receipt of this notification, Contractor will:
 - a. Visit the proposed site of the Project in the company of COUNTY; and,
 - b. Arrange with COUNTY to further define the scope of the needed Project.

Contractor will thoroughly acquaint itself with all available information concerning the conditions of the Work under each Job Order and is responsible for correctly and fully estimating the difficulty of performing the Work, the actions required to perform the Work and the cost of successfully performing the Work under each Job Order.

2. COUNTY or Contractor, as determined by COUNTY, will arrange for any needed Design Services to produce the Drawings and Specifications with a copy to COUNTY and a copy to Contractor. If Contractor provides Design Services, Contractor will not commence Design Services until COUNTY approves the scope and description of Design Services. The Drawings and Specifications developed by Contractor's Design Services are subject to approval by COUNTY. The price for Design Services by Contractor will be as provided in **ARTICLE 4** below.

If there are no Design Services, COUNTY will develop Drawings and Specifications consisting of a line drawing and a written description of the contemplated Work.

3. Upon establishment of the scope of the needed Project, each CONTRACTOR interested in performing the Job Order shall prepare its proposal for accomplishment of the Project utilizing the CONTRACTOR'S best estimating practices to develop a fixed, lump sum or not-to-exceed Guaranteed Maximum Contract Price to complete the Work, including any additional Pre-Construction Services (if necessary). See **ARTICLE 3** for a description of required proposal items. The time for submittal of proposals for individual Projects shall not exceed ten (10) working days unless approved by the COUNTY.
4. All jobs estimated at less than \$200,000 will follow the development of price book (RWRDPB) proposal format unless otherwise directed by the COUNTY. The RWRDPB Proposal for the entire Work (or portions thereof) will be presented in a format acceptable to the County.

Unit prices shall be based upon the RWRDPB. Force Account for each Job Order will be determined by the COUNTY and shall reflect the level of uncertainty or risk associated with the Job Order work.

Total Cost shall be defined as a sum of RWRDPB items multiplied by the line quantities plus Force Account (if applicable). Total Cost data will be presented by the contractor in a bid schedule format. Line items will be comprised of specific RWRDPB items, multiplied by the quantity for each line. Lines are to be summed and added to Force Account to determine Total Cost of the Job Order.

It is understood that Force Account funds are owned by the County and that use of Force Account funds may only be with the prior approval of the County. Any balance of force account remaining at job completion belongs to the County.

Any line items not included in the RWRDPB will be identified separately on the Bid Schedule and priced as fully burdened unit costs. The unit cost for non-RWRDPB items will be negotiated and agreed to prior to issuance of the Job Order.

5. For Projects estimated between \$200,000.00 and \$1,000,000.00, the COUNTY will notify all Job Order Contractors under contract to COUNTY. The request shall advise all CONTRACTORS of the nature of the Work to be done and include the selection criteria and methodologies COUNTY will use to make the "best value" decision. Criteria could include lowest bid, lowest bid meeting schedule, best cost alternative(s), etc. The request letter may also include an estimate of the total dollars the COUNTY has budgeted for the Job. CONTRACTOR shall be provided an opportunity to ask questions, seek clarification and/or inspect the site, if requested. Alternatively, the COUNTY may identify in the request the date and time for a meeting or site visit to explain and discuss the Work and further refine the scope of the project. Design documents, if any, may be provided in advance or at the meeting or site visit.
6. COUNTY shall review each CONTRACTOR'S proposal and may either accept the proposals or negotiate modifications to the proposals until such time the COUNTY is satisfied with each of the proposals. Such negotiations shall be limited to value alternatives of costs less than 20% of the original quotation price. Scope modifications or value alternatives that are equal to or greater than 20% shall require COUNTY to modify the original request and rebid to the benefit of all interested CONTRACTORS under this Contract.
7. The Job Order will then be issued by COUNTY to the Job Order Contractor that submitted the best quotation (including schedule and/or value engineering alternatives), as measured by the criteria in the request for

quotation. Past performance on earlier Job Orders, including past performance on cost or price control, may be used to determine award of future Job Orders.

8. Upon issuance of each Job Order by COUNTY, the Job Order Contract will be binding upon the CONTRACTOR and COUNTY.

A Job Order is considered "issued" when delivered to the CONTRACTOR or sent by facsimile copy, in which case the Job Order will be "issued" when sent to CONTRACTOR'S fax number and COUNTY'S fax machine prints an acknowledgement of receipt or COUNTY.

ARTICLE 3 – JOB ORDER PROPOSAL CONTENT

Although specific Job Orders will vary, the content of Job Order proposals provided by each CONTRACTOR under this contract will generally include the following:

1. The description of the Scope of the Work;
2. The duration of the work, including CPM schedule (if required);
3. The Contract Price for Work (Construction), including prices for various proposed alternatives;
4. The Contract Price of Pre-Construction Services by CONTRACTOR (if any);
5. The name of the CONTRACTOR Representative for the Project;
6. The Drawings and Specifications (if any) used to prepare the quotation;
7. Any assumptions or exclusions that qualify the CONTRACTOR'S price, including how many days the proposal is valid for;
8. A risk analysis of the project that identifies potential risks to the cost or schedule, or other items which the Owner may need to be informed of that will impact a successful outcome;
9. If any Shop Drawings, Product Data and/or Samples are required for the Job Order, the date for delivery of each required item;
10. A statement of which, if any, of the following are required: Preconstruction Conference, Weekly Progress Meetings, Field Office, Storage Enclosure, Materials and Equipment Handling Facility, Submittals, Shop Drawings, Product Data, Equipment List, Samples, Project Manual, Schedule of Values, Construction Progress Schedule, Narrative Reports, Progress Report, Progress Charts, Progress Photographs, Materials Status Report, Construction Diagram, Construction Status Report, Operation and Maintenance Data, Operating Maintenance Instructions and Parts List, and As-Built Drawings.

Each Job Order will be interpreted to include all items reasonably necessary to complete the Project as described in the Scope of the Work of the Job Order. All Work shall be performed in a professional manner and all materials used shall be new, of the highest quality and of the type best adapted to their purpose, unless otherwise specified.

ARTICLE 4 – JOB ORDER NEGOTIATION

- A. Job Order Pricing – The Contract Price shall include all costs, including overhead, pre-construction, mobilization, indirect costs, etc., incidental to performing the work and completing the job order and with the exception of any changes in the scope of work as directed by the Owner as defined by ARTICLE 6, no additional payments will be made.
- B. Pre-Construction Services (if any) – If CONTRACTOR is providing Pre-Construction Services, the proposal must be supported by documentation to establish that adequate involvement by CONTRACTOR in the planning, engineering and design work will be performed to satisfy the requirements of the project. Required services

may include (but are not limited to) constructability reviews, materials recommendations, alternatives analysis, development of cost and schedule estimates and tradeoffs, and similar services.

ARTICLE 5 – JOB ORDER MANAGEMENT

A. Planning, Scheduling, Monitoring – Planning, scheduling and progress monitoring are essential functions of CONTRACTOR. If required by the Job Order, after the issuance of the Job Order CONTRACTOR shall prepare and submit to COUNTY a Schedule of Values allocating the Contract Price among the various portions of the Work for purposes of progress payments. The format of the Schedule of Values shall be as specified by COUNTY. In addition, if required by the Job Order, CONTRACTOR shall submit a CPM-based Construction Schedule that shall be maintained and updated for the duration of the project.

1. Project Management

CONTRACTOR shall employ and supply a sufficient force of workers, material and equipment, and shall prosecute the Work under each Job Order with such diligence as to maintain a steady rate of progress or, if there is a Construction Progress Schedule, the rate of progress indicated on the Construction Progress Schedule, to prevent work stoppage, and to ensure completion of the Project under each Job Order within the Contract Time.

2. Daily Log

CONTRACTOR shall maintain a Daily Log of construction activities using a form approved by COUNTY. CONTRACTOR shall include in the log all significant issues or problems affecting progress and completion of any Job Order.

If required in a Job Order, CONTRACTOR shall provide copies of the entries in the Daily Log to COUNTY no later than the morning of the next business day. The Daily Log does not constitute written notice to the COUNTY when such notice is required by the Contract.

3. Progress Schedule and Float

If CONTRACTOR submits an original or updated schedule which shows the Work under a Job Order and/or individual milestone(s) completing earlier than required by the adjusted Final Completion Date in the Job Order, the differences between the forecasted early completion and the required Final Completion Date shall be considered Project-owned float available for use by both COUNTY and CONTRACTOR.

B. Reporting

1. Monthly Reporting

If required by the Job Order, on the last business day of each calendar month, CONTRACTOR will deliver to the COUNTY a Monthly Narrative Report. The Report shall include a description of all current, issued, and in process Job Orders, the status of each and anticipated problem areas, delaying factors and their impact, and an explanation of corrective action(s) taken or proposed.

The Report shall include for each job order the Start Date, the Final Completion Date, and, for Job Orders with more than sixty (60) days between such dates, either (A) the current Progress Schedule for the Project, or (B) the date by which CONTRACTOR is to submit a proposed Progress Schedule for approval by COUNTY.

If the Project under any Job Order is behind schedule in any month, CONTRACTOR'S Narrative Report shall indicate precisely what measures it will take in the next thirty days to put the Work back on schedule.

If requested by COUNTY, CONTRACTOR shall meet with COUNTY to review the monthly Update Report and to discuss any issues.

2. Contractor Responsibility

To the extent required in the Job Order for the Project, CONTRACTOR shall be responsible to prepare, submit and maintain the daily log, CPM schedules and Narrative Reports indicated above; failure to do so may be considered a material breach of this Contract. Any additional or unanticipated cost or expense required to maintain logs, schedules reports shall be solely CONTRACTOR'S responsibility and shall not be charged to COUNTY.

ARTICLE 6 – CHANGES AND CHANGED CONDITIONS

- A. Owner Directed Changes in the Scope of Work – By written directive at any time, COUNTY may make any changes within the general scope of the Work under a Job Order or issue additional instructions, require additional or modified Work or direct deletion of Work. CONTRACTOR shall not proceed with any change involving an increase or decrease in cost or time without prior written authorization from the COUNTY in the form of a completed and executed Change Order. If CONTRACTOR proceeds with any change involving an increase or decrease in cost or time without written authorization as required by this article, CONTRACTOR waives all rights or claims CONTRACTOR may have as a result of the change. The COUNTY'S right to make changes shall not invalidate the Agreement or Job Order Contract Documents or relieve CONTRACTOR of any liability. Any requirement of notice of change to the Surety shall be the responsibility of CONTRACTOR.

ARTICLE 7 – DELAYS AND TIME EXTENSIONS

- A. Demonstration of Delay – It is agreed that no time extensions shall be granted nor delay damages paid by COUNTY unless the delay can be clearly demonstrated by CONTRACTOR on the basis of the updated Critical Path Schedule, cannot be mitigated, offset, or eliminated through such actions as revising the intended sequence of the Work or other reasonable means.
- B. Application of Float – Since float time within the schedule is jointly owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the work beyond the adjusted Final Completion Date. Since float time within the construction schedule is jointly owned, it is acknowledged that COUNTY-caused delays on the Project may be offset by COUNTY-caused time savings (i.e., critical path submittals returned in less time than allowed by the Contract, approval of substitution requests which result in a savings of time to the Contractor, etc.).
- C. In such an event, CONTRACTOR shall not be entitled to receive a time extension or delay damages until all COUNTY-caused time savings are exceeded and the Final Completion Date or milestone date is also exceeded

ARTICLE 8 – PERFORMANCE MEASUREMENT

- A. Performance Assessment – Promptly after final completion of the Work under each Job Order, COUNTY will complete a written evaluation of CONTRACTOR'S performance of the Work. The evaluation shall consist of completion by COUNTY of the Performance Quality Evaluation Form attached as **Attachment "1"** to these **SPECIAL CONDITIONS**.
- B. Feedback – The completed Performance Evaluation will be shared with CONTRACTOR as a means of providing feedback regarding CONTRACTOR'S cost, schedule and quality performance. CONTRACTOR may submit additional information, comment, recommendations or rebuttal for association with the Performance Evaluation.
- C. Comparative Assessment – CONTRACTOR's cost, schedule and quality performance of Job Orders under this Contract will be compared periodically to the performance of other like-situated Contractors. The results of these comparisons will be provided to CONTRACTOR.

CONTRACTOR understands that these assessments will necessarily involve significant subjectivity. CONTRACTOR agrees to this process and agrees further that the application of subjectivity in these assessments shall not form the basis for any claim or cause of action of any form whatsoever.

- D. Consideration of Renewal – CONTRACTOR'S record of cost, schedule and quality performance and comparative assessments shall be significant considerations in the COUNTY'S determination whether to renew CONTRACTOR'S participation in the Agreement. CONTRACTOR agrees that any determination by COUNTY not to renew its participation based on performance will be at the sole discretion of COUNTY.

ARTICLE 9 – SUBCONTRACTORS

- A. Subcontractor Selection – CONTRACTOR will select Subcontractors in accordance with the Subcontractor Selection Plan incorporated into this Contract by reference.
- B. Subcontracts
1. CONTRACTOR agrees to deliver to each Subcontractor and to cause each Subcontractor to deliver to each sub-subcontractor a copy of this Agreement and the Job Order Contract Documents relating to the Work of the Subcontractor or sub-subcontractor. CONTRACTOR agrees to include in its contract with each Subcontractor all provisions of the Agreement and Job Order documents required to be included in those contracts and to cause its Subcontractors to include the same provisions in their contracts with their sub-subcontractors at all tiers.
 2. Each Subcontract, or other Agreement, with any subcontractor for any job order shall include the address or location of the work.
- D. Assignment Upon Termination – CONTRACTOR hereby assigns to COUNTY (and its assigns) all its interest in any subcontracts and purchase orders now existing or hereinafter entered into by CONTRACTOR for performance of any part of the Work under each Job Order, which assignment will be effective upon termination of the Contract by the COUNTY and only as to those subcontracts and purchase orders which the COUNTY assumes in writing. All subcontracts and purchase orders shall provide that they are freely assignable by CONTRACTOR to the COUNTY and its assigns. Such assignment is part of the consideration to COUNTY for entering into the Contract with CONTRACTOR and may not be withdrawn prior to final completion of the Work under each Job Order.

ARTICLE 10 – TERMINATION FOR CAUSE

Anything in the Contract Documents to the contrary notwithstanding, any termination of this Agreement shall automatically terminate all Job Orders as to which the Work is not complete, except that upon any termination of this Contract, COUNTY may elect by written notification to CONTRACTOR to continue in effect any or all then uncompleted Job Orders in which event this Agreement shall continue in effect as to each continued Job Order and shall terminate upon completion of the last such Job Order.

Anything in the Agreement to the contrary notwithstanding, (i) all indemnification provisions, reimbursement provisions and payment provisions shall survive termination of this Agreement under this Article and shall continue in effect indefinitely without termination, and (ii) all guarantee and warranty provisions and all provisions in the Agreement Documents requiring CONTRACTOR to correct any Work not in accordance with the relevant Job Order Documents shall not terminate upon termination of this Agreement and shall continue in effect thereafter in accordance with the terms of each such provision.

- A. Cause for Termination – In addition to the termination rights of the COUNTY in **ARTICLE 17 – TERMINATION OF CONTRACT FOR DEFAULT** of the Agreement between COUNTY and CONTRACTOR, the COUNTY may terminate any or all Job Orders and/or the overall Job Order Agreement at the election of COUNTY, upon the occurrence of any one or more of the following events:

1. If CONTRACTOR refuses or fails to prosecute the Work under any Job Order with such diligence as will ensure its completion within the Contract Time for that Job Order; or if the Contractor fails to complete the Work under any Job Order within the Contract Time for that Job Order;
2. If CONTRACTOR or any of its key Subcontractors under any Job Order is adjudged a bankrupt or insolvent or makes a general assignment for the benefit of creditors, or if CONTRACTOR or any of its key Subcontractors under any Job Order or a third party files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning CONTRACTOR or any of its key Subcontractors under any Job Order, or if a trustee or receiver is appointed for CONTRACTOR or any of its key Subcontractors under any Job Order or for any of CONTRACTOR'S property on account of CONTRACTOR or a key Subcontractor under any Job Order, and, in each case, CONTRACTOR or its successor in interest or its respective key Subcontractor under any Job Order does not provide reasonably adequate assurance of future performance in accordance with the Contract Documents within 10 days after receipt of a request for assurance from the COUNTY;
3. If CONTRACTOR persistently fails to supply sufficient skilled workmen or suitable materials or equipment for the Work under any Job Order;
4. If, as to any Job Order, CONTRACTOR fails to make prompt payments to Subcontractors or Suppliers at any tier, or for labor, materials or equipment;
5. If CONTRACTOR fails to comply with laws, ordinances, rules, codes, regulations, orders or similar requirements of any public entity having jurisdiction;
6. If, as to any Job Order, CONTRACTOR fails to follow any reasonable instructions by the COUNTY, which are consistent with the Construction Documents;
7. If, as to any Job Order, CONTRACTOR performs Work which deviates from the Job Order Documents and neglects or refuses to correct rejected Work; or
8. If, as to any Job Order, Contractor otherwise violates in any material way any provisions or requirements of this Agreement or any Job Order Contract Documents.

Notice and Cure Period – If COUNTY determines that one or more events of default described in **Article 10(A)** has occurred, the COUNTY may elect to terminate any or all Job Orders and/or terminate CONTRACTOR'S participation in the overall Agreement. To do this, the COUNTY must first give CONTRACTOR and its Surety written notice of the events of default ("**Notice of Default**") and allow CONTRACTOR and its Surety ten (10) calendar days to cure the events of default. If the events of default are not cured within the ten (10) calendar days, COUNTY may terminate any or all Job Orders and/or terminate CONTRACTOR'S participation in the overall Agreement by written notice to Contractor and its Surety.

B. Completion of Terminated Work

1. If any Job Order or participation in the Agreement is terminated, COUNTY may take over the Work under terminated Job Orders and prosecute them to completion, by contract or otherwise, and may exclude CONTRACTOR from the sites. The COUNTY may take possession of the Work under the terminated Job Orders and of all of CONTRACTOR's tools, appliances, construction equipment, machinery, supplies and plant which may be on the site of the Work for each terminated Job Order, and use the same to the full extent they could be used by CONTRACTOR, all without liability to CONTRACTOR. In exercising the COUNTY'S right to prosecute the completion of the Work, the COUNTY may also take possession of all materials and equipment stored at the site or for which the COUNTY has paid CONTRACTOR but which are stored elsewhere. The COUNTY may use the foregoing items to finish the Work as the COUNTY deems expedient. In such case, the CONTRACTOR shall not be entitled to receive any further payment until the Work is finished.

2. If any Job Order is terminated, the COUNTY may demand that CONTRACTOR's surety take over and complete the Work under the Job Order. The COUNTY may require that in so doing, the CONTRACTOR's surety not utilize CONTRACTOR in performing the Work. Upon the failure or refusal of CONTRACTOR's surety to take over and begin completion of the Work within 20 days after the demand, the COUNTY may take over the Work and prosecute it to completion as provided above.
3. As to any terminated Job Order, COUNTY shall have the option of requiring any, all or none of the Subcontractors and Sub-subcontractors to perform according to their subcontracts and may assign any or all of the subcontracts to a general contractor selected to complete the Work.
4. If COUNTY takes over the Work under any terminated Job Order, unexecuted orders entered into by CONTRACTOR for performance of any part of the Work will be effective upon acceptance by COUNTY in writing and only as to those subcontracts and purchase orders which the COUNTY designates in writing.

C. Payment for Terminated Work

1. If, as to any terminated Job Order, the unpaid balance of the Contract Price exceeds the direct and indirect costs and expenses of completing the Work and all COUNTY damages including, without limitation, liquidated damages and compensation for additional professional and CONTRACTOR services ("**COUNTY'S Termination Costs**"), such excess shall be used to pay CONTRACTOR for the Work it performed and for which CONTRACTOR has not been paid previously and the amount shall be determined using the Tasks, Unit Prices, Coefficients, and Other Tasks and Other Prices included in the Job Order. If, as to any terminated Job Order, the COUNTY'S Termination Costs exceed the unpaid balance of the Contract Price, CONTRACTOR shall immediately upon demand pay the difference to the COUNTY or the COUNTY may set off the amount against any other amounts owing to CONTRACTOR for any cause whatsoever, whether current or future. In exercising the COUNTY'S right to prosecute the completion of the Work under any terminated Job Order, the COUNTY shall have the right to exercise its sole discretion as to the manner, methods, and reasonableness of the costs to be incurred in completing the Work, and the COUNTY shall not be required to obtain the lowest figure for Work performed in completing the Project. If the COUNTY holds a competitive procurement for remedial Work or completion of the Work under a terminated Job Order, CONTRACTOR shall not be eligible for the award of such contracts.
2. CONTRACTOR shall be liable for any damage to the COUNTY resulting from the termination or from CONTRACTOR'S refusal or failure to complete the Work under any terminated Job Order and for all costs necessary for repair and completion of the Project under each terminated Job Order over and beyond the Contract Price. CONTRACTOR shall be liable for all legal fees and costs required to enforce the provisions of the Agreement and/or Job Order Documents.

D. Nonexclusive Remedies – In the event any Job Order or CONTRACTOR'S participation in the Agreement is terminated, the termination shall not affect any other rights of the COUNTY against CONTRACTOR. The rights and remedies of COUNTY under this **Article 10** are in addition to any other rights and remedies provided by law or under the Agreement or Job Order Contract Documents. Any retention or payment of monies to CONTRACTOR by COUNTY will not release CONTRACTOR from liability.

E. Erroneous Termination for Cause – If any Job Order or participation in the overall Agreement is terminated under this **Article 11**, and it is determined for any reason that there was no default under **Article 11**, the termination shall be deemed a Termination for Convenience of the COUNTY.

ARTICLE 11 – TERMINATION FOR CONVENIENCE OF THE COUNTY

The COUNTY, by written notice to CONTRACTOR, may terminate any Job Order or the overall Agreement in whole or in part if sufficient appropriated or other funds are not available or the COUNTY determines, in the sole discretion of the COUNTY, that such termination is in the COUNTY'S best interest. In such case, CONTRACTOR shall be paid for all Work under each Job Order for which CONTRACTOR has not been paid previously. CONTRACTOR

shall also be paid reasonable termination expenses. In no event shall such payments as to any Job Order, exclusive of termination expenses, exceed the total Contract Price for the Job Order as reduced by payments previously made to CONTRACTOR and as further reduced by the value of the Work as yet not completed. Since profit and overhead are built into the Contract Price for each Job Order, CONTRACTOR shall not be entitled any additional profit or overhead on Work performed and in addition, CONTRACTOR shall not be entitled to any profit or overhead on Work not performed.

END OF SPECIAL CONDITIONS – MULTIPLE AWARD JOB ORDER CONTRACT

ATTACHMENT 1 TO EXHIBIT "C" (2 pages) PERFORMANCE EVALUATION FORM

FOR OFFICIAL USE ONLY (WHEN COMPLETED)

PERFORMANCE EVALUATION (CONSTRUCTION)		1. CONTRACT NUMBER	
		2. CEC NUMBER	
IMPORTANT: Be sure to complete Part III - Evaluation of Performance Elements on reverse.			
PART I - GENERAL CONTRACT DATA			
3. TYPE OF EVALUATION (X one)		4. TERMINATED FOR DEFAULT	
<input type="checkbox"/> INTERIM (List percentage %) <input type="checkbox"/> FINAL		<input type="checkbox"/> AMENDED	
6. CONTRACTOR (Name, Address, and ZIP Code)		6.a. PROCUREMENT METHOD (X one)	
		<input type="checkbox"/> SEALED BID <input type="checkbox"/> NEGOTIATED	
		b. TYPE OF CONTRACT (X one)	
		<input type="checkbox"/> FIRM FIXED PRICE <input type="checkbox"/> COST REIMBURSEMENT <input type="checkbox"/> OTHER (Specify)	
7. DESCRIPTION AND LOCATION OF WORK			
8. TYPE AND PERCENT OF SUBCONTRACTING			
9. FISCAL DATA		a. AMOUNT OF BASIC CONTRACT	b. TOTAL AMOUNT OF MODIFICATIONS
		\$	\$
		c. LIQUIDATED DAMAGES ASSESSED	d. NET AMOUNT PAID CONTRACTOR
		\$	\$
10. SIGNIFICANT DATES		b. DATE OF AWARD	c. REVISED CONTRACT COMPLETION DATE
PART II - PERFORMANCE EVALUATION OF CONTRACTOR			
11. OVERALL RATING (X appropriate block)			
<input type="checkbox"/> OUTSTANDING <input type="checkbox"/> ABOVE AVERAGE <input type="checkbox"/> SATISFACTORY <input type="checkbox"/> MARGINAL <input type="checkbox"/> UNSATISFACTORY (Explain in Item 20 on reverse)			
12. EVALUATED BY			
a. ORGANIZATION (Name and Address (Include ZIP Code))		b. TELEPHONE NUMBER (Include Area Code)	
c. NAME AND TITLE		d. SIGNATURE	e. DATE
13. EVALUATION REVIEWED BY			
a. ORGANIZATION (Name and Address (Include ZIP Code))		b. TELEPHONE NUMBER (Include Area Code)	
c. NAME AND TITLE		d. SIGNATURE	e. DATE
14. AGENCY USE (Distribution, etc.)			

DD FORM 2626, JUN 94

EXCEPTION TO SF 1420 APPROVED BY GSA/IRMS 6-94
Adobe Professional 7.0

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PART III - EVALUATION OF PERFORMANCE ELEMENTS

N/A = NOT APPLICABLE O = OUTSTANDING A = ABOVE AVERAGE S = SATISFACTORY M = MARGINAL U = UNSATISFACTORY

16. QUALITY CONTROL							16. EFFECTIVENESS OF MANAGEMENT						
N/A	O	A	S	M	U	N/A	O	A	S	M	U		
a. QUALITY OF WORKMANSHIP						a. COOPERATION AND RESPONSIVENESS							
b. ADEQUACY OF THE QCC PLAN						b. MANAGEMENT OF RESOURCES/ PERSONNEL							
c. IMPLEMENTATION OF THE QCC PLAN						c. COORDINATION AND CONTROL OF SUBCONTRACTOR(S)							
d. QUALITY OF QC DOCUMENTATION						d. ADEQUACY OF SITE CLEAN-UP							
e. STORAGE OF MATERIALS						e. EFFECTIVENESS OF JOB-SITE SUPERVISION							
f. ADEQUACY OF MATERIALS						f. COMPLIANCE WITH LAWS AND REGULATIONS							
g. ADEQUACY OF SUBMITTALS						g. PROFESSIONAL CONDUCT							
h. ADEQUACY OF QC TESTING						h. REVIEW/RESOLUTION OF SUBCONTRACTOR'S ISSUES							
i. ADEQUACY OF AS-BUILTS						i. IMPLEMENTATION OF SUBCONTRACTING PLAN							
j. USE OF SPECIFIED MATERIALS													
k. IDENTIFICATION/CORRECTION OF DEFICIENT WORK IN A TIMELY MANNER													
17. TIMELY PERFORMANCE							15. COMPLIANCE WITH LABOR STANDARDS						
a. ADEQUACY OF INITIAL PROGRESS SCHEDULE						a. CORRECTION OF NOTED DEFICIENCIES							
b. ADHERENCE TO APPROVED SCHEDULE						b. PAYROLLS PROPERLY COMPLETED AND SUBMITTED							
c. RESOLUTION OF DELAYS						c. COMPLIANCE WITH LABOR LAWS AND REGULATIONS WITH SPECIFIC ATTENTION TO THE DAVIS-BACON ACT AND BEO REQUIREMENTS							
d. SUBMISSION OF REQUIRED DOCUMENTATION													
e. COMPLETION OF PUNCHLIST ITEMS						19. COMPLIANCE WITH SAFETY STANDARDS							
f. SUBMISSION OF UPDATED AND REVISED PROGRESS SCHEDULES						a. ADEQUACY OF SAFETY PLAN							
g. WARRANTY RESPONSE						b. IMPLEMENTATION OF SAFETY PLAN							
						c. CORRECTION OF NOTED DEFICIENCIES							
20. REMARKS (Explanation of unsatisfactory evaluation is required. Other comments are optional. Provide facts concerning specific events or actions to justify the evaluation. These data must be in sufficient detail to assist contracting officers in determining the contractor's responsibility. Continue on separate sheet(s), if needed.)													

DD FORM 2626 (BACK), JUN 94

END ATTACHMENT 1 TO EXHIBIT "C" PERFORMANCE EVALUATION FORM

ATTACHMENT 2 TO EXHIBIT "C" (2 pages) SUBMITTAL REQUIREMENTS FOR THE GMP

GMP proposal(s) submittals; at least one original copy for review, additional copies may be requested by the County.

Table of Contents:

1. Scope of Work
2. Summary of the GMP
3. Schedule of Values – summary spreadsheet and backup documents
4. List of Plans and Specifications used for GMP Proposal
5. List of clarification and assumptions
6. Project Schedule
7. Subcontractor Selections / SBE Requirements / Utilization Form / Letter of Intent

Submittals:

1. Scope of work will consist of a brief description of the work to be performed by JOC Contractor and major points that the JOC Contractor and the County must be aware of pertaining to the scope.
2. A summary of the GMP with a total for each of the components of the GMP defined in Article 1, and as shown in the table below.
3. Schedule of Values - spread sheet with the estimated cost organized by subcontract categories, allowances, bid contingency, general conditions costs, taxes, bonds, insurances, and the JOC Contractor's construction phase fee. The supporting document for the spreadsheet must be provided in an organized manner that correlates with the schedule of values. The backup information shall consist of the request for bids, bids received, and clarification assumptions used for the particular bid item listed on the schedule of values, if applicable.
4. A list of the Plans and Specifications with latest issuance date including all addenda used in preparation of the GMP proposal. (Date stamped and signed by Contractor)
5. A list of the clarifications and assumptions made by the JOC Contractor in the preparation of the GMP proposal, to supplement the information contained in the documents.
6. A Critical Path Method (CPM) diagram construction schedule.
7. A summary of the Subcontractor Selections, including an SBE requirements section addressing the goals set for the project and the JOC Contractor's current status on meeting the project goals. The Utilization form and the Letter of Intent must be attached when the contractor selection has been made prior to final GMP submittal.

NOTE: The submittal package must be kept as simple as possible all on 8 ½ x 11 sheets. Color or shading must be kept to a minimum. If used, make sure the color or shading will not affect the reproduction of the submittal in black and white.

SAMPLE JOB ORDER QUOTATION FORM

SAMPLE GMP SUBMITTAL FORM

PROJECT #:
PROJECT NAME:

DATE:

GMP Summary			AMOUNT
A.	Cost of the Work (Labor, Materials, Equipment, Warranty)		\$
INDIRECT COSTS			RATE
B.	Construction Contingency		% \$
C.	Construction Fee		% \$
D.	General Conditions		% \$
	D1	Payment and Performance Bond	\$ %
	D2	Insurance	\$ %
E.	All Taxes		% \$
F. TOTAL GMP			\$
G. Owner's Contingency			\$
H. Total Contract Amount			\$

The General Conditions fee includes bond and insurance cost (D1 & D2). These costs should be listed individually for future use.

Formulas:

Total GMP: $A + B + C + D + E = F$

Total Contract Value: $F + G = H$

Rates (Percentages) are calculated by dividing each amount by F, such as B/F, D/F, and D1/F

**END ATTACHMENT 2 TO EXHIBIT "C" -
SUBMITTAL REQUIREMENTS FOR THE GMP**

**ATTACHMENT 3 TO EXHIBIT "C" (4 pages)
INCOMING CONTRACTOR SAFETY & ORIENTATION BRIEFING**



**RWRD Conveyance
Incoming Contractor Safety & Orientation Briefing
Prior to Beginning Work**



Date: _____ Time: _____ Location: _____

RWRD Project Manager: _____ Office Phone: _____
Cell Phone: _____

Contract Company Name: _____

Contract Company's Supervisor: _____

Purpose: As a contractor you shall comply with the Occupational Safety and Health Act (OSHA, Public Law 91-596) and all standards of (29 CFR 1910 and 1926). The detailed provisions of this act for prevention of accidents and illnesses are directly applicable to your operations. As the Primary Contractor of this job you are also responsible for ensuring that any subcontractors you employ shall also adhere to OSHA guidelines.

FACILITY CONTACT INFORMATION: (This section is for reference purposes only, all communication regarding the project shall be directed to the RWRD Project Manager).

Location where the job will be conducted: _____

Project Manager: _____ Office Phone: _____

Cell Phone: _____

Affected Plant Mgr.: _____

Office Phone: _____

Cell Phone: _____

RWRD Operations Control Center (24/7 Operation):

Office Phone: 520-724-6047

Cell Phone: 520-204-2217

Covered with contractor/Initial

GENERAL INFORMATION:

Working Hours -

The normal working hours for this facility are M-F _____ a.m. to _____ p.m.

After normal working hours requires

-The permission of the RWRD Project Manager who can coordinate facility access during non-normal working hours.

No Drugs, Alcohol or Firearms

-The use and possession of drugs, alcohol and firearms is prohibited at all RWRD Facilities and Job Sites.

Safety, PPE and Security/Facility Access

Incident Reporting

- Contractor's shall utilize the contractor's incident reporting procedure and provide copies of the incident report to the RWRD Project Manager.
- Property Losses involving Pima County property must immediately be reported to the RWRD Project Manager.
- These reports shall be provided to the RWRD Safety Officer and/or Security Manager by the RWRD Project Manager.

Calling for Emergency Services-

- 1) Call 911 from a private phone.
 - Provide the plant location, the building number or building name, the nature of the emergency, do not hang-up until the dispatcher hangs-up.
- 2) Contact the RWRD Operations Control Center @ 520-724-6047 or 520-204-2217 and inform personnel of the emergency.
- 3) RWRD Operations Control Center will advise the appropriate Conveyance personnel of the emergency.

Eye and Face Protection

- The contractor shall ensure that contract employee use appropriate eye and/or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.
- Safety glasses and/or face protection must be worn at all times when working in process industrial areas.
- The Protective eye and face protection devices utilized by the of the contractor must comply with the current ANSI Z87.1 standard.

Hearing Protection

- As required by OSHA and where signage is posted throughout the RWRD Treatment Facilities.

Respirator Policy

- As required by OSHA and by the contractor.

Hard Hats

- As required by OSHA and by the contractor.

Other PPE

- As required by OSHA and by the contractor.

General Safety

- Adhere to all safety signage and warning signs.
- All possible safety hazards encountered by contract employees shall be addressed to the RWRD Project Manager immediately and if possible left in a safe condition at the end of each workday.

Trenching and Shoring Requirements

- Contractor must follow all OSHA trenching and shoring requirements when conducting trenching and shoring work.

Lockout-Tagout

Procedures

- Contractor's shall utilize the contractor's Lockout/Tagout Procedure.
- The Contractor's Lockout/Tagout Procedures shall be OSHA compliant.
- RWRD Treatment Lockout/Tagout Plant Procedures are available for use if needed by the Contractor.

Operating Valves, Switches or Breakers

- Contract employees, visitors or vendors shall not operate any valves, switches or breakers unless authorized to do so by Pima County RWRD personnel.
- Contract authorized personnel shall coordinate with the RWRD Project Manager prior to de-energizing equipment to be locked-out, when authorization is provided the Contractor shall install their locks and follow Lockout/Tagout Procedures.


CONFINED SPACE

Procedures

- Contractors shall utilize the contractor's Confined Space Program
- The Contractors Confined Space Procedure shall be OSHA compliant
- RWRD Confined Space Procedures are available for use if needed by the Contractor.

SDS/MSDS & Hazard Communication Program

Chemical Usage

- SDS/MSDS for common chemicals are available at all RWRD sites and On the Pima County  Online SDS Program.
- Prior authorization must be given by the RWRD Project Manager for a chemical to be brought onto or stored at any RWRD facility.
- The Contractor shall provide an inventory of all SDS's/MSDS's for the chemicals they will be utilizing on plant site. The SDS's/MSDS's shall be provided to the RWRD Project Manager and shall be filed at the site where the chemical is being utilized.
- All containers must be clearly labeled.
- All large containers of chemicals need to have secondary containment.
- Oil/gas spills from equipment must be contained, reported immediately and cleaned.
- DO NOT dump any chemicals on-site or in building storm water drains.
- Prior to using or storing any chemical, and upon authorization to do so by the RWRD Project Manager, the SDS/MSDS for the chemical must be provided by the contractor.

HOUSEKEEPING

Construction Debris

- Packing materials and construction debris must be contained.
- Open process tanks/pumps can be fouled by uncontrolled materials.
- The contractor shall supply roll-off(s) for large amount of debris (*Determined by the RWRD Project Manager*).
- Upon completion of the work performed by the contractor, the contractor shall remove all construction debris from the site and leave the area as found. This includes the removal of Fire Extinguishers brought on site and utilized by the contractor for emergency purposes or hot-work purposes.

Personal Trash Disposal

- The personal trash of contract employees must be properly disposed of by utilizing the trash can receptacles provided on plant site.

Hand Cleaning

- While working on site, contract employees shall clean hands often with hand sanitizer.
- Do not consume any food items without washing hands prior.

Smoking and The Use of Tobacco Products

(In accordance with P.C. Board of Supervisors Policy No. C3.18)

- Pima County shall sustain Tobacco-Free & Smoke-Free facilities,
"SMOKING AND THE USE OF TOBACCO PRODUCTS IS PROHIBITED".

Additional notes:

SIGNATURES

Any violation of Pima County RWRD Safety Policies and Procedures will be reported to the Contract Supervisor immediately.

Title	Print Name	Signature	Date
RWRD Project Manager:	_____	_____	_____
RWRD Representative	_____	_____	_____
RWRD Representative:	_____	_____	_____
RWRD Representative:	_____	_____	_____
RWRD Representative:	_____	_____	_____

Contract Company's Supervisor: _____

Contract Company's Supervisor: _____

Contract Employee: _____

Contract Employee: _____

Contract Employee: _____

Contract Employee: _____

Contract Employee: _____

Contract Employee: _____

Contract Employee: _____

Contract Employee: _____

Contract Employee: _____

Contract Employee: _____

END ATTACHMENT 3 TO EXHIBIT "C" – INCOMING CONTRACTOR SAFETY & ORIENTATION

END EXHIBIT "C" – SPECIAL CONDITIONS

EXHIBIT "D" (3 pages)
SUPPLEMENTAL PROVISIONS FOR FEDERAL AID
CONSTRUCTION CONTRACTS

These provisions apply only to work subject to Federal-Aid. A copy of this Exhibit "D" and a current Wage Determination shall be attached to the Job Order for any federally funded project. Current wage determinations may be found at <http://www.wdol.gov/dba.aspx>

ARTICLE 1 – DAVIS BACON ACT WAGE DETERMINATION

CONTRACTOR shall pay wages in accordance with the most current Davis Bacon rates in effect in Pima County, Arizona at the time the Job Order is negotiated. CONTRACTOR shall provide to COUNTY at the time of Job Order negotiation, an adjustment to each of the unit prices for the line items that require payment Davis-Bacon wages. CONTRACTOR shall include a copy of the most recent Davis-Bacon Wage Determination in their proposal for incorporation into the Job Order's terms and conditions. The most current Davis-Bacon Act Wage Determinations may be found online at <http://www.wdol.gov/dba.aspx>

ARTICLE 2 – SUBCONTRACTORS

In addition to the requirements set forth in Article 10 of the Master Agreement, CONTRACTOR shall ensure that no subcontracts are awarded at any tier, to any individual, firm, partnership, joint venture, or any other entity regardless of the form of business organization, listed in the Federal Government's System for Award Management (SAM) system (<https://www.sam.gov/portal/public/SAM>) with an active exclusion.

ARTICLE 3 – OWNERSHIP OF DOCUMENTS

In addition to the requirements set forth in Article 23 of the Master Agreement, The Granting Agency reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for Federal Government purposes: (a) the copyright in any work developed under this Agreement or any subcontract; and (b) Any rights of copyright to which CONTRACTOR or COUNTY acquires ownership under this Agreement.

ARTICLE 4 – BOOKS AND RECORDS

In addition to the requirements set forth in Article 24 of the Master Agreement, CONTRACTOR shall also keep and maintain proper and complete books, records and accounts, which shall be open at all reasonable times for inspection and audit by the Granting Agency and the Comptroller General of the United States.

ARTICLE 5 – CHANGED CONDITIONS

(1) Differing site conditions.

- (i) During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.
- (ii) Upon written notification, COUNTY will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the Contract, an adjustment, excluding anticipated profits, will be made and the contract modified in writing accordingly. COUNTY

will notify CONTRACTOR of the determination whether or not an adjustment of the contract is warranted.

- (iii) No contract adjustment which results in a benefit to CONTRACTOR will be allowed unless CONTRACTOR has provided the required written notice.
- (iv) No contract adjustment will be allowed under this clause for any effects caused on unchanged work.

(2) Suspensions of work ordered by COUNTY.

- (i) If the performance of all or any portion of the work is suspended or delayed by COUNTY in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and CONTRACTOR believes that additional compensation and/or contract time is due as a result of such suspension or delay, CONTRACTOR shall submit to COUNTY in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.
- (ii) Upon receipt, COUNTY will evaluate CONTRACTOR'S request. If COUNTY agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of CONTRACTOR, its suppliers, or subcontractors at any approved tier, and not caused by weather, COUNTY will make an adjustment (excluding profit) and modify the contract in writing accordingly. CONTRACTOR will be notified of COUNTY'S determination whether or not an adjustment of the Contract is warranted.
- (iii) No contract adjustment will be allowed unless CONTRACTOR has submitted the request for adjustment within the time prescribed.
- (iv) No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this Contract.

(3) Significant changes in the character of work.

- (i) COUNTY reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the Contract nor release the surety, and CONTRACTOR agrees to perform the work as altered.
- (ii) If the alterations or changes in quantities significantly change the character of the work under the Contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the Contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against CONTRACTOR in such amount as COUNTY may determine to be fair and equitable.
- (iii) If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided elsewhere in the Contract.
- (iv) The term "significant change" shall be construed to apply only to the following circumstances:

- (A) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
- (B) When a major item of work, as defined elsewhere in the Contract, is increased in excess of 125 percent or decreased below 75 percent of the original Contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original Contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

END EXHIBIT "D" - SUPPLEMENTAL PROVISIONS FOR FEDERAL CONTRACTS