

# COB - BOSAIR FORM

10/07/2025 4:28 PM (MST)

Submitted by Karrie.Hixon@pima.gov



## BOARD OF SUPERVISORS AGENDA ITEM REPORT (BOSAIR)

**\*All fields are required. Enter N/A if not applicable. For number fields, enter 0 if not applicable.\***

Record Number: PO PDC PO2500031897

**Award Type:** Contract

**Is a Board Meeting Date Requested?** Yes

**Requested Board Meeting Date:** 10/21/2025

**Signature Only:**

NO

**Procurement Director Award / Delegated Award:** • N/A

**Supplier / Customer / Grantor / Subrecipient:** Southern Arizona Paving & Construction Co. (Headquarters: Tucson, AZ)

**Project Title / Description:** Esperero Wash at Sunrise Drive Culvert Replacement

**Purpose:** Award: Contract No. PO2500031897. This award of contract is recommended to the lowest, responsive, responsible bidder in the amount of \$2,883,544.00 for a contract term of 10/21/25 to 09/30/26. Administering Department: Project Design & Construction.

**Procurement Method:** Other

**Insert additional Procurement Method info, if applicable:** Invitation for Bid (IFB) No. IFB-2500015692 was conducted as a Limited Competition solicitation in accordance with A.R.S § 34-606 and Pima County Procurement Code 11.12.060, per the attached approval of the County Administrator, dated August 8, 2025. Eleven contractors were invited to participate, 6 responses were received. All bidders met the Small Business Enterprise goal of 5%.

Attachments: Department Memorandum, Notice of Recommendation for Award, and Contract.

**Program Goals/Predicted Outcomes:** The goal of the project is to reduce instances of storm water runoff from overtopping Sunrise Drive. The additional hydraulic capacity will reduce instances of storm water runoff from overtopping Sunrise Drive. The scope of work will replace the double 48" diameter CMP currently in place with a 6-cell 10'x6' reinforced concrete box culvert, collector channel, drop inlet, and outlet apron as a means of conveying 4,300 cfs under the roadway, which corresponds with a 10-year storm event. The reduction in flow over the roadway will reduce the risk to critical infrastructure and utilities.

**Public Benefit and Impact:**

The additional hydraulic capacity will reduce instances of storm water runoff from overtopping Sunrise Drive due to changes in the upstream watershed caused by the

TO: COB, 10/15/25(1)

VERSION: 0

PAGES: 263

Submission ID: e46b2a12-da4b-4eee-b9f0-169d9e37074b Receipt ID: 8MY1YMV9

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Bighorn Fire of 2020 in the Coronado National Forest. Thereby reducing damage and closure of the roadway.

**Budget Pillar**

- Critical infrastructure & economic growth

**Support of Prosperity Initiative:**

N/A

**Provide information that explains how this activity supports the selected Prosperity Initiative**

N/A

**Metrics Available to Measure Performance:**

A Contractor Performance Evaluation will be used to measure compliance with the project's scope, schedule, and budget. This assessment will determine if the work was satisfactorily delivered in a manner that meets the expectations defined in the program goals.

**Retroactive:**

NO

**Contract / Award Information**

Record Number: PO PDC PO2500031897

**Document Type:**

PO

**Department Code:**

PDC

**Contract Number:**

PO2500031897

**Commencement Date:**

10/21/2025

**Termination Date:**

09/30/2026

**Total Expense Amount:**

\$2,883,544.00

**Total Revenue Amount:**

\$0.00

**Funding Source Name(s) Required:**

Transportation Capital Projects Fund

**Funding from General Fund?**

NO

**Contract is fully or partially funded with Federal Funds?**

NO

**Were insurance or indemnity clauses modified?**

NO

**Vendor is using a Social Security Number?**

NO

Department: Procurement

Name: Karrie Hixon *KCH*

Telephone: 520-724-3542

Add Procurement Department Signatures

Yes

Add GMI Department Signatures

No

Division Manager/Procurement Officer Signature: **Scott Loomis** Digitally signed by Scott Loomis  
Date: 2025.10.07 16:56:17 -07'00' Date: \_\_\_\_\_

Procurement Director Signature: **Bruce D Collins** Digitally signed by Bruce D Collins  
Date: 2025.10.08 09:34:05 -07'00' Date: \_\_\_\_\_

Department Director Signature:  Signed by: \_\_\_\_\_ Date: 10/8/2025  
F81FE0E74A341B7

Deputy County Administrator Signature:  Date: 10/9/2025

County Administrator Signature:  Date: 10/9/2025



PROJECT DESIGN  
& CONSTRUCTION

MEMORANDUM

Date: August 8, 2025

To: Jan Leshner, County Administrator

From: Rod Lane, Director PDC *RPL*

Re: **24042PJ Sunrise Drive at Esperero Wash Culvert Replacement  
Limited Competition Procurement Request**

We are requesting your approval to utilize a limited competition procurement pursuant to provisions of A.R.S. 34-606 and Pima County Procurement Code 11.12.060 for the replacement of a drainage culvert on Sunrise Drive, at Esperero Wash. ✓

Background

This project was initially bid using the Flood Control JOC list. The proposals received exceeded the awardable limit as a JOC agreement. This necessitated re-bidding the project using an alternative method. This project will have a significant impact on traffic along Sunrise Drive. Closing the road for a reasonable period does not appear to be feasible, therefore a single-lane bypass is required for the duration of the six-month construction period. This will be disruptive to our constituents. The project requires a high level of construction management to ensure the impacts are minimized, the quality of work is high, and can be accomplished in a manner that avoids the monsoon season.

Recommended Approach

We are requesting to use pre-qualified Contractors from Pima County's JOC lists. The Contractors on these lists have demonstrated their ability to work within the tight constraints of the project, deliver the quality expected, and proven an ability to manage similar projects which can adversely impact the Community.

Limited Competition allows use of pre-qualified Contractors from the Flood Control and Drainage Improvements (MA23\*0002) and Pavement Preservation and Road Repair Program (MA24\*0015) JOC lists.

The solicitation would be limited to the following Contractors.

- Borderland Construction Company, Inc.
- Granite Construction Company
- Hunter Contracting Co.
- iSX Construction, LLC
- KE&G Construction, Inc.
- Markham Contracting Co., Inc.
- Rummel Construction, Inc.
- SMS Construction, LLC
- Southern Arizona Paving and Construction Co.
- Sunland Asphalt & Construction, LLC
- Tucson Asphalt Contractors, Inc.

We believe that the eleven Contractors will submit competitive bids and reduce the potential for additional costs and/or delays during construction. We have discussed other alternative methods and verified that this approach will have the highest potential for success.

Roderick Lane, Director



24042PJ Sunrise Drive at Esperero Wash Culvert Replacement  
Limited Competition Procurement Request  
August 8, 2025  
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We request your concurrence/approval on this approach so that we can proceed with bidding and then construction. Please let me know if you have any questions.

CONCUR:

*Bruce D Collins*

\_\_\_\_\_  
Bruce D. Collins, Procurement Director

Date: August 12, 2025

CONCUR:

*Carmin DeBonis Jr*

\_\_\_\_\_  
Carmin DeBonis, Jr., Deputy County Administrator

Date: 8/13/2025

APPROVED:

*Jan Lesh*

\_\_\_\_\_  
Jan Lesh, County Administrator

Date: 8/15/2025



**NOTICE OF RECOMMENDATION FOR AWARD**

Date of Issue: October 3, 2025

The Procurement Department hereby issues formal notice to respondents to Solicitation No. IFB-2500015692 for the Esperero Wash at Sunrise Drive Culvert Replacement project that the following listed respondent will be recommended for award as indicated below. The award action is scheduled to be performed by the Board of Supervisors, on or after November 4, 2025.

Award is recommended to the lowest, responsive and responsible bidder.

<u>AWARDEE NAME</u>	<u>BID AMOUNT</u>	<u>AWARD AMOUNT</u>
Southern Arizona Paving & Construction Co.	\$2,883,544.00	\$2,883,544.00

<u>OTHER RESPONDENTS</u>	
K E & G Construction, Inc.	\$3,271,874.43
Borderland Construction Company, Inc.	\$3,413,303.68
Hunter Contracting Co.	\$3,513,501.17
Granite Construction Company	\$3,671,906.00
ISX Construction, LLC	\$4,312,323.00

Engineer's Estimate: \$3,038,443.64

Issued by: Karrie Hixon, Procurement Officer

Telephone Number: (520) 724-3542

This notice is in compliance with Pima County Procurement Code §11.12.010(C) and §11.20.010(C).

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

**PIMA COUNTY PROJECT DESIGN AND CONSTRUCTION DEPARTMENT**

**PROJECT:** Esperero Wash at Sunrise Drive Culvert Replacement

**CONTRACTOR:** Southern Arizona Paving & Construction Co.  
4102 E. Illinois St.  
Tucson, AZ 85714

**CONTRACT NO.:** PO2500031897

**AMOUNT:** \$2,883,544.00

**FUNDING:** Transportation Capital Projects Fund

**CONSTRUCTION SERVICES CONTRACT**

**1. Parties, Background and Purpose.**

- 1.1. Parties. This Contract is entered into between Pima County, a body politic and corporate of the State of Arizona, hereafter called County, and Southern Arizona Paving & Construction Co., hereinafter called Contractor, and collectively referred to as the Parties.
- 1.2. Authority. County requires, consistent with the provisions of A.R.S. Title 34, the services of a Contractor to provide all equipment, labor, and materials required to construct the Esperero Wash at Sunrise Drive Culvert Replacement ("Project").
- 1.3. Solicitation. County previously issued Solicitation No. IFB-2500015692 (the Solicitation). Contractor submitted the low responsive, responsible bid in response to the Solicitation for said work and is qualified and willing to provide such services.

**2. Term and Extension/Renewal/Changes.**

- 2.1. Initial Term. This Contract, as approved by the Board of Supervisors, commences on October 21, 2025, and terminates on September 30, 2026, unless sooner terminated or further extended pursuant to the provisions of this Contract.
- 2.2. Construction Completion. Construction completion time for the work to be performed under this Contract will be **130** working days after the date of Notice to Proceed. Liquidated damages will be assessed based upon the construction completion time, as per PAG 2015 Specification Section 108-9.
- 2.3. Extension Options. County has the option to extend the contract termination date for purposes of project completion. Any modification or extension of the contract termination date must be by formal written amendment executed by the Parties.

**3. Scope of Services.** Contractor will provide District all labor, materials and equipment necessary to complete the project as described in the Construction Documents prepared by Psomas Inc, dated July 01, 2025, included in the bid documents in Pima County Solicitation Number IFB-2500015692, Exhibit B – General Conditions (10 pages), Exhibit C – Special Provisions (219 pages), PAG Standard Specifications for Public Improvements 2015 Edition with Amendments, and other documents incorporated into this Contract.

#### 4. Compensation and Payment.

##### 4.1 Compensation. County will pay Contractor as specified.

4.1.1 Invoices. Contractor will provide detailed documentation in support of requested payment. Contractor must cite the Contract number on all invoices. Payments will be made in accordance with A.R.S. § 34-221.

4.1.1.1 For the period of record retention required under Section 24, County reserves the right to question any payment made under this Section and to require reimbursement by setoff or otherwise for payments determined to be improper or contrary to the Contract or law.

4.1.2 Price. Total payment for this Contract will not exceed \$2,883,544.00. Payment for this Contract will be made based on Exhibit A - Bid Schedule (5 pages) submitted by Contractor in response to Solicitation No. IFB-2500015692 for the Total Bid amount. County will pay line items for which the "Unit" is defined as L.S. as "Lump Sum". County will measure and pay the unit price for the actual quantities of work performed for other line items for which the "unit" is defined as a unit of measure (i.e., "each", "L.F.", etc.) and for which there is a Unit Price in accordance with the Pima Association of Governments Standard Specifications for Public Improvements ("Standard Specifications"). The quantities of unit-priced items stated in the bid schedule are estimates only and the actual quantities may be either less or more than stated in the Bid Schedule.

##### 4.1.3

Work Performed. Contractor will not perform work in excess of the contract amount without prior authorization by an amendment executed by the Parties. Work performed in excess of the contract amount without prior authorization by amendment is at Contractor's own risk.

#### 5. **Insurance.** The Insurance Requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

5.1. Ratings. 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.

##### 5.2. Insurance Coverages and Limits.

5.2.1. 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 Contract have been met. The below Insurance Requirements are minimum requirements for this Contract 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.

5.2.1.1. Commercial General Liability (CGL) – Occurrence Form with limits of \$2,000,000 Each Occurrence and \$2,000,000 General Aggregate. Policy will include bodily injury, property damage, and broad form contractual liability coverage, personal and advertising injury and products – completed operations.

5.2.1.2. Business Automobile Liability – Bodily Injury and Property Damage for any owned, hired, and/or non-owned automobiles used in the performance of this Contract with a Combined Single Limit (CSL) of \$1,000,000 each accident.

5.2.1.3. Workers' Compensation 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.

- 5.2.1.4. Claims-Made Coverage. 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 years following Contract expiration, termination or cancellation.

5.3. Additional Insurance Requirements:

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

- 5.3.1. 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.
- 5.3.2. Subrogation: The General Liability, Business Automobile Liability and Workers' Compensation Policies shall each contain a waiver of subrogation endorsement in favor of County, its departments, districts, boards, commissions, officers, officials, agents, and employees for losses arising from work performed by or on behalf of Contractor.
- 5.3.3. 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.
- 5.3.4. Insurance provided by Contractor shall not limit Contractor's liability assumed under the indemnification provisions of this Contract.

5.4. Notice of Cancellation:

Each Required Insurance policy must provide, and certificates specify, County will receive not less than 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 contract number and project description.

5.5. Verification of Coverage:

Contractor will furnish County with certificates of insurance as required by this Contract. An authorized representative of the insurer will sign the certificates.

- 5.5.1. All certificates and endorsements, as required by this Contract, are to be received and approved by County before work commences. Each insurance policy required by this Contract must be in effect at, or prior to, commencement of work under this Contract. Failure to maintain the insurance coverages or policies as required by this Contract, or to provide evidence of renewal, is a material breach of contract.
- 5.5.2. All certificates required by this Contract shall be sent directly to the appropriate County Department. The Certificate of Insurance shall include County project or contract number and project description on the certificate. County reserves the right to require complete copies of all insurance policies required by this Contract at any time.

5.6. Approval and Modifications:

The Pima County Risk Manager may modify the Insurance Requirements at any point during the Term of this Contract. This can be done administratively, with written notice from the Risk Manager and does not require a formal Contract amendment. 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, nor 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.

6. **Indemnification.**

- 6.1. To the fullest extent permitted by law, Contractor will defend, indemnify, and hold harmless Pima County and any related taxing district, and the officials and employees of each of them (collectively, "Indemnitee") from and against any and all claims, actions, liabilities, losses, and expenses (including reasonable attorney fees) (collectively, "Claims") arising out of actual or alleged injury of any person (including death) or loss or damage to tangible or intangible property caused, or alleged to be caused, in whole or in part, by any act or omission of Contractor or any of Contractor's directors, officers, agents, employees, volunteers, or subcontractor. This indemnity includes any claim or amount arising or recovered under the Workers' Compensation Law or arising out of the failure of Contractor to conform to any federal, state or local law, statute, ordinance, rule, regulation or court decree. The Indemnitee will, in all instances, except for Claims arising solely from the acts or omissions of the Indemnitee, be indemnified by Contractor from and against any and all Claims. Contractor is responsible for primary loss investigation, defense and judgment costs for any Claim to which this indemnity applies. This indemnity will survive the expiration or termination of this Contract.
- 6.2. All warranty and indemnification obligations under this contract shall survive expiration or termination of the Contract, unless expressly provided otherwise. The Parties agree that 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.
- 6.3. 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.

7. **Laws and Regulations.**

- 7.1. Compliance with Laws. Contractor will comply with all federal, state, and local laws, rules, regulations, standards and Executive Orders, without limitation to those designated within this Contract.
  - 7.2. Choice of Law; Venue. The laws and regulations of the State of Arizona govern the rights and obligations of the parties under this Contract. Any action relating to this Contract must be filed and maintained in Superior Court in Pima County.
  - 7.3. Licensing. Contractor warrants that it is appropriately licensed to provide the services under this Contract.
8. **Status of Independent Contractor.** Contractor is an independent Contractor. Neither Contractor, nor any of Contractor's officers, agents or employees will be considered an employee of Pima County for any purpose or be entitled to receive any employment-related benefits, or assert any protections, under the Pima County Merit System. Contractor is responsible for paying all federal, state and local taxes on the compensation received by Contractor under this Contract and will indemnify and hold County harmless from any and all liability that County may incur because of Contractor's failure to pay such taxes.

9. **Contractor/Subcontractor Performance.**

- 9.1. Performance. Contractor will perform the work 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 Contract. Prior to changing any key

personnel, especially those key personnel County relied upon in making this Contract, Contractor will obtain County's approval.

- 9.2. **Responsibility.** 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 Contract. 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 Contract, 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.
- 9.3. **Subcontractor License.** 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 Contract. 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.
- 9.4. **Subcontractor Acts and Omissions.** Contractor will be fully responsible for all acts and omissions of its Subcontractor(s) and of persons directly or indirectly employed by 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 Contract creates any obligation on the part of County to pay any Subcontractor, except as may be required by law.
- 9.5. **Subcontractor List.** Contractor must use the Subcontractor's named on Contractor's Subcontractor List submitted with the bid. No Subcontractor may be added or changed without the prior written approval of County subsequent to review and approval by the Administering Department Director and Procurement Director. Substitution of non-SBE Subcontractors may be approved at the discretion of County for reasons including but not limited to, availability, insolvency or any other reason deemed to be in the best interest of County. Approval for substitution of SBE Subcontractors that are listed on the Bidders Statement of Proposed SBE Utilization submitted with the bid will only be granted if the provisions of Section 20.28.050 of the Pima County Code have been met.
10. **Assignment.** Contractor will not assign its rights or obligations under this Contract in whole or in part, without County's prior written approval. County may withhold approval at its sole discretion.
11. **Non-Discrimination.** Contractor will comply with all provisions and requirements of Arizona Executive Order 2009-09, which is hereby incorporated into this contract, including flow-down of all provisions and requirements to any Subcontractors. During the performance of this Contract, 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.
12. **Americans with Disabilities Act.** Contractor will comply with Title II of the Americans with Disabilities Act (Public Law 110-325, 42 U.S.C. §§ 12101-12213) and the federal regulations for Title II (28 CFR Part 35).
13. **Authority to Contract.** Contractor warrants its right and power to enter into this Contract. If any court or administrative agency determines that County does not have authority to enter into this Contract, County will not be liable to Contractor or any third party by reason of such determination or by reason of this Contract.
14. **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 Contract 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.
15. **Cancellation for Conflict of Interest.** This Contract is subject to cancellation for conflict of interest pursuant to A.R.S. § 38-511, the pertinent provisions of which are incorporated into this Contract by reference.

**16. Termination of Contract for Default.**

16.1. Upon a failure by Contractor to cure a default under this Contract within 10 days of receipt of notice from County of the default, County may, in its sole discretion, terminate this Contract for default by written notice to Contractor. In this event, County may take over the work and complete it by Contract 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.

16.2. Default Events. The following constitutes an event of default:

16.2.1. 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 Contract, including any extension, or a failure to complete the work (or the separable part of the work) within the specified time;

16.2.2. Persistent or repeated refusal or failure to supply enough properly skilled workers or materials to perform the work on schedule;

16.2.3. Failure to provide competent supervision at the site;

16.2.4. Failure to take down, rebuild, repair, alter or amend any defective or deficient work, or to remove any defective or deficient material;

16.2.5. Failure to make prompt payment to Subcontractors or suppliers for material or labor;

16.2.6. 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 Contract;

16.2.7. Disregard of laws, ordinances, or the instructions of County or its representatives, or any otherwise substantial violation of any provision of the Contract; or

16.2.8. 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.

16.3. Termination. In the event of a termination for default:

16.3.1. 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 business days after the effective date of the termination;

16.3.2. County may withhold payments to Contractor arising under this or any other Contract for the purpose of set-off until such time as the exact amount of damage due County from Contractor is determined; and

16.3.3. Subject to the immediately preceding subparagraph 16.3.2, 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.

16.4. Non-Termination. County will not terminate the Contract for default or charge Contractor with damages under this Article if:



- 16.4.1. Except for subparagraph 16.2.8 in subsection 16.2 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:
- 16.4.1.1. Acts of God or of the public enemy,
  - 16.4.1.2. Acts of County in either its sovereign or contractual capacity,
  - 16.4.1.3. Acts of another Contractor in the performance of a contract with County,
  - 16.4.1.4. Fires,
  - 16.4.1.5. Floods,
  - 16.4.1.6. Epidemics,
  - 16.4.1.7. Quarantine restrictions,
  - 16.4.1.8. Strikes,
  - 16.4.1.9. Freight embargoes,
  - 16.4.1.10. Unusually severe weather, or
  - 16.4.1.11. 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 Subcontractor(s) or suppliers; and
- 16.4.2. Contractor, within 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.
- 16.5. Receipt of Notice. For the purposes of subsection 16.1 above, "receipt of notice" includes receipt by hand by Contractor's onsite project manager, by facsimile transmission, or under the Notices clause of this Contract.
- 16.6. Excusable. If, after termination of the Contract for default, County determines 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 County had terminated the Contract for convenience as set forth in Section 17.
- 16.7. Rights and Remedies. The rights and remedies of County in this Section are cumulative and in addition to any other rights and remedies provided by law or under this contract.
17. **Termination for Convenience of County.** County may terminate this Contract at any time by giving written notice to Contractor of such termination and specifying the effective date thereof, at least 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 Contract 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.
18. **Non-Appropriation of Funds.** Notwithstanding any other provision in this Contract, County may terminate this Contract if for any reason the Pima County Board of Supervisors does not appropriate sufficient monies for the purpose of maintaining this Contract. In the event of such termination, County has no further obligation to Contractor, other than payment for services rendered prior to termination.

19. **Notices.** Any notice required or permitted to be given under this Contract must be in writing and be served by delivery or by certified mail upon the other party as follows:

COUNTY:

Rod Lane, Director  
Pima County Project Design & Construction Department  
150 W. Congress, 3rd Floor  
Tucson, AZ 85701  
Tel: (520) 724-3085

CONTRACTOR:

Rocco W. Bene, Vice President  
Southern Arizona Paving & Construction Co.  
4102 E. Illinois St.  
Tucson, AZ 85714  
Tel: (520)745-8181

20. **Non-Exclusive Contract.** Contractor understands that this Contract 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.

21. **Contract Documents.**

- 21.1. Incorporation of Documents: County and Contractor in entering into this Contract have relied upon information provided in Solicitation No. IFB-2500015692 - Esperero Wash at Sunrise Drive Culvert Replacement, Exhibit A – Bid Schedule, Bonds (Bid, Payment, and Performance Bonds), Exhibit B – General Conditions, Exhibit C – Special Provisions, Construction Documents prepared by Psomas Inc, dated July 01, 2025, and on information provided in Contractor's response to this Solicitation. These documents are hereby incorporated into and made a part of this Contract by reference as if set forth in full herein.

- 21.2. Order of Precedence: In the event of a conflict or inconsistency between or among the contract documents, the documents shall take precedence in the following order:

- 21.2.1. This Contract
- 21.2.2. Exhibit B – General Conditions
- 21.2.3. Exhibit C – Special Provisions
- 21.2.4. Construction Documents
- 21.2.5. Contractor Response to the Solicitation
- 21.2.6. Instructions to Bidders
- 21.2.7. Invitation to Bid

- 21.3. Deviation: The parties may, by written mutual agreement, deviate from this order of precedence in resolving inconsistencies between or among contract documents. Any such agreement interpreting the documents shall be incorporated into the Contract by amendment.

- 21.4. Conflict: In the event of any conflict between any provision in the Special Conditions, and any provision of the General Conditions, or any other incorporated document, the provision in the Special Conditions shall take precedence.

22. **Bonding Requirements.** In accordance with A.R.S. § 34-221, et. seq., the Contractor will provide Payment and Performance bonds for not less than 100% of the contract amount. Copies of the bonds will be attached to this Contract.

23. **Ownership of Documents.** Ownership of 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 Contract vests in and become the property of the County and will be delivered to County upon completion or termination of the services, but Contractor may retain record copies thereof.

24. **Books and Records.**

- 24.1. Maintenance. 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.

- 24.2. **Retention.** Contractor will retain all records relating to this contract at least five 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.
25. **Remedies.** Either party may pursue any remedies provided by law for the breach of this Contract, provided, however, that the procedures in Section 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 Contract.
26. **Severability.** Each provision of this Contract stands alone, and any provision of this Contract found to be prohibited by law is ineffective to the extent of such prohibition without invalidating the remainder of this Contract.
27. **Delays.** Neither party will be considered in default in the performance of its obligations 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.
28. **Disputes.**
- 28.1. **Resolving Dispute.** In the event of a dispute between County and Contractor regarding any part of this Contract or the Parties' obligations or performance hereunder, 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 Contract and Contractor's counterpart official, such meeting to be held within one 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.
- 28.2. **Performance.** The Parties will continue performance of their respective obligations under this Contract notwithstanding the existence of any dispute.
29. **Public Records.**
- 29.1. **Disclosure.** 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 contract, 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.
- 29.2. **Records Marked Confidential.**
- 29.2.1. Any information submitted related to this Contract 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 must not include any information considered confidential.
- 29.2.2. 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 10 business days after the date of notice to the Contractor of the request for release, unless Contractor has, within the 10 day period, secured a protective order, injunctive relief or other appropriate order from a court of competent jurisdiction in Arizona, 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

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

**30. Legal Arizona Workers Act Compliance.**

- 30.1. Compliance with Immigration Laws. Contractor warrants that it will at all times during the term of this Contract 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 Contract likewise complies with the State and Federal Immigration Laws.
- 30.2. Books & Records. 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.
- 30.3. Remedies for Breach of Warranty. 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 Contract subjecting Contractor to penalties up to and including suspension or termination of this Contract. 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.
- 30.4. Subcontractors. 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 contract 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 ensure that Contractor is in compliance with these requirements. Any breach of this paragraph by Subcontractor is a material breach of this contract subjecting Subcontractor to penalties up to and including suspension or termination of this contract."
- 30.5. Costs. 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.
31. **Israel Boycott Certification.** Pursuant to A.R.S. § 35-393.01, if Contractor engages in for-profit activity and has 10 or more employees, and if this Contract has a value of \$100,000.00 or more, Contractor certifies it is not currently engaged in, and agrees for the duration of this Contract to not engage in, a boycott of goods or services from Israel. This certification does not apply to a boycott prohibited by 50 U.S.C. § 4842 or a regulation issued pursuant to 50 U.S.C. § 4842.
32. **Forced Labor of Ethnic Uyghurs.** Pursuant to A.R.S. § 35-394, if Contractor engages in for-profit activity and has 10 or more employees, Contractor certifies it is not currently using, and agrees for the duration of this Contract to not use (1) the forced labor of ethnic Uyghurs in the People's Republic of China; (2) any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; and (3) any contractors, subcontractors or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China. If Contractor becomes aware during the term of the Contract that the Company is not in compliance with A.R.S. § 35-394, Contractor must notify the

County within five business days and provide a written certification to County regarding compliance within one hundred eighty days.

33. **Heat Injury and Illness Prevention and Safety Plan.** Pursuant to Pima County Procurement Code 11.40.030, Contractor hereby warrants that if Contractor's employees perform work in an outdoor environment under this Contract, Contractor will keep on file a written Heat Injury and Illness Prevention and Safety Plan. At County's request, Contractor will provide a copy of this plan and documentation of heat safety and mitigation efforts implemented by Contractor to prevent heat-related illnesses and injuries in the workplace. Contractor will post a copy of the Heat Injury and Illness Prevention and Safety Plan where it is accessible to employees. Contractor will further ensure that each subcontractor who performs any work for Contractor under this Contract complies with this provision.
34. **Amendment.** Except for the amendment provision above in Section 2, this Contract may be modified, amended, altered or extended only by a written amendment signed by the Parties.
35. **Entire Agreement.** This document constitutes the entire agreement between the Parties and all prior or contemporaneous agreements and understandings, oral or written, are hereby superseded and merged herein.

*Remainder of This Page Intentionally Left Blank*

36. **Effectiveness and Date.** This contract will become effective when all Parties have signed it. The date of this Contract will be the date the Contract is signed by the last Party to sign it (as indicated by the date associated with that Party's signature).


Each Party is signing this Contract on the date below that Party's signature.

APPROVED:

\_\_\_\_\_  
Chair, Board of Supervisors

\_\_\_\_\_  
Date

CONTRACTOR:

  
\_\_\_\_\_  
Signature

\_\_\_\_\_  
Rocco W. Bene, Vice President  
Name and Title (Please Print)

\_\_\_\_\_  
10/14/25  
Date

ATTEST:

\_\_\_\_\_  
Clerk of the Board

\_\_\_\_\_  
Date

This contract template has been approved as to form by the Pima County Attorney's Office.

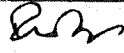
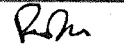
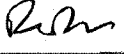
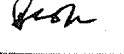

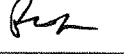
## REVISED EXHIBIT A – BID SCHEDULE (5 PAGES) dated 09/22/25

IFB-2500015692

### ESPERERO WASH AT SUNRISE DRIVE CULVERT REPLACEMENT

The undersigned Bidder hereby acknowledges receipt of the complete Bid Documents for this project and has examined and is familiar with all documents, including those incorporated by reference, which are applicable to this project. By executing this Bid Schedule, BIDDER hereby proposes and agrees to furnish any and all required labor, material, construction equipment, transportation, and services for the project in strict conformity with the Bid Documents, at the unit prices set in this Exhibit A. Failure to sign Page 1 of 4 this Bid Schedule shall result in Bid being deemed nonresponsive.

BIDDER SHALL SIGNIFY RECEIPT OF ADDENDA (IF ANY). Any bid that fails to acknowledge any addenda that directly affects cost, scope or schedule will be rejected as nonresponsive.

Addenda #	Received By (Bidder Initials)	Date	Addenda #	Received By (Bidder Initials)	Date
1		09/05/25	4		09/12/25
2		09/10/25	5		09/16/25
3		09/11/25	6		09/19/25

BIDDER HEREBY CERTIFIES that it has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

SIGNATURE:  DATE: 9/30/25

PRINTED NAME & TITLE: Rocco W. Bene, Vice President

LEGAL COMPANY NAME: Southern Arizona Paving & Construction Co

ADDRESS: 4102 E Illinois St

CITY: Tucson STATE: AZ ZIP: 85714

TELEPHONE NO.: (520) 745-8181 EMAIL: rbene@southernazpaving.com

CORPORATE HEADQUARTERS (CITY, STATE) Tucson, AZ

ARIZONA CONTRACTOR'S LICENSE NUMBER: 082182 CLASS: A-General Engineering

ARIZONA CONTRACTOR'S LICENSE NUMBER: 099078 CLASS: B-General Resident Engineering

SAM.GOV Unique Entity Identifier (UEI): Q7A2E17H43D8

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**REVISED EXHIBIT A – BID SCHEDULE (5 PAGES) dated 09/22/25**

**IFB-2500015692**

**ESPERERO WASH AT SUNRISE DRIVE CULVERT REPLACEMENT**

The undersigned Bidder hereby acknowledges receipt of the complete Bid Documents for this project and has examined and is familiar with all documents, including those incorporated by reference, which are applicable to this project. By executing this Bid Schedule, BIDDER hereby proposes and agrees to furnish any and all required labor, material, construction equipment, transportation, and services for the project in strict conformity with the Bid Documents, at the unit prices set in this Exhibit A. Failure to sign Page 1 of 4 this Bid Schedule shall result in Bid being deemed nonresponsive.

BIDDER SHALL SIGNIFY RECEIPT OF ADDENDA (IF ANY). Any bid that fails to acknowledge any addenda that directly affects cost, scope or schedule will be rejected as nonresponsive.

Addenda #	Received By (Bidder Initials)	Date	Addenda #	Received By (Bidder Initials)	Date
7	<i>RWB</i>	09/22/25			
8	<i>RWB</i>	09/23/25			

BIDDER HEREBY CERTIFIES that it has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

SIGNATURE:  DATE: 9/30/25

PRINTED NAME & TITLE: Rocco W. Bene, Vice President

LEGAL COMPANY NAME: Southern Arizona Paving & Construction Co

ADDRESS: 4102 E Illinois St

CITY: Tucson STATE: AZ ZIP: 85714

TELEPHONE NO.: (520) 745-8181 EMAIL: rbene@southernazpaving.com

CORPORATE HEADQUARTERS (CITY, STATE) Tucson, AZ

ARIZONA CONTRACTOR'S LICENSE NUMBER: 0821 8 2 CLASS: A-General Engineering

ARIZONA CONTRACTOR'S LICENSE NUMBER: 099078 CLASS: B-General Resident Engineering

SAM.GOV Unique Entity Identifier (UEI): Q7A2E17H43D8

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## REVISED EXHIBIT A – BID SCHEDULE (Con't)

IFB-2500015692

### ESPERERO WASH AT SUNRISE DRIVE CULVERT REPLACEMENT

#### Bid Schedule\*

Group 1 - Base Bid					
Code	Description	UOM	Quantity	Price	Total Cost
2010001	Clearing and Grubbing	L.S.	1	\$50,000.00	\$50,000.00
2010006	Preservation Fence (Agency Discretion)	L.F.	2,000.00	\$5.00	\$10,000.00
2020001	Removal of Structures & Obstructions	L.S.	1	\$35,000.00	\$35,000.00
2020040	Removal of Pipe	L.F.	250.00	\$20.00	\$5,000.00
2030401	Drainage Excavation	C.Y.	1,021.00	\$35.00	\$35,735.00
2030500	Excavation (12" Structural Overexcavation and Removal)	C.Y.	672.00	\$115.00	\$77,280.00
2030300	Roadway Excavation	C.Y.	1,918.00	\$15	\$28,770.00
3030003	Aggregate Base	C.Y.	583.33	\$95.00	\$55,416.35
4040111	Tack Coat	TON	0.58	\$4,000.00	\$2,320.00
4060001	Asphaltic Concrete (No. 1)	TON	385.88	\$235.00	\$90,681.80
4060004	Asphaltic Concrete No. 2 (Terminal Mix)	TON	257.25	\$225.00	\$57,881.25
5030182	Drop Inlet	EA	1.00	\$40,000.00	\$40,000.00
5050017	Manhole Adjustment (Utility)	EA	1.00	\$850.00	\$850.00
5150005	Utility Potholing, Depth <12'	EA	6.00	\$1,000.00	\$6,000.00
5160300	Utility Removal, Pipe (Southwest Gas)	L.F.	430.00	\$20.00	\$8,600.00
6010101	Box Culvert (6-10'x6')	L.F.	119.00	\$7,700.00	\$913,300.00
6010723	Concrete Apron (Outlet) (ADOT Std. SD 6.11) (Modified)	S.Y.	197.44	\$250.00	\$49,360.00
7040005	Pavement Marking (White Extruded Thermoplastic) (0.090")	L.F.	600.00	\$1.00	\$600.00
7040006	Pavement Marking (Yellow Extruded Thermoplastic) (0.090")	L.F.	600.00	\$1.00	\$600.00
7060025	Pavement Marker, Reflective, (Type D, Yellow, Two-Way)	EA	30.00	\$8.00	\$240.00
7080001	Painted Pavement Marking	L.F.	2,879.00	\$0.75	\$2,159.25
8050004	Seeding (Class II)	ACRE	1.23	\$6,000.00	\$7,380.00
8100001	AZPDES/NPDES (Original)	L.S.	1	\$10,000.00	\$10,000.00
8100005	Sediment Log (Discretionary)	L.F.	250.00	\$8.00	\$2,000.00
8100006	Sediment Wattle (Discretionary)	L.F.	500.00	\$5.00	\$2,500.00
9010001	Mobilization	L.S.	1	\$214,410.05	\$214,410.05
9080402	Concrete Header	L.F.	495.00	\$45.00	\$22,275.00
9120002	Shotcrete (6")	S.Y.	922.00	\$140.00	\$129,080.00

9130001	Riprap (Dumped D50=9")	C.Y.	30.00	\$195.00	\$5,850.00
9130001	Riprap (Dumped D50=18")	C.Y.	217.00	\$85.00	\$18,445.00
9130001	Riprap (Dumped D50=24")	C.Y.	1,032.00	\$160.00	\$165,120.00
9240170	Contractor Quality Control	L.S.	1	\$10,000.00	\$10,000.00
9250001	Construction Survey and Layout	L.S.	1	\$20,000.00	\$20,000.00
9330002	Handrail	L.F.	232.00	\$55.00	\$12,760.00
<b>Group 1 Base Bid Total:</b>					<b>\$2,092,613.70</b>

<b>Group 1-1 - Base Bid Cost Allowance</b>					
<b>Code</b>	<b>Description</b>	<b>UOM</b>	<b>Quantity</b>	<b>Price</b>	<b>Total Cost</b>
1090010	Fuel Adjustment Allowance	L.S.	1	\$50,000.00	\$50,000.00
2010010	Clearing and Grubbing (Noxious and Invasive Species Control Allowance)	L.S.	1	\$5,000.00	\$5,000.00
5150101	Utility Impact Allowance	L.S.	1	\$50,000.00	\$50,000.00
8100012	AZPDES/NPDES Allowance (Modified)	L.S.	1	\$20,000.00	\$20,000.00
9300100	Incidental Items Allowance	L.S.	1	\$45,000.00	\$45,000.00
<b>Group 1-1 Total Cost Allowances:</b>					<b>\$170,000.00</b>

<b>Group 2 - Base Bid</b>					
<b>Code</b>	<b>Description</b>	<b>UOM</b>	<b>Quantity</b>	<b>Price</b>	<b>Total Cost</b>
2020105	Remove and Dispose Exist Gate Vale	EA	1.00	\$250.00	\$250.00
5100290	Additional Potholing at the Direction of Tucson Water's Inspector and/or Engineer	EA	6.00	\$1,000.00	\$6,000.00
5101112	Potable Water Pipe, DI, 12" (CL 350)	L.F.	401.00	\$230.00	\$92,230.00
5101830	Concrete Thrust Block Blocking	EA	6.00	\$2,500.00	\$15,000.00
5102117	Potable Water, Tapping Sleeve & Valve, 24" x 12"	EA	2.00	\$13,000.00	\$26,000.00
5102212	Potable Water, Gate Valve, 12"	EA	6.00	\$4,500.00	\$27,000.00
5102413	Potable Water, Inline Insert Valve, 12"	EA	2.00	\$40,000.00	\$80,000.00
5102607	Potable Water, Combination Air Release Valve, 1"	EA	2.00	\$4,500.00	\$9,000.00
5105112	Potable Water Pipe, CA, Remove & Dispose, 12" & Larger	L.F.	317.00	\$30.00	\$9,510.00
5106012	Potable Water, Connections, 12"	EA	2.00	\$5,000.00	\$10,000.00
5107005	Potable Water, Corrosion Report	EA	1.00	\$6,500.00	\$6,500.00
5107110	Potable Water, Corrosion Test Station (CTS), New, Above Ground	EA	5.00	\$4,500.00	\$22,500.00
<b>Group 2 Base Bid Total:</b>					<b>\$303,990.00</b>

Group 2-1 Base Bid Cost Allowance					
Code	Description	UOM	Quantity	Price	Total Cost
9300100	Incidental Items Allowance - Water	L.S.	1	\$30,000.00	\$30,000.00
Group 2-1 Total Cost Allowance:					\$30,000.00

Group 3 - Base Bid					
Code	Description	UOM	Quantity	Price	Total Cost
2030901	Borrow (Temporary Road)	C.Y.	635.00	\$70.00	\$44,450.00
4060010	Asphaltic Concrete (Temporary Pavement) (No.1)	TON	243.24	\$195.00	\$47,431.80
7010005	Traffic Control	L.S.	1	\$36,000.00	\$36,000.00
7010010	Temporary Concrete Barrier (Installation)	L.F.	2,450.00	\$10.00	\$24,500.00
7010011	Temporary Concrete Barrier (In Use) Daily Rate	Per Day	180.00	\$20.00	\$3,600.00
7010012	Temporary Concrete Barrier (Removal)	L.F.	2,450.00	\$5.00	\$12,250.00
7010027	Changeable Message Board	Per Day	360.00	\$75.00	\$27,000.00
7010260	Obliterate Pavement Marking	L.F.	1,139.00	\$1.50	\$1,708.50
7370100	Temporary Traffic Signals	L.S.	1	\$40,000.00	\$40,000.00
Group 3 Base Bid Total:					\$236,940.30

Group 3-1 Base Bid Cost Allowance					
Code	Description	UOM	Quantity	Price	Total Cost
7010006	Furnish and Install Temporary Traffic Control Devices Allowance	L.S.	1	\$50,000.00	\$50,000.00
Group 3-1 Total Cost Allowance:					\$50,000.00
Total Bid Amount:					\$2,883,544.00

\*Note: Pricing will be submitted directly into BidNet Direct.

End Exhibit A – Bid Schedule

## **EXHIBIT B - GENERAL CONDITIONS (10 PAGES)**

### **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 Project Design and Construction Department.

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 PAG Standard Specifications for Public Improvements 2015 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**

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 -- Contractor 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, Warning Lights, 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. The 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. RESERVED**

#### **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. RESERVED**

#### **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. 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 days 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:

- a. Defective work not remedied.
- b. Third party claims filed or reasonable evidence indicating probable filing of such claims.
- c. Failure of Contractor to make payments properly to Subcontractors or for labor, materials, or equipment.
- d. Reasonable evidence that the work cannot be completed for the unpaid balance of the Contract sum.
- e. 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 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. CLAIMS AND DISPUTES**

All claims, demands, disputes, controversies, and differences that arise between the parties hereto as result of or in connection with this Contract will be referred to County in writing with a request for review and response in accordance with this paragraph, which County will render in writing within a reasonable time.

Contractor will deliver written notice of each such claim, demand, dispute, controversy or difference to County within fifteen (15) days of the occurrence of the event giving rise thereto and written supporting data will be submitted to County within forty-five (45) days of such occurrence unless County specifies a different period of time in writing to Contractor. The submission to County with respect to any such claim, demand, dispute, controversy or difference will be a condition precedent to any exercise by Contractor of such rights or remedies as Contractor may otherwise have under the Bid documents or at law in respect of any such claim, demand, dispute, controversy or difference.

If either County or Contractor is dissatisfied with any decision of County and both parties agree in writing, then the dispute may be settled by 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.

#### **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".

#### **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**

#### **ARTICLE 44. BUILDER'S RISK**

Contractor will be responsible for equipment, materials, and supplies until completion of the project and acceptance by County.

**End Exhibit B – General Conditions**

**SPECIAL PROVISIONS  
FOR  
PIMA COUNTY DEPARTMENT OF TRANSPORTATION**



**Esperero Wash  
Culvert Replacement  
Pima County Project No. 4SUNEW  
July 2025**

**PIMA COUNTY BOARD OF SUPERVISORS**

**REX SCOTT**

**DR. MATT HEINZ**

**JENNIFER ALLEN**

**STEVE CHRISTY**

**ANDRES CANO**

**DISTRICT 1**

**DISTRICT 2**

**DISTRICT 3**

**DISTRICT 4**

**DISTRICT 5**



**KATHRYN SKINNER, P.E. DIRECTOR**

## PROFESSIONAL SEALS

These specifications were prepared under the direction of the following individual(s):

(a) John Oliver, PE, Civil Engineer, Psomas

Their seal(s), affixed below, attest that those portions of these specifications which relate to the drawing sheet numbers appearing under the seal were prepared under their direction.



John Oliver, PE  
Civil Design  
Drawing Pages 1-22

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## **APPENDICES**

- Appendix A – ADOA NOI (FROM PCDOT)
- Appendix B – Pima County Noise Ordinance
- Appendix C – Pima County Standard Details
- Appendix D – Geotechnical Report
- Appendix E – SWG Temp and Ultimate Facility Drawings
- Appendix F – Lumen Relocation Plans
- Appendix G – Cox Pothole and Relocation Requirements
- Appendix H – Guidelines for Handling of Desert Tortoise
- Appendix I – SWG HP Excavator Responsibilities
- Appendix J – RWRD Manhole Assessment
- Appendix K – TEP Clearance Letter and Overhead Protection Notes
- Appendix L – BESF NPPO Exhibit and Shapefiles

## **GENERAL NOTES**

### **1. Project Location**

This project is located within Sections 8 & 17, Township 13 South, Range 15 East, Gila and Salt River Meridian, Pima County, Arizona

### **2. Scope of Work**

The project consists of furnishing all labor, materials, equipment, traffic control, utility relocation and supervision necessary for construction of a 6-cell 10'x6' reinforced concrete box culvert, collector channel, drop inlet, outlet apron, erosion protection at culvert outlet and roadway embankments and pavement replacement on Sunrise Drive approximately 3700 feet east of Kolb Road.

The drainage work consists of construction of 119 feet of a six cell 10'x6' reinforced concrete box culvert to be constructed in two phases to necessitate utility relocations and continuous operation of a single lane of travel using traffic control. The culvert will have a concrete drop inlet and shotcrete collector channel on its upstream side and a concrete apron with lip at its outlet. Rock riprap will be required along downstream roadway embankment and from the end of the concrete apron to the right-of-way. Channel grading will be required in the upstream channel to tie into the collector channel and outlet grading constructed from the end of the concrete apron downstream to provide a positive flowline while avoiding disturbance of existing natural vegetation.

The roadway work consists of construction and removal of temporary access roads and paving and traffic control signs and devices and 600 feet of roadway replacement at generally existing grade.

An existing Tucson Water Reclaimed water line was not able to be located by pothole methods prior during design and is assumed to be generally located as shown on the plans based on Tucson Water As-Built plans. Based on this information the line is located well below the proposed and shall be protected in place.

Empty Cox Communication line is understood to be located on the south side of Sunrise Drive and to be removed as needed. Contractor to coordinate with Cox Communications as needed to coordinate removal.

The contractor is required to prepare and maintain a Stormwater Pollution Prevention Plan (SWPPP) for each phase of the project.

### **3. Contract Time**

The work specified shall be completed within 130 working days.

### **4. Maintenance & Protection of Traffic**

The contractor shall be responsible for all construction zone traffic control and shall provide a traffic control plan in accordance with Section 701 of the Standard Specifications and these Special Provisions.

At least 7 (seven) calendar days prior to construction; the contractor shall place advance-warning signs at locations designated by Pima County to notify motorists, pedestrians, and bicyclists of construction-related delays.

There are no right-of-way impacts.

Unless changes are approved by the Engineer, the contractor shall adhere to the following additional maintenance of traffic requirements:

- On Sunrise Drive, the contractor shall ensure that one-way traffic is maintained continuously on temporary pavement and provide continuous protected pedestrian access on at least one side of the roadway.
- The residential intersections shall not be closed to traffic without written approval from the Engineer. Requests for closures of the intersection shall be requested by the contractor to the Engineer a minimum of two weeks in advance for review and approval. Approval of closures is not guaranteed, and the contractor shall phase operations assuming that temporary closures of the intersection may not be granted.
- Roadside features that interfere with temporary grading for traffic control (i.e. existing signs) shall be temporarily removed, stored, and reset, the cost being considered incidental to maintenance of traffic.
- Traffic shall not be exposed to drop-offs greater than two (2) inches without a ramp. For drop-offs greater than this depth, the contractor shall provide a ramp at 6:1 max slope. Any required ramps shall be considered incidental to maintenance of traffic and maintained by the contractor.
- Bicycle lanes will need to be closed during construction. Temporary signage shall be erected to attempt to direct bicyclists away from the construction zone. A minimum of a graded and compacted area must still be provided to allow for pedestrians and bicyclists to walk through the construction zone. If bicyclists are to share the road during construction, appropriate signage shall be provided per the MUTCD.

The cost of maintaining traffic on the surfaces as described above shall be in accordance with Section 701, Maintenance and Protection of Traffic, of the Standard Specifications and these Special Provisions. The cost for all traffic control required to construct the project, including flagging, shall be included under Items No. 7010001, Traffic Control, except for items to be paid separately in accordance with the Special Provisions.

## **5. Permits**

Before undertaking work at any location covered by this project, the contractor shall obtain all applicable permits, including but not limited to: water quality, air quality, traffic control, street closure and right of way. The approved plan is considered the right-of-way use permit for work within unincorporated Pima County when administered or funded by Pima County. The contractor is responsible for paying all applicable fees, taxes, and other costs for all work performed on this project, and for obtaining all permits including those in other jurisdictions. Before undertaking work outside the limits of the plans, specifications and project clearances, a separate right-of-way use permit is required.

Pima County has agreed there are no jurisdictional Waters of the U.S. within the project limits. As there are no jurisdictional waters, no 404 permits from the ACOE or 401 permit with the Arizona Department of Environmental Quality (ADEQ) is required for the project.

The contractor shall file a Notice of Intent to use the statewide Construction General Permit for Discharge to Waters of the United States and a Notice of Termination when the site is stabilized with the Arizona Department of Environmental Quality (ADEQ). The contractor shall develop, maintain and implement a

Stormwater Pollution Prevention Plan under the Construction General Permit. The contractor is directed to Section 810 of these Special Provisions.

Prior to any ground disturbing activity, the contractor shall obtain an Activity Permit from the Pima County Department of Environmental Quality. The contractor shall implement the standard specifications for dust suppression.

As there are no surface waters of the U.S. within the project limits, it is not anticipated that a permit for point source discharges will be required from ADEQ.

## **6. Storm Water/Ground Water Management**

It is the contractor's responsibility to allow for any subsurface ground water and storm water runoff at the time of project construction. The contractor shall not divert or impound water in such a manner as to flood adjacent homes, facilities, or roadways. No additional compensation shall be provided for dewatering or diversion structures required to construct or protect the work. The contractor shall post the Arizona Pollutant Discharge Elimination System (AZPDES) project number at the project ingress and egress points before ground disturbance occurs.

The contractor's attention is also directed to Section 810 of these Special Provisions regarding the requirements for temporary and permanent erosion control. The Stormwater Pollution Prevention Plan developed by the contractor shall be submitted to and remain the property of Pima County DOT and will be returned to Pima County DOT at final acceptance.

## **7. Construction Survey and Layout**

Construction survey and layout will be provided by the contractor for all improvements. See Section 925 of these Special Provisions.

## **8. Existing Vegetation**

The removal, salvage, or protection of vegetation shall be in accordance with the details shown on the Project Plans. Existing vegetation on this project shall not be disturbed beyond those limits actually needed for construction purposes. Those items unnecessarily damaged shall be repaired or replaced at the contractor's expense.

Existing or relocated vegetation which is identified on the project plans as to be preserved in place on this project shall be protected in place with fencing installed at the drip-line of the tree canopy per Section 201. Preservation fencing shall be installed prior to project clearing. This protected vegetation and vegetation beyond the project impact limits shall not be disturbed. Those items in these areas which are damaged shall be repaired, remedied or replaced at the contractor's expense.

In some circumstances, vegetation from adjacent properties may obstruct construction, with branches or other plant parts leaning over into the right of way. This vegetation shall be managed per Section 201-3.05.

## **9. Not Used**

## **10. Specifications and Details**

The work embraced herein shall be performed in accordance with the requirements of the following separate documents:

Pima County, (PC), Standard Details for Public Improvements. Refer to Appendix C.

Pima Association of Governments (PAG), Standard Specifications for Public Improvements, 2015 Edition, Volume 1, <http://apps.pagnet.org/standardspecifications>

Pima Association of Governments (PAG), Standard Details for Public Improvements, 2015 Edition, Volume 2, <http://apps.pagnet.org/standardspecifications>

Pima County/City of Tucson Signing and Pavement Marking Manual, Latest Edition  
<https://content.civicplus.com/api/assets/c8d13f95-b46c-446e-97fe-8e5127201983>

Tucson Water Standard Specification and Details, 2017 Edition (Section 510 Items)  
[https://www.tucsonaz.gov/files/sharedassets/public/v1/city-services/tucson-water/documents/tucson\\_water\\_standard\\_specifications\\_and\\_details\\_manual\\_complete\\_dec\\_2017\\_v1.pdf](https://www.tucsonaz.gov/files/sharedassets/public/v1/city-services/tucson-water/documents/tucson_water_standard_specifications_and_details_manual_complete_dec_2017_v1.pdf)

Pima County Regional Wastewater Reclamation Department Standard Specifications and Details for Construction for Public Sanitary Sewers, 2012  
<https://content.civicplus.com/api/assets/82db6816-17b9-4383-8c2e-591b24dd23f4>

U.S. Department of Transportation, Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways, December 2009, and amendments  
[http://mutcd.fhwa.dot.gov/kno\\_2009r1r2.htm](http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm)

Arizona Supplement to the Manual on Uniform Traffic Control Devices (MUTCD), 2009 edition (January 2012), <http://www.azdot.gov/Highways/Traffic/Standards.asp>

## **11. Project Limits**

The contractor shall perform all work within the public right-of-way and existing drainage easements. The contractor shall assume all responsibility and liability for any encroachment upon private property. The use of private property for construction yards will be allowed only if zoning requirements allows its use for this purpose. See Section 106-9 for further details regarding temporary construction yards.

## **12. Noxious and Invasive Vegetation**

Prior to the start of construction and before ground disturbing or earthmoving activities occur, the contractor shall treat noxious and invasive vegetation, particularly buffelgrass, in accordance with Section 201-3.04. Invasive species eradication shall continue throughout the entire project from clearing and grubbing through final project acceptance.

## **13. Disposal of Materials**

All construction debris, rubble, and other materials that are not recycled on the project, sent to a recycling facility, or taken by the contractor, shall be disposed of by the contractor at a waste disposal facility. Costs associated with the disposal of these materials shall be incidental to the related items of work. Fees associated with the disposal of these materials shall be paid by the contractor.

#### **14. Contract Administration**

Prior to submittal of contract administration documents, examples of which are listed below, the contractor shall review all documentation for accuracy and compliance with the contract. Any variance from the plans and specifications shall be clearly noted and is subject to approval by the Engineer. A contractor's transmittal letter shall accompany all submittals and shall include certification as to accuracy and compliance with the plans and specifications.

Contract administration submittals shall include, but are not limited to, the following examples: escrow agreements; subcontracts; purchase orders; certified payrolls for contractor and subcontractors; force account billings; equal employment opportunity reports for contractor and subcontractors; trainee preconstruction information; proof of apprenticeship; weekly individual training reports; rental equipment invoices; material invoices showing all unit prices; pay estimates; affidavit of certification of payments to small business enterprise firms; requested lien releases; and consent from surety.

Monthly meetings may be scheduled with the contractor, at the discretion of the Engineer, to discuss and resolve any problems associated with contract administration submittals. The monthly meetings shall be held at the Field Engineering Building at 1313 South Mission Road, or at another location near the project site at the request of the Contractor upon approval by the Engineer. Meetings shall continue on an accelerated basis after project construction completion until all contract administration issues are resolved.

Submittals that are not certified, or are incomplete, will be returned to the contractor unprocessed for proper resubmittal and may result in payment delays, or partial payment, as deemed appropriate by the Engineer.

#### **15. Work Hours/Noise Abatement Ordinance**

Construction noise abatement and start/stop times shall be in accordance with Pima County Ordinance No. 1999-61: *Regulating the Excessive, Unnecessary and Annoying Noises in Pima County*. A copy of the Noise Ordinance is included in the Appendix B.

#### **16. Shoring and Bracing**

There will be no separate payment for shoring and bracing, unless shown in the bidding schedule.

#### **17. Archeological Features**

In the event that human remains, including human skeletal remains, cremations, and/or ceremonial objects and funerary objects are found during excavation or construction in any part of the project area, ground disturbing activities must cease in the immediate vicinity of the discovery. Should artifacts or human remains be uncovered, the area will be taped off and further investigation by Pima County will follow. State laws ARS 41-865 and ARS 41-844 require that the Arizona State Museum (520-621-4795) be notified of the discovery by the contractor so that cultural groups who claim cultural or religious affinity

to them can make appropriate arrangements for the repatriation and reburial of the remains. The human remains will be removed from the site by a professional archaeologist pending consultation and review by the Arizona State Museum and the concerned cultural groups.

The work is subject to delay in that location pursuant to ARS 41-844 while an examination takes place.

## **18. Hazardous Materials**

If suspected hazardous materials are encountered during construction, work shall cease at the location and the Engineer shall be contacted at (520) 724-2814 to arrange for proper assessment, treatment, or disposal of those materials. The area will be taped off, and further investigation and clean up by Pima County will follow. No adjustments will be made due to work shut down. If potentially hazardous or contaminated materials are encountered, the contractor shall stop work and remove all workers within the contaminated area. For life threatening situations, follow the procedures in the Safety Plan, as specified in Subsection 107-7.02.

## **19. Contractor's Staging or Storage Yard**

The Contractor may utilize any area within the designated project limits for a staging area or storage yard. The contractor will need to provide a SWPPP to cover the project and onsite staging area and include the acreage of disturbance on their NOI. The securing of any staging or storage areas outside of the project limits will be at the responsibility and at the expense of the Contractor. Refer to Section 106-9 of the Standard Specifications for offsite staging outside of the right-of-way. Contractor staging areas, when located outside the project clearing limits, shall be stabilized at the expense of the Contractor and approved by the Engineer.

## **20. Construction Water/Dust Control**

The contractor shall provide potable water for use in construction, compaction and dust control. Reclaimed water may only be used if there is no discharge of this water to surface waters of the U.S. and the reclaimed water remains on-site. The contractor shall notify the Arizona Department of Environmental Quality (ADEQ) for all discharges of reclaimed water to surface waters of the U.S. or off-site.

## **21. Utility Relocation**

Utility relocation work not shown on the project plans or noted in the Special Provisions will be the responsibility of the appropriate utility. The contractor is hereby notified that the utility companies, in conjunction with the contract work, will perform utility relocation work. The contractor shall make every effort to cooperate fully with each utility company and acknowledges and agrees that delays to his operations may necessarily occur. Due to these delays that are anticipated by the utility companies, the Engineer shall consider requests by the contractor for contract time extensions. The contractor is also referred to Section 105-6, Cooperation With Utility Companies.

The contractor shall consider the extent of utility work in preparing the contract bid and project schedule. It will be the contractor's responsibility, prior to bidding, to contact the appropriate utilities to obtain additional information such as relocation as-builts, relocation sequencing, utility windows, construction time frames, and identification of areas requiring subgrade preparation by the contractor prior to the start of utility work.

## **22. Erosion Control Measures**

The contractor's attention is directed to the requirements of Section 810 of the specifications and the following:

The contractor shall phase or sequence construction activities to minimize the area of disturbance at any one time. Sediment and erosion control measures shall be installed before upgradient land is disturbed. Once an area of the project has been cleared, the contractor is responsible for documenting in the SWPPP book all erosion control measure activities by the contractor or others in the area that has been cleared.

The contractor shall remove, dispose or realign temporary erosion control measures as directed by the Engineer. Subsequent removal, disposal or realignment of temporary erosion control measures will be incidental to the respective work item and no additional payment will be made.

## **23. Biological Requirements**

The contractor shall inspect under and around construction equipment for desert tortoise prior to start up each day. If a desert tortoise is found within the project area, the contractor shall contact the Engineer and the guidelines found in Appendix H of these Special Provisions shall be followed.

## **24. Contractor's Environmental Requirements and Mitigation Measures**

If vegetation clearing will occur during the migratory bird breeding season (March 1 to September 30), the contractor shall avoid any active bird nests. If active nests cannot be avoided, the contractor shall notify the Engineer to evaluate the situation. During the nonbreeding season (October 1 to February 28), vegetation removal is not subject to this restriction.

To prevent the introduction of invasive species seeds, all earthmoving and hauling equipment shall be washed prior to entering the construction site and the contractor shall inspect all construction equipment and remove all attached debris, including plant parts, soil, and mud, prior to the equipment entering the construction site.

To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction and hauling equipment and remove all debris, including plant parts, soil, and mud, prior to leaving the construction site.

If a cactus ferruginous pygmy owl is observed within the project limits, the contractor shall notify the Pima County Department of Transportation project manager and the Pima County Department of Environmental Quality environmental planning and compliance specialist to evaluate the situation.

If any Sonoran Desert tortoises are encountered during construction, the contractor shall adhere to the attached Arizona Game and Fish Department *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects*.

The contractor shall report encounters with any Sonoran Desert tortoise (live, injured, or dead) during construction to the Pima County Department of Transportation project manager (520-724-6710).



## **25. Quality Assurance and Quality Control**

The contractor is solely responsible for quality control measures necessary to provide acceptable quality in the production, handling, and placement of all materials. The contractor's attention is directed to Special Provision 106-4 of the contract documents for quality control requirements. No payment will be made for such measures the cost being considered as included in contract items.

The agency (Pima County) is responsible for quality assurance testing.

## **26. Record Drawings**

The contractor is responsible for keeping a set of record project plans on site for annotation of changes in detail, location, and depth of all items constructed which vary from the contract documents that are made during the construction. When the project includes utility potholing under either bid item 5100290, 5150005 or 5150007 such potholes shall be identified on the record drawings. The record project plans shall include any revised or added plan sheets.

Upon completion of the work, the contractor shall transfer the annotated information to a clean set of the project plans. The dimensions and notations provided on the record project plans shall be complete, clear, and legible.

No later than 60 calendar days after acceptance of the project or as directed by the Engineer, the contractor shall submit the dated record set of project plans along with a transmittal letter to the Engineer for review and acceptance.

The cost of furnishing record drawings shall be considered as included in the contract unit price for one or more of the contract items.

## **27. Overexcavation**

Per the project Geotechnical Engineering Report in Appendix D, 12" over overexcavation, removal and replacement with structural fill is required under any structures. This includes the culvert, outlet apron, drop inlet and shotcrete channel. No separate payment shall be made for overexcavation and replacement with structural fill. The costs shall be included in the overall cost of the related structures.

(101ABREV, 6/5/14)

## **SECTION 101 - ABBREVIATIONS AND DEFINITIONS**

**101-3 TERMS** of the Standard Specifications are revised as follows:

**Contract Time** - Change to read "**Construction Time**". This change is applicable when the term "Contract Time" is used in all sections throughout the Standard Specifications.

**Supplemental Agreement** - Add the following: "All supplemental agreements will be issued in compliance with Section 11.16.010 of the Pima County Procurement Code."

(105REVIEW\_OF\_WORKSITE, 02-18-16)

## **SECTION 105 – CONTROL OF WORK**

**105-22 REVIEW OF WORKSITE** is added to the Standard Specifications as follows:

**(A) Incident.** The contractor shall inspect the worksite at least fourteen (14) calendar days prior to the scheduled start of a construction activity for the purpose of identifying any aerial, surface, and underground utility facility or utility activity that will impact (i.e. interfere, alter, or conflict) the work. Each impact hereinafter referred to as an “Incident” whether discovered prior to or during a construction activity shall be addressed in accordance with the procedures and requirements of this Section.

Inspection of the work site shall include, but not be limited to, the collection of field data on the horizontal and vertical location of underground facilities through ground markings (A.R.S. §§ 40-360.22), exposing of underground facilities, and evaluating field data against the project plans and construction methods for impacts.

**(B) Reporting.** The contractor shall fill out an incident report form and assign a sequential incident number. The report form may be obtained from the Agency’s website or Engineer.

The report shall include the name of the utility facility owner (if not known, identify as “unknown”), incident location (station/offset/elevation), date and time discovered, color photographs (preferably date and time stamped), description of incident including the impact on the performance of work and type of facility discovered (type of material, size, quantity, identifying marks).

**(C) Notification.** The contractor shall notify the Engineer, utility facility owner, and Agency Right-of-way/Utility Section of an Incident no less than fourteen (14) calendar days prior to the scheduled start date of the construction activity unless the Incident was discovered during the construction activity in which case notice shall be given immediately. Notice shall be deemed to have been duly given when the incident report (a) has been delivered in person or (b) upon confirmation of receipt when transmitted by facsimile or email.

If the utility facility owner is not known, the contractor shall contact the state one call notification center (Arizona Blue Stake, Inc.) for assistance in identifying the owner.

**(D) Resolution/Mitigation.** The Agency, upon receipt of notice, shall take the necessary action to address the incident by removal or relocation of the affected facility, altering the work, or stoppage of the activity.

The Agency shall allow the utility facility owner to resolve the incident within a time frame specified by the Engineer. If the utility facility owner is unable to perform, the Agency may, at its option, authorize the contractor to perform work to resolve or mitigate the incident by force account in accordance with the provisions of subsection 109-5(B).

**(E) Submission of Additional Compensation.** In the event that the contractor perceives that additional compensation has occurred as a result of an incident, the contractor shall immediately bring such matter to the attention of the Engineer for the earliest possible resolution, and the Engineer shall promptly notify the affect utility provider(s) and Agency Right-of-way/Utility Section of the request for additional compensation.

The contractor may request additional compensation by (a) filing a claim in accordance with the requirements and procedures under Subsection 105-18 or (b) if agreed to by the Engineer, submit for approval by the Engineer an itemization of additional labor, material, and equipment costs. Itemization of costs shall be documented on the incident report. The amount of payment shall be determined in accordance with the provision of subsection 109-5(B).

At the request of the Engineer, the contractor shall make available all documentation supporting the amount of additional compensation, and the Engineer shall make such documentation available to the utility provider upon request.

When quantifying additional compensation under item (b) above, the contractor shall submit to the Engineer as promptly as possible following completion and acceptance by the Agency the itemization of labor, material, and equipment, but in no event later than fourteen (14) calendar days, the contractor's incurred costs which shall be considered complete and final compensation for the incident.

Failure on the part of the contractor to adhere to the procedures and requirements of this Section will be cause for dismissal of the additional compensation request.

**(F) Incident Log and Progress Meeting.** The contractor shall maintain a utility incident log provided by the Agency. The log shall be kept current, reviewed at the weekly progress meeting, and included with the weekly construction progress meeting minutes.

(106QA/QC, 01/25/21)

## **SECTION 106 - CONTROL OF MATERIAL**

**106-4 TESTS AND ACCEPTANCE OF MATERIALS** of the Standard Specifications is revised to read:

**106-4.01 General.** All materials will be inspected, tested and approved prior to incorporation in the work. Any work in which materials not previously approved are used shall be performed at the contractor's risk and may be considered as unauthorized and unacceptable and not subject to the payment provisions of the contract.

Any laboratory performing sampling and testing for the project shall be open to unrestricted access for inspection and review by the Agency. The laboratory shall provide an adequate amount of enclosed space and be supplied with the proper equipment, facilities, and utilities so that the required testing procedures can be performed. It shall have adequate lighting, ventilation, and means of ingress and egress. The laboratory shall be equipped with heating and cooling equipment capable of maintaining an ambient air temperature of 68 to 78 degrees F. The laboratory and all equipment and facilities therein shall be kept clean and maintained in good working order.

Sampling and testing of materials shall be in accordance with the requirements of:

- The ADOT Materials Testing Manual
- The ADOT Materials Policy and Procedure Directives Manual.
- Applicable Federal, AASHTO, or ASTM specifications or test designations.
- Applicable specifications or test designations of other nationally recognize organizations.

Whenever a reference is made to an Arizona Test Method or an ADOT Materials Policy and Procedure Directive, it shall mean the test method or policy and procedure directive in effect on the bid opening date.

Unless otherwise specified, whenever a reference is made to a Federal, AASHTO, or ASTM specification or test designation, or to a specification or test designation of other nationally recognized organizations, it shall mean the specification or test designation in effect on the bid opening date.

**106-4.02 Quality Control.** The contractor is responsible for quality control measures necessary to provide acceptable quality in the production, handling, and placement of all materials. The cost of providing contractor quality control is included in Item 9240170.

**(A) General.** At the preconstruction conference, the contractor shall designate a qualified employee as Quality Control Manager to be responsible for implementing, monitoring and, as necessary, adjusting the processes to assure acceptable quality. The quality control manager shall be a full time employee of the contractor, and shall be on the project site during all construction activities. Also at the preconstruction conference, the contractor shall be prepared to discuss his understanding of the quality control responsibilities for the specified materials.

**(B) Quality Sampling and Testing Supervisor.** The contractor shall designate a Quality Sampling and Testing Supervisor(s) who is responsible to supervise the sampling and testing, and who meets the requirements given in Table 106-1 for the specific material on which sampling and testing is being performed. The Quality Sampling and Testing Supervisor(s) shall be an employee of the contractor or a consultant or a consultant engaged by the contractor, and be responsible for supervising the sampling and testing on more than one project. The Quality Sampling and Testing Supervisor(s) shall be able to be at the job site within 24 hours from any point in time.

**(C) Quality Sampling and Testing Technician.** Quality Sampling and Testing Technicians who perform the actual sampling and testing shall meet the requirements given in Table 106-2 for the specific material on which sampling and testing is being performed. Quality Sampling and Testing Technicians shall be employees of the Quality Control Laboratory and be supervised by a qualified Quality Sampling and Testing Supervisor for the specific material on which sampling and testing is being performed.

TABLE 106- 1 QUALITY SAMPLING AND TESTING SUPERVISOR REQUIREMENTS	
Soils and Aggregate	
Field	Laboratory
Arizona Technical Testing Institute (ATTI) "Field" certification plus one of (a) through (g) below.	Arizona Technical Testing Institute (ATTI) "Laboratory Soils/ Aggregate" certification plus one of (a) through (g) below.
Asphaltic Concrete	
Field	Laboratory
Arizona Technical Testing Institute (ATTI) "Field" certification plus one of (a) through (g) below.	Arizona Technical Testing Institute (ATTI) "Asphalt" certification plus one of (a) through (g) below.
Concrete	
Field	Laboratory

American Concrete Institute (ACI) "Concrete Field Testing Technician Grade I" certification plus one of (a) through (g) below.	American Concrete Institute (ACI) "Concrete Strength Testing Technician" Certification plus one of (a) through (g) below.
<p>(a) Professional Engineer, registered in the State of Arizona, with one year of highway materials sampling and testing experience acceptable to the Department.</p> <p>(b) Engineer- In- Training, certified by the State of Arizona, with two years of highway materials sampling and testing experience acceptable to the Department.</p> <p>(c) Obtained a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology, Construction, or related field acceptable to the Department; and with three years of highway materials sampling and testing experience acceptable to the Department.</p> <p>(d) Certified by the National Institute for Certification in Engineering Technologies (NICET) in the Construction Materials Testing field as an Engineering Technician (Level III) or higher in the appropriate subfield in which sampling and testing is being performed.</p> <p>(e) Certified by NICET in the Transportation Engineering Technology field as an Engineering Technician (Level III) or higher in the Highway Materials subfield.</p> <p>(f) Certified by NICET as an Engineering Technician, or higher, in Civil Engineering Technology with five years of highway materials sampling and testing experience acceptable to the Department.</p> <p>(g) An individual with eight years of highway materials sampling and testing and construction experience acceptable to the Department.</p>	

TABLE 106- 2 QUALITY SAMPLING AND TESTING TECHNICIAN REQUIREMENTS	
Soils and Aggregate	
Field	Laboratory
Arizona Technical Testing Institute (ATTI) "Field" certification.	Arizona Technical Testing Institute (ATTI) "Laboratory Soils/ Aggregate" certification.
Asphaltic Concrete	
Field	Laboratory
Arizona Technical Testing Institute (ATTI) "Field" certification.	Arizona Technical Testing Institute (ATTI) "Asphalt" certification.
Concrete	
Field	Laboratory
American Concrete Institute (ACI) "Concrete Field Testing Technician Grade I" certification.	American Concrete Institute (ACI) "Concrete Strength Testing Technician" Certification.

**106-4.03 Quality Assurance and Quality Control Laboratory.** All field and laboratory sampling and testing shall be performed by a laboratory or laboratories on the ADOT Directory of Approved Materials Testing Laboratories. When field sampling and testing procedures are performed, the appropriate valid Arizona Technical Testing Institute (ATTI) and/or American Concrete Institute (ACI) certification(s) are required.

**106-4.04 Quality Assurance Testing.** Compliance with specifications is determined by assurance sampling and testing. All materials shall be randomly sampled at prescribed frequencies as given in the Pima County Department of Transportation Sampling Guide Schedule. Unless otherwise indicated in the Special Provisions, Quality Assurance is the responsibility of the contractor at no additional cost to the agency. On *Pima County Capital Improvement Projects*, materials shall be sampled and tested by a qualified representative of the Agency, at the expense of the Agency, unless otherwise specified in the contract documents. Testing shall be in accordance with the Pima County Department of Transportation Sampling Guide Schedule, a copy of which can be found on the Pima County Department of Transportation web-site; Roadway Design Standards and Manuals.

**106-4.05 Records.** The quality control and the quality assurance laboratory shall maintain all sampling and testing records and supporting documentation used in the preparation of Weekly Sampling and Testing Reports. Upon request, the contractor shall make sampling and testing records and supporting documentation available to the Engineer for review and copying as desired.

Linear charts shall be maintained by the contractor and posted in a location satisfactory to the Engineer and shall be kept up to date at all times. As a minimum, the quality control charts shall identify the project number, the contract item number, the test number, each test parameter, the upper and/ or lower specification limit applicable to each test parameter, and the contractor's test results. The contractor shall use the charts as part of a process control system for identifying production and equipment problems and for identifying potential pay factor reductions before they occur.

**106-4.06 Weekly Reports.** Weekly Sampling and Testing Reports are to be submitted to the Engineer. The weekly reports shall state the types of work, such as earthwork, Portland cement concrete, or asphaltic concrete, which have been performed during the report period. The report shall also include the process control measures taken to assure quality. The weekly report shall provide sample identification information for materials tested during the report period, including sample number, date sampled, sample location, person obtaining sample, and original source of material. The report shall also provide the results for all required tests and any retests, corrective actions, and other relevant information. Although handwritten documentation can be included, the report's narrative, sample identification information, results for tests and any retests, and corrective actions shall be typed to ensure the Agency can make clear reproductions of the documents.

The report period shall end at midnight of each Friday, and the report shall be submitted to the Engineer no later than 5:00 p.m. of the following Wednesday unless the Engineer and contractor agree upon a different day and time.

## **SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

**107-21 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES** of the Standard Specifications is modified to add:

The following utilities may have facilities in the project area:

<b>Owner</b>	<b>Contact</b>	<b>Phone Number</b>
Cox Communications – Tucson	Julia Bisson	602-486-1355
Lumen formerly CTLQL – CenturyLink	Chad Dalton	520-891-1726

Pima County Wastewater Management	Denice Elie	520-724-6369
Southwest Gas – Tucson	Aridai Rosas	520-667-5442
Tucson Electric Power	Miranda Jackson	520-884-3989
Tucson Water	Ali Fermawi	520-460-6489

The existence and locations of underground utilities indicated on the plans are not guaranteed and shall be investigated and verified in the field by the contractor before starting work. Excavations in the vicinity of existing structures and utilities shall be carefully done. At least two full working days prior to commencing excavation, the contractor shall 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.

It shall be the responsibility of the contractor to contact the utility companies in order for them to determine if there is a need to brace, shore, support and protect their facilities during the construction of the project.

Utility locations shown on the project plans are approximate, and all utilities are not necessarily shown. The possibility of conflicts with existing utilities exists. If conflicting utilities interfere with the contractor's normal progress towards completion of the project, the Pima County Regional Flood Control District may, at its option, authorize the contractor to relocate said conflicting utilities by force account in accordance with the provisions of subsection 109-5.02 of the Standard Specifications and these Special Provisions.

Cox has existing telecom facilities potentially in conflict with the proposed improvements on the south side of the roadway. Contractor is to locate existing communication line during construction and Cox to relocate if necessary. See Appendix G for Cox line location and relocation requirements.

Lumen (CenturyLink) has existing telecom facilities within the project limits that they have identified to be in conflict with culvert drop inlet. Lumen has indicated this facility will be relocated prior to construction of the project by lowering the existing lines a minimum of two feet below the drop inlet structure.

Pima County Wastewater has facilities located within the project vicinity. Contractor shall protect facilities in place accordance and notify Pima County Wastewater in accordance with the Appendix J documents.

Southwest gas has an existing 6" high pressure main in conflict with the project. Southwest has previously installed a temporary 2" line and will abandon the existing 6" high pressure line to accommodate Phase I of the project. The temporary line will need to be protected in place during construction due to its location within the temporary roadway fill slope. SW Gas will install its relocated 6" High Pressure Line above the Phase I box culvert prior to Phase II construction and abandon the 2" temporary line. Contractor will be responsible for verification of the temporary line location and coordination with Southwest Gas for timing and construction of the replacement 6" line. Contractor will remove and dispose of 2" temporary line and abandoned 6" high pressure line under Item 5160300.

Tucson Electric Power has overhead lines within the project limits on the north side of the road. Existing poles are to be protected in place and a minimum 10 feet of clearance provided between active lines and construction equipment. TEP is available and will provide overhead line protection per Appendix K documents at the Contractor's expense. The cost for overhead protection will be considered incidental to

the project.

Tucson water has an existing 12" CA, 24" DIP line with the project vicinity and a 12" PVC or DIP Reclaimed Line. The 12" CA line will be relocated above the box culvert and requires insert-a-valve installation prior shutdown of the existing 12" line to provide uninterrupted service. Locating the Reclaimed line was not feasible during design pothole efforts due to soil conditions and or depth and is assumed to be located outside of the proposed improvement limits and may remain, protected in place. Contractor will coordinate all work related to Tucson Water facilities to Tucson Water and the Engineer. The 24" potable waterline is shown to be above the 12" reclaimed line and close horizontally on Tucson Water as built plans. The reclaimed line serves two customers; Arizona National Golf Course and Sabino Highschool, and may not be shut down for more than 72 hours. Contractor will be required to coordinate any necessary shutdown of the 12" reclaimed line with the two users.

## **SECTION 108 - PROSECUTION AND PROGRESS**

### **108-3 PRECONSTRUCTION CONFERENCE**

**108-3.01 Schedule** of the Standard Specifications is modified to add:

The Contractor shall be responsible for planning, scheduling and reporting the progress of the work to ensure timely completion of the contract.

The Contractor shall submit a schedule in two parts, in accordance with the following:

- (A) Part I shall be a preliminary schedule and shall be submitted at the Preconstruction Conference for the Engineer's review and concurrence. It shall be a schematic (arrow) diagram or precedence diagram, showing the work stages and operations for all activities required by the contract. The diagram shall be in sufficient detail to allow day-to-day monitoring of the contractor's operations. Along with the preliminary schedule, the contractor shall include its calendar for the contract period which shall show workdays, calendar days and dates. The diagram shall include four to 10 milestone events as identified by the contractor and accepted by the Engineer.
- (B) Part II shall be submitted for the Engineer's review and concurrence within 15 calendar days after Part I has been accepted by the Engineer. This second schedule shall include a complete critical path schedule to cover the Contractor's anticipated time schedule. The schedule shall include a detailed network diagram acceptable to the Engineer with the following features:
  - (1) It shall be time-scaled in calendar days. All activities shall be plotted on their early start and finish dates. Unless approved by the Engineer, activities shall not exceed 15 working days in length. The plot shall have a size and scale acceptable to the Engineer.
  - (2) It shall show the order and interdependence of activities and the sequence of work as reflected in the Schedule Report specified in Subsection 108.03(B)(7) below. The critical activities shall be prominently distinguished on all reports by the use of color or other means acceptable to the Engineer.



- (3) It shall include, in addition to all construction activities, such tasks as mobilization, demobilization, submittal and approval of samples of materials and shop drawings, procurement of significant materials and equipment, fabrication of special items, installation and testing and interfacing with other projects.
- (4) The activities shall be sufficiently detailed so that a reviewer can follow the sequence. For example, the activities shall show forming, reinforcing, and placement of concrete on the calendar days they are scheduled to be performed.
- (5) The diagram shall show for each activity the preceding and following event numbers or activity numbers, the activity description, the total float, and the duration of the activity in working days.
- (6) The activities shall be organized and described so as to conform to the contract bid items. Activity descriptions shall be unique and specific with respect to the type of work and location.
- (7) The diagram shall be accompanied by a Schedule Report of the network with a tabulation of the following data for each activity:

- (a) Preceding and following event numbers or activity number
- (b) Activity description
- (c) Activity duration
- (d) Earliest start date
- (e) Earliest finish date
- (f) Latest start date
- (g) Latest finish date
- (h) Total float times
- (i) Responsibility for activity - e.g., Contractor, subcontractor, supplier, etc.
- (j) Resource loading for each activity listing personnel, equipment and anticipated revenue.

(C) The Contractor shall make updated schedules and reports under the following circumstances or as requested:

- (1) The Contractor shall submit a monthly report of actual construction progress by the 10th working day of each calendar month by updating its schedule report to reflect all complete and in progress activities on the project. All negative float shall be explained in detail. If, in the opinion of the Engineer, the detailed network diagram requires revision, either wholly or in part, the Engineer shall so direct the Contractor and the Contractor shall submit such revision within 10 calendar days.

- (2) The monthly report also shall show the activities or portion of activities completed during the one-month reporting period and the portion completed on the project to date, showing actual start and finish dates plus all future activities.
- (3) The monthly report shall state the percentage of revenue actually earned as of the report date.
- (4) The monthly report shall be accompanied by a narrative description of job progress, problem areas, current and anticipated delaying factors and their expected effect, and any corrective actions proposed or taken. The narrative description shall also clearly identify any departures from earlier schedules, including, but not limited to, changes in logical sequence or logical ties, constraints, changes in activity durations and changes, additions or deletions in event numbers, activity numbers and activity descriptions. The reasons for each departure shall be included in the narrative description. Any additions or deletions of milestone events must be approved by the Engineer.
- (5) The monthly report shall include a summary of all activities sequenced by the total float from least to greatest float and ordered by early start.
- (6) The required schedules and report shall be submitted to the Engineer as follows:
  - (a) Part I (Preliminary Schedule): seven originals
  - (b) Part II (Detail Network Diagram): seven originals
  - (c) Revisions to Part II: seven originals
  - (d) Monthly Report: three originals plus three copies of the narrative
- (7) The monthly report shall include a detailed predecessor/successor analysis showing the predecessors, successors, logic ties, and constraints for each activity scheduled. These activities shall be ordered by event number or activity number from least to greatest.
- (8) All Extra Work shall be shown on an updated Schedule.

The automated system software shall be Microsoft Project or approved equal.

No measurement or direct payment will be made for Contractor costs relating to preparation and submission of schedules and reports and revisions thereto, the cost being considered as included in the prices paid for contract items.

Float time is not for the exclusive use or benefit of either the Department or the Contractor. Extension of time for performance may be granted to the extent that equitable time adjustment for the activity affected exceeds the total float or where otherwise justified, impact on the contract completion can be shown.

Concurrence of the Contractor's schedules by the Engineer is not to be construed as relieving the Contractor of its obligation to complete the work within the contract time; or as granting, rejecting, or in any other way acting on the Contractor's requests for adjustments to the date for completing contract work,

or claims for additional compensation. Such requests shall be processed in strict compliance with other relevant provisions of the contract.

The Contractor shall participate in a review and evaluation of the proposed Part I, Preliminary Schedule, and Part II, Schedule, and monthly updated schedule by the Engineer. Any revisions necessary as a result of their review shall be submitted for concurrence to the Engineer within 10 calendar days after the review. The accepted Part II, Schedule, shall then be used by the Contractor for planning, organizing, executing, and directing the work and for reporting progress of work accomplished. The Contractor shall furnish to the Engineer for project use a copy of the Part II, Schedule, and a monthly updated schedule on a compatible computer disk of a size and configuration designated by the Engineer.

The Engineer shall complete review of Part I, Preliminary Schedule, and Part II, Schedule, within 15 calendar days of the receipt of each. No monthly progress payment will be made until Part I has been accepted. Within the next 60 calendar days after concurrence with Part I, Part II will be submitted and reviewed. If Part II has not been accepted within these 60 calendar days, progress payment will be withheld until Part II has been concurred with by the Engineer.

Failure of the Contractor to comply with the monthly updated Schedule requirements specified herein will be grounds for the Engineer to withhold an additional 10 percent of the monthly progress payments, in addition to the normal retention, until the Contractor is in compliance. Additional money withheld will be paid upon compliance to the Contractor in the next scheduled monthly estimate. If the monthly updated schedule is not received by the 10th working day of each month, but received prior to the 25th of the month, five percent will be withheld until the following estimate.

(109ALLOWANCE, 04/11/17)

## **SECTION 109 - MEASUREMENT AND PAYMENT**

**109-1 MEASUREMENT OF QUANTITIES** of the Standard Specifications is modified to add:

The term "Dollar" or its abbreviation "USD" (US Dollar) when included in the bidding schedule as a unit of measurement, shall mean an allowance for the payment of the work in conformance with the provisions of Subsection 109-5.01.

(109FUEL\_ADJUST, 7/08/22)

## **SECTION 109 - MEASUREMENT AND PAYMENT**

**109-13 COMPENSATION FOR FUEL ADJUSTMENT** is hereby added to the Standard Specifications:

### **109-13.01 Fuel Cost Adjustment.**

**(A) General.** The Agency will adjust monthly progress payments up or down as appropriate for cost fluctuations in diesel fuel as determined in accordance with these Special Provisions.

A fuel cost adjustment will be made when fluctuations in the price of diesel fuel, in excess of 15 percent,

occur throughout this contract. The Agency will not provide such adjustments for fluctuations in the price of diesel fuel of 15 percent or less.

No adjustments will be made for fluctuations in the price of fuels other than diesel.

**(B) Determination of Compensation.** The base index price of fuel will be determined by the Agency from the selling prices of diesel fuel published by OPIS (Oil Price Information Service). The base index price to be used will be the price for Diesel fuel No. 2, Low Sulfur, PAD 5, City of Tucson. The reported average value for the Tucson area will be used.

The base index price for each month will be the arithmetic average of the selling price for diesel fuel, as specified above, shown in the last four reports received prior to the last Wednesday of the month.

This price will be effective as of the last Wednesday of each month, and will be posted on the Arizona Department of Transportation (ADOT) website, at <http://www.azdot.gov/Highways/cns/bitmat.asp>, on or shortly after the last Wednesday of the month.

This price may also be obtained from Contracts and Specifications Services at (602) 712 - 7221.

This price will be deemed the "initial cost" for diesel fuel on projects for which bids are opened during the following month.

The current index price for diesel fuel in subsequent months will be the base index price, determined as specified above, for the current month. The amount of adjustment per gallon will be the net difference between the "initial cost," adjusted by 15 percent, and the current index price. The monthly adjustment will be determined by the Engineer and included in the payment estimate as a fuel adjustment. For fluctuations in excess of 15 percent, fuel cost adjustments will only be made for current price index increases greater than 1.15 times the "initial cost" or for decreases less than 0.85 times the "initial cost." No calculation will be made for fluctuations in the current index price of 15 percent or less when compared to the "initial cost."

The number of gallons of diesel fuel used per month will be considered to equal 1.5 percent of the dollar amount of work reported by the contractor for each month. Such dollar amount will not include incentives earned by the contractor for pavement smoothness, thickness, or strength for Portland cement concrete pavements; for pavement smoothness or quality lots for asphaltic concrete pavements; for any other revenue derived from quality incentives; or for revenue accrued in the previous month for bituminous material cost fluctuations or diesel fuel price adjustments.

A monthly adjustment, if applicable, will be made on this quantity, as shown below:

$$S = \frac{0.015(Q)}{IC} \times (CP - AC)$$

Where:

S = Monetary amount of the adjustment (plus or minus) in dollars

CP = Current index price in dollars per gallon

IC = "Initial cost" as determined above, dollars per gallon

AC = Adjusted "initial cost" (1.15 or 0.85 times IC) in dollars per gallon

Q = Dollar amount of work completed for the month

If adjustments are made in the contract quantities, the contractor shall accept any fuel adjustment as full compensation for increases or decreases in the price of fuel regardless of the amounts of overrun or underrun.

The value calculated above (plus or minus) will be adjusted to include sales tax and other taxes as applicable.

No additional compensation will be made for any additional charges, costs, expenses, etc., which the contractor may have incurred since the time of bidding and which may be the result of any fluctuation in the base index price of diesel fuel.

No adjustments will be made for work performed after Substantial Completion has been achieved, as defined in Subsection 105-17, and for work performed beyond the contract time.

The need for application of the adjustments herein to extra work will be determined by the Engineer on an individual basis and, if appropriate, will be specified on the work order.

**(C) Payment.** Price adjustment will be shown on the monthly progress estimate, but will not be included in the total cost of work for determination of progress or for extension of contract time.

Fuel adjustment compensation (*S*) will be paid for at the contract unit price each for each dollar of compensation determined above, rounded to the nearest dollar, and will be paid for under Bid Item 1090010 - Fuel Adjustment Allowance.

(110MATERIAL\_SPREAD, 01/19/18)

## **SECTION 110 – CORRECTIVE REQUIREMENTS FOR DEFICIENCIES**

**SECTION 110-2 ASPHALTIC CONCRETE** of the Standard Specifications is revised to add:

**110-2.05 Material Spread.** A spread lot shall be considered to be one-half shift of production. The contractor shall collect all scale tickets and record information pertaining to each spread lot on forms provided by the Engineer. Material spread information shall include the project number, date and period of time that each spread lot was placed, the spread lot number, beginning and ending station, the plans thickness, and tons placed in each lot. Completed spread lot forms shall be signed by the contractor and given to the Engineer at the end of each shift.

The Engineer, at his sole discretion, will determine areas of mainline and miscellaneous paving to be included in each spread lot and calculate the quantity of asphaltic concrete required in each spread lot using the mix design bulk density. The calculated quantity required in each spread lot will be compared to the actual quantity placed.

When the calculated quantity of asphaltic concrete varies from the actual quantity of asphaltic concrete placed, payment for the asphaltic concrete quantities will be reduced in accordance with Table 110-6 and 110-7.

The contractor will be reimbursed \$0.50/ton to offset the expense for collecting scale tickets and recording spread information when the actual quantity is within the accepted range identified in Table 110-6 and 110-7. Any other expense for material spread is considered included in the respective bid items.

No expense will be reimbursed for material spread for areas determined to be in penalty or considered rejected or in instances where material spread information is not required by the Engineer.

**(A) Mainline Paving Areas.** When the actual quantity in a lot is found to vary between -2.1 and -10.0 percent of the calculated quantity, pay factors will be determined in accordance with Table 110-6.

When the actual quantity is found to vary by more than +5.0 percent of the calculated quantity no payment will be made for that quantity which exceeds the +5.0 percent limit.

**Table 110-6**  
**ASPHALTIC CONCRETE (MAINLINE PAVING)**  
**MATERIAL SPREAD QUANTITY DISCREPANCY**  
**CONTRACT UNIT PRICE REDUCTION PAY FACTORS**

<b>Material Spread Variance</b>	<b>Contract Unit Price Reduction Pay Factor <sup>(1)</sup> (Dollars per Ton)</b>
-2.0 to +5.0% (Acceptable)	+\$0.50/ton
-2.1 to -5.0%	-\$0.50/ton
-5.1 to -8.0%	-\$1.00/ton
-8.1 to -10.0%	-\$2.00/ton
More than -10.0%	Reject
(1) Payment shall be computed by subtracting or adding the applicable Unit Price Reduction Pay Factor from the contract unit price for the asphaltic concrete and applying the adjusted price to the quantity of asphaltic concrete for the applicable range of material spread variance.	
(2) The contract unit price reduction pay factor shall not apply when contract unit price reduction factors for thickness deficiencies of Subsection 110-2.01 are applied.	

**(B) Miscellaneous Paving Areas.** Miscellaneous areas may include areas such as turnouts, small tapers and pathways less than 10' wide. When the actual quantity in a lot is found to vary between -5.1 and -10.0 percent of the calculated quantity, pay factors will be determined in accordance with Table 110-7.

When the quantity is found to vary by more than +10.0 percent no payment will be made for that quantity which exceeds the +10.0 percent limit.

**Table 110-7**  
**ASPHALTIC CONCRETE (MISCELLANEOUS PAVING)**  
**MATERIAL SPREAD QUANTITY DISCREPANCY**  
**CONTRACT UNIT PRICE REDUCTION PAY FACTORS**

<b>Material Spread Variance</b>	<b>Contract Unit Price Reduction Pay Factor <sup>(1)</sup> (Dollars per Ton)</b>
-5.0 to +10.0% (Acceptable)	+\$0.50/ton
-5.1 to -8.0%	-\$1.00/ton

-8.1 to -10.0%	-\$2.00/ton
More than -10.0%	Reject
(1) Payment shall be computed by subtracting or adding the applicable Unit Price Reduction Pay Factor from the contract unit price for the asphaltic concrete and applying the adjusted price to the quantity of asphaltic concrete for the applicable range of material spread variance.	
(2) The contract unit price reduction pay factor shall not apply when contract unit price reduction factors for thickness deficiencies of Subsection 110-2.01 are applied.	

(110CONCRETE\_REDUCE, 7/27/15)

## SECTION 110 - CORRECTIVE REQUIREMENTS FOR DEFICIENCIES

### 110-3 PORTLAND CEMENT CONCRETE

**110-3.01 Class S and Class B Concrete** of the Standard Specifications is revised to read:

#### 110-3.01 Class X, Class S and Class B Concrete

**(A) Compressive Strength.** Class X, Class S and Class B Portland cement concrete will be accepted for compressive strength and paid for in accordance with Table 110-4. Concrete will be paid for by the square foot or by the cubic yard, complete in place, except that an reduction in the contract unit price, to the nearest cent, will be made for the quantity of concrete represented by 28-day compressive strength test results less than the specified requirement.

Concrete failing to meet at least 95 percent of the 28-day compressive strength specified or any concrete failing to meet the requirements of Subsection 1006-7.01 will be subject to the provisions of Subsection 1006-7.06.

Class S, Class X, or Class B Portland cement concrete which fails to achieve the required 28-day compressive strength but meets the percent of the 28-day compressive strength noted in Table 110-4 may be subject to rejection by the Engineer if it is determined that the deficient compressive strength is detrimental to the integrity of the structure.

**TABLE 110-4  
PORTLAND CEMENT CONCRETE (CLASS 'X', 'S' AND 'B')  
CONTRACT UNIT PRICE REDUCTION FACTORS  
FOR STRENGTH DEFICIENCIES**

3,000 psi and Below <sup>(1)</sup>		3,500 psi <sup>(1)</sup>		4,000 psi and Above <sup>(1)</sup>	
Percent of 28-day strength attained <sup>(2)</sup>	Percent Reduction in Contract Unit Price <sup>(3)</sup>	Percent of 28-day strength attained <sup>(2)</sup>	Percent Reduction in Contract Unit Price <sup>(3)</sup>	Percent of 28-day strength attained <sup>(2)</sup>	Percent Reduction in Contract Unit Price <sup>(3)</sup>
100 or more	0	100 or more	0	100 or more	0
97 - 99	3	98 - 99	2	99	1
94 - 96	6	96 - 97	4	98	2
91 - 93	9	94 - 95	6	97	3
88 - 90	12	92 - 93	8	96	4
85 - 87	15	90 - 91	10	95	5

< 85	30 <sup>(4)</sup>	< 90	30 <sup>(4)</sup>	< 95	30 <sup>(4)</sup>
(1) Compressive strength as shown on the project plans or specified in the Special Provisions.					
(2) To nearest one percent.					
(3) For items measured and paid for by the cubic yard, the reduction shall not exceed \$150.00 per cubic yard.					
(4) The contract unit price reduction factor applies only if the concrete represented by the test results is allowed to remain in place.					

## SECTION 201 - CLEARING & GRUBBING

**201-1 DESCRIPTION** of the Standard Specifications is modified to revise the 1<sup>st</sup> line of the 1<sup>st</sup> paragraph to read:

The work under this Section shall consist of clearing, grubbing, pruning, removing and ...

### 201-2 MATERIALS

**201-2.01 Herbicides** of the Standard Specifications is modified to add:

Herbicides proposed in the plan for use on projects adjacent to BLM and USFS lands shall be in conformance with the latest version of the following documents:

*"Final Vegetation Treatments Using Herbicides Programmatic Environmental impact Statement for BLM"* available electronically at [http://www.blm.gov/wo/st/en/prog/more/veg\\_eis.html](http://www.blm.gov/wo/st/en/prog/more/veg_eis.html);

*"Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest System Lands in Arizona"*, available electronically on the Arizona Memory Project website (Arizona State Library) at <http://azmemory.azlibrary.gov/cdm/ref/collection/feddocs/id/486>;

The environmental documents include lists of approved herbicides, mitigations and Best Management Practices.

### 201-3 CONSTRUCTION DETAILS

**201-3.01 Clearing and Grubbing** the sixth paragraph of this subsection of the Standard Specifications is revised to read:

The contractor shall carefully prune all branches of trees less than 16 feet above any part of the roadway and less than 8 feet above or within 2 horizontal feet of sidewalks, multi-use paths, traffic control cabinets and intersection site distance triangles and all branches which have been broken or injured during construction. Pruning shall be performed or directed by a certified arborist in accordance with Section 806 of the Special Provisions.

**201-3.02 Vegetation Preserved-In-Place** the fourth paragraph of this subsection of the Standard Specifications is revised to read:

The contractor will provide and install all required preservation fence material as shown on the project plans and in conformance with the requirements of the specifications and Special Provisions.



**201-3.03 Salvaged and Transplanted Vegetation** of the Standard Specifications is modified to add:

The contractor shall guarantee the survival and health of all plants salvaged and replanted as part of this contract in conformance with the requirements of Subsection 809-3.08.

**201-3.04 Noxious and Invasive Vegetation** of the Standard Specifications is modified to replace the first sentence of paragraph one with the following:

Prior to the start of construction, the contractor shall retain the services of a person, subject to the approval of the Engineer, knowledgeable in identification of noxious and invasive plant species, such as a certified arborist, biologist, horticulturist, or botanist with a degree in a plant oriented natural resource field, or a person holding a State of Arizona Office of Pest Management Applicator License in Category B3 (Right of Way and Weed Control) to survey the limits of the project for the presence of noxious or invasive vegetation list in Table 201-3.

**201-3.04 Noxious and Invasive Vegetation** of the Standard Specifications is modified to revise the 2<sup>nd</sup> paragraph to read:

Removal and treatment of noxious and invasive vegetation shall be by manual methods or, when appropriate, with the application of herbicides and shall occur prior to the start of clearing and grubbing and landscape establishment.

**201-3.04 Noxious and Invasive Vegetation** of the Standard Specifications is modified to delete the 6<sup>th</sup> and 7<sup>th</sup> paragraphs and add the following:

Areas of noxious and invasive vegetation infestation shall be mapped on a project site map or aerial photo of the project and shall be provided to the Engineer before work begins and when work is completed. This map shall be updated throughout the duration of the project and placed in an appendix in the Stormwater Pollution Prevention Plan (SWPPP). In addition, all herbicides used at the site shall be listed in Section 1.11, *Potential Sources of Pollution*, of the SWPPP.

Noxious and invasive vegetation that shall be treated include the following:

<b>Table 201-3</b>	
<b>Noxious and Invasive Vegetation</b>	
<b><u>Scientific Name</u></b>	<b><u>Common Name</u></b>
Acroptilan repens	Russian Knapweed
Alhagi maurorum	Camelthorn
Arundo donax	Giant Reed
Brassica tournefortii	Sahara Mustard
Bromus rubens	Red Brome
Bromus species	Other Brome species
Centaurea spp.	Starthistle species
Chondrilla juncea	Rush Skeletonweed
Cortaderia selloana	Pampas Grass
Cynodon dactylon	Bermudagrass
Eragrostis lehmanniana	Lehmann lovegrass
Erodium cicutarium	Redstem filaree
Hordeum murinum	Mouse Barley

Mesembryanthemum Nodiflorum	Slenderleaf Iceplant
Nicotina glauca	Tree Tobacco
Pennisetum ciliare	Buffelgrass
Pennisetum setaceum	Fountain Grass
Rhus lancea	African Sumac
Salsola species	Russian Thistle
Sorghum halepense	Johnsongrass
Sisymbrium ino	London Rocket
Sonchus asper	Spiny sowthistle
Tamarix spp.	Tamarix
Tribulus terrestris	Puncturevine

Herbicides shall not be used in washes and right-of-way dip crossings classified as waters of the United States. Only manual removal of noxious and invasive plant species shall be allowed at these locations. Noxious and invasive vegetation that are treated by herbicides can be left in place to decompose. Plants that are manually dug shall be put into large plastic bags with tie closures before removing from the project. No portion of the root ball shall be left behind. Bags shall be disposed of in a landfill. Mowing or chopping of noxious and invasive vegetation is prohibited.

Buffelgrass, fountain grass, and plants treated by chemical means must be green and actively growing for herbicides to be effective. Plants shall be sprayed when greater than 50% of the plant is green material. Only targeted plants shall be sprayed. Targeted plants shall be sprayed so that the herbicide coats all leaves but does not run off.

The contractor shall keep a record of all herbicide applications, as outlined in Arizona Administrative Code R3-8-501. Treated areas shall be recorded on the project site map or aerial photo of the project as described previously. This map shall include all areas of noxious and invasive vegetation removal, whether by manual or chemical methods.

**201-3.05 Vegetation from Private Property Obstructing Construction** is hereby added to the Standard Specifications:

Prior to the start of construction, the contractor will bring to the attention of the Engineer vegetation from private property that extends into the right of way and impacts, obstructs or interferes with the project. The Engineer will consult with the arborist (Subsection 201-3.01) to determine the appropriate mitigation: preservation, pruning, or removal.

The Engineer shall contact the Agency's Community Relations section regarding pruning and/or plant removal a minimum of four weeks in advance of the work. Community Relations shall direct property owners to prune and/or remove obstructive plant parts within two weeks of the time they are contacted. If removal and/or pruning are not provided by the property owner within the specified date, the property owner shall be advised that pruning and/or removal will be done by the Agency. No pruning or removal of plant parts from vegetation originating on private property shall be performed without proof of notification to the property owner by Community Relations.

If the Engineer determines that additional pruning and/or removal of plants is required during construction, the notification procedure described above shall be followed.

All required pruning shall be performed or directed by a certified arborist in accordance with the requirements of bid item 8061700.

**201-4 METHOD OF MEASUREMENT** of the Standard Specifications is modified to delete the 2nd and 6<sup>th</sup> paragraphs and to add the following:

No direct measurement will be made for protecting vegetation preserved-in-place, the cost of which is considered incidental to and included in the payment for the other contract items in the bidding schedule with the exception that when the bidding schedule contains specific items referencing this Section, measurement for specified items will be made by the units designated in the bidding schedule.

Eradication and control of noxious and invasive species prior to the start of landscape establishment will be measured for payment on a USD (dollar) basis.

No direct measurement for payment will be made for eradication and control of noxious and invasive species during landscape establishment.

Landscape pruning will be measured in conformance with Section 806 of the Special Provisions.

**201-5 BASIS OF PAYMENT** of the Standard Specifications is modified to add:

Payment for eradication and control of noxious and invasive plant species prior to the start of landscape establishment, measured as provided above, will be paid for using any of the methods described in Subsection 109-5.01 of the Standard Specifications and shall be full compensation for the work, complete in place.

Eradication and control of noxious and invasive species will be measured for payment on a USD (dollar) basis and paid for under bid item 2010010.

Payment for eradication and control of noxious and invasive plant species during landscape establishment will be paid for in conformance with Section 807 of the Standard Specifications and Special Provisions.

Payment for landscape pruning as specified herein and as directed by the Engineer will be paid for in conformance with Section 806 of the Special Provisions.

## **ITEM 2010006 - PRESERVATION FENCE (AGENCY DISCRETION)**

### **1. DESCRIPTION**

The work under this item consists of furnishing, installing, maintaining, and removing of preservation fencing at the discretion of the Engineer and in conformance with the details shown on the Pima County Standard Detail 120 – Preservation Fence (Type A) and/or Standard Detail 121 - Preservation Fence (Type B). The type and location of preservation fence will be determined in the field by the Engineer in coordination with the contractor. Preservation fence shall be constructed in conformance with the requirements of these specifications.

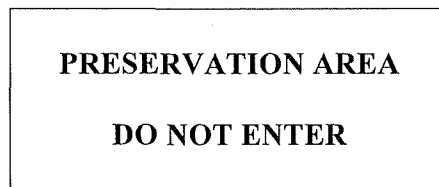
### **2. MATERIALS**

Type A preservation fence shall be 4' high and consists of 2 strands of 3/8" diameter, twisted, high visibility, yellow polypropylene rope-fence.

Type B preservation fencing shall be four feet (4') high and consist of high-visibility orange, heavy duty, UV resistant, high density polyethylene (HDPE) fabric.

Fence posts will be either wood or metal T-posts. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least six feet (6') in length with a minimum nominal 2"x2" cross section. Steel posts shall be at least six feet (6') in length, and have a minimum weight of 0.85 lb/ft of length.

Warning signs shall be made of durable, weatherproof material. Lettering shall be a minimum of 1" height, and clearly legible. The text on the signs shall be as follows:



### **3. CONSTRUCTION DETAILS**

Preservation fence shall conform to Pima County Standard Detail 120 - Preservation Fence (Type A). At the direction of the Engineer, Preservation Fence (Type B) may be used in lieu of Preservation Fence (Type A) in areas determined by the Engineer that require extra emphasis and in accordance with Section 904 of these Special Provisions.

Fence posts shall be set a maximum spacing of 20 feet or as directed by the Engineer, maintained in a vertical position, and hand set or set with a post driver. Posts shall be installed a minimum of 2 feet into the ground. If hand set, all backfill material shall be thoroughly tamped. Wood posts may be sharpened to a dull point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance.

The fence fabric for Type B shall be attached to the wood posts with one 2" galvanized wire staple across each cable or to the steel posts with wire ties or other acceptable means.

Warning signs shall be securely attached in the upper half of the fence, and placed at 50-foot maximum intervals.

Prior to any construction operations beginning, the Engineer and the contractor shall identify all vegetation in the field as needing to be preserved-in-place to be protected from damage or destruction caused by the contractor's operations by preservation fencing. The locations of native plant vegetation identified in the native plant inventory (Appendix L) are approximate. Actual locations will be determined during the project walk-through specified in Subsection 201-3.01 of the Standard Specifications.

Vegetation located outside of the right-of-way but whose canopy encroaches into right-of-way may also be protected with preservation fencing if so directed by the Engineer.

Flagging may be used to designate preserve-in-place areas prior to the installation of the preservation fence.

Fencing shall be installed at the drip line of each tree or group of trees, and shall remain in place for the duration of construction operations. The contractor shall be required to maintain the preservation fence in a satisfactory condition for the duration of the project as determined by the Engineer. Fencing that is damaged or destroyed shall be repaired or replaced by the contractor within 2 working days.

#### **4. METHOD OF MEASUREMENT**

Preservation fence, Agency discretion, will be measured by the linear foot of fence complete in place.

#### **5. BASIS OF PAYMENT**

Payment for preservation fence, Agency discretion, measured as provided above, will be made at the contract unit price and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals required to furnish, install, maintain and remove the preservation fence and warning signs.

Price adjustment for variation in bid quantity per Subsections 109-3 and 109-4 of the Standard Specifications does not apply to this item of work.

### **ITEM 2030500 - EXCAVATION (OVEREXCAVATION AND REMOVAL)**

#### **1. DESCRIPTION**

The work under this item consists of performing all operations necessary to perform the overexcavation, required to remove and dispose of the unsuitable material under structures in accordance with the geotechnical report included in Appendix D. Replacement material shall be structural backfill and costs included as part of their associated structure.

#### **2. MATERIALS (None Specified)**

#### **3. CONSTRUCTION REQUIREMENTS**

The unsuitable removal construction requirements shall be in accordance with the plans, these Special Provisions, Section 203 of the Standard Specifications, and as directed by the Engineer.

#### **4. METHOD OF MEASUREMENT**

The method of measurement for unsuitable material removal will be by the cubic yard in the original space occupied. The volume of material removed will be computed according to the provisions of Section 109.

#### **5. BASIS OF PAYMENT**

The accepted quantities of unsuitable material removal, measured as provided above, will be paid for at the contract unit price per cubic yard. The price shall include full compensation for the work complete, including hauling, stockpiling, and placement within allowable embankment areas on the project. The allowable embankment areas are defined as those areas that are not within the original space occupied and not within 3' of the finished subgrade.

**SECTION 404 - BITUMINOUS TREATMENTS**

**404-5 BASIS OF PAYMENT** of the Standard Specifications is modified to add:

The term "bituminous material" used in accordance with this Section is not subject to price adjustment for fluctuating asphalt prices.

(406ASPHALTIC\_NO BIT FUEL ADJ, 03/27/25)

**SECTION 406 – ASPHALTIC CONCRETE**

**406-1 DESCRIPTION** the table after the second paragraph of the Standard Specifications is revised to read:

<b>Agency</b>	<b>Use of RAP in Base Lift(s)</b>	<b>Use of RAP in Surface Lift</b>
City of Tucson	Yes	No
Pima County	Yes	No
Town of Marana	Yes	No
Town of Oro Valley	Yes	No
Town of Sahuarita	No	No

**406-2 MATERIALS**

**406-2.02 COMPOSITION OF ASPHALT CONCRETE MIXTURES** the fourth paragraph of the Standard Specifications is revised to read:

In the City of Tucson, Town of Marana, Town of Oro Valley, Town of Sahuarita and Pima County, the asphalt cement used for the surface layer shall be a PG 76-22TR+ and a PG 70-10 for the underlying layers unless otherwise specified. TR+ may be replaced with an equivalent or better binder upon approval from PCDOT. Speed Humps and Speed Tables shall be PAG 2-LV, non-RAP mixture with PG 70-10 binder.

**406-5 BASIS OF PAYMENT**

**406-5 BASIS OF PAYMENT** of the Standard Specifications is revised to add the following after the first sentence of the first paragraph:

Bituminous and Fuel Price Adjustments Are Not Allowed.

**SECTION 406 – ASPHALTIC CONCRETE**

**406-3.08(E) Compaction Control.** 4<sup>th</sup> paragraph of the Standard Specifications is revised to read:

For each 250 Tons of asphaltic concrete, two cores shall be taken by the contractor under the Engineer's direction. One core to be tested by contractors Quality Control and one will be tested by the Quality Assurance lab (QA). Compaction acceptance will be based upon asphalt testing results performed by the QA lab.

**406-5 Basis of Payment** of the Standard Specifications is modified to read:

The accepted quantities of asphaltic concrete, measured as provided above, will be paid for under the appropriate bid items at the contract unit price, or adjusted unit price, complete-in-place.

Should testing determine the asphalt cement deficient in meeting the requirements specified in Section 1005 of the Standard Specifications, the asphaltic concrete, representing the half shift or half-shifts in which such a deficient material was utilized, shall be evaluated as to acceptance in accordance with the requirements of Subsection 110-2.

Deficiencies in mineral aggregate gradation, asphalt cement content, asphaltic concrete thickness or compaction will be evaluated in accordance with the criteria established in Subsection 110-2.

Deficiencies in In-Place Voids will be evaluated per Subsection 110-2 and Table 110-3 as follows:

**Table 110-3 Asphaltic Concrete  
PAYMENT REDUCTION AMOUNTS FOR VOID DEFICIENCIES**

In-place Air Voids (Percent)	Contract Unit Price Reduction Amount	
	Dollars/Ton	Dollars/Metric Ton
7% or less	0.00	0.00
7.1 to 8.0	-1.00	-1.10
8.1 to 9.0	-2.00	-2.20
9.1 or greater	-3.00 <sup>1</sup>	-3.30 <sup>1</sup>

Note (1): Reject status: The payment adjustment amount shall apply only if the asphaltic concrete is allowed to remain in place, subject to the provisions of Subsection 110.2.03.

**406-5.01 Asphaltic Concrete Price Adjustment.** An adjustment to the unit price of asphaltic concrete due to increases or decreases in the price of bituminous material, of any type, incorporated into the asphaltic concrete mix, will be made by the Agency when such increases or decreases occur after bid opening.

Adjustments to the unit price of the bituminous material specified in Subsection 406-2.05, shall conform to the following requirements.

The price of bituminous material used in the asphaltic concrete mixture will be determined monthly by the Agency based on sales cost data for the specified grade or type of bituminous material, as published, in memorandum form, by the Arizona Department of Transportation's Contracts and Specifications

Section. The Agency's monthly price determination for bituminous material will be made available upon written request to the Agency.

The "initial cost" of bituminous material, of the type or grade specified for a project, will be the cost, as determined by the Agency and based on the above Arizona Department of Transportation memorandum, for the month during which bids are opened for the project.

An adjustment in compensation will be made for either an increase or decrease in the cost of bituminous material based on the difference in sales cost using data from the Arizona Department of Transportation memorandum, current as of the date(s) of placement of asphaltic concrete on the project, as compared to the "initial cost."

Adjustments to the cost of bituminous material shall conform to the following calculation:

BITUMINOUS MATERIAL COST (**Date of Use**) minus BITUMINOUS MATERIAL COST (**INITIAL**)

Multiply the above cost difference by the percentage of bituminous material in the asphaltic concrete mix design.

The resulting value is the cost adjustment amount to be applied to each ton of asphaltic concrete incorporated into the work.

**EXAMPLE:** "Initial" cost at bid opening = \$100.00/Ton

Date of use cost = \$120.00/Ton

Percent bituminous material per mix design = 5.2%

*Asphaltic Concrete Price Adjustment* = (\$120.00/Ton-\$100.00/Ton) x 0.052 = \$1.04/Ton

The tons of asphaltic concrete which are paid for on an invoice basis and for which an adjustment is applicable are the tons which have been delivered to the project and incorporated into the work. The adjustment will be applicable for each date of asphaltic concrete use. No adjustment will be made for waste, rejected or unused asphaltic concrete.

No further compensation, beyond that computed herein, will be made for any increased or additional charges, costs, expenses, taxes, etc., which the contractor may have incurred since the time of bid opening and which may have resulted from an increase in the "initial" cost of bituminous material.

Upon expiration of the contract time stipulated in the contract documents or as may have been extended in conformance with the provisions of Subsection 108-8, any adjustment in the price of bituminous material shall use as its basis the cost determination from the Arizona Department of Transportation memorandum for the month in which the contract time, or approved extension thereto, expired.



## **SECTION 406 -ASPHALTIC CONCRETE**

### **406-1 DESCRIPTION** of the Standard Specifications is modified to add:

The work under this section shall also consist of furnishing all equipment, labor and materials required to construct a sloped Safety Edge<sub>sm</sub> pavement edge treatment equal to 30 degrees plus or minus 5 degrees measured from the pavement surface cross slope extended. The Safety Edge<sub>sm</sub> pavement edge treatment shall consist of consolidated asphaltic concrete, placed at the outside edge of the roadway pavement section, in accordance with the details shown on the project plans and the requirements of these specifications, in order to lessen the severity of roadway departures.

### **406-2 MATERIALS** of the Standard Specifications is modified to add:

Materials furnished for asphaltic concrete Safety Edge<sub>sm</sub> pavement treatment shall conform to the requirements of Section 406-2 and these specifications.

### **406-3 CONSTRUCTION DETAILS**

#### **406-3.06 Placing and Finishing**

##### **406-3.06(A) General Requirement** of the Standard Specifications is modified to add:

Surfaces on which the asphaltic concrete Safety Edge<sub>sm</sub> pavement treatment will be placed shall be graded to the lines and grades shown on the project plans, or as established by the Engineer. Once the Safety Edge<sub>sm</sub> has been placed and compacted, the Contractor shall furnish, place and compact the shoulder backfill material to the top of the Safety Edge<sub>sm</sub>, in accordance with the details shown on the project plans.

The Safety Edge<sub>sm</sub> may be constructed on each lift of asphaltic concrete, or to the full specified plan depth on the final lift. The finished shape of the Safety Edge<sub>sm</sub> shall extend for the full depth of the asphalt pavement, or for the top 5 inches, whichever is less. The Engineer may allow the Contractor to use handwork for short sections or to saw cut the sloped Safety Edge<sub>sm</sub> after paving operations are completed in areas such as transitions at driveways and intersections.

##### **406-3.06 (D) Placing and Finishing Asphaltic Concrete by Means of Self-Propelled Paving Machines** of the Standard Specifications is modified to add:

The paver shall include an approved longitudinal paver wedge system to create a sloped safety edge, as shown on the project plans. The wedge system shall be attached to the screed and shall compact the asphaltic concrete to a density at least as dense as the compaction imparted to the rest of the asphaltic concrete lift by the paving screed. Final compaction of the horizontal asphalt lifts shall be performed in such a manner so as not to deform the safety edge. No additional compaction is required of the safety edge itself. The wedge system shall be capable of providing a sloped safety edge equal to 30 degrees plus or minus 5 degrees measured from the pavement surface cross slope extended. The use of a single plate strike off is not permitted. The wedge system shall be adjustable to accommodate varying paving thicknesses and to allow for automatic transition to cross side streets, driveways and obstructions.

If the Contractor elects to acquire a Safety Edge<sub>sm</sub> shoe device, the following manufacturers have also

been approved by FHWA:

Transtech Systems, Inc.  
1594 State Street  
Schenectady, NY 12304  
800-724-6306  
518-370-5558  
<http://www.transtechsys.com>

Advant-Edge Paving Equipment LLC.  
1197 Hillside Avenue, Suite B47  
Niskayuna, NY 12309  
518-280-6090  
<http://www.advantedgepaving.com>

Troxler Electronic Laboratories, Inc.  
3008 E. Cornwallis Rd., PO Box 12057  
Research Triangle Park, NC 27709  
877-876-9537

Carlson Paving Products  
18425 50<sup>th</sup> Ave. East  
Tacoma, WA 98446  
253-278-9426

<http://www.troxlerlabs.com/products/paving.php>

<http://www.carlsonpavingproducts.com>

The Contractor shall submit the proposed wedge system for approval at the Preconstruction Conference. The Engineer may require proof that the system has been used on previous projects with acceptable results, or may require a test section constructed prior to the beginning of work in order to demonstrate that it creates an acceptable wedge shape and compaction. Paving shall not begin until the system is approved in writing by the Engineer.

**406-4 METHOD OF MEASUREMENT** of the Standard Specifications is modified to add:

Asphaltic concrete Safety Edge<sub>sm</sub> pavement edge treatment will not be measured separately, but shall be considered as incidental to the cost of the asphaltic concrete paving course.

**406-5 BASIS OF PAYMENT** of the Standard Specifications is modified to add:

Separate payment for furnishing, placing and finishing the asphaltic concrete Safety Edge<sub>sm</sub> pavement edge treatment shall not be made, the cost being considered as incidental to the cost of the asphaltic concrete paving course.

(515UTL\_POTHOLE, 12/16/16)

**ITEM 5100290 -- ADDITIONAL POTHOLING AT THE DIRECTION OF TUCSON WATER'S INSPECTOR AND/OR ENGINEER**

**ITEM 5150005 - UTILITY POTHOLING, DEPTH LESS THAN TWELVE FEET (12')**

**ITEM 5150007 - UTILITY POTHOLING, DEPTH TWELVE FEET (12') AND GREATER**

## **1. DESCRIPTION**

The work under these bid items, herein after referred to as "potholing", shall consist of recording pothole information and furnishing all labor, equipment, and materials required to expose utility underground facilities per state law and as directed by the Engineer.

## **2. MATERIALS**

All materials shall conform to the requirements of the Agency for backfilling and patching existing roadway surfaces.

### **3. CONSTRUCTION REQUIREMENTS**

All procedures for potholing such as, but not limited to, traffic control, cutting existing roadway surfaces, excavation, backfill, and patching existing roadway surfaces shall conform to the requirements of the Agency.

Areas disturbed during potholing are to be restored to their original condition.

Unless otherwise agreed to by the Engineer, potholing shall be done no less than fourteen (14) calendar days in advance of conducting an excavation or construction to avoid possible delay in the progress of the Work. When an underground facility or obstruction is uncovered and determined to conflict or interfere with the Work, the contractor shall notify the Engineer and facility owner (if known) immediately.

The contractor shall maintain a record of pothole information (the "Log") consisting of the utility owner's name and facility size, quantity, material, and horizontal/vertical location (station/offset/elevation).

When a pothole does not uncover a facility, the pothole should be noted as "dry". Any additional potholes for the purpose of locating a marked but uncovered facility shall be approved by the Engineer and noted in the Log as "Additional" along with the location of the associated dry pothole.

All pothole locations are to be surveyed and tied to the project's horizontal and vertical control unless otherwise directed by the Engineer. The contractor shall provide pothole information to the Engineer upon request.

The contractor shall only be required to pothole the width of the facility plus twenty-four (24) inches horizontally each side of the marked facility or as directed by the Engineer.

### **4. METHOD OF MEASUREMENT**

Utility potholing will be measured for payment as a unit for each pothole whether or not an underground facility is uncovered.

When more than one utility is uncovered within a pothole, only one pothole shall be measured for payment and measurement shall be to the depth excavated to the deepest utility.

No measurement will be made for potholes not approved by the Engineer.

### **5. BASIS OF PAYMENT**

The accepted quantities of potholing, measured as provided above, will be paid for at the contract unit price per each. The price shall include full compensation for the work complete, including maintaining a pothole Log, traffic control, area restoration, pavement cutting, excavating, backfilling, pavement patching, and surveying unless construction surveying is provided by the Agency.

No payment will be made for potholes not approved by the Engineer.

Price adjustment for variation in total bid quantity per Subsections 109-3 and 109-4 of the Standard Specifications do not apply to work under these bid items.

## **ITEM 5101830- CONCRETE THRUST BLOCKING**

### **1. DESCRIPTION**

The work under this item shall consist of furnishing all labor, equipment and materials required to install concrete thrust blocking to resist the hydrodynamic thrust forces acting to separate the joints of water mains and appurtenances, in accordance with Details shown on the project plans, and Standard Specifications and Details.

### **2. MATERIALS**

All materials shall conform to the details shown in the project plans and requirements in Section 1406, SD-600 and SD-610 of Tucson Water Standard Specifications and Details, 2017 Edition, and newest editions, as well as Pima Association of Governments (PAG) Standard Specifications and Details.

### **3. CONSTRUCTION REQUIREMENTS**

Installation of the concrete thrust blocking shall conform to the details of the project plans, Tucson Water and Pima Association of Governments (PAG) Standard Specifications and Details, and as approved by the Engineer.

### **4. METHOD OF MEASUREMENT**

Concrete thrust blocking shall be measured by the unit Each for the actual number of concrete thrust blockings and related appurtenances installed.

No direct measurement will be made for concrete thrust blockings or any other thrust resistant, as required by design plans or specifications.

### **5. BASIS OF PAYMENT**

The accepted quantities of concrete thrust blocking, measured as provided above, will be paid for at the contract unit price Each, which price shall be full compensation for the work, complete in place.

No direct payment will be made for concrete thrust blockings or any other thrust systems since they are considered incidental to the cost of their associated items.

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(515UTL\_IMPACT\_ALLOWANCE, 3/13/17)

**ITEM 5150101 - UTILITY IMPACTS ALLOWANCE**

**1. DESCRIPTION**

The work under this item shall be subject to the approval of the Engineer shall consist of furnishing all labor, materials, equipment, and other incidentals required for modifying, adjusting, protecting, and supporting utility facilities not provided for in the contract as awarded that interfere or conflict with the construction of the project.

**2. MATERIALS (None Specified)**

**3. CONSTRUCTION REQUIREMENTS**

All work under this item shall be as directed by the Engineer.

**4. METHOD OF MEASUREMENT**

Utility impacts will be measured on a USD (dollar) basis.

**5. BASIS OF PAYMENT**

Payment for utility impacts shall be paid for using any of the methods described in Subsection 109-5.01 of the Standard Specifications and shall be full compensation for the work, complete in place.

(516UTIL\_REMOVALS, 9/8/16)

**SECTION 516 - UTILITY REMOVALS**

**SECTION 516 UTILITY REMOVALS** is hereby added to the Standard Specifications

**516-1 DESCRIPTION**

The work under this item shall consist of the removal and disposal of utility vaults, handholes, pull boxes, conduits, duct banks, pipes, and direct buried cables at the locations shown on the project plans or as may be directed by the Engineer and in conformance with the requirements of these Special Provisions. The terms "duct" and "conduit" are used interchangeably in these provisions.

Material not designated to be salvaged shall become the property of the contractor.

The following utility company has facilities shown on the project plans to be removed by the contractor.

Owner	Contact	Phone Number
<i><b>SOUTHWEST GAS</b></i>	Aridai Rosas	520-667-5442

**516-2 MATERIALS (None Specified)**

### **516-3 CONSTRUCTION DETAILS**

**516-3.01 General.** Prior to commencing any removal work, the contractor shall contact the utility at the phone number listed above for confirmation of the facility and limits of removal. The contractor shall track removals using the Agency provided removal log and shall evidence confirmation of facilities removed through signature by the facility owner's representative in the log at the time of work. Should work be performed by the contractor without receiving a confirmation signature, the Agency may at its sole discretion withhold payment for the work until such time that confirmation has been received.

Holes, cavities, trenches and depressions resulting from the removal of vaults, handholes, pull boxes, conduits, duct banks, pipes, and direct buried cables, except in areas to be excavated, shall be backfilled with suitable material which shall be compacted to a density of not less than 95 percent of the maximum density as determined in conformance with the requirements of the applicable test methods of the Arizona Department of Transportation Material Testing Manual, as directed and approved by the Engineer. When completed, the backfilled and compacted area shall remain firm and stable, as demonstrated by the lack of observable signs of deformation from wheel loading, even when subsequent courses of material are paced over the area.

Items designated to be salvaged shall be carefully stockpiled or stored by the contractor at locations designated by the Engineer or within a secured area on the project site approved by the Engineer.

**516-3.02 Utility Inspection.** The contractor shall coordinate inspection of the work with the Engineer and utility companies. In no case shall notice of inspection be provided less than 24 hours in advance. If the utility is unable to inspect the work, the Engineer may at his discretion give direction to proceed with the work.

The contractor shall on a regular basis provide utility companies a work schedule and provide at least a 24 hour notice of any changes to the schedule.

All problems or defects in the work shall be brought to the contractor's attention and the contractor shall be correct the problem or defect in a timely manner to the satisfaction of the Engineer or utility company.

**516-3.03 Removal of Conduit, Duct Bank, Direct Buried Cable and Pipe.** Prior to the removal of any conduit, duct bank, direct buried cable and pipe, the contractor shall have acknowledged by the utility, confirmation of ownership and verification of limits of removal, and shall record such information into the removal log.

Unless specified to be salvaged, removed conduit, duct bank, and pipe shall be properly disposed of by the contractor at a site secured by the contractor.

Unless specified otherwise, direct buried cable shall be salvaged and the contractor shall make arrangements with the utility for pickup.

Duct bank shall be defined as an assembly of two or more conduit of the same or different size and type, arranged in a configuration held in place by spacers or racks.

**516-3.04 Removal of Vault, Handhole, and Pull Box.** Prior to the removal of vaults, handholes,

pull boxes, and any similar type structure, the contractor shall have acknowledged by the utility, confirmation of ownership and verification of limits of removal, and shall record such information into the removal log.

Unless otherwise specified, vaults, handholes, pull boxes, and any similar type structures designated on the project plans to be removed, shall be properly disposed of by the contractor at a site secured by contractor or in accordance with Subsection 202-303(A).

**516-3.05 Removal of Cement Asbestos (CA) Pipe.** Removal, handling, and disposal of cement asbestos pipe material shall comply with all requirements of the Pima County Department of Environmental Quality and all ordinances, laws, procedures, and policies regarding the handling and disposal of asbestos containing material. Handling of cement asbestos pipe shall also be in conformance with the provision of Section 940.

The contractor shall be responsible for all civil and/or criminal penalties which may be levied for the improper handling or disposal of the cement asbestos material.

Disposal of cement asbestos pipe material shall occur only at approved asbestos disposal sites. The contractor shall notify the Engineer and the approved disposal site a minimum of 24 hours prior to the contractor's intent to dispose of the cement asbestos pipe material. The contractor shall have obtained and completed all applicable forms and permits prior to disposing of cement asbestos pipe materials.

The contractor shall provide the Engineer and utility with a copy of all executed forms and permits which shall serve as verification of proper disposal at an approved asbestos disposal site including a signed, fully completed copy of the Asbestos Disposal Manifest.

#### **516-4 METHOD OF MEASUREMENT**

Removal of utility vault, handhole, and pull box will be measured as a unit for each vault, handhole, and pull box removed.

Removal of utility conduit, duct bank, direct buried cable, and pipe will be measured by the linear foot parallel to the central axis of the conduit, duct bank, direct buried cable and pipe removed.

No direct measurement will be made for removal of tracer wire, cable within duct, inner duct, and spacers and racks.

#### **516-5 BASIS OF PAYMENT**

The accepted quantities of utility vault, handhole, and pull box removal, measured as provided above, will be paid for at the contract unit price indicated in the bidding schedule and will be considered as compensation in full for the item, including excavation and subsequent furnishing and placing of backfill incidental to the removal, compaction, proper disposal, and coordination necessary for the work in conformance with the requirements of this Section, the project plans, Special Provisions, or as may be directed by the Engineer.

The accepted quantities of utility conduit, duct bank, direct buried cable and pipe removal, measured as provided above, will be paid for at the contract unit price indicated in the bidding schedule and

will be considered as compensation in full for the item including excavation and subsequent furnishing and placing of backfill incidental to the removal, salvaging, compaction, proper disposal, air monitoring, and coordination necessary for the work in conformance with the requirements of this Section, the project plans, Special Provisions, or as may be directed by the Engineer.

When the removal of duct bank is not included as a separate contract item, no separate payment will be made for duct bank removal, accepted quantities of duct bank will be included in the contract item for conduit removal and payment will be at the contract unit price indicated in the bidding schedule and will be considered full compensation in full for the work.

No separate payment will be made for removal of spacers, racks, tracer wire or cable and inner duct within conduit, the cost to be considered incidental to and included in the payment for the contract item in the bidding schedule requiring the work.

## **ITEM 6010101 - BOX CULVERT (6-10 x 6')**

### **1. DESCRIPTION**

The work under this item shall include furnishing all materials for the construction of reinforced concrete box culverts, in conformance with the lines, grades and details shown in the project plans or on the standard drawings, and these special provisions.

### **2. MATERIALS**

Concrete shall be Class S concrete, with a compressive strength as listed in the details, and shall conform to the requirements of Section 1006. All reinforcing shall be ASTM A615, Grade 60,  $f_y = 60,000$  psi, and shall conform to the requirements of Section 1003. Materials furnished for expansion joint filler and joint seal shall conform to the requirements of Section 1011. Backfill materials shall conform to the requirements of Section 203-5 of the Standard Specifications.

### **3. CONSTRUCTION REQUIREMENTS**

The concrete box culverts, headwalls, wingwalls, cut-off walls, and concrete aprons shall be constructed as detailed in the project plans. Structural excavation and backfill shall be in accordance with Section 203-5. Reinforcing steel shall be handled and placed in accordance with the requirements of Section 605. Preparation work, excavation and backfill limits, and placement of concrete shall be in accordance with the requirements of Section 601.

### **4. METHOD OF MEASUREMENT**

Reinforced concrete box culverts shall be measured by the linear foot along the centerline of the box culvert as denoted in the project plans, within the exterior limits of the headwalls on either end of the culvert. No direct measurement will be made for elements of work necessary to construct the box culverts including structural concrete, reinforcing steel, dowels, expansion joints, steel angle iron baffles and attachment hardware, structural excavation and structural backfill, bracing and shoring, junction structures, any required manholes including rings and covers and appurtenant structures, excavation and disposal of excess and unsuitable material, and other related items.



Reinforced concrete wingwalls and cut-off walls, curbs or headwalls and cut-off walls across the box culvert structure, concrete outlet aprons, and structural excavation and backfill required for the construction of the concrete wingwalls shall be considered incidental to the construction of the box culvert and no separate measurement or payment will be made.

## **5. BASIS OF PAYMENT**

The accepted box culvert structures, measured as provided above, will be paid for at the contract linear foot price complete in place. No separate measurement or direct payment will be made for use of pre-cast box culvert sections, transitions from cast-in-place to precast, preparing design and shop drawings, installation of precast units, inserts and other hardware or attachments, waterproofing, and any other incidentals, this cost being considered as included in the contract price.

Payment for the removal of rock, hard pan, other unyielding material, or soft, spongy or other unstable soil below the vertical limits as shown on the plans, and the backfilling of these over-excavated areas, as specified herein and as directed by the Engineer, will be paid for in accordance with the requirements of Section 109 of the Standard Specifications.

(516UTIL\_REMOVALS, 9/8/16)

## **SECTION 701 – MAINTENANCE AND PROTECTION OF TRAFFIC**

**701-1 DESCRIPTION** of the Standard Specifications is revised to add:

The contractor shall be responsible for the control, direction, and safety of vehicular and pedestrian traffic in all work areas, and shall provide all necessary equipment and personnel for this work. Traffic control and site access arrangements shall be subject to the approval of the owner and governmental agency with jurisdiction of the jobsite.

**701-4 METHOD OF MEASUREMENT** of the Standard Specifications is revised to read:

Basic Maintenance and Protection of Traffic, Construction Elements, Flagging Services, and Provide Detours will be measured as a single, complete, lump sum Item 7010005 - Traffic Control.

Basic maintenance and protection of traffic shall consist of the preparation and approval of a traffic control plan, flagging services and furnishing, installing, maintaining, moving, and removing barriers, barricades, warning signs, delineators, lights, cones, installation of temporary pavement markings for the maintenance of traffic and/or construction sequencing, the removal of existing pavement markings and raised pavement markers by obliteration, the covering of any existing signs, impact attenuation devices, and other traffic control devices in order to provide safe and efficient passage through and/or around the project construction site and protect the public and workers from injuries and property damage for the duration of the project. The cost for maintaining all traffic control materials, labor and equipment is included under lump sum Item 7010005 - Traffic Control, except for bid Items 7010010 – Temporary Concrete Barrier (Installation) will be measured per linear foot, 7010011 Temporary Concrete Barrier (in-use) Daily Rate will be measured in days, 7010012 – Temporary Concrete Barrier (Removal) measured in linear feet, 7010027 – Changeable Message Board measured in each per day, 7010260 – Obliterate Pavement

Marking measured in linear feet and 7010006 – Furnish and Install Temporary Traffic Control Devices (Allowance) as an allowance with Engineer approval..

**701-5 BASIS OF PAYMENT** of the Standard Specifications is revised to read:

The accepted quantity of Basic Maintenance and Protection of Traffic, Construction Area Elements, Flagging Services, and Provide Detour will be paid for at the contract lump sum price under Item 7010005, Traffic Control. The lump sum bid price submitted by the contractor shall be full compensation for the work of maintenance and protection of traffic and work site access planning and control. The lump sum bid price shall also be estimated for the entire duration of the contract time that accounts for both the contract working days and non-working calendar days.

The accepted quantities for Temporary Concrete Barrier (Installation, in-use and removal), Changeable Message Board, Obliterate Pavement Marking and Furnish and Install Temporary Traffic Control Devices, measured as provided above, will be paid for at the contract unit price included in the bidding schedule. Price adjustment for variation in total bid quantity per Subsection 109-3 and 109-4 of the Standard Specifications do not apply to work under these bid items.

The contractor's attention is called to the following work considered incidental to Item 7010005: installation of temporary pavement markings for the maintenance of traffic due to construction sequencing. No direct payment shall be made for temporary striping called for in section 701-4. This work shall be considered incidental to other traffic control related items.

Adjustments in compensation for the original contract period will not be made to the lump sum Item 7010005 - Traffic Control. The lump sum amount of this item of work will be paid to the contractor for the original contract period regardless of the contractor's construction schedule; early construction completion; impacts to contractor's construction schedule critical path; increase or decrease in line item quantities; weather limitations; utility conflict; material change in the character of the work; etc.

Adjustments in compensation for work performed after the expiration of the original contract period and within an approved contract time extension will be made at the discretion of the Engineer for the approved time extension period.

(704EXTRUDED, 4/24/15)

## **SECTION 704 - THERMOPLASTIC STRIPES AND MARKINGS**

### **704-2 MATERIALS**

#### **704-2.03 Physical Characteristics of the Composition**

**(C) Retroreflectance.** of the Standard Specifications is revised to read:

**(C) Retroreflectance.** The white and yellow thermoplastic materials shall have the following minimum retroreflectance values by a Mirolux 30 portable retroreflectometer or similar approved device within 30 days after application to the roadway surface:

Product	Retroreflectance (Millicandelas)
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White	200
Yellow	125

**704-2.04 Physical Requirements for Glass Beads** of the Standard Specifications is revised to read:

The term “glass bead” shall be synonymous with the term “glass sphere” as used herein.

Inter-mix and drop on reflective glass beads shall conform to the requirements of Subsection 708-2.02 or AASHTO M 247-13, Type 1, and may be coated or uncoated as recommended by the manufacturer. If uncoated beads are used, the thermoplastic formulation shall be configured to minimize settling of the intermix beads when the material is heated and applied.

If recommended by the manufacturer, the drop-on beads shall have an adherence coating.

### **704-3.03 Application**

**(G) Thermoplastic Application.** the 1st paragraph of the Standard Specifications is revised to read:

The thermoplastic pavement marking material shall be extruded, ribbon, or sprayed on to the pavement surface at a material temperature between 400 and 440 degrees F, depending on manufacturer’s recommendations, ambient air and pavement temperatures, and the nature of the pavement surface. The contractor shall verify temperature requirements with a non-contact infrared thermometer as directed by the engineer.

**(G) Thermoplastic Application.** the 6th paragraph of the Standard Specifications is revised to read:

Unless otherwise specified, thermoplastic pavement markings for legends and symbols, and for crosswalks, stop bars and other transverse elements, shall be extruded, and shall be  $0.090 \pm 0.002$  inches thick. Longitudinal markings, such as edge lines, lane lines, gore lines, and other markings parallel to traffic, shall be either ribbon, or extruded thermoplastic as specified on the project plans. If ribbon or extruded thermoplastic, pavement marking lines are to be  $0.090 \pm 0.002$  inches thick. Longitudinal markings of approximately 200 feet or less may be extruded. The thermoplastic thickness shall be uniform and consistent throughout the total length of the marking project.

**(706RAISE\_PVMT\_MK, 3/14/13)**

## **SECTION 706 - RAISED PAVEMENT MARKERS**

### **706-2 MATERIALS**

**706-2.05 Bituminous Adhesive** of the Standard Specifications is modified to add:

The bituminous adhesive for pavement markers shall be a hot-melt adhesive manufactured by:

Avery Dennison  
Reflective Films Division  
6565 West Howard Street  
Niles, Illinois 60714

Crafco, Incorporated  
420 North Roosevelt Ave.  
Chandler, Arizona 85226  
Product: Crafco 34269

Gulf State Asphalt Company, LP  
300 Christy Place  
South Houston, Texas 77587  
Product: Evergrip Bituminous  
Marker

Product: Stimsonite 2202031

Materials other than those listed above may be used, but must be approved by the Agency, in accordance with Section 106-8.

(708PAINT\_LAYOUT\_MK, 4/24/15)

## **SECTION 708 - PAINTED PAVEMENT MARKINGS**

**708-1 DESCRIPTION** of the Standard Specifications is modified to add:

Work under this section also includes the installation of painted layout striping that is placed prior to the final thermoplastic striping, as indicated on the project plans under the pavement marking General Notes.

### **708-2 MATERIALS**

#### **708-2.01 Pavement Marking Paint.**

**(E) Qualitative Requirements:**

**(9) Spraying Properties.** The first paragraph of the Standard Specifications is revised to read:

The paint shall be applied at a 15 mils (.015") wet film thickness in the field. The paint shall show the following properties at ambient temperatures of 50° F to 100° F with a paint spray temperature of 150° F, maximum, and 8 pounds of post-applied glass beads per gallon of paint conforming to Subsection 708-2.02 of these specifications:

#### **708-2.02 Reflective Glass Beads (Spheres).**

**(A) General.** of the Standard Specifications is modified to add:

Glass beads shall conform to the requirements of AASHTO M 247-13 Type 1, with an adhesion and moisture proof coating.

(805SEEDING, 2/9/2018)

## **SECTION 805 - SEEDING**

**805-1 DESCRIPTION** of the Standard Specifications is modified to add:

The work covered by this section shall also include the preparation of soil within areas to be seeded, the hydroseeding of disturbed areas with native plants (Class II), hydroseeding of void filled riprap areas and the installation of a temporary, degradable erosion control blanket (in designated areas).

### **805-2 MATERIALS**

**805-2.02 Seed:** is hereby added to the Standard Specifications:

Seed mix species composition and the Pure Live Seed (PLS) rates are shown in the project plans.

The contract-specified seed shall be obtained from seed suppliers through harvesting of wildland collections, or field-grown seeds grown prior to or during the contract period. The contractor shall submit the name of the seeding subcontractor to be used, along with written confirmation from seed suppliers and collectors, on their letterhead, that the source(s) for the contract-specified seed has been secured. If any of the contract-specified seed is expected to be unavailable prior to the time specified for seeding the contractor shall notify the Engineer.

No substitution of the contract-specified seed will be allowed unless evidence is submitted documenting that the contractor has made a diligent effort to obtain the contract-specified seed from either seed suppliers or collectors, and that the contract-specified seed will not become available prior to the time specified for seeding in the contractor's approved construction schedule. The contractor shall provide documentation from a minimum of six seed suppliers, including local providers, or collectors supporting seed unavailability.

Should a substitution of the contract-specified seed be requested due to unavailability, and the contractor's documentation is approved by the Engineer, the Engineer will specify, in writing, an alternate seed within five working days of the Engineer's approval of the contractor's documentation. The alternate seed will only be allowed when there is an insufficient quantity of the contract-specified seed, as determined in the previous paragraph, for the areas to be seeded as called for herein and / or on the project plans.

No payment will be made for areas seeded with unapproved seed.

A Certificate of Analysis from an accredited seed-testing laboratory, and conforming to **Subsection 106-5.03** of the specifications, shall accompany each container of seed. A Certificate of Analysis for each seed species shall be furnished to the Engineer at least four weeks prior to seeding construction. No seed shall be furnished to, or delivered to the project until approved by the Engineer. The Certificates of Analysis shall contain the following information for each seed sample: the test results of the Fifty States Noxious Weed list, all seeds including weed seeds listed, purity and germination, tetrazolium test results, when used and any pathology found to be present. The sample testing, when available for the native plant species, shall use the rules for testing seeds published by the "Association of Official Seed Analysts" or the "Society of Commercial Seed Technologists". If the samples indicate species listed as noxious, restricted or invasive, the lot will be evaluated for use on the project by the Engineer.

The contractor shall provide all seed tag labels to the Engineer. No payment will be made for seed until tag labels and Certificates of Analysis from all seed to be used on the project have been submitted as specified.

Unless otherwise approved by the Engineer, weed content of the contract-specified seed mix shall not exceed 0.5 percent.

The contractor shall store seed under dry conditions, at temperatures of between 35° F and 120° F, and out of direct sunlight. Prior to using the seed, the contractor shall provide a certification letter to the Engineer that the seed was stored as specified herein.

Tetrazolium staining shall be acceptable to test for germination and hard seed. Cut or fill testing will not be allowed. As directed by the Engineer, seeds with expiration date past the acceptable test date or not meeting the specified conditions for storage shall be retested by the contractor. The Engineer may perform

random sampling of seeds throughout the project. Mixing of the specified seed at the project site shall be under the supervision of the Engineer.

**805-2.02 (C) Hydroseed Mix** of the Standard Specification is modified to add:

**Seed / Slurry Mix for Hydroseeding Void Filled Riprap Areas Flatter than 6:1**

Component	Application Rate (per Acre)
Native Plant Seed	Lbs. of Pure Live Seed (PLS) per Acre as noted on the Project Plans
Wood Fiber Mulch	2,000 lbs. per Acre
Tackifier	50 lbs. per Acre
Fertilizer (24-18-2)	200 lbs. per Acre

**Seed / Slurry Mix for Hydroseeding Void Filled Riprap Areas with 6:1 to 3:1 Slopes**

Component	Application Rate (per Acre)
Native Plant Seed	Lbs. of Pure Live Seed (PLS) per Acre as noted on the Project Plans
Wood Fiber Mulch	2,000 lbs. per Acre
Tackifier	100 lbs. per Acre
Fertilizer (24-18-2)	200 lbs. per Acre

**805-2.03 Mulch** of the Standard Specifications is modified to add:

The mulch used in conjunction with hydroseeding operations shall be wood fiber mulch in accordance with the Standard Specifications.

**805-2.04 Water** of the Standard Specifications is modified to add

Water shall be free of oil, acids, salts, or other substances harmful to plants. Water shall be from a potable water source. The source shall be approved by the Engineer prior to use.

**805-2.05 Tacking Agent** of the Standard Specifications is modified to add

The tacking agent shall be a non-toxic naturally occurring organic compound. It shall be a product typically used for binding soil and mulch in erosion control and seeding operations. It shall consist of mucilage by dry weight as the active ingredient obtained from Indian Wheat (psyllium) *Plantago spp.* The tackifier shall be labeled to include swell volume which will be used as the indicator of mucilage content.

The swell volume shall be tested by an independent laboratory using the USP method. A swell volume of 30 milliliters / gram shall be considered as the standard swell volume. Tackifier rates shall be adjusted for variations in swell volume. Tested material with a lesser swell volume shall have the tackifier rates increased by the same percentage of decrease in swell volume from the standard 30 ml/gm. Tested material with a greater swell volume may have rates decreased by the same percentage of increase in swell volume from the standard 30 ml/gm. The tackifier shall not be cut with starch or any other compound that would appreciably alter the swell volume or properties of the plantago mucilage.

**805-2.06 Chemical Fertilizer** of the Standard Specifications is modified to add

Chemical fertilizer shall be a blended fertilizer (24-18-2). It shall contain a minimum of 40% of equal parts slow release nitrogen in the form of methylene urea and sulfur coated urea (SCU).

**805-2.08 Erosion Control Blanket** is hereby added to the Standard Specifications:

Erosion control blankets shall be of the biodegradable blanket type. The blanket shall be a machine produced mat of straw or wood excelsior fiber covered on the top and bottom sides with photo degradable extruded plastic or woven biodegradable nettings having maximum openings of 0.5" x 1.0". Erosion control blankets shall have a functional longevity of 10 months. Erosion control blankets shall be as manufactured by North American Green, Model S150, or approved equal.

### **805-3 CONSTRUCTION DETAILS**

**805-3.03 Hydroseeding** of the Standard Specification is modified to add:

Hydroseeding (hydraulic seeding) shall be performed in accordance with the Standard Specification using a slurry of seed, mulch, tackifier, fertilizer, and mixed at the rates identified in Section 805-2.02(C) of these Special Provisions. Hydroseeding shall be performed after the placement of the void filled riprap as shown or noted on the project plans.

Hydroseeding operations shall be repeated during the Landscape Establishment Period using the same materials and application rates. Areas to receive a second application of hydroseed slurry and the timing of the second application shall be as directed by the Engineer.

**805-3.05 Erosion Control Blanket** is hereby added to the Standard Specifications:

Upon completion of the hydroseeding operations, erosion control blankets shall only be installed over those seeded areas that are indicated on the project landscape plans to receive erosion control blanket. The blanket shall be installed as detailed on the project plans and per the manufacturer's written instructions and recommendations. The blanket shall be installed as soon as possible after seeding. The Contractor shall be responsible for reseeding any seeded areas disturbed by the installation of the blanket or that area eroded prior to the installation of the blanket.

**805-4 METHOD OF MEASUREMENT** of the Standard Specifications is revised to read:

Seeding (Class I), will be measured for payment by the square foot of ground surface measured to the nearest 1,000 square feet or as a single complete unit of work for each completed seeding application.

Application of Class I seeding using hydroseeding methods shall be measured for payment as provided above.

The initial application for Seeding (Class II) will be measured either by the square yard of ground surface, to the nearest 100 square yards seeded, or by the acre to the nearest 0.1 acre, complete-in-place.

The second application for Seeding (Class II) will be measured either by the square yard of ground surface, to the nearest 100 square yards seeded, or by the acre to the nearest 0.1 acre, complete-in-place.

Seeding (Class III) will be measured for payment by the square foot of ground surface to the nearest 1,000 square feet seeded, by the acre to the nearest 0.1 acre or as a single complete unit of work for each completed seeding application.

Application of Class II and Class III seeding using hydroseeding methods shall be measured for payment as provided above.

Erosion Control Blankets will be measured by the square yard, complete-in-place.

**805-5 BASIS OF PAYMENT** of the Standard Specifications is revised to read:

Accepted quantities of seeding, measured as provided for above, will be paid for at the contract unit price indicated in the Bidding Schedule and will be considered as compensation, in full, for the item complete in place, including all labor, equipment, materials, tools, supplies and incidentals necessary for the work in conformance with the requirements herein, the project plans or as may be directed by the Engineer. Price adjustments for variation in total bid quantity per Subsections 109-3 and 109-4 of the Standard Specifications do not apply to work under this item.

No direct measurement or payment will be made for the preparation or the preservation of seeding areas, the cost being considered as included in the cost of the contract item.

Accepted quantities of erosion control blankets, measured as provided for above, will be paid for at the contract unit price indicated in the Bidding Schedule and will be considered as compensation, in full, for the item complete in place including all labor, equipment, materials, tools, supplies and incidentals necessary for the work in conformance with the requirements herein, the project plans or as may be directed by the Engineer.

When multiple mobilizations are required to accomplish seeding as specified herein, the cost will be included in the price bid for the seeding. No adjustments will be made to the contract for the number of seeding mobilization activities. Should the contractor fail to provide seeding for a sub-area as specified herein, the Engineer will immediately notify the contractor of such non-compliance. Should the contractor fail to immediately remedy the unstabilized area, the Engineer may suspend work until such seeding stabilization has been completed or proceed to provide the necessary seeding stabilization. The entire cost of such work will be deducted from the monies due or to become due to the contractor. In addition, no adjustment to the contract time will be made for suspensions resulting from the contractor's failure to provide seeding for a sub-area within the time periods specified herein.

## **SECTION 806 – TREES, SHRUBS, AND PLANTS**

**806-3.05 Pruning.** of the Standard Specifications is revised to read:

### **1. DESCRIPTION**

The work under this bid item consists of furnishing all materials, equipment, tools, and labor necessary to prune trees with branches that impact, obstruct, or interfere with the completion of the project. The work is to be conducted by or under the supervision of a certified arborist and at the direction of the Engineer.

### **2. MATERIALS (None Specified)**



### **3. CONSTRUCTION DETAILS**

Pruning is to be performed in accordance with *ANSI-A-300 (Part I)-2017 Pruning*, as published by the Tree Care Industry Association, Inc. (Telephone: 1-800-733-2622, website: [www.tcia.org](http://www.tcia.org)); and *Best Management Practices, Tree Pruning (Revised 2017)*, as published by the International Society of Arboriculture (Telephone: 1-217-355-9411, website: [www.isa-arbor.com](http://www.isa-arbor.com)). The contractor is to familiarize themselves with accepted horticulture practices as defined by these guidelines.

Pruning is to be performed by or under the supervision of a certified arborist and no more than three laborers.

Trimming and other associated debris is to be disposed of within seven calendar days of cutting.

Pruning is to be kept to a minimum and should only be done in order to achieve the following objectives: restoration (removing dead, damaged or diseased branches), managing plant health, providing clearance, and risk reduction.

No more than 25% of the foliage is to be removed. Excessive branch removal on the lower two-thirds of a branch or stem is to be avoided. If excessive pruning is necessary to avoid conflicts with utilities, traffic, or other work, the contractor is to bring this to the attention of the Engineer.

Pruning equipment that damages living tissue and bark beyond the scope of normal work practices is to be avoided.

Pruning cuts are to be made in accordance to the following practices: tools are to be sharp; cuts are to remove a branch at its point of origin, close to the trunk or parent branch and not cut into the branch bark ridge or branch collar or leave a stub; mid-branch cuts are not allowed; when pruning to a lateral, the remaining lateral branch should be large enough to assume the terminal role; final cuts should result in a flat surface with adjacent bark firmly attached; final cuts for removal of a dead branch is to be made just outside the collar of living tissue; branch removal is to be done in such a manner as to not damage other parts of the tree or other plants or property; and severed branches are to be removed from the crown upon completion of the pruning, when the tree would be left unattended, and at the end of the workday.

Wound treatments will not be used to cover wounds or pruning cuts, except when necessary for disease, insect, or mistletoe.

### **4. METHOD OF MEASUREMENT**

Landscape pruning will be measured for payment on an hourly basis.

### **5. BASIS OF PAYMENT**

Landscape pruning, measured as provided above, will be paid for per hour per person (arborists and one to three laborers), which includes full compensation for the work described herein, include time spent by the arborist on-site and disposal of trimmings and associated debris and dumping fees. The cost shall be included under Item 2010010 Clearing and Grubbing (Noxious and Invasive Species Control Allowance).

Price adjustment for variation in total bid quantity per Subsections 109-3 and 109-4 of the Standard Specifications and Special Provisions does not apply to this bid item.

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## **SECTION 810 - EROSION CONTROL AND POLLUTION PREVENTION**

**810-1 DESCRIPTION** of the Standard Specifications is modified to add:

**810-1.01 General.** On projects where an Arizona Pollutant Discharge Elimination System or equivalent National Pollutant Discharge Elimination System (AZPDES/NPDES) permit is required, the contractor shall implement the requirements of the permit for sediment and erosion control due to stormwater runoff during construction, as specified under the current AZPDES/NPDES Construction General Permit. The Agency and the contractor shall prepare and submit separate Notices of Intent (NOI) and Notices of Termination (NOT) forms for the project. The contractor shall copy their AZPDES NOI Application and NOI Certification to the owner of the Municipal Separate Storm Sewer System (MS4) (i.e. Pima County Department of Environmental Quality, City of Tucson Stormwater Management, Town of Marana Environmental Engineering, or the Town of Oro Valley Stormwater Utility). The contractor shall copy their AZPDES NOT Acknowledgement to the owner of the MS4 upon project stabilization. Copies of all NOI and NOT documentation shall be placed in to the SWPPP, along with verification that these were sent to the owner of the MS4. If the project lies in multiple MS4s, the NOI Application, Authorization, notification of sending the permit, and NOT shall be sent to all MS4s in which the project is located.

The Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP), which includes a narrative description of the proposed measures to be implemented, sequence of construction activities, and a site-specific diagram indicating the proposed locations where erosion and sediment control devices or measures may be required during construction. The SWPPP also includes pollution prevention controls.

This SWPPP is included in the Special Provisions. A list of subcontractors and key field personnel contact numbers shall be placed into the SWPPP. The contractor shall also be responsible for assembling member(s) of a Stormwater Team. The Stormwater Team shall be responsible for modifications to the SWPPP, and for compliance with the requirements in the AZPDES permit. Members of the Stormwater Team shall be listed in the SWPPP, along with title, responsibility, and qualifications. A member of the contractor's Stormwater Team shall be available for inspections with an Agency Representative. Prior to the start of construction, each contractor and all subcontractors shall be asked to sign a certification that they understand all requirements of the AZPDES/NPDES permit. Signed certifications shall be placed into the SWPPP.

Documentation in the SWPPP book required by the AZPDES permit shall also be included. This includes updating project maps and all appendices as required in the permit. It also includes placing the inspection report in the SWPPP book within 7 calendar days of completing the inspection.

Permanent erosion control will be constructed under the specific items found in the plans and listed in the Special Provisions and bid schedule.

## **810-2 MATERIALS**

**810-2.09 Track Out Pad** is hereby added to the Standard Specifications:

Track Out Pads shall consist of clean fractured aggregate between 1" and 3" in size and 6" in depth.

**810-2.10 AZPDES Sign Information** is hereby added to the Standard Specifications:

The contractor shall post the AZPDES Authorization number near entrances to the project. The

Authorization number can be added to existing project signs near project entries, such as the RTA sign. Lettering is to be a simple and legible font, minimum 2" height. If the job trailer is not on the project site, the location of the job trailer shall also be provided on the sign using similar lettering. Lettering shall be of a waterproof type, such as ready to apply, waterproof, vinyl letters.

### **810-3 CONSTRUCTION REQUIREMENTS**

#### **810-3.01 General** of the Standard Specifications is modified to add:

Prior to the start of construction, the Engineer and contractor will jointly review the Stormwater Pollution Prevention Plan (SWPPP), make any revisions needed, and approve and sign the SWPPP. The contractor shall use the signed SWPPP provided at the pre-construction meeting, and implement the SWPPP as required throughout the construction and establishment periods. The Engineer and contractor will perform a minimum of one routine inspection of disturbed areas that have not been stabilized at least once every 14 calendar days *and* within 24 hours of the end of a 0.5 inch rainfall. Reduced inspection frequency can occur when the site has been temporarily stabilized. The reduced inspection frequency is once every 28 days *and* before predicted rainfall events *and* after 0.5 inch rainfall events.

After each inspection, the contractor shall document the findings and revise the SWPPP as necessary. The Engineer and contractor shall jointly approve and sign each revision to the SWPPP before implementation. The contractor shall complete revisions to the SWPPP within 15 calendar days following notification if ADEQ determines the SWPPP is deficient. The contractor shall amend the SWPPP, as needed and record inspection results in the SWPPP within 7 calendar days after an inspection by local, state or federal officials. Changes to the SWPPP must be implemented in the field within 7 calendar days, or before the next rainfall event.

Final stabilization is met when all soil disturbing activities have been completed, temporary Best Management Practices have been removed and disposed of, and either a uniform perennial vegetative cover with a density of 70% of the native background has been established on all unpaved areas, or equivalent permanent stabilization measures are in place. Until final stabilization of the project, the contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from the nonexecution of the work. The contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final stabilization. No reimbursement shall be made for work necessary due to the contractor's failure to comply with the requirements of the SWPPP. The original completed SWPPP shall be returned to the Agency.

Except as specifically provided under Subsection 108-4, in the case of suspension of work from any cause whatsoever, the contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, provide for normal drainage and shall erect any necessary temporary structures, signs, or other facilities. During such period of suspension of work, the contractor shall properly and continuously maintain, in an acceptable growing condition, all newly established plantings, seedlings and soddings, furnished under its contract and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

#### **810-3.04 Other Pollution Controls** of the Standard Specifications is modified to add:

The contractor shall document all treatment chemicals, i.e. polymers, flocculants or other cationic treatment chemicals used on the project. Documentation shall be in accordance with the current AZPDES/NPDES

Construction General Permit and shall include a list of treatment chemicals used, justification for use, training provided in appropriate use, description of how they will be stored, dosage used, and a copy of Material Safety Data Sheets (MSDS).

Storage, handling and disposal of construction products, materials, and wastes shall comply with the current AZPDES/NPDES Construction General Permit. Control measures include the use of plastic sheeting under containers or bags of chemicals stored outside, providing adequately sized secondary containment under drums of chemicals, storing chemicals in water-tight, sealed containers that are labeled in accordance with applicable federal, state, tribal, or local requirements, and separating and labeling hazardous and non-hazardous waste. The contractor shall implement measures to minimize the potential for leaks and spills by installing barriers between material storage and traffic areas.

The contractor shall provide waste containers (e.g. dumpster or trash receptacles with covers/lids) of sufficient size and number to contain construction and domestic wastes. Domestic waste shall be cleaned up and disposed of daily in designated waste containers, and cleaned up immediately if overflowing.

**810-3.06 Off Site Staging and Storage Yard** of the Standard Specifications is modified to add:

If the contractor has entered into a separate agreement with an owner or lessee of private property to obtain property for use as a storage or staging area, both the Agency and the contractor shall state in its SWPPP that this area is under the control of the contractor.

**810-3.07 SWPPP Implementation Plan** of the Standard Specifications is modified to add:

The contractor will provide an implementation plan describing the SWPPP activities associated with the construction sequencing of the project and how all requirements of the SWPPP will be accomplished during all phases of construction, including housekeeping requirements. All disturbed slopes that will not be stabilized within the SWPPP mandated 14 days must have temporary stabilization installed.

The implementation plan shall also include the contractor's training plan for their own Stormwater Team, as well as for remaining staff and sub-contractors. The contractor shall provide new employee training at least one (1) time per year and shall provide refresher training for existing employees directly involved in SWPPP activities at least once every two (2) years. The contractor's training plan shall cover all requirements included in the most current version of the AZPDES Construction General Permit and shall include at minimum:

- County ordinances related to stormwater and construction
- Requirements for structural and non-structural control measures on construction sites, such as erosion and sediment controls
- Construction control measures maintenance requirements
- Inspection procedures
- Enforcement procedures
  
- Requirements and restrictions related to other permits included in the SWPPP, including the 404 Permit, prohibiting stockpiling in drainage conveyances and washes
- Concrete Waste Management
- Hazardous waste management, including spill reporting and mitigation
- Proper storage of construction materials

- Proper storage of construction waste
- Litter control
- Management of stockpiles, excavations, and spoils
- Management of portable toilets
- Respect for project work boundaries and preservation fence limits
- Respect for existing vegetation
- Installation of sediment wattles and logs

**810-3.08 (H) Track Out Pad** is hereby added to the Standard Specifications:

The work under this item shall consist of furnishing all materials, tools, equipment, and labor necessary to install and remove the Track Out Pads at all construction entrances; locations to be determined by the contractor and approved by the Engineer.

At the completion of the project, the contractor shall remove the Track Out Pads and restore/re-grade the area to return the ground elevation and grading to existing conditions as close as possible.

**810-3.10 (J) AZPDES Sign Information** is hereby added to the Standard Specifications:

The work under this item shall consist of furnishing all materials and labor necessary to add the AZCON authorization number to signs at all major entrances to the project site. The wording shall read "AZCON - \_\_\_\_\_". Wording or diagrams showing the location of the job trailer shall also be provided. If there is no sign which this information can be added to, the contractor shall furnish a sign for this purpose.

(810LOGS\_WATTLES, 3/25/15)

**ITEM NO. 8100005 - SEDIMENT LOG (DISCRETIONARY)**

**ITEM NO. 8100006 - SEDIMENT WATTLE (DISCRETIONARY)**

### **1. DESCRIPTION**

The work under these items shall include furnishing, installing, maintaining, and removing of sediment logs and sediment wattles, as directed by the Engineer during the course of construction and not provided for in the original project SWPPP plans. This work is in addition to the work shown in the project SWPPP plans, and is solely at the discretion of the Engineer.

### **2. MATERIALS**

Materials shall conform to the requirements of Section 810-2.04.

### **3. CONSTRUCTION DETAILS**

Construction details shall conform to the requirements of Section 810-3.08, and placement of sediment logs and sediment wattles shall conform to the details shown on the project SWPPP plans, at the direction of the Engineer.

#### **4. METHOD OF MEASUREMENT**

The work under these items shall be measured by the linear foot of Sediment Logs and Sediment Wattles, complete in place, parallel to the central axis of the log or wattle.

#### **5. BASIS OF PAYMENT**

The accepted quantity of Sediment Log (Discretionary) and Sediment Wattle (Discretionary), measured as provided above, shall be paid for at the contract unit price, complete in place including all equipment, labor and materials.

Price adjustment for variation in total bid quantity per Subsections 109-3 and 109-4 of the Standard Specifications do not apply to work under these bid items.

(925CONSTR\_SURVEY\_06/02/21)

### **SECTION 925 - CONSTRUCTION SURVEYING AND LAYOUT**

**925-1 DESCRIPTION** of the Standard Specifications second paragraph is deleted.

#### **925-3 CONSTRUCTION REQUIREMENTS**

**925-3.01 Personnel and Equipment** of the Standard Specifications second paragraph is modified to read:

All survey and layout work, as described in the section, shall be under the direction of a Land Surveyor registered in the State of Arizona. Each survey crew chief shall be NSPS Certified Level III, NICET Certified Level III, or a Land Surveyor-in-Training in the State of Arizona.

#### **925-3.03 Field Staking and Layout**

**925-3.03 (B) Agency Provided Information** of the Standard Specifications third paragraph is modified read:

For vertical control, the Engineer will have Agency survey personnel establish bench marks for the entire length of the project at horizontal intervals not to exceed 500 feet.

**925-3.03 (B) Agency Provided Information** of the Standard Specifications is modified to replace the last paragraph:

The contractor shall adhere to the requirements specified in Subsection 925-3.04 when locating or establishing ties to section line, right-of-way, and roadway monuments.

**925-3.03 (C) Survey Staking by the Contractor** of the Standard Specifications is modified to add:

The Engineer shall provide a copy of the Pima County Department of Transportation Survey Staking Request form to the contractor for use in requesting staking to be performed by the contractor's surveyor.

The contractor shall provide a copy of Survey Staking Requests, prepared for the contractor's surveyor, to the Engineer. The request shall afford a minimum forty-eight (48) hours' notice for the establishment of staking. The request shall list, in order of importance, the items to be staked including the area and necessary offsets required. Within Twenty-four (24) hours of staking completion, the contractor shall provide to the Engineer a copy of the staking field notes (cut sheets) of the items listed in the Survey Request. All survey field notes are to be submitted within thirty (30) days from the completion of the project and will become the property of the Agency.

**925-3.03 (C) Survey Staking by the Contractor** of the Standard Specifications is modified to replace the seventh paragraph:

The contractor shall exercise care in the preservation of stakes, references and benchmarks and shall have them reset by the contractor's surveyor when any are damaged, lost, displaced or removed at no additional cost to the Agency.

**925-3.03 (D) Layout for Pavement Striping** of the Standard Specifications is modified to replace the last sentence of the first paragraph:

Refer to Subsection 704-3.01 for pavement striping layout requirements.

**925-3.04 (C) Survey Staking by the Contractor** of the Standard Specifications is modified to replace the third paragraph:

A copy of the corner recordation documentation shall be submitted to the Engineer within ten working days of completion of the project for review by the Pima County DOT Survey office. Upon acknowledgment of acceptance by the Pima County Survey office, the contractor shall have the corner documentation recorded at the appropriate county recorder's office and a copy of the record of Survey documentation shall be submitted to the Engineer within five working days of recording.

**925-4 METHOD OF MEASUREMENT** of the Standard Specifications is modified to add:

Additional staking and layout will be measured on a USD (dollar) basis.

**925-4 METHOD OF MEASUREMENT** of the Standard Specifications is modified to delete the 2<sup>nd</sup> paragraph.

**925-5 BASIS OF PAYMENT** of the Standard Specifications is modified to add the following predetermined rates for additional staking and layout work directed by the Engineer:

**Table 925-1  
Additional Staking and Layout Service Rates**

Description of Service	Unit	Rate
One-Person Survey Party	Hour	\$80
Two-Person Survey Party	Hour	\$130
Three-Person Survey Party	Hour	\$165
Survey Manager	Hour	\$135
Office Survey Technician	Hour	\$80



**925-5 BASIS OF PAYMENT** of the Standard Specifications fourth paragraph, 1<sup>st</sup> and 2<sup>nd</sup> sentences are revised to read:

If additional staking and layout are required as a result of additional work directed by the Engineer, payment will be made at the respective predetermined unit prices specified in Table 925-1 of this Special Provision and will be paid for under bid item 9250111, *Additional Staking and Layout Allowance*, of the bidding schedule.

**(930INCIDENTAL\_ITEMS\_ALLOWANCE, 3/13/17)**

**ITEM 9300100 - INCIDENTAL ITEMS ALLOWANCE**

**1. DESCRIPTION**

The work under this item shall be subject to the approval of the Engineer and shall consist of furnishing all labor, materials, equipment and other incidentals necessary or convenient to the successful completion of the project not provided for in the contract as awarded.

**2. MATERIALS** (None Specified)

**3. CONSTRUCTION DETAILS**

All work under this item shall be as directed by the Engineer.

**4. METHOD OF MEASUREMENT**

Incidental items will be measured on a USD (dollar) basis.

**5. BASIS OF PAYMENT**

Payment for incidental items shall be paid for using any of the methods described in Subsection 109-5.01 of the Standard Specifications and shall be full compensation for the work, complete in place.

**(1005BITMAT, 12/19/18)**

**SECTION 1005 - BITUMINOUS MATERIALS FOR SURFACING**

**1005-3 BITUMINOUS MATERIAL REQUIREMENTS**

**1005-3.01 Asphalt Cement** of the Standard Specifications is modified to add:

Terminal mix shall use performance grade (PG 76-22 TR+) asphalt binder conforming to the requirements of Table 1005-1.

**1005-3.01 Asphalt Cement** of the Standard Specifications is modified to revise Table 1005-1:

<b>TABLE 1005-1 PG 76-22 TR+ ASPHALT BINDER</b>				
<b>Test Property</b>	<b>Test Method</b>	<b>Requirement</b>	<b>Test Result</b>	<b>Percent of Contract Unit Price Allowed</b>

Solubility in Trichloroethylene, %, minimum	ASTM D 2042	97.5	-----	-----
Softening Point, °C, minimum	AASHTO T 53	60	≥ 60 57 - 59 < 57	100 85 70 (1)
Elastic Recovery, @ 10 °C, %, minimum	AASHTO T 301	55	≥ 55 50 - 54 < 50	100 85 70 (1)
Phase Angle (δ), @ 70 °C @ 10 rad/sec, degrees, maximum	AASHTO T 315	75	≤ 75 76 - 83 > 83	100 85 65 (1)

(1) Reject Status: The pay adjustment applies if allowed to remain in place.

**Notes:**

- PG 76-22 TR+ asphalt binder shall contain a minimum of 8 percent crumb rubber and a minimum of two percent SBS (styrene-butadiene-styrene) polymer.
- PG 76-22 TR+ asphalt binder shall conform to the requirements of AASHTO M 320 and, in addition, shall meet the requirements specified above.
- Should the bituminous material be deficient on more than one of the properties listed in Tables 1005-1, the pay adjustment will be the greatest reduction to the contract unit price specified considering individual test results.
- The pressure aging temperature for PG 76-22 TR+ asphalt binder shall be 110 °C.
- The crumb rubber shall be derived from processing whole scrap tires or shredded tire materials. The tires from which the crumb rubber is produced shall be taken from automobiles, trucks, or other equipment owned and operated in the United States. The processing shall not produce, as a waste product, casings or other round tire material that can hold water when stored or disposed of above ground.

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**1005-3.07 Asphalt Cement** of the Standard Specifications is revised to read:

Bituminous material for slurry seal shall be a cationic quick setting asphaltic emulsion conforming to the requirements for PMCQS-1h grade meeting the following requirements:

TESTS ON EMULSIONS	Test Method	Min	Max
Viscosity, Saybolt-Furol at 77°F, sec	AASHTO T 59	20	100

TESTS ON RESIDUE FROM DISTILLATION	Test Method	Min	Max
Residue by evaporation, %	ARIZ 504	60	
Penetration, 25°C (77°F), 100 g., 5 sec	AASHTO T 49	55	75
Ductility, 25°C (77°F), 5 cm per min, cm	AASHTO T 51	40	
Ring and Ball Softening Point	AASHTO T 53	130	
Elastic Recovery, %	AASHTO T 30	55	
Solubility in trichloroethylene, Wt. %	AASHTO T 59	97.5	

Storage Stability Test, 1 day, %	-----	1	
Particle charge test	AASHTO T 59	Positive	

**1005-3.08 Other Requirements** of the Standard Specifications is modified to revise Table 1005-5:

TABLE 1005-5 OTHER REQUIREMENTS			
GRADE OF ASPHALT SPECIFICATION DESIGNATION	RANGE OF TEMPERATURES FOR APPLICATION BY SPRAYING, °F (1)	RANGE OF AGGREGATE TEMPERATURES FOR PLANT MIXING, °F	BASIS OF CONVERSION, AVERAGE GALLONS PER TON AT 60 °F
Paving Asphalt: PG 76-22 TR+ PG 76-XX PG 70-XX PG 64-XX PG 58-XX PG-52-XX	275 – 400	----	— 229 232 233 235 236 238

Liquid Asphalt:	----	----	---
MC-70	105 - 175	90 - 155	253
MC-250	140 - 225	125 - 200	249
MC-800	175 - 255	160 - 225	245
MC-3000	215 - 290	200 - 260	241
Emulsified Asphalt:	---	----	240
RS-1	70 - 140		
CRS-1	125 - 185		
PMCQS-1h	125 - 185		
RS-2	125 - 185		
CRS-2	125 - 185 (2)		
CRS-2P	70 - 160		
SS-1	70 - 160		
CSS-1	----		
HFE - 150P	----		
HFE - 300P			
Emulsified Asphalt: (Special Type)	70 - 160	----	240
Recycling Agent: (RA-1, RA-5, RA-25, and RA-75)	----	----	240
Emulsified Recycling Agent: (ERA-1, ERA-5, ERA-25 and ERA-75)	70 - 160	----	240
NOTES:			
(1) Not applicable to plant mixing.			
(2) Or as directed by the Engineer.			

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## APPENDIX B - PIMA COUNTY NOISE ORDINANCE

### Chapter 9.30

#### REGULATION OF EXCESSIVE, UNNECESSARY AND ANNOYING NOISES

---

##### Sections:

- 9.30.010 Applicability.
- 9.30.020 Purpose.
- 9.30.030 Definitions.
- 9.30.040 Impermissible sound levels.
- 9.30.050 Loud radios, sound sets, etc.
- 9.30.060 Vehicular noise.
- 9.30.070 Construction of buildings and other projects.
- 9.30.080 Exemptions.
- 9.30.090 Penalty.
- 9.30.100 Severability.
- 9.30.110 Effective date.

##### **9.30.010 Applicability.**

This chapter shall not apply to any incorporated city, town or Indian reservation. It shall apply only within the unincorporated areas of the county.

##### **9.30.020 Purpose.**

It is hereby declared to be the policy of Pima County to prohibit excessive, unnecessary and annoying noises from all sources. At and above certain level, noises are detrimental to the health and welfare of the citizens of the county, and it is in the best interest of the citizens of Pima County that such noises be systematically eliminated.

(Ord. 1999-61 § 1 (part), 1999)

##### **9.30.030 Definitions.**

The following definitions shall apply throughout this chapter unless a different meaning is clearly indicated by the context:

A. Commercial property means any property occupied by business which sell, rent, trade or store goods, or which provide a service.

B. Industrial property means any property occupied by land uses whose primary operation involves manufacturing, assembling, processing or otherwise treating raw materials, semi-finished products, or finished products for packaging and distribution to either wholesale or retail markets.

C. Property line means the line which represents the legal limits of property (including an apartment, condominium, room or other dwelling unit) owned, leased or otherwise occupied by a person, business, corporation or institution. In cases involving sound from an activity on a public street or other public right-of-way, the property line shall be the nearest boundary of the public right-of-way.

D. Residential property means any property, the dominant use of which is nontransient occupancy of residential dwelling units.

E. Motor vehicle means any self-propelled vehicle operated within the county, including but not limited to licensed or unlicensed vehicles, automobiles, minibikes, go-carts, all terrain vehicles, and motorcycles.

F. Emergency work means any work performed to prevent or alleviate physical trauma or property damage threatened or caused by an emergency which has or may result in a disruption of service and which is necessary to protect the health, safety and welfare of persons or property.

G. Emergency vehicle means vehicles of the fire, police and public service departments and legally authorized ambulances and emergency vehicles of state departments or any political subdivisions thereof and vehicles of public service corporations.

H. Person means a human being and, as the context requires, an enterprise, a public or private corporation, an unincorporated association, a partnership, a firm, a society, a government, a governmental authority or an individual or entity capable of holding a legal or beneficial interest in property.

(Ord. 2001-127 § 1 (part), 2001; Ord. 1999-61 § 1 (part), 1999)

#### **9.30.040 Impermissible sound levels.**

In addition to the prohibited noises described in 9.30.050, 9.30.060 and 9.30.070, it shall be unlawful for any person to make or continue, or cause or permit to be made or continued, any excessive, unnecessary or offensive noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitivity residing in the area.

(Ord. 2001-127 § 1 (part), 2001; Ord. 1999-61 § 1 (part), 1999)

#### **9.30.050 Loud radios, sound sets, etc.**

A. It shall be unlawful for any person, including the owner or manager of a restaurant, bar, inn, or resort of any kind, to operate or permit to be operated any radio receiving set, phonograph, musical instrument, or sound producing or sound reproducing mechanism, at any time in such a manner as to permit the same to be heard at a distance of more than one hundred twenty-five (125) feet from the property line or motor vehicle where such radio receiving set, phonograph, or sound producing or sound reproducing mechanism is located, when the sound of such radio receiving set, phonograph, musical instrument, or sound producing or sound reproducing mechanism is operated in such a manner as to create an excessive, unnecessary or offensive noise that a reasonable person of normal sensitivity residing in the area is caused discomfort or annoyance.

B. It shall be unlawful for any person, including the owner or manager of a restaurant, bar, inn, or resort of any kind, to operate or permit to be operated any radio receiving set, phonograph, musical instrument, or sound producing or sound reproducing mechanism, between the hours of 10:00 P.M. and 7:00 A.M. in such a manner that the sound from such radio set, phonograph, musical instrument, sound producing or sound reproducing mechanism may be heard beyond the property line from which it is operated or outside the motor vehicle in which it is operated in such a manner as to create an excessive, unnecessary or offensive noise that a reasonable person of normal sensitivity residing in the area is caused discomfort or annoyance.

(Ord. 2001-127 § 1 (part), 2001; Ord. 1999-61 § 1 (part), 1999)

#### **9.30.060 Vehicular noise.**

A. It shall be unlawful for any person within any residential area of this county to repair, rebuild or test any motor vehicle between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day in such a manner as to create an excessive, unnecessary or offensive noise that a reasonable person of normal sensitivity residing in the area is caused discomfort or annoyance.

B. No person shall operate or cause to operate any motor vehicle unless the exhaust system of such vehicle:

1. Is free from defects which may cause sound level magnification,
2. Is equipped with a muffler,
3. Has not been modified in such a manner which will amplify or increase the sound level emitted by the motor of such vehicle above that emitted by a muffler originally installed on the vehicle as manufactured for initial sale.

C. No person shall operate a motor vehicle in such a manner which creates the squealing of tires in the roadway.

(Ord. 1999-61 § 1 (part), 1999)

#### **9.30.070 Construction of buildings and other projects.**

A. Noise limitations: Subject to the provisions of section 9.30.040, it shall be unlawful for any person to operate equipment or perform any outside construction or repair work on buildings, structures or projects, or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist or any other construction type device except within the time periods specified below unless an appropriate permit has been obtained beforehand from the county.

B. Construction start/stop times:

1. Concrete work: From April fifteenth to October fifteenth, inclusive, concrete may be poured each day between the hours of 5:00 a.m. and 7:00 p.m. or at such other times as authorized by permit. From October sixteenth to April fourteenth, inclusive, concrete may be poured each day between the hours of 6:00 a.m. to 7:00 p.m. or at such times as authorized by permit.
2. Other type construction (residential zones): From April fifteenth to October fifteenth, inclusive, all other construction or repair work shall not begin prior to 6:00 a.m. and must stop by 7:00 p.m. each day in, or within five hundred (500) feet of, a residential zone or at such other times as authorized by permit. From October sixteenth to April fourteenth, inclusive, all other construction or repair work shall not begin prior to 7:00 a.m. and must be stopped by 7:00 p.m. each day in, or within five hundred (500) feet of, a residential property or at such other times as authorized by permit.
3. Other type construction (commercial and industrial zones): Construction and repair work in commercial and industrial zones, not within five hundred (500) feet of a residential property, shall not begin prior to 5:00 a.m. and must stop by 7:00 p.m. or at such other times as authorized by permit.
4. Weekends and holidays excluded: Notwithstanding anything to the contrary herein, construction or repair work shall

not begin prior to 7:00 a.m. and must stop by 7:00 p.m., and concrete pouring should not begin prior to 6:00 a.m. and must stop by 7:00 p.m. on any Saturday, Sunday or state or federal holiday, unless such other times are authorized by permit.

C. Permits: Construction and repair work may be conducted at different times and at higher noise levels than otherwise permitted, if upon written application, a permit is obtained beforehand from the county administrator or his designee. The permit shall be kept on the work site and shown to county officials on request. In granting such permit, the county administrator or his designee shall consider if construction noise in the vicinity of the proposed work site would be less objectionable at night than during the daytime because of different population levels or different neighboring activities; if obstruction and interference with traffic, particularly on streets of major importance, would be less objectionable at night than during the daytime; if the kind of work to be performed emits noises at such a low level as to not cause significant disturbance in the vicinity of the work site; if the neighborhood of the proposed work site is of such a character wherein sleep could be disturbed; if great economic hardship would occur if the work was spread over a longer time; if the work will abate or prevent hazards to life or property; if proposed early morning or night work is in the general public interest; and, he shall prescribe such conditions, working times, types of construction equipment to be used, and permissible noise emissions as he deems to be required in the public interest. No permit shall be required to perform emergency work as defined in section 9.30.030.

D. Revocation of permits: The county administrator or his designee may revoke any permit granted hereunder upon complaint based upon substantial evidence that the construction activity caused significant disturbance in the vicinity of the work site.

(Ord. 1999-61 § 1 (part), 1999)

#### **9.30.080 Exemptions.**

The following uses and activities shall be exempt from the provisions contained in this article:

A. Heating and cooling equipment when it is functioning in accordance with manufacturer's specifications and is in proper operating condition provided that no unit may create an excessive, unnecessary or offensive noise causing annoyance or discomfort to a reasonable person of normal sensitivity within any sleeping or living area inside any dwelling unit;

B. Landscape maintenance equipment when it is functioning in accordance with the manufacturer's specifications and with all mufflers and noise-reducing equipment in use and in proper operating condition;

C. Nonamplified crowd noises resulting from activities such as those planned by school, governmental or community groups, or organized sports except for such noises generated at restaurants, bars, inns, or resorts of any kind;

D. Noises of safety signals, warning devices and emergency pressure relief valves;

E. Noises resulting from any authorized emergency vehicle when responding to an emergency call or acting in time of emergency;

F. Noises resulting from emergency work as defined in section 9.30.030;

G. Noises from the normal operation of railroad trains;

H. Noises from church chimes;

I. Power plant equipment during normal operation;

J. Noise created by any county vehicle, equipment or facility while being operated for official use;

K. Operation of agricultural equipment in connection with farming operations;

L. Any aircraft operated in conformity with, or pursuant to, federal law, federal air regulations or air traffic control instructions issued pursuant to or within duly adopted federal air regulations, together with any noise created by aircraft operated under, or pursuant to, declaration of an emergency under federal air regulations.

(Ord. 2001-127 § 1 (part), 2001; Ord. 1999-61 § 1 (part), 1999)

#### **9.30.090 Penalty.**

A violation of any provision of this article shall be deemed and is declared to be a public nuisance and any person who violates any of the provisions of this article shall be guilty of a class 1 misdemeanor. Each day a violation continues or exists shall be a separate offense subject to punishment as a separate class 1 misdemeanor.

(Ord. 1999-61 § 1 (part), 1999)

#### **9.30.100 Severability.**

If any provisions of this ordinance, or the application thereof to any person or circumstance, is invalid, that invalidity shall not effect other provisions or applications of this ordinance which can be given effect without the invalid provisions or applications, and to this end the provisions of this ordinance are severable.

(Ord. 1999-61 § 1 (part), 1999)

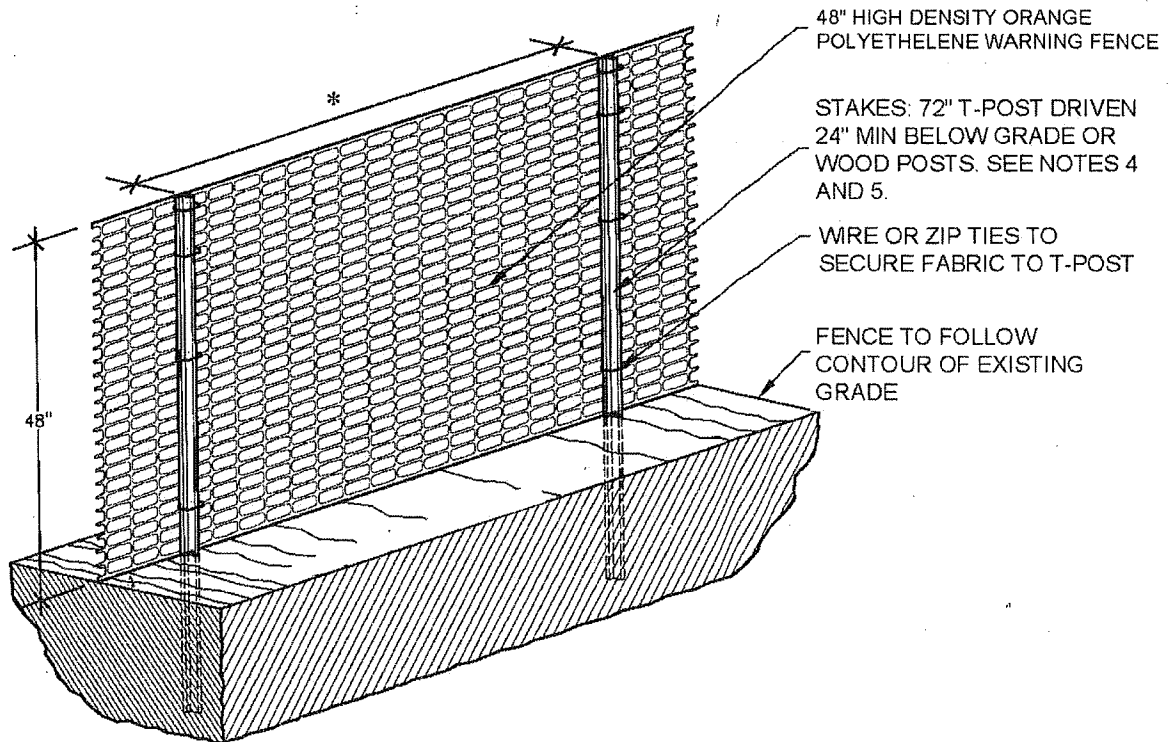
#### **9.30.110 Effective date.**

This ordinance will be in full force and effective after thirty days from the date of enactment.  
(Ord. 1999-61 § 1 (part), 1999)

**END APPENDIX B - PIMA COUNTY NOISE ORDINANCE**





# APPENDIX C - PIMA COUNTY STANDARD DETAILS

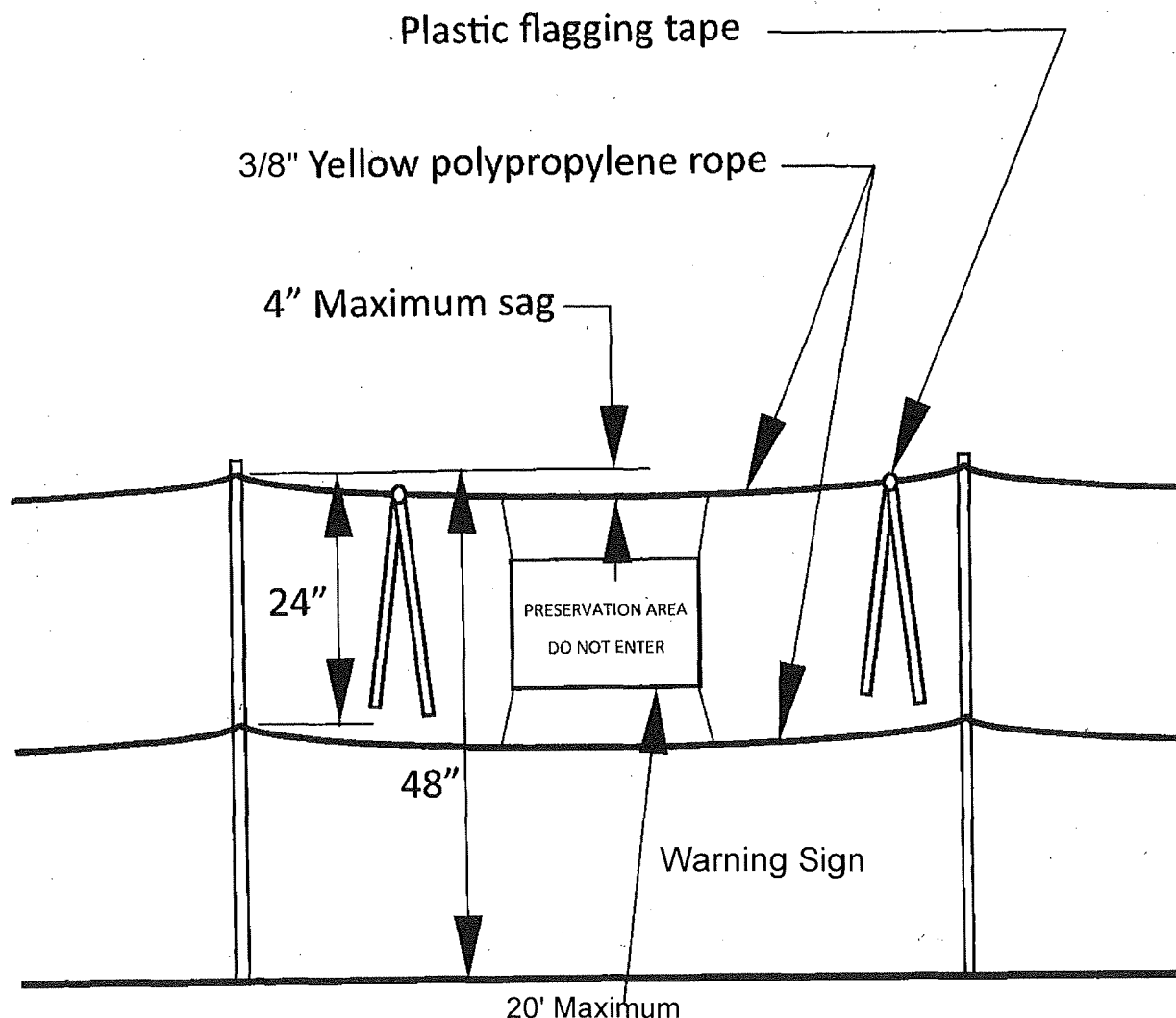


\* 10' MAXIMUM SPACING

## NOTES:



1. USE CONSTRUCTION FENCE FOR SAFETY, CONTAINMENT, AND CONTROL AT LOCATIONS SHOWN ON THE PROJECT PLANS OR AS DIRECTED BY THE ENGINEER.
2. PLACE FENCE OUTSIDE THE DRIP LINE OF TREES.
3. FENCE FABRIC TO BE FASTENED SECURELY TO POSTS.
4. WHEN USING WOOD POSTS THE POSTS SHALL BE OF HARDWOOD WITH A WEDGE OR PENCIL TIP AT ONE END, 72" MIN. LENGTH, AND 2" X 2" NOMINAL CROSS SECTION. USE ONE 2" GALVANIZED WIRE STAPLE TO ATTACH FABRIC TO WOOD POSTS.
5. METAL T-POST SHALL HAVE A MINIMUM WEIGHT OF 0.85 LB/FT OF LENGTH.

ISSUED:		STANDARD DETAIL		DETAIL NO.
12/16		Construction Fence		121
REVISED:				SHEET 1 of 1



NOTES:

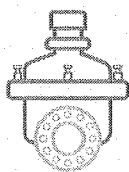
1. POSTS TO BE EITHER HARDWOOD STAKES OR METAL T-POSTS SIX FEET (6') LONG MINIMUM WITH A MINIMUM EMBEDMENT OF 2-FEET INTO THE GROUND.
2. ROPE TO BE ATTACHED TO FENCE POSTS USING PLASTIC OR WIRE TIES.
3. WARNING SIGN SHALL BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERING TO BE TIMES NEW ROMAN OR AERIAL FONT, RED IN COLOR, MINIMUM OF 1" IN HEIGHT, SECURELY ATTACHED IN THE UPPER HALF OF THE FENCE, AND PLACED AT 50-FOOT MAXIMUM INTERVALS.
4. FLAGGING TAPE SHALL BE 1-3/16 INCH, 4-MIL THICKNESS, NO-ADHESIVE VINYL, FLUORESCENT SOLID COLOR, AND ATTACHED TO THE TOP ROPE ON BOTH SIDES OF THE WARNING SIGN.
5. CONSTRUCTION FENCE (PC STD DTL 121) MAY BE USED IN LIEU OF PRESERVATION WHEN DIRECTED BY THE ENGINEER OR SPECIFIED ON THE PROJECT PLANS.

ISSUED:		STANDARD DETAIL		DETAIL NO.
12/16		Preservation Fence		904
REVISED:				
				SHEET 1 of 1

## PermaSeal™ Insertion Valve

The PermaSeal Insertion Valve integrates the functionality and performance of the Mueller A-2361 Resilient Wedge Gate Valve with the Mueller H-600 Series Ductile Iron Tapping Sleeve to allow for insertion into existing water mains with minimal service disruption and dependable functional service life.

### Overview



Permanent, exercisable gate valve that functions and performs the same as a conventional resilient wedge gate valve



Reduce the need for a shutdown, disruption to flow, and water contamination concerns resulting in time, cost, maintenance, and customer downtime savings



Minimize environmental disruption through less excavation and reduced use of pipe and secondary materials

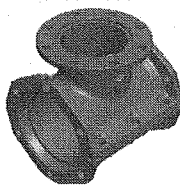
### Key Benefits

- Offered in 4", 6", 8", 10", and 12" Standard (DI, CI, PVC) and Oversized (AC pipe) Variants
- Designed to Meet AWWA C-515 and C-223 Standards
- 100% Factory Tested and Verified
- 350/250\* psig Working Pressure
- "Clean Seat" Technology Enables Repeatable and Reliable Water Shutoff
- ANSI / NSF 61 & 372 Certified for Drinking Water System Components
- AWWA C550 10mil (nominal) Fusion Bonded Epoxy Coating
- Standard 10-Year Mueller Warranty

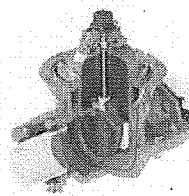
\*250psi for H819 on AC pipe



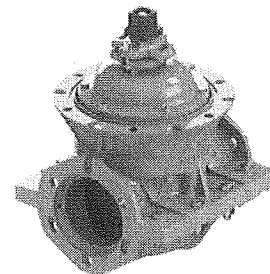
A-2361 Resilient Wedge Gate Valve



H-615/9 Ductile Iron Tapping Sleeve



PermaSeal™ Insertion Valve



### Ready to get started?

Discover the potential, and get in touch at [marketing.muellerwp.com/PermaSealInsertionValve](http://marketing.muellerwp.com/PermaSealInsertionValve)

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# PERMASEAL<sup>TM</sup> INSTALLATION INSTRUCTIONS


H-2361 Resilient Wedge Gate Valve (4" - 12")


## TABLE OF CONTENTS

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## EXCAVATION

1. Dimensions for excavation are shown in **Figure 1** and **Table 1**.
2. Excavation width (DIM W) should be centered on the water main.
3. Plan for insertion valve location to be offset on length of pipe, to provide adequate space for isolation knife valve during the installation process.
4. Excavation depth should be a minimum 1ft below the main (DIM B).

**WARNING**  : Trenching and excavation present serious hazards. Follow all applicable guidelines, including OSHA guidelines on Trenching and Excavation Safety. Ensure that a competent person inspects excavation site at appropriate times. Failure to follow guidelines and precautions could result in equipment damage, serious injury, or death.

**WARNING**  : When “high” flow conditions (8-16 ft/s) exist, it is recommended that a nearby upstream hydrant is opened/flushed. This is to relieve excess pressure in the network during the cutting operation which temporarily restricts the water way.

## SELECTING THE LOCATION OF THE VALVE

1. Where possible, locate valve on a straight run section of water main without bell ends or obstructions for a distance of 12” on each side (DIM C) of the valve.

## PREPARING THE MAIN

1. Clean main thoroughly for a distance of 6” longer than the valve on each side by removing all dirt, rust, and corrosion from the main and finishing with a brush.

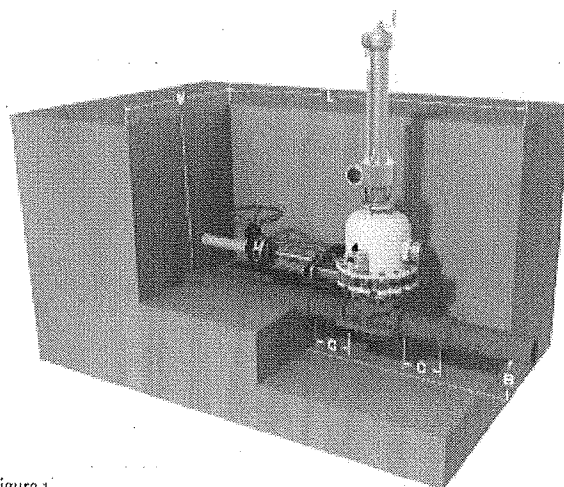


Figure 1

**Table 1: Excavation Dimensions**

Nominal Valve Size	Recommended	
	(L)	(W)
4" - 8"	8'	4'
10" - 12"	12'	6'



### **WARNING:**

Wear applicable PPE at all times including safety shoes, hard hat, safety glasses, safety vest and work gloves. Failure to do so could result in serious injury or death.

## MOUNTING VALVE CASING ON THE WATER MAIN

1. If NPT plugs exist on the underside of the bottom casing, ensure they are tight and thread sealant is present. If found loose, tighten plugs at this time.
2. Insert side gaskets into the bottom casing as shown in **Figure 2**.
3. Insert alignment bushings into the counterbores of bottom case as shown in **Figure 3**.
4. Place bottom casing on main, use proper support/blocking under bottom case.

**WARNING** ⚠ : Based on the soil conditions adequate blocking must support combined total weight of insertion valve and installation equipment (water weight included). Refer to the **Exhibit 1** of Appendix.

5. Place and align top casing onto bottom casing.
6. Apply anti-seize and hand tighten casing bolts. Fasten two sleeves together by progressively tightening the bolts to 220 ft-lbs. in the order shown in the **Exhibit 2** of Appendix and **Figure 4**.
7. Trim protrusions of the side gaskets at the mechanical joint (MJ) and valve body sealing surfaces to approximately 1/8" (0.125) beyond level of casting surface as shown in **Figures 5A & 5B**.
8. Install split mechanical joint (MJ) gasket and gland on both ends of the assembled sleeve, per the gasket and split gland manufacturer recommendations. Reference **Figure 6**.

**CAUTION:** Make sure the split of the mechanical gland does NOT align with that on the casings nor with the split in the gasket. Do NOT twist-off gripper nuts until after the assembly pressure testing in case the glands need to be adjusted or retorqued.

9. Apply anti-seize and start angular bolts into the top casing as shown in **Figure 7**.

**CAUTION:** Angular bolts must NOT protrude past the inside wall of the top casing to avoid interference with the cutter and valve body.

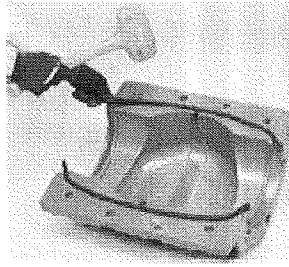


Figure 2

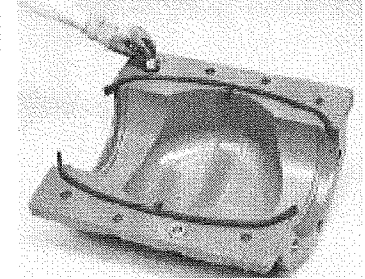


Figure 3

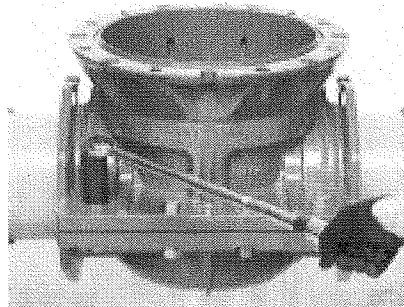


Figure 4

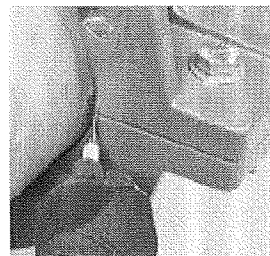


Figure 5A

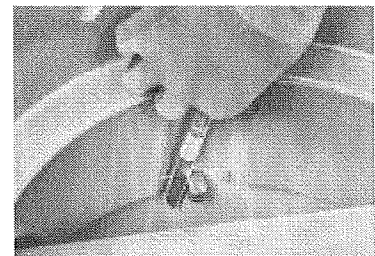


Figure 5B

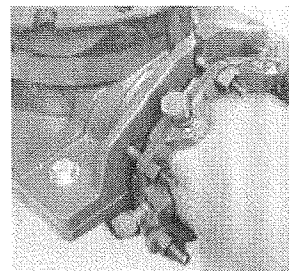


Figure 6

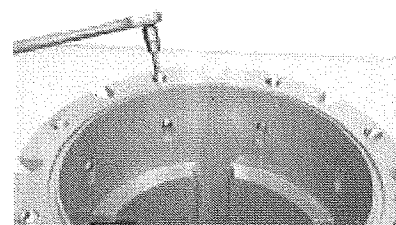



Figure 7

## PRESSURE TESTING THE CASING ASSEMBLY

1. Assemble packing rings on to the test plate.
2. Tighten angular bolts into the test plate to the torque values and order shown in the **Exhibit 3** of Appendix.
3. Perform **water** pressure test to the lesser of valve or pipe pressure rating, using the ports provided on the test plate as shown in **Figure 8**.
4. Upon completion of the pressure test, back out all angular bolts until flush with the inside wall of the top casing (Figure 7).
5. Disassemble packing rings from the test plate and set aside.

**WARNING**  : Mechanical gland gripper nuts may be twisted off at this time.

## PREPARING FOR INSTALL

Install pour cover onto top casing

6. Pour concrete footer one foot outside of valve casing and covering the top of the casing flanges as shown in **Figure 9**.

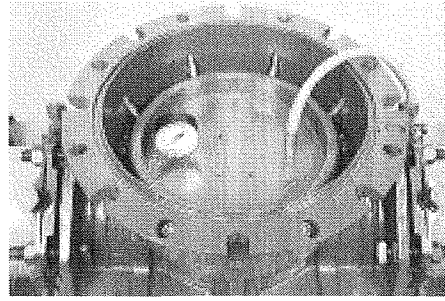


Figure 8

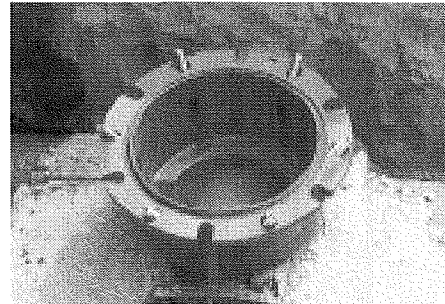


Figure 9



## PREPARING FOR THE CUT

1. Remove concrete pour cover.
2. Ensure angular bolts are present and flush to the inside wall of top casing.
3. Place O-ring into the gland of top casing as shown in **Figure 10**.
4. Install flange adapter onto the top casing as shown in **Figure 11**.

### NOTE:

1. Orient fasteners with the nut on top of the flange.
  2. Verify O-ring is inserted into the gland on top surface of the flange adapter.
  3. Ensure positioning pin in flange adapter is aligned with counter bore in top casing.
5. Install the knife valve, seat-side up, onto the flange adapter, noting the additional clearance required to operate the knife valve as shown in **Figure 12**.

**NOTE:** Refer to **Exhibit 7** to determine which bolts are used for the blind holes vs. the thru holes on the knife valve.

6. Assemble the drilling machine onto the short adapter, with the supplied flat gasket in between as shown in **Figure 13**.

**NOTE:** 4", 6" and 8" insertion valves can be installed with either Mueller CL-12 or C1-36 machines. 10" - 12" insertion valves can only be installed with C1-36 machines.

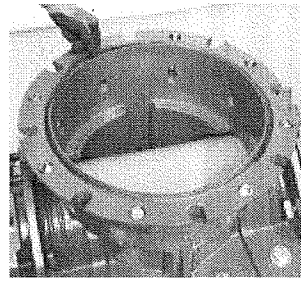


Figure 10

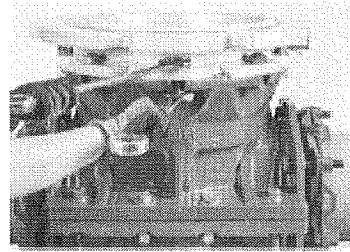


Figure 11

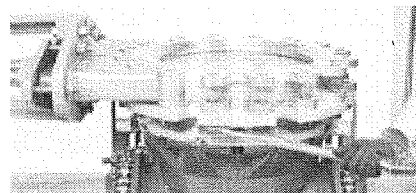


Figure 12

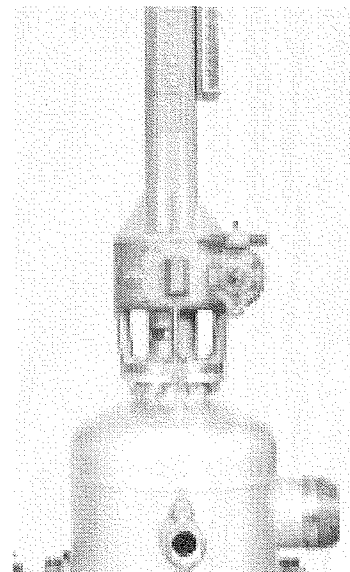


Figure 13



7. Fasten the shell cutter to the appropriate cutter hub using the supplied socket head cap screws, then fasten the pilot drill to the cutter hub and tighten. The cutter is now assembled as shown in Figure 14.

**NOTE:** If pilot drill inserts or shell cutter teeth are dull or damaged, replace. Check pilot drill retaining wires for free movement.

8. Advance the boring bar, attach cutter assembly, then fully retract into the short adapter as shown in **Figures 15A & 15B**.
9. Lubricate the cutter teeth and pilot drill generously with cutting grease (Mueller Part Number: 88366 for pint or 83486 for gallon)

**NOTE:** Verify O-ring is inserted in the underside gland of the short adapter.

10. Assemble short adapter/drilling machine assembly onto the knife valve as shown in **Figure 16**.

**NOTE:** Refer to **Exhibit 7** to determine if washers are used and which bolts are used for the blind holes vs. the thru holes on the knife valve.

11. Open  $\frac{1}{4}$ " air bleed valve on top of the short adapter as shown in **Figure 17**.

12. Fully open the knife valve as shown in **Figure 18**.

**CAUTION:** Failure to open the knife valve fully will result in damage to the knife valve and cutter.

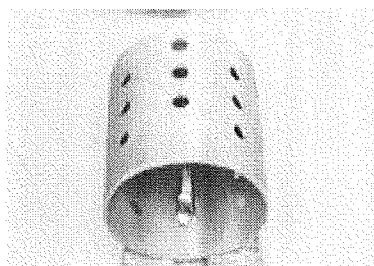


Figure 14

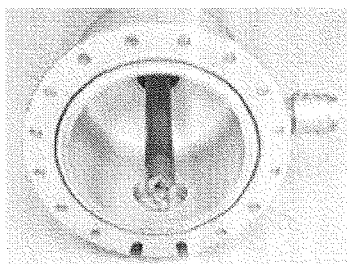


Figure 15A

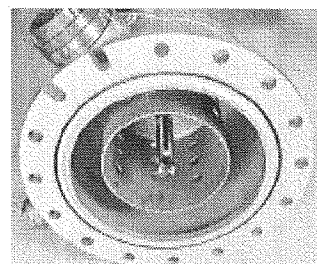


Figure 15B

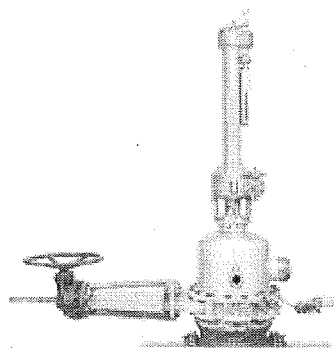


Figure 16

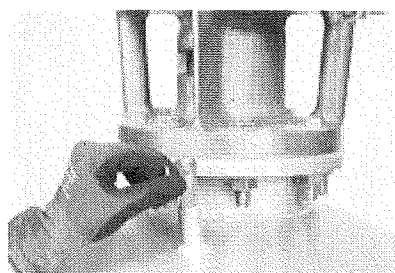


Figure 17

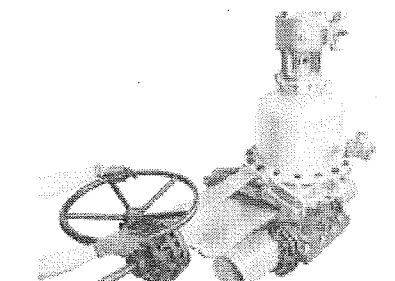


Figure 18

## ESTABLISHING BASELINE AND MAKING THE CUT

**CAUTION:** User must understand the operation of the drilling machine to be used. Read drilling machine operating instructions/manual: CL-12 (Form # 8895) and C1-36 (Form # 8513).

1. Manually lower the cutter and stop when pilot drill contacts the main (resistance is felt). Retract cutter one full turn of the drilling machine's hand crank rotation.
2. Determine total cut distance by measuring the diameter of the main and adding it to the Pilot Drill Offset dimension as referenced in the **Exhibit 4** of Appendix.
3. Put drilling machine into the Auto Feed mode and set the cut distance (as determined in prior step). Begin the cut.
4. Once fully vented, close the  $\frac{1}{4}$ " air bleed ball valve on top of the short adapter, as shown in **Figure 17**.

**NOTE:** Please see Exhibit 10 for clearance between pipe and bottom casing interior.

5. Once the cut distance has been achieved, STOP the drilling machine.
6. Fully retract cutter into the short adapter.
7. Close the knife valve. Do not over tighten
8. Open the 2" drain valve on the short adapter to depressurize and drain the water, as shown in **Figure 19**.

**NOTE:** Prior to disassembly, visual identification of the coupon can be made through the 4" Storz inspection port.

9. Disassemble the short adapter/drilling machine assembly from the knife valve, as shown in **Figure 20**.

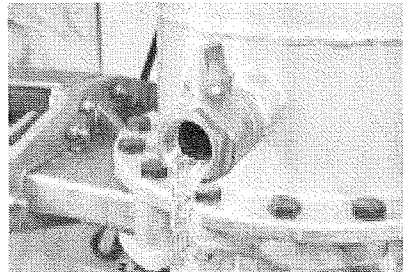


Figure 19

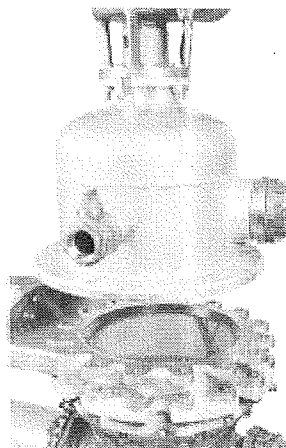


Figure 20

## EVACUATING THE CHIPS

1. Insert the chip evacuation rod through the chip evacuation plate, then attach the retainer nut to the end of the rod as shown in **Figure 21**.

**NOTE:** Verify O-ring is inserted in the gland of the chip evacuation plate.

2. Attach the chip evacuation plate to the knife valve as shown in **Figure 22**.

**NOTE:** Refer to **Exhibit 7** to determine which bolts are used for the blind holes vs. the thru holes on the knife valve.

**CAUTION:** Attach the lanyards to the assembly as shown in **Figure 22** to aid in holding the pipe down.

3. Fully open the knife valve and vent and push the probe to the bottom of the casing assembly and open the release valve to begin the flushing process.

**NOTE:** Attach supplied hose if flushing outside of ditch is necessary.

4. In sweeping motions, maneuver the rod across the floor of the casing assembly flushing chips and debris. View progress through the sight glass on the chip evacuation plate, continue until the floor of bottom casing is free of chips and debris.
5. Once clean, fully retract the chip evacuation probe to clear the knife valve. Keep the probe ball valve open and shut the knife valve.
6. Disassemble the chip evacuation plate from the knife valve.

## INSERTING THE VALVE BODY ASSEMBLY

1. Assemble packing rings onto the valve body and gasket as shown in **Figure 23**.
2. Check the cartridge gasket for a secure seal before staging the cartridge. If the gasket is loose, please reseal the gasket using Loctite 480.

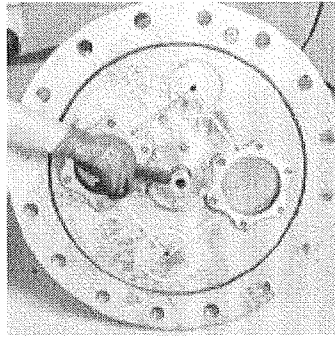


Figure 21

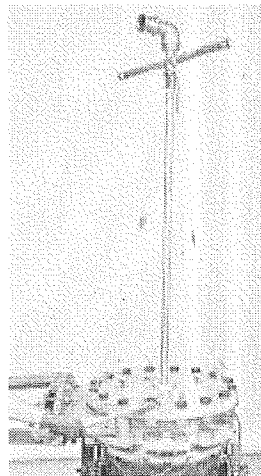


Figure 22

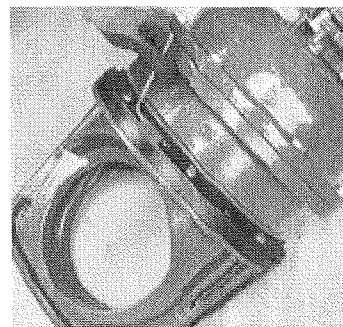


Figure 23

**CAUTION:** Ensure all stainless-steel packing ring inserts are secure in place. Replace if found loose or missing.

**CAUTION:** Ensure the valve is fully open so that the waterway remains open.

3. Remove the operating nut.
4. Assemble the valve guide assembly and valve guide bracket to the bonnet using the bolts, with the valve guide perpendicular to the waterway as shown in **Figure 24**.

**NOTE:** 4" - 8" uses shoulder bolts. 10" - 12" uses hex head bolts.

**NOTE:** Ensure that the valve guide is oriented with the welded on spacer facing towards the stuffing box.

**NOTE:** The collar welded onto the valve guide bracket will always be facing down.


5. Grease the valve body seal strap
6. Stage the valve body and bracket assembly onto the long adapter as shown in **Figure 25**.  
Stage the valve body to ensure that the paint mark on the bonnet will align with the paint mark on the top casing when fully installed.

**NOTE:** Ensure valve body seal is clear of debris before staging.

**NOTE:** Verify O-ring is inserted in the underside gland of the long adapter.

7. Assemble the long adapter (with valve in it) to the knife valve as shown in **Figure 26**.

**CAUTION:** Valve guide channels in the long adaptor must be perpendicular to the main.

**WARNING**  : **DO NOT** assemble short adapter to long adaptor before installing long adaptor to knife valve.

**NOTE:** Use the same bolts that were used to assemble the short adapter to the knife gate.

8. Advance the boring bar and remove the shell cutter assembly. Refer to **Exhibit 5** of Appendix for coupon removal instructions.

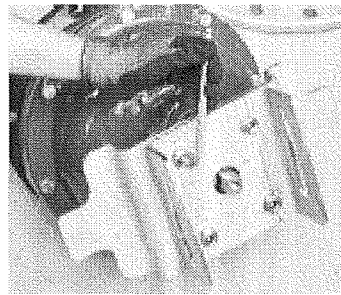


Figure 24

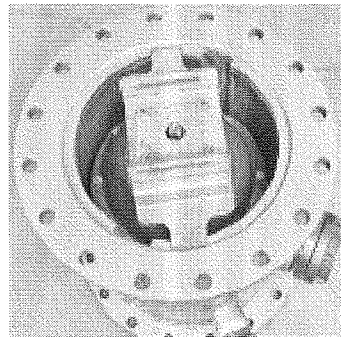


Figure 25

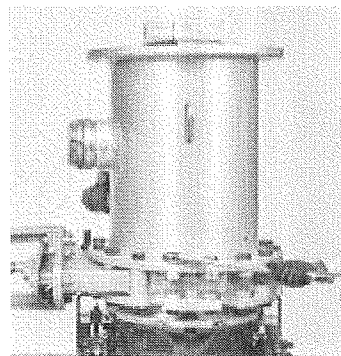


Figure 26

**NOTE:** If pilot drill inserts or shell cutter teeth are dull or damaged, replace. Check pilot drill retaining wires for free movement. Refer to **Exhibit 8** for replacing wires

9. Attach the locking rod to the boring bar as shown in **Figure 27** and fully retract.

**CAUTION:** Block the short adapter assembly when installing a 4", 6", or 10" valve. These locking rods are proud of the short adapter flange when fully retracted, so blocking will avoid damage to the boring bar or locking rod.

10. Assemble the short adapter/drilling machine assembly onto the long adapter as shown in **Figure 28A & 28B**.

**NOTE:** Refer to **Exhibit 9** for the height of the installation equipment (pipe centerline to top of machine) when using a C1-36 drilling machine.

**CAUTION:** The locking rod must be oriented to fit between the slots of valve guide bracket to avoid damage to locking rod or valve guide.

11. Manually lower the locking rod until it touches the valve guide bracket (resistance is felt) as shown in **Figure 29A**.
12. Rotate locking rod clockwise by 90 degrees to engage with the valve guide bracket (resistance is felt) as shown in **Figure 29B**.
13. Lift the valve body assembly up off the staged position (resistance is felt) as shown in **Figure 29C**.
14. Rotate clockwise into alignment with the valve guide tracks of long adapter (resistance is felt) as shown in **Figure 29D**.

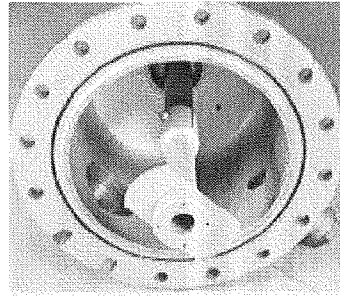


Figure 27

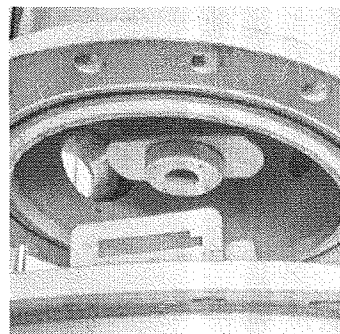


Figure 28A

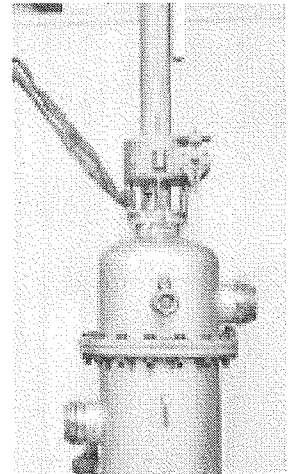
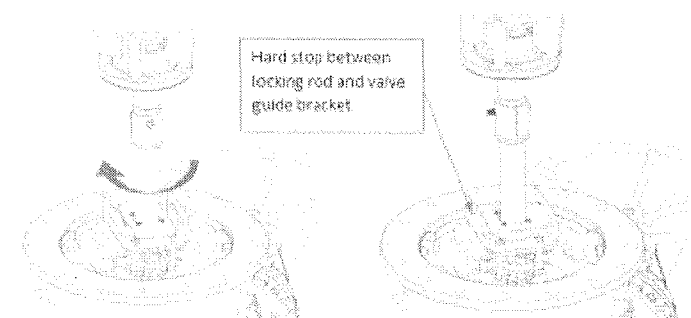
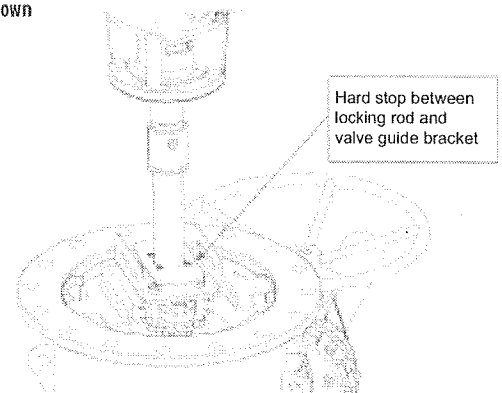


Figure 28B


\*Short adapter not shown  
Figure 29A



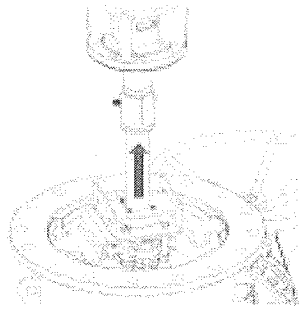
\*Short adapter not shown  
Figure 29B

**NOTE:** Prior to opening the knife valve, the 4" storz inspection port on the short adapter can be used for visual verification that the valve guide is in the tracks in the long adapter.

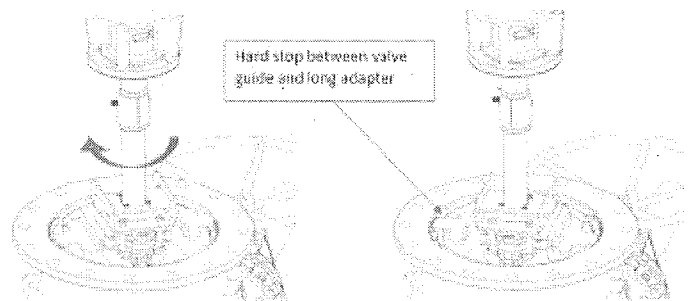
15. Verify 2" drain valves and 4" Storz inspection ports on both adapters are closed.
16. Open the 1/4" air bleed valve on top of the short adapter.
17. Fully open the knife valve.
18. Once fully vented close the 1/4" air bleed valve on top of the short adapter.
19. Manually lower the valve body assembly until seated, compressing the valve body seal. Reference **Exhibit 6** of Appendix for an approximate number of hand crank turns.
20. Rotate locking rod counter clockwise by 90 degrees to disengage from the valve guide bracket, as shown in figure 31A & 31B.

**WARNING**  : **DO NOT** retract the locking rod at this time so that the valve remains compressed and does not move out of position.

21. Advance angular bolts into the packing rings until resistance is felt, as shown in **Figure 30**.



\*Short adapter not shown  
Figure 29C



\*Short adapter not shown  
Figure 29D

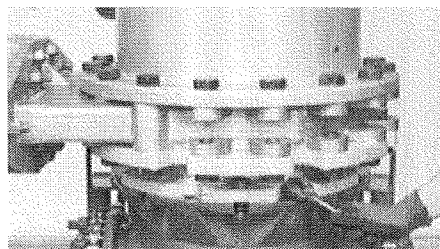


Figure 30

**NOTE:** Tighten angular bolts into the valve packing ring to the torque values and order shown in the **Exhibit 3** of Appendix.

**22.** Retract boring bar

**CAUTION: DO NOT** attempt to close the knife valve at this time as it will interfere with the valve guide and valve.

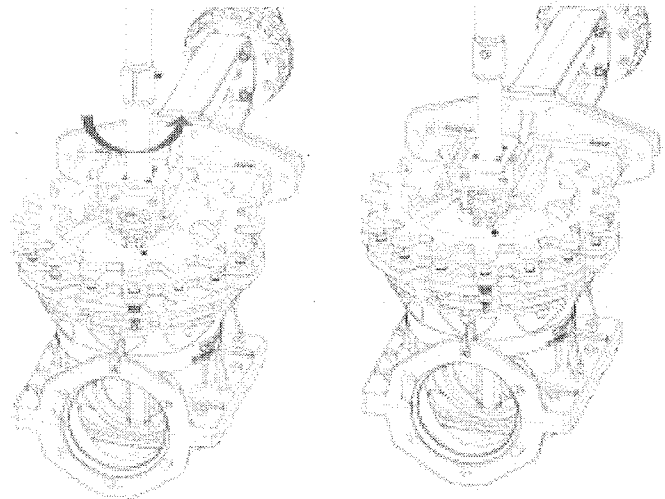
**23.** Open the 2" drain valve(s) on the short and long adapters to depressurize and drain the water (**Figure 19**).

**24.** Disassemble and remove short, then long adapter from the knife valve as shown in **Figure 32A & 32B**.

**WARNING**  : **DO NOT** remove short and long adaptor together.

**25.** Remove the valve guide bracket and valve guide as shown in **Figure 33**.

**26.** Remove the knife valve and adapter as shown in **Figure 34 A & B**.



\*Short adapter and long adapter not shown  
Figure 31A

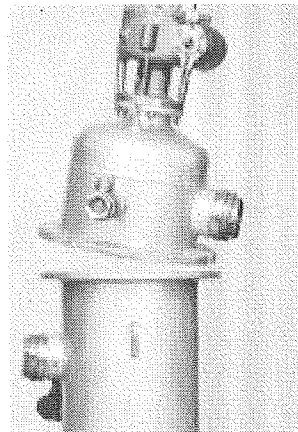


Figure 32A

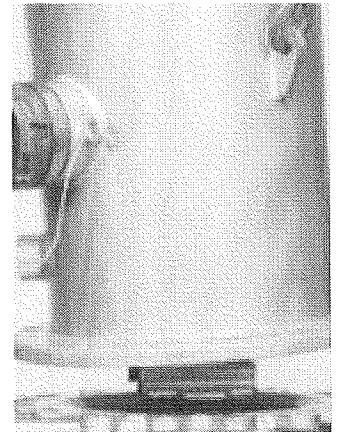


Figure 32B



Figure 33

27. Reinstall the operating nut onto the valve stem.
28. Wait a minimum of 15 minutes from originally tightening the angular bolts to the required torque values, then re-torque bolts to values shown in **Exhibit 3**.
29. Install the finishing gasket and plate as shown in **Figure 35**.
30. See **Exhibit 11** for the cartridge offset to visually verify valve is seated fully.
31. Operate valve fully to ensure proper installation and full functionality of the Permaseal Insertion Valve.

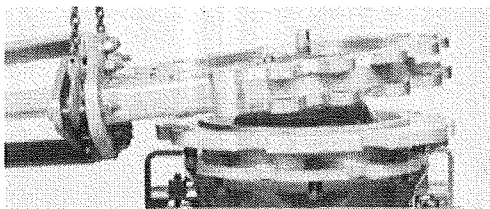


Figure 34A

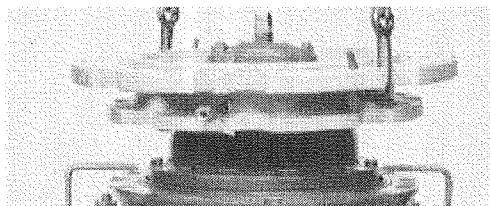


Figure 34B

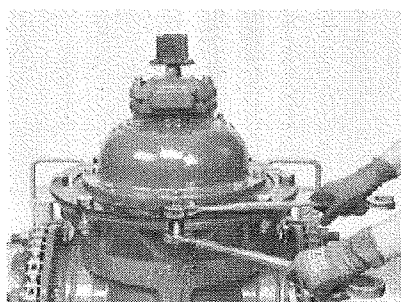


Figure 35



# APPENDIX

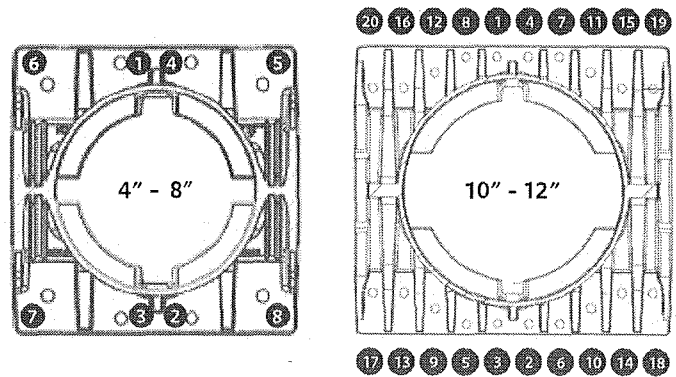
## EXHIBIT 1

Combined weight of the valve and installation equipment (water weight included)

Size	Weight
4"	2250 lbs.
6"	2450 lbs.
8"	2650 lbs.
10"	5600 lbs.
12"	6050 lbs.

## EXHIBIT 2

Casing bolt pattern



## EXHIBIT 3

Angular Bolt Torque Values

Size	*Values (ft-lbs.)
4"	80
6"	80
8"	80
10"	130
12"	130

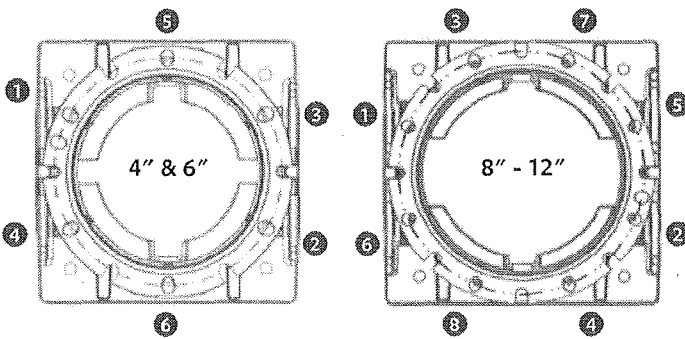
\*Retorque as necessary

## EXHIBIT 4

Pilot Drill Offset

Nominal	Pilot Drill Offset
4"-8"	0.75"
10"-12"	1"

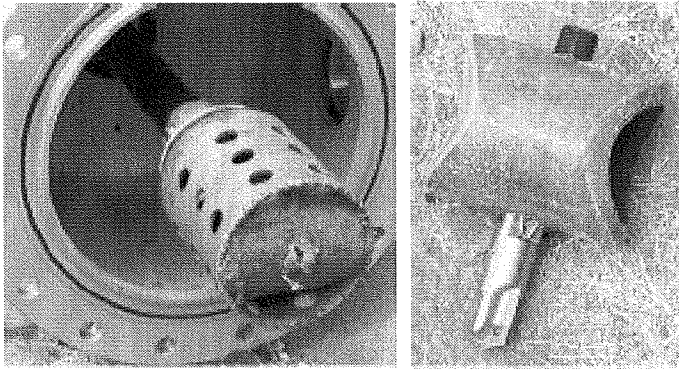
Angular Bolt Torque Pattern



## EXHIBIT 5

### Pipe Coupon Removal

1. Push pipe coupon into the shell cutter, revealing wrench flats on the tip of the pilot drill.
2. Lock machine boring bar rotation and unscrew the pilot drill.



## EXHIBIT 6

### Approximate Number of Turns to Set Valve Body

	C-36 (8:1)	C1-36 (6:1)	CL-12 (5:1)
4" RWIV	173-185	129-139	108-116
6" RWIV	167-179	125-135	104-112
8" RWIV	189-202	141-151	118-126
10" RWIV	250-263	187-197	N/A
12" RWIV	259-272	194-204	N/A

## EXHIBIT 7

Size	Kit Number	Description	Blind Length (in)	Thru Length (in)
4" - 8"	550399	FA to KV	1.75	2.125
	550135	KV to SA	1.75	2.125
	551638	KV to CE	2.25	2.5
	550135	KV to LA	1.75	2.125
10" - 12"	550134	FA to KV	2	2.5
	550137	KV to SA	3	3.25
	551641	KV to CE	3	3
	550137	KV to LA	3	3.25

\* Bolt lengths and washer requirements for fastening parts to the knife valve based on if the hole is blind or thru.

\* FA = flange adapter, KV = knife valve, SA = short adapter, CE = chip evacuation, LA = long adapter

## EXHIBIT 8

### Pilot Drill Wire Replacement

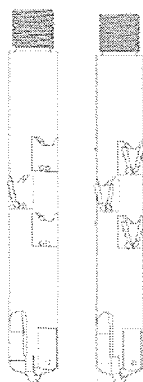
1. Insert wire.



2. Use a hammer to bend wire and then cut to size if necessary.



3. Bend other side and repeat. Ensure all of the wires can move freely and cannot pass the dividers.



## EXHIBIT 9

### Maximum Height of Install Equipment

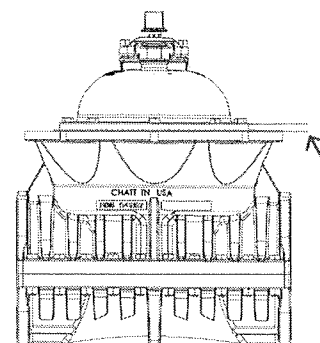
Size	Height
4"	112"
6"	110"
8"	112"
10"	134"
12"	135"

## EXHIBIT 10

Casing	Min OD (In)	Clearance
H819	5.65	0.46
H815	5.08	0.75
H819	7.68	0.39
H815	7.18	0.64
H819	9.87	0.45
H815	9.33	0.71
H819	12.27	0.77
H816	11.55	1.13
H815	11.22	1.29
H819	14.55	1.23
H816	13.62	1.69
H815	13.32	1.84

## EXHIBIT 11

Valve Size	Cartridge Offset (In)
4"	-5/16"
6"	1/2"
8"	5/8"
10"	0"
12"	13/16"



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F14262 3/23

**MUELLER**



## **H-2361 PERMASEAL™ RESILIENT WEDGE INSERTION GATE VALVE – 350/250PSI, 4”-12”**

### **Suggested Specifications**

1. MUELLER PermaSeal™ Resilient Wedge Insertion Gate Valves shall meet or exceed all pertinent requirements of ANSI/AWWA C515-15 gate valve standard. They shall be ANSI/NSF 61 & 372 certified for drinking water components.
2. Valves shall have an AWWA working pressure rating 4”-12” 350PSIG (250PSIG for 4”-12” asbestos cement and 10”-12” cast iron class C,D). After manufacture, each gate valve shall be subjected to operation and hydrostatic tests at the manufacturer’s facility. Each valve shall be operated through a complete cycle and production seat tested to 350PSIG (250PSIG for asbestos cement and 10”-12” cast iron class C,D) drip-tight from each direction, also shell tested to 700PSIG (500PSIG for asbestos cement and 10”-12” cast iron class C,D).
3. The valve body, bonnet, stuffing box and operating nut shall be made of ASTM A536 ductile iron. The body and bonnet shall adhere to the minimum wall thickness as set forth in AWWA C515-15 Table 3, section 4.4.1.2. Wall thicknesses that do not meet AWWA minimums are not acceptable.
4. Valve type shall be NRS (Non-Rising Stem) with the MJ x MJ (Mechanical Joint) end connection. Bury depth (waterway centerline to top of the operating nut) of the insertion valve shall be same as NRS A-2300 series Mueller resilient wedge gate valve of an equivalent nominal valve size.
5. The stem diameter and number of turns to open shall be as set forth in AWWA C515-15 Table 8, section 4.4.5.7.
6. Valve stems shall be made of bronze ASTM B98 alloy C66100 Ho2 bar stock material. The bronze stem collar is to be hot forge upset; collars not integral with the stem are not acceptable. The stem material shall provide a minimum 70,000psi tensile strength, yield strength of 38,000psi and 20% minimum elongation. Optional bronze stems material may be ASTM B138 alloy C67600 Ho4. Optional stainless-steel stems may be hot forge upset or machined from bar stock in the following grades: 304 or 316.
7. Removing a full section of pipe allows for the valve gate to seat on the precision cast surface that is an integral part of the removable valve body (not on host pipe or sleeve assembly) that is clean and unobstructed of buildup/tuberculation to provide for reliable watertight shutoff. To assure for service with long-term capability of repeat watertight shutoff no recess/pocket is allowed in bottom of seat area to trap sediment or debris.
8. Design shall accommodate the removal of either the valve bonnet, or the entire valve body assembly from the sleeve body, allowing for the inspection, maintenance, and replacement of the components, including the precision cast seat.

9. Valve stems shall have “anti-friction” thrust washers, one above and one below the stem thrust collar to reduce operating torque. Valve stem design shall be such that if excessive input torque is applied, stem failure shall occur above the stuffing box at such a point as to enable the operation of the valve with a pipe wrench or other readily available tool.
10. The NRS valves shall be provided with a 2” square operating nut or handwheel with the cast arrow showing operating direction. The bolt that attaches the operating nut to the stem shall be recessed into the operating nut so as not to interfere with valve wrench operation. Bolt (operating nut) shall be 316 stainless steel.
11. Valves shall have a stuffing box with bolts in line with flow and be O-ring sealed. Two O-rings shall be placed above and one O-ring below the stem thrust collar. The thrust collar shall be factory lubricated. The thrust collar and its lubrication shall be isolated by the O-rings from the waterway and from outside contamination providing permanent lubrication for long term ease of operation. Valves without a stuffing box are unacceptable. Valves without at least three stem O-rings are also unacceptable.
12. The valve disc and guide lugs shall be composed of ASTM A536 ductile iron and fully encapsulated in EPDM ASTM D2000 rubber. Guide caps of an acetal bearing material shall be placed over solid guide lugs to prevent abrasion and to reduce the operating torque. Guide lugs placed over bare metal are not acceptable.
13. Valves shall have all internal and external ferrous surfaces coated with a fusion bonded thermosetting powder epoxy coating of 10 mils nominal thickness. The coating shall conform to AWWA C550.
14. Valves shall have Type 316 stainless steel bolts and nuts for the stuffing box, bonnet, and body.
15. Valves shall be cast, machined, assembled, and tested in the USA and be warranted by the manufacturer against defects in materials or workmanship for a period of ten (10) years from the date of manufacture. The manufacturing facility for the valves must have current ISO certification.
16. Insertion valves shall be MUELLER® PERMASEAL™ H-2361 series.

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## **PermaSeal™ Insertion Valve**

Dependable service, maintenance,  
and safety in one easy-to-use  
inserting valve solution.



# MINIMAL SERVICE DISRUPTIONS. DEPENDABLE SERVICE LIFE.

The PermaSeal™ Insertion Valve is the first inserting valve solution that is a true Resilient Wedge Gate Valve capable of delivering reliability, longevity, functionality, and repeatable water shut-off throughout the valve's lifetime.

With a 350 psi rating and available in 4", 6", 8", 10", and 12" standard (DI, CI, PVC pipe) and oversized (A-C pipe) variants, the PermaSeal Insertion Valve's innovative design allows for insertion into existing water mains with minimal service disruption and dependable functional service life, making it an ideal solution for any water network.



Permanent, exercisable gate valve that functions and performs the same as a conventional Resilient Wedge Gate Valve



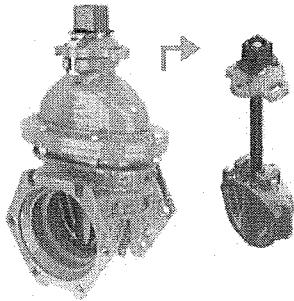
Reduce the need for a shutdown, disruption to flow, or water contamination concerns resulting in time, cost, maintenance, and customer downtime savings



Minimize environmental disruption through less excavation and reduced use of pipe and secondary materials

Integrates functionality and performance of Mueller® A-2361 Resilient Wedge Gate Valve and Mueller® H-600 Series ductile iron tapping sleeve.

A-2361 Resilient  
Wedge Gate Valve



- Wedge
- Stem
- Stuffing box
- Wrench nut
- Stem nut

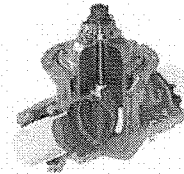
A-2361 Resilient  
Wedge Gate Valve



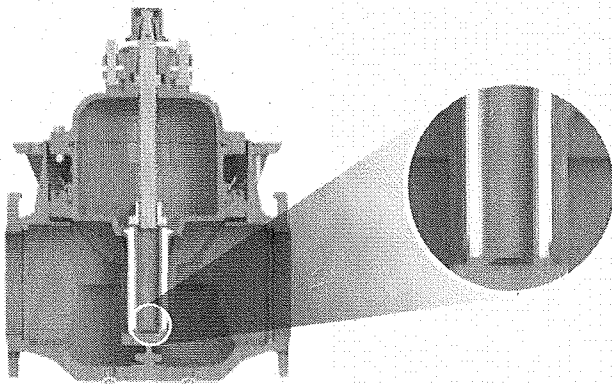
H-615/9 Ductile Iron  
Tapping Sleeve



PermaSeal™  
Insertion Valve



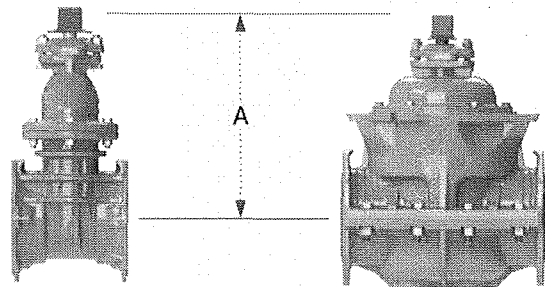
## REPEATABLE AND RELIABLE SERVICE



- “Clean Seat” technology enables reliable and repeatable watertight shutoff - suitable for an exercise program
- Gate seats on the precision cast surface of the valve body and not on the host pipe
- No recess/pocket in the bottom of the gate seat area to trap sediment or debris

## DESIGNED TO AWWA C-515 and C-223 STANDARDS

- Compliant with pertinent structural, functional, operating, and dimensionally critical installation criteria
- 100% factory tested and verified
- Standard Mueller wedge, stem, and stuffing box valve operating assembly components
- Standard Mueller 10-year warranty

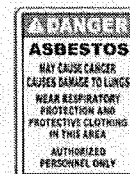
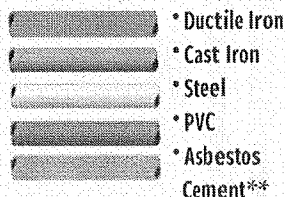




## COMPLIANCE AND COMPATIBILITY

- 350/250\* psi maximum working pressure  
\*250psi for H819 on AC pipe
- AWWA C550 10 mil (nominal) fusion bonded epoxy coating
- ANSI/NSF 61 & 372 certified for drinking water system components
- Compatible with most major pipe types

### Pipe Types:



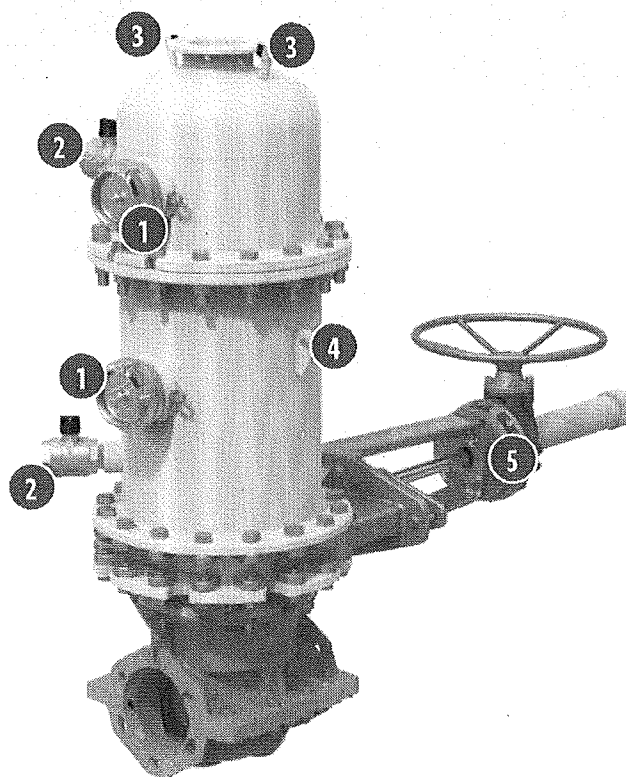
\*\* Seek Compliant Expert Advice  
For Breathing Protection And Protective  
Equipment. Call OSHA 1-800-321-6742 for  
more information.

## RUGGED & RELIABLE INSTALLATION EQUIPMENT

The PermaSeal™ Insertion Valve Installation Equipment is designed to ease common installation difficulties and comes as two independent sets intended to service individual size ranges of 4"-8" and 10"-12". The installation equipment adopts Mueller® CL-12 and C1-36 drilling machines for cutting and valve insertion operations.

### Installation Equipment Features:

1. Storz inspection ports for (4") for access/inspection convenience
2. Drain valves (2") for quick water evacuation
3. Purge valves (1/4") for effective system deaeration
4. Ergonomic lifting ears
5. Isolation valve with mechanical gear operator (4:1)



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# MUELLER

## CITY OF PHOENIX WATER SERVICE DEPARTMENT UTILIZES PERMASEAL™ INSERTION VALVE FOR MORE EFFICIENT OPERATIONS

### Case Study

#### OVERVIEW

To limit customer shutdowns and reduce non-revenue water loss, the City of Phoenix Water Service Department installed Mueller Co.'s PermaSeal Insertion Valve to evaluate the capabilities and benefits of its resilient wedge gate valve design. With the use of the PermaSeal Insertion Valve, the City of Phoenix believes it saved in installation time, cost, and maintenance as well as less service interruptions – ultimately providing better customer service and more efficient operations within their water network.

- **Solution** – PermaSeal Insertion Valve
- **Customer** – City of Phoenix Water Service Department
- **Location** – Phoenix, AZ, USA
- **Number of Installations Completed Year to Date** – 15 PermaSeal Insertion Valves of various sizes

#### SITUATION

Being responsible for providing safe drinking water to approximately 1.5 million people is no easy task, but the City of Phoenix Water Service Department remains up for the challenge. As part of its ongoing efforts, the water service department is always looking for effective solutions to ensure water continues to flow through 7000+ miles of pipes and reaches more than 460,500 service connections.

To limit customer shutdowns and reduce non-revenue water loss, the City of Phoenix agreed to be a part of the first live installation of the PermaSeal Insertion Valve and test the capabilities and benefits obtained from utilizing the resilient wedge gate valve design.

*"We first started off as a trial when Mueller was in the final customer validation testing phase of the PermaSeal Insertion Valve," explained Keith Mojica, Water Services Deputy Director at the City of Phoenix Water Service Department. "As part of this testing program, we chose a location in the vicinity of a hospital, doctors' offices, and a dialysis center — an area which would be problematic if a lengthy shutdown occurred. Typically, to replace the broken valves in the area, we would have had to turn off the water supply to these key locations and it would affect a large number of customers. To ensure the impact to these important businesses was kept to a minimum, we gladly agreed to be a part of the first live installation of the PermaSeal Insertion Valve to see if it could provide us with the solution that we needed."*

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## SOLUTION

Mueller contracted Tap Master Inc. to conduct the installation of a 6" PermaSeal™ Insertion Valve on an older cast iron watermain at the chosen site. The area was excavated the day prior to the installation, the main was plated, and then the live installation of the PermaSeal Insertion Valve took place the next day.

The advanced design of the PermaSeal Insertion Valve integrates the functionality and performance of the Mueller® A-2361 Resilient Wedge Gate Valve and Mueller® H-600 Series ductile iron tapping sleeve in 4", 6", 8", 10", and 12" standard (DI, CI, PVC pipe) and oversized (A-C pipe) variants. With its "clean-seat" technology, the insertion valve provides users with reliable and repeatable watertight shut off, suitable for an exercise program, by having the gate seated on the precision cast surface of the valve body and not the host pipe. With a 350 psi rating, the PermaSeal Insertion Valve's innovative design allows for insertion into existing water mains with minimal service disruption and dependable functional service life, making it an ideal solution for the City of Phoenix Water Service Department's needs.

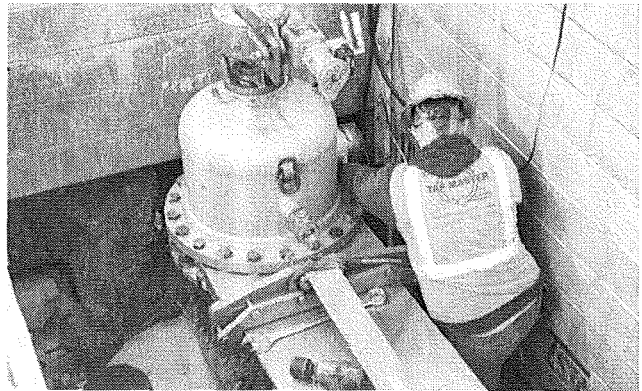


FIGURE 1 - CONTRACTOR, TAP MASTER INC., INSTALLING THE PERMASEAL INSERTION VALVE FOR THE CITY OF PHOENIX WATER SERVICE DEPARTMENT BY UTILIZING MUELLER C1-12 AND C1-36 DRILLING MACHINES FOR CUTTING AND VALVE INSERTION OPERATIONS.



FIGURE 2 - THE PERMASEAL INSERTION VALVE INTEGRATES FUNCTIONALITY AND PERFORMANCE OF THE TRUSTED MUELLER A-2361 RESILIENT WEDGE GATE VALVE AND MUELLER H-600 SERIES DUCTILE IRON TAPPING SLEEVE

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## RESULTS

The PermaSeal™ Insertion Valve was successfully installed in approximately three hours and the team was able to flush the water line and perform a brief shutdown to test that the line was dry, confirming that the installation was a success. Overall, utilizing the PermaSeal Insertion Valve significantly reduced service downtime to customers.

Since the initial installation in March 2020, the City of Phoenix Water Service Department has installed 15 more PermaSeal Insertion Valves around the city. Throughout the multiple installations, the City of Phoenix has found the PermaSeal Insertion Valve to be a more effective solution than other inserting valves on the market.

*"What really sold me was that the PermaSeal Insertion Valve is a true system line valve. The previous inserting valve solutions we used operate differently and you must treat them with more care and awareness than a traditional line valve in the system. If a valve operator crew is working with our old solution, I have to warn them to 'operate the valve with caution' and not overtighten the valves because you can damage the valve itself or even crush the main. With the PermaSeal Insertion Valve, I do not*

*have to worry about the valve operators trying to tighten it in the field; it is going to be the same as turning a traditional line valve,"* said Mojica.

The City of Phoenix Water Service Department has also seen time and personnel resource savings by utilizing the PermaSeal Insertion Valve. For traditional water shutdowns, the City of Phoenix notifies customers 48 hours in advance of a shutdown which sometimes requires hiring additional personnel to go door-to-door to inform customers that they should expect a water isolation event. *"We dedicate a lot of time and resources to notifying our customers in advance of an expected shutdown in order to provide the best customer service possible. As far as savings go, we don't have to dedicate the time and staff resources to notifying customers if we are able to use a PermaSeal Insertion Valve because it won't require a lengthy shutdown to complete the installation,"* stated Mojica.

Because of the time, cost, maintenance, and customer downtime savings realized from utilizing the PermaSeal Insertion Valve, the City of Phoenix Water Service Department plans to make it their insertion valve of choice for future installations.

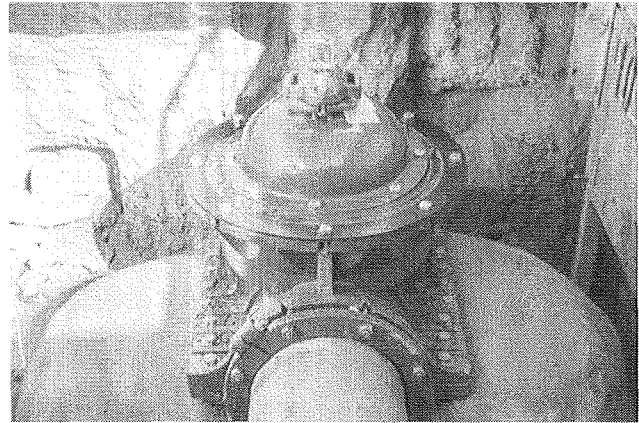
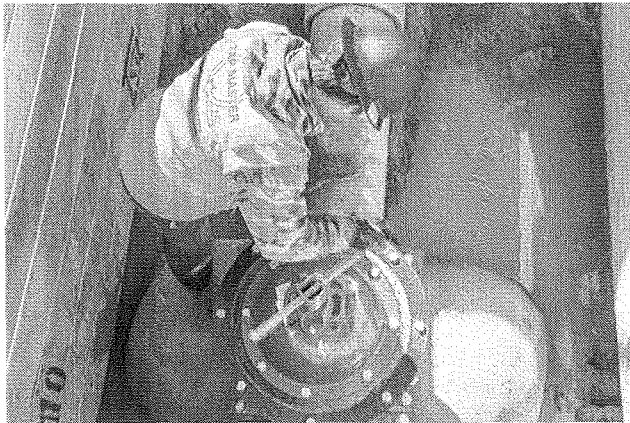


FIGURE 3 - THE PERMASEAL INSERTION VALVE FULLY INSTALLED FOR THE CITY OF PHOENIX WATER SERVICE DEPARTMENT.

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## END APPENDIX C - PIMA COUNTY STANDARD DETAILS

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APPENDIX D - GEOTECHNICAL REPORT

# Sunrise Drive at Esperero Wash – Box Culvert

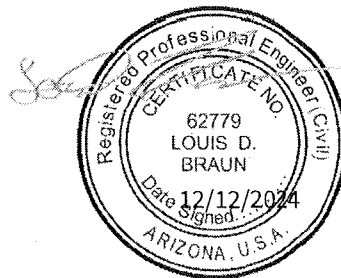
## Geotechnical Engineering Report

Tucson, Arizona

December 12, 2024 | Terracon Project No. 63245025

**Prepared for:**

Psomas  
333 E Wetmore Rd, Ste 450  
Tucson, Arizona 85705



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**Terracon.com**

December 12, 2024

Psomas  
333 E Wetmore Rd, Ste 450  
Tucson, Arizona 85705

Attn: Mr. John Oliver, PE  
P: (520) 690-7889  
E: john.oliver@psomas.com

Re: **Geotechnical Engineering Report**  
**Sunrise Drive at Esperero Wash – Box Culvert**  
**Sunrise Drive at Esperero Wash**  
**Tucson, Arizona**  
**Terracon Project No. 63245025**

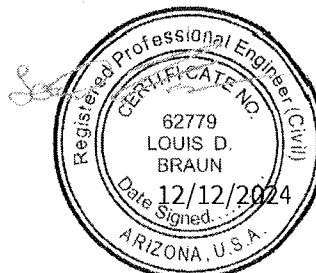
Dear Mr. Oliver:

We have completed the scope of Geotechnical Engineering services for the above referenced project in general accordance with Terracon Proposal No. P63245025 dated March 14, 2024. This report presents the findings of the subsurface exploration and provides engineering recommendations concerning earthwork and the design and construction of foundations for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,  
**Terracon**

Caitlyn Wiedemann  
Field Engineer



Louis D. Braun, P.E.  
Geotechnical Group Manager

**Geotechnical Engineering Report**

Sunrise Drive at Esperero Wash – Box Culvert | Tucson, Arizona

December 12, 2024 | Terracon Project No. 63245025



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## Geotechnical Engineering Report

Sunrise Drive at Esperero Wash – Box Culvert | Tucson, Arizona

December 12, 2024 | Terracon Project No. 63245025



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GeoModel


## Attachments

**Exploration and Testing Procedures**

**Site Location and Exploration Plans**

**Exploration Results**

**Supporting Information**

**Note:** This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the  logo will bring you back to this page. For more interactive features, please view your project online at [client.terracon.com](https://client.terracon.com). Refer to each individual Attachment for a listing of contents.

## Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed Sunrise Drive at Esperero Wash – Box Culvert project located at Sunrise Drive at Esperero Wash in Tucson, Arizona. The approximate location of the project is shown on the attached **Site Location** map. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Seismic site classification per IBC
- Site preparation and earthwork
- Lateral earth pressure
- Foundation design and construction

The geotechnical engineering Scope of Services for this project included the advancement of two (2) test borings to approximate depths of 15½ to 18½ feet below the existing ground surface, laboratory testing, engineering analysis, and preparation of this report.

A map showing the boring locations is shown on the attached **Exploration Plan**. A log of each boring is included in the **Exploration Results** section of this report. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included in part on the boring logs and as separate graphs in the **Exploration Results** section of this report.

## Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
<b>Project Description and Construction</b>	Based on the information provided, we understand the project consists of increasing the capacity of storm water conveyance by replacing the double 48" diameter corrugated metal pipe (CMP) currently in place which is unable to handle significant runoff and sediment laden flows and debris from the Esperero Wash. The proposed four barrel 12' x 8' x 85' reinforced concrete box culvert will reduce the risk to the traveling public by conveying 4,300 cfs under the roadway, which corresponds within a 10-year storm event as provided by Pima County. All storm events greater than the 10-year will continue to flow over Sunrise Drive.
<b>Grading/Slopes</b>	It is our understanding that final grades will generally match existing grades.
<b>Pavements</b>	Results for the encountered on-site asphalt concrete and aggregate base subgrade sections are included in this report. We understand that the new pavement design sections will match the existing pavement thickness.

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

## Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
<b>Parcel Information</b>	The project is located at Sunrise Drive at Esperero Wash in Tucson, Arizona. Latitude/Longitude (approximate): 32.3089°N, 110.8323°W See <a href="#">Site Location</a>
<b>Existing Improvements</b>	The project location contains a double 48" diameter CMP currently in place below an asphalt paved roadway.
<b>Current Ground Cover</b>	The ground in the area of the culvert replacement is covered by an asphalt paved roadway.
<b>Existing Topography</b>	The site is relatively flat.

## Geotechnical Characterization

### Geology

The project area is located in the Basin and Range physiographic province (<sup>1</sup>Cooley, 1967) of the North American Cordillera (<sup>2</sup>Stern, et al, 1979) of the southwestern United States. The Basin and Range Province is defined by wide alluvial valleys and varied topography and is split into five distinct sections; the topography is defined by the features found in the Mexican Highlands and Sonoran Desert sections (<sup>3</sup>Demsey, 1988).

The southern portion of the Basin and Range province is situated along the southwestern flank of the Colorado Plateau and is bounded by the Sierra Nevada Mountains to the west. Formed during middle and late Tertiary time (100 to 15 million years ago), the Basin and Range province is dominated by fault-controlled topography. The topography consists of mountain ranges and relatively flat alluviated valleys. Typically, the ranges in this area are of small areal extent but protrude significantly above adjacent wide

<sup>1</sup> Cooley, M.E., 1967, **Arizona Highway Geologic Map**, Arizona Geological Society.

<sup>2</sup> Stern, C.W., et al, 1979, **Geological Evolution of North America**, John Wiley & Sons, Santa Barbara, California.

<sup>3</sup> Demsey, K, 1988, **Geologic map of Quaternary and Upper Tertiary alluvium in the Phoenix North 30'x60' Quadrangle, Arizona**. Arizona Geological Survey, Open File Report 88-17, Map Scale 1:100,000, revised 1990.

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alluviated plains and valleys. These mountain ranges and valleys have evolved from generally complex movements and associated erosional and depositional processes. Dominant features in the province consist of:

Feature	Description
<b>Piedmonts</b>	Gently dipping slopes formed due to an underlying rock erosional surface
<b>Alluvial fans</b>	Sediments deposited in outwash plains at areas of low water velocity
<b>Bajadas</b>	Alluvial fans which combine at the base of mountains
<b>Inselbergs</b>	Isolated hills or mountains, usually that maintain their relief after erosion of surrounding rock

The site lies within the Tucson Basin. The 1,000 square-mile basin is a northwest-trending valley which is bounded by mountains on the eastern and western sides. The most significant structure that contributes to the formation of this Basin is the Catalina Detachment Fault. This Tertiary-aged normal fault gently dips to the southwest, is estimated to have a displacement as much as 27.5 km (<sup>4</sup>Dickinson, 1991). Extensive deformation of many of the basement granitic and meta-sedimentary rocks in the Tucson area occurred at 8 to 15 km depth, until local Basin and Range uplift which created the Tucson Basin exposed these rocks beginning approximately 12 million years ago (<sup>5</sup>Anderson, 1987).

Based on review of U.S. Geological Survey (USGS) geological maps, surficial geologic conditions mapped at the site consists of early Pleistocene to late Miocene basin deposits. This unit includes, "Poorly sorted, variably consolidated gravel and sand that range widely in age. These sediments are generally light gray or tan. This unit is generally mapped in areas of deep late Cenozoic stream incision and landscape degradation where thin Quaternary deposits (map units Qy, Qm, Qo) discontinuously blanket older deposits (map units Tsy or Tsm) and the two cannot be differentiated at the scale of this map. (0.75-10 Ma)." (<sup>6</sup>Richard et. Al., 2000)

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<sup>4</sup> Dickinson, 1991. **Tectonic setting of faulted Tertiary strata associated with the Catalina core complex in southern Arizona.** Geological Society of America Special Paper 264, 106 p., 1 sheet, scale 1:125,000.

<sup>5</sup> Anderson, 1987. **Cenozoic stratigraphy and geologic history of the Tucson Basin, Pima Country, Arizona.** U.S. Geological Survey, Water Resources Investigation Report 87-4190.

<sup>6</sup> Richard, S.M., Reynolds, S.J., Spencer, J.E., and Pearthree, P.A., 2000, Geologic Map of Arizona: Arizona Geological Survey Map 35, 1 sheet, scale 1:1,000,000.

## Land Subsidence and Earth Fissures

The site is located in the Tucson area, portions of which have experienced historic and documented groundwater decline. The depletion of the groundwater table has resulted in compression of the aquifer material and the phenomenon known as areal subsidence. Based on a review of available Arizona Department of Water Resources (ADWR), the site is not within a mapped land subsidence area.

Earth fissures are fractures or cracks that form in alluvial basins due to substantial groundwater overdrafts that produce local subsidence. Earth fissures develop within land subsidence areas where a significant thickness of compressible alluvium overlies shallow irregular bedrock surfaces such as ridges and fault scarps or other subsurface features. Based on a review of available Arizona Geological Survey (AZGS) earth fissure maps, the project site is not within an earth fissure study area and no earth fissures have been mapped at the project site.

## Existing Pavement Thickness

Prior to advancing the borings on the existing roadways, a 6-inch diameter core of the upper asphalt concrete (AC) pavement was obtained at each boring location. The pavement and aggregate base course (ABC) thicknesses measured in the field at the boring locations are summarized in the following table:

Boring Number	AC Thickness (inches)	ABC Thickness (inches)	Total (inches)
B1	6 $\frac{7}{8}$	6 $\frac{1}{2}$	13 $\frac{3}{8}$
B2	6 $\frac{3}{8}$	8 $\frac{1}{2}$	14 $\frac{7}{8}$

## Subsurface Conditions

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical evaluation of the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** and the GeoModel can be found in the **Figures** attachment of this report.

As part of our evaluations, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

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Model Layer	Layer Name	General Description
1	Pavement	Asphalt concrete overlaying aggregate base course
2	Existing Fill	Existing fill consisting of sand soils with variable amounts of clay and silt with loose to medium dense relative density
3	Medium Dense to Very Dense Sand	Sand soils with variable amounts of clay and silt with medium dense to very dense relative density
4	Stiff Lean Clay	Sandy lean clay with stiff consistency

## Summary of Laboratory Test Results

Laboratory tests were performed on selected soil samples and the test results are presented in the **Exploration Results**. Soil samples obtained from the borings were used for geotechnical engineering analysis for the proposed project. The following is a brief summary of laboratory testing performed on selected soils samples obtained from the borings:

Laboratory Test	Description of Test Results
Atterberg Limits/ Gradation	The existing fill and native soils consist of sand soils with variable amounts of clay and silt and exhibited low to medium plasticity characteristics.
Moisture Content/Dry Density	Testing of ring samples obtained from the borings at depths within the near surface existing fill and native soils (upper 10 feet) indicated in-situ moisture contents ranging from approximately 9 to 13 percent with an average of approximately 11 percent; and in-situ dry densities ranging from approximately 110 to 121 pounds per cubic foot (pcf) with an average of approximately 116 pcf.
Consolidation/ Compression	In response to wetting of native soil samples, while supporting typical foundation pressures, the soil exhibited low hydro-compaction (collapse) potential. One sample exhibited low expansive potential under typical foundation pressures when elevated in moisture content. These same soils indicate low to moderate compression at in-situ moisture content and density under typical foundation pressures.
Remolded Swell	When water was added to samples of laboratory compacted on-site near surface existing fill clayey sand soils, the compacted soils exhibited moderate expansive potential when subjected to light loading conditions and in response to wetting.

## Existing Fill

Existing fill soils were encountered from the ground surface to a depth of approximately 9 feet below existing site grades at both boring locations. The existing fill consists of sand soils with variable amounts of clay and silt. The results of the field exploration indicate the apparent relative density of the existing fill soils are loose to medium dense.

## Groundwater Conditions

Groundwater was observed at both boring locations at approximately 12½ feet below ground surface at the time of our field exploration. These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations. Groundwater conditions can change with varying seasonal and weather conditions, and other factors.

## Seismic Site Class

The seismic design requirements for structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties observed at the site and as described on the exploration logs and results, our professional opinion is that a **Seismic Site Classification of D** be considered for the project. Subsurface explorations at this site were extended to a maximum depth of approximately 18½ feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to potentially modify the recommended seismic site classification outlined above.

## Corrosivity

The following table lists the corrosivity test results obtained from samples collected from the boring location. These values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction. The results of the corrosion testing are presented in **Laboratory Results** section.



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Location	Sample Depth (feet)	Soil Description	Soluble Sulfate (mg/Kg)	pH	Resistivity (ohm-cm)	Chlorides (mg/Kg)
B2	3 – 8	Silty Clayey Sand	240	9.0	630	210

Results of soluble sulfate testing indicate that samples of the on-site soils tested classify as S0 according to Table 19.3.1.1 of Section 318 of the American Concrete Institute (ACI) Building Code Requirements for Structural Concrete. Therefore, American Society for Testing and Materials (ASTM) Type I/II portland cement is considered suitable for concrete at the site in contact with similar soluble sulfate concentrations. Concrete should be designed in accordance with the provisions of the ACI Building Code Requirements for Structural Concrete, Section 318, Chapter 19.

These values should be used to help determine potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction. The corrosion information presented is specific to the samples tested. If the actual soils that will be in contact with the structures at the site are different than those tested, then additional corrosion testing should be performed. Terracon is not a corrosion engineer, and our scope of work was limited to performing corrosion laboratory tests on selected samples, presenting these results, and providing a brief comparison of the results to selected criteria. A qualified corrosion engineer should be consulted if corrosion of underground utilities and structures is a concern.

## Geotechnical Overview

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the geotechnical engineering recommendations provided in this report are implemented in the design and construction phases of this project.

- Existing fill soils were encountered on site at both locations to approximate depth of 9 feet. The existing fill consists of sand soils with variable amounts of clay and silt. The results of the field exploration indicate the apparent relative density of the existing fill soils are loose to medium dense. The existing fill soils are not considered suitable for support of new structures and should be removed in their entirety from all construction areas of the site. Based on the engineering properties, the existing fill is not considered suitable for reuse as Structural (compacted) Fill according to Pima Association of Governments (PAG) Standard Specifications for Public Improvements section 203-5.02 but may be used in other construction areas provided any deleterious materials within the fill materials are removed prior to use.

- The on-site native soil consists of sand soils with variable amounts of clay and silt and sandy lean clay. Field penetration test results indicate that the apparent relative density of the existing native sand soils is generally in the medium dense to very dense range and consistency of stiff in the clay soils. Additionally, occasional cobbles were encountered within the native soils. Based on the engineering properties, the on-site native soils are not considered suitable for reuse as Structural (compacted) Fill according to PAG Standard Specifications for Public Improvements Section 203-5.02 but may be used in other construction areas, as outlined in **Earthwork** section, provided any deleterious and oversized materials within the fill materials are removed prior to use.
- Subgrade soils beneath shallow foundations should be removed and replaced with Structural Fill to a minimum depth of 12 inches. Native subgrade soils below Structural Fill depth should be scarified, moisture conditioned, and recompact to a minimum depth of 10 inches as outlined in **Earthwork** section of this report. The moisture content and compaction of subgrade soils should be maintained until foundation construction.
- Based on the encountered subsurface conditions, heavy-duty construction equipment may be required in some areas for grading, shallow excavations, and utility trench excavations.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

## Earthwork

### Existing Fill

Existing fill soils were encountered from the ground surface to a depth of approximately 9 feet below existing site grades at both boring locations. The existing fill consists of sand soils with variable amounts of clay and silt. The results of the field exploration indicate the apparent relative density of the existing fill soils are loose to medium dense. Terracon was not provided with documentation indicating the existing fill soils were placed under engineering observation and testing. The existing fill soils are not considered suitable for support of new structures and should be removed in their entirety from all construction areas of the site. Based on the engineering properties, the existing fill is not considered suitable for reuse as Structural (compacted) Fill according to Pima Association of Governments (PAG) Standard Specifications for Public Improvements section 203-5.02 but may be used in other construction areas provided any deleterious materials within the fill materials are removed prior to use.

## Site Preparation

Strip and remove debris, disturbed soils, and other deleterious materials from the proposed box culvert area. Stripped materials consisting of vegetation and organic materials should be wasted from the site. The site should be initially graded to create a relatively level surface to receive fill, and to provide for a relatively uniform thickness of fill beneath the proposed structure. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

Although no evidence of underground facilities (such as septic tanks, cesspools, basements, and utilities) was observed during the exploration and site reconnaissance, such features could be encountered during construction. If unexpected fills or underground facilities are encountered, such features should be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Prior to placing fill the existing vegetation, topsoil, debris, and other deleterious materials should be removed. Complete stripping of the topsoil should be performed in the area of the proposed structures.

## Subgrade Preparation

Foundations for box culverts, wing walls, and small retaining walls may be supported on Structural Fill to minimum depth of 12 inches. Native subgrade soils below Structural Fill depth should be scarified, moisture conditioned, and recompacted to a minimum depth of 10 inches as outlined in **Earthwork** section of this report. The moisture content and compaction of subgrade soils should be maintained until foundation construction. The foundation supporting soils should be moisture conditioned to within -1% to +3% of optimum moisture content and should be compacted to a minimum of 95% of the maximum density determined in accordance with standard Proctor criteria, ASTM D698.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 12 inches, moisture conditioned, and compacted. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

## Excavation

We anticipate that shallow excavations for the proposed construction can be primarily accomplished with conventional earthmoving equipment, although there may be isolated areas in which additional effort or the use of specialized heavy-duty equipment capable of handling dense to very dense coarse-grained soils and oversized materials to facilitate excavation will be required. Consideration should be given to obtaining a unit price for difficult excavation in the contract documents for the project.

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The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

### Fill Material Types

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than four inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

Clean on-site soils or approved imported materials may be used as fill material for the following:

Fill Type <sup>1</sup>	USCS Classification	Acceptable Location for Placement
On-Site Soils	SC-SM, SC	The on-site existing fill and native sand soils are suitable for use of engineered fill in areas not required to be Structural Fill.
	CL	The on-site clay soils are considered suitable for use as engineered fill in all construction outside of three feet from pavement subgrade and Structural Fill areas.
Structural Fill: Import Material	Varies	All locations and elevations

1. Controlled, compacted fill should consist of approved materials that are free of organic matter, debris, and oversized materials. A sample of each material type should be submitted to the geotechnical engineer for evaluation.

Imported soils for use as Structural Fill material on the project should conform to Pima Association of Governments (PAG) Standard Specifications for Public Improvements section 203-5.02 or other governing specification.

Structural fill and engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed 10 inches loose thickness.

Aggregate base course material specifications for the project should be in accordance with the requirements and specifications of the Pima Association of Governments (PAG), or similar local governing specification.

## Fill Placement and Compaction Requirements

Engineered fill should meet the following compaction and moisture requirements:

Material Type and Location	Per the Standard Proctor Test (ASTM D 698)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction (referenced from optimum moisture content)	
		Minimum	Maximum
On-site existing fill and native soils:			
Beneath pavements and embankments	95	-1%	+3%
Engineered fills greater than 5 feet in depth	100	-3%	+3%
Structural Fill Soils:			
Beneath Foundations	100	-3%	+3%
Beneath Pavements and embankments	95	-3%	+3%
Engineered fills greater than 5 feet in depth	100	-3%	+3%
Aggregate base course (beneath asphalt pavements)	100	-3%	+3%
Miscellaneous backfill & trench backfill	95	-3%	+3%
<div>1. The moisture content and compaction should be measured for each lift of engineered fill during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.</div> <div>2. The Standard Proctor is generally used and accepted as common practice locally, therefore, recommendations for compaction will be based on the Standard Proctor test.</div>			

## Earthwork Factors

The earthwork factors are based on a comparison of the in-situ dry densities from ring samples to the density of bulk samples compacted to 95 and 100 percent of the maximum dry density as determined by ASTM D698. The estimated shrinkage of the upper roughly 10 feet of the site soils when used as compacted fill is presented in the table below:

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Percent Compaction (%)	Shrink/Swell (%)		
	Minimum	Maximum	Average
100	7	10	9
95	2	5	4

Note: Positive numbers are shrink, while negative numbers are swell. All values are in percent.

These estimates are general in nature, and are based on our experience, limited data from our field exploration, and the soil conditions we encountered at the site. Earthwork factors may vary dependent upon the actual subsurface conditions, which may include variations in soil gradations and gravel contents.

### Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of grade-supported improvements such as pavements. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompact prior to construction.

If unstable conditions exist or develop, workability may be improved by scarifying and drying. Over-excavation of wet zones and replacement with granular materials may be necessary. Use of lime, fly ash, cement, geotextiles or geogrid could also be considered as a stabilization technique. Laboratory evaluation is recommended to determine the effect of chemical stabilization on subgrade soils prior to construction. Lightweight excavation equipment may be required to reduce subgrade pumping.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, state, and federal safety regulations. The contractor should be aware that slope height, slope inclination, and excavation depth should in no instance exceed those specified by these safety regulations. Flatter slopes than those dictated by these regulations may be required depending upon the soil conditions encountered and other external factors. These regulations are strictly enforced and if they are not followed, the owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming

responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

## Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (existing vegetation, debris, and other deleterious materials).

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

## Shallow Foundations

### Mat Foundations

Reinforced mat foundations are recommended for support of box culvert structures on the project. Mat foundations should be designed based on the criteria outlined below:

Item	Description
<b>Foundation Type</b>	Mat foundations for box culvert structures
<b>Required Bearing Stratum</b>	A minimum depth of 12 inches of compacted Structural Fill should be placed beneath the mat foundations. Native subgrade soils should be scarified, moisture conditioned and recompact to a minimum depth of 10 inches as outlined in <b>Earthwork</b> section of this report.
<b>Maximum Net Allowable Bearing Pressure <sup>1</sup></b>	2,000 psf
<b>Minimum Embedment below Finished Grade <sup>2</sup></b>	12 inches
<b>Design Modulus of Subgrade Reaction, k</b>	225 pci
<b>Minimum Width</b>	8 feet
<b>Modulus Correction Factor <sup>3</sup></b>	$k_c = k((b+1)/2b)^2$
<b>Ultimate Passive Resistance<sup>4</sup> (equivalent fluid pressures)</b>	275 pcf

Item	Description
<b>Sliding Resistance</b> <sup>5</sup>	0.40
<b>Estimated Total Settlement</b>	Approximately 1 inch or less
<ol style="list-style-type: none"> <li>1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. The allowable bearing pressure may be increased by one-third when considering the alternative load combinations of Section 1605.3.2 of the International Building Code, however, it should not be increased when loads are determined by the basic allowable stress design load combinations of Section 1605.3.1.</li> <li>2. Finished grade is defined as the lowest adjacent grade within 5 feet of the foundation for perimeter (or exterior) footings and finished floor level for interior footings.</li> <li>3. It is common to reduce the k-value to account for dimensional effects of large loaded areas. Where <math>k_c</math> is the corrected or design modulus value and <math>b</math> is the mat width (short dimension) or tributary loaded area.</li> <li>4. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face. The passive earth pressure does not include any factor of safety, assumes submerged soils/hydrostatic loading.</li> <li>5. The coefficient of base sliding should be reduced to 0.30 when used in conjunction with passive pressure.</li> </ol>	

Finished grade is defined as the lowest adjacent grade within five feet of the foundation. The allowable design bearing pressure applies to dead loads plus design live load conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.

Additional foundation movements could occur if water from any source infiltrates the foundation soils; therefore, proper drainage should be provided in the final design and during construction.

## Spread Footings Foundations

Item	Description
<b>Foundation Type</b>	Conventional shallow spread footing foundation
<b>Structure</b>	Box culvert wing walls, small retaining walls and screen walls, and other lightly loaded structures
<b>Required Bearing Stratum</b>	A minimum depth of 12 inches of compacted Structural Fill should be placed beneath the spread footings. Native subgrade soils should be scarified, moisture conditioned and recompacted to a minimum depth of 10 inches as outlined in <b>Earthwork</b> section of this report.
<b>Maximum Net Allowable Bearing Pressure</b> <sup>1</sup>	2,000 psf



Item	Description
<b>Minimum Embedment below Finished Grade</b> <sup>2</sup>	24 inches
<b>Minimum Foundation Dimensions</b>	Isolated Column Footings: 30 inches Continuous Wall Footings: 24 inches
<b>Ultimate Passive Resistance<sup>4</sup> (equivalent fluid pressures)</b>	275 pcf
<b>Sliding Resistance</b> <sup>5</sup>	0.40
<b>Estimated Total Settlement</b>	Less than about 1 inch
<b>Estimated Differential Settlement</b> <sup>3</sup>	About $\frac{3}{4}$ of total settlement
<ol style="list-style-type: none"> <li>The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. The allowable bearing pressure may be increased by one-third when considering the alternative load combinations of Section 1605.3.2 of the International Building Code, however, it should not be increased when loads are determined by the basic allowable stress design load combinations of Section 1605.3.1.</li> <li>Finished grade is defined as the lowest adjacent grade within 5 feet of the foundation for perimeter (or exterior) footings and finished floor level for interior footings.</li> <li>Differential settlements are noted for equivalent-loaded foundations and bearing elevation as measured over a span of 50 feet.</li> <li>Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face. The passive earth pressure does not include any factor of safety, assumes submerged soils/hydrostatic loading.</li> <li>The coefficient of base sliding should be reduced to 0.30 when used in conjunction with passive pressure.</li> </ol>	

Finished grade is defined as the lowest adjacent grade within five feet of the foundation. The allowable design bearing pressure applies to dead loads plus design live load conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.

Additional foundation movements could occur if water from any source infiltrates the foundation soils; therefore, proper drainage should be provided in the final design and during construction.

## Lateral Earth Pressures

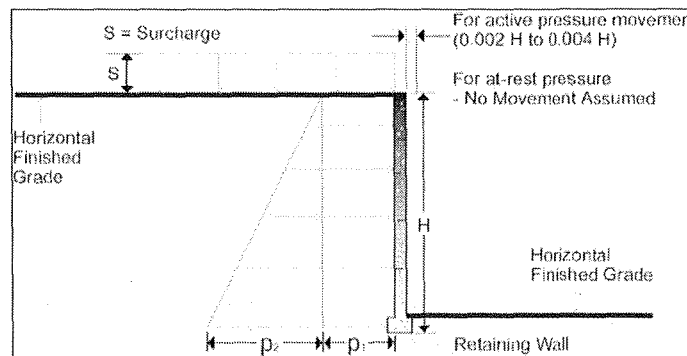
Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction, and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown in the diagram below. Active earth pressure is

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commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The following lateral earth pressure parameters are recommended for use in the design of retaining walls at the site. These values are based on using the on-site soils as fill and backfill material. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



**Lateral Earth Pressure Design Parameters**

Earth Pressure Condition <sup>1</sup>	Coefficient for Backfill Type <sup>2</sup>	Surcharge Pressure <sup>3</sup> p <sub>1</sub> (psf)	Equivalent Fluid Pressures (psf) <sup>2,4</sup>	
			Unsaturated	Submerged
Active (K <sub>a</sub> )	On-Site Soils - 0.29	(0.29)S	(37)H	(81)H
	Structural Fill Soils - 0.26	(0.26)S	(34)H	(80)H
At-Rest (K <sub>o</sub> )	On-Site Soils - 0.46	(0.46)S	(55)H	(91)H
	Structural Fill Soils - 0.41	(0.41)S	(54)H	(90)H

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance. Fat clay or other expansive soils should not be used as backfill behind the wall.
2. Uniform, horizontal backfill, with a maximum unit weight of 125 pcf for on-site soils and 130 pcf for Structural Fill soils.
3. Uniform surcharge, where S is surcharge pressure.
4. Loading from heavy compaction equipment is not included.

Backfill placed against structures should consist of on-site or granular soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 degrees from vertical for the active case.

Footings or other loads bearing on backfill behind walls may have a significant influence on the lateral earth pressure. Placing footings within wall backfill and in the zone of active soil influence on the wall should be avoided unless structural analyses indicate the wall can safely withstand the increased pressure.

Backfill soils placed against retaining walls should be compacted to densities specified in the **Earthwork** section of this report. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors.

The lateral earth pressure recommendations given in this section are applicable to the design of rigid retaining walls subject to slight rotation, such as cantilever, or gravity type concrete walls. These recommendations are not applicable to the design of modular block - geogrid reinforced backfill walls (also termed MSE walls). Recommendations covering these types of wall systems are beyond the scope of services for this assignment. However, we would be pleased to develop a proposal for evaluation and design of such wall systems upon request.

## General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third

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**Geotechnical Engineering Report**

Sunrise Drive at Esperero Wash – Box Culvert | Tucson, Arizona  
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parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others.

Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction or foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

## Geotechnical Engineering Report

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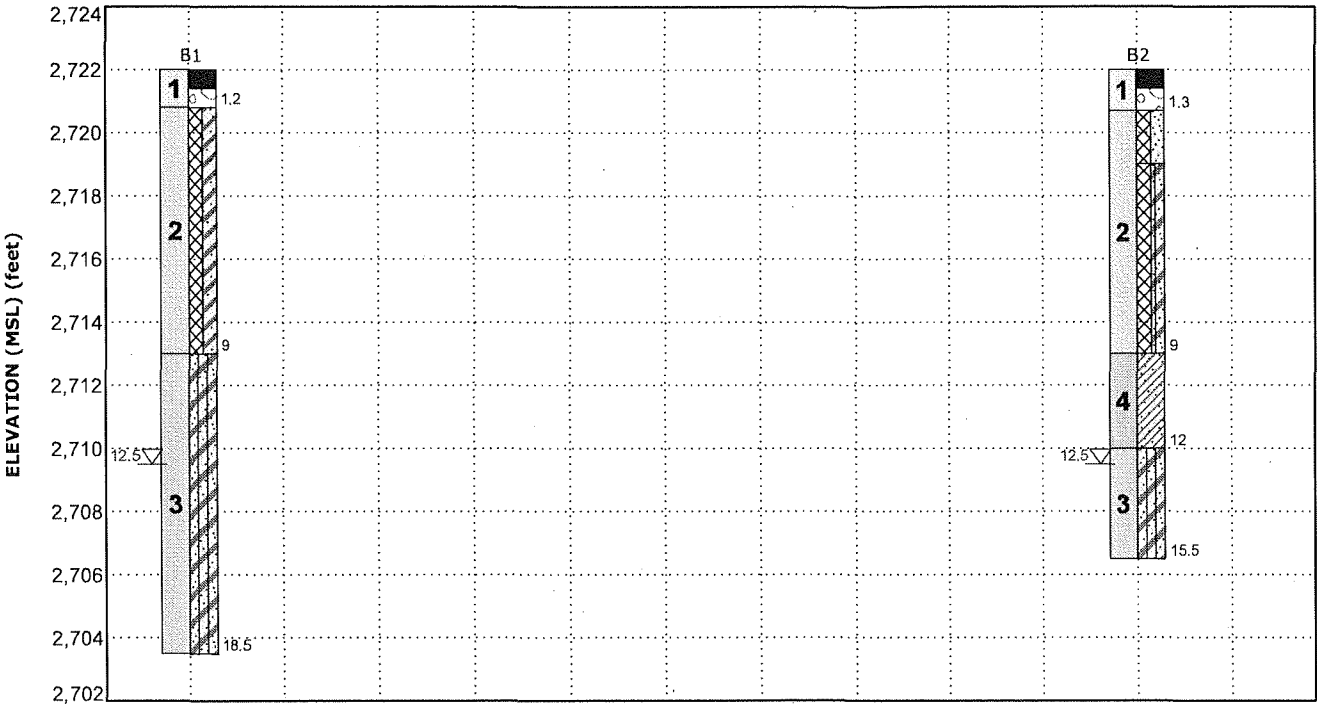


## Figures

### Contents:

GeoModel

## GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description	Legend	
1	Pavement	Asphalt concrete overlaying aggregate base course	Asphalt Concrete	Aggregate Base Course
2	Existing Fill	Existing fill consisting of sand soils with variable amounts of clay and silt with loose to medium dense relative density	Clayey Sand	Silty Clayey Sand
3	Medium Dense to Very Dense Sand	Sand soils with variable amounts of clay and silt with medium dense to very dense relative density	Poorly-graded Sand	Sandy Lean Clay
4	Stiff Lean Clay	Sandy lean clay with stiff consistency		

First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.  
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

**NOTES:**  
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

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## Attachments



# Exploration and Testing Procedures

## Field Exploration

Two test borings were drilled at the project site on May 29, 2024. The approximate boring locations at the project site are shown on the **Exploration Plan**, and the location and depth of the borings are summarized in the following table:

Boring Number	Approximate Boring Depth (feet)	Location
B1 & B2	15½ to 18½ <sup>1</sup>	Sunrise Drive at Esperero Wash

1. Auger refusal was encountered at both boring locations

**Boring Layout and Elevations:** Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal accuracy of about ±15 feet) and referencing existing site features. Approximate ground surface elevations were obtained by interpolation from the Google Earth Pro. If elevations and a more precise boring layout are desired, we recommend borings be surveyed.

**Subsurface Exploration Procedures:** The borings were advanced with a truck-mounted, CME-45 drill rig utilizing 6-inch outside diameter hollow-stem augers. At selected intervals samples of the subsurface materials were taken at each boring location by driving split-spoon (SPT) or ring-lined barrel samplers in general accordance with ASTM Standards. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon is driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. A 3-inch O.D. split-barrel sampling spoon with a 2.5-inch I.D. ring lined sampler was also used for sampling in the upper three feet in the soil borings. Ring-lined, split-barrel sampling procedures are similar to the standard split spoon sampling procedure; however, blow counts are typically recorded for 6-inch intervals for a total of 12 inches of penetration.

Bulk samples of subsurface materials were obtained from all the borings. Groundwater was not encountered during the field exploration. For safety purposes, the borings were backfilled with a mix of auger cuttings and bentonite grout and patched with asphalt after their completion.



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The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

### Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the Unified Soil Classification System (USCS) as shown in the **Exploration Results** section of this report. At that time, the field descriptions were confirmed or modified as necessary, and an applicable laboratory testing program was formulated to determine the engineering properties of the subsurface materials.

Laboratory tests were conducted on selected soil samples and the test results are presented in the **Exploration Results** section of this report. These results were used for the geotechnical engineering analyses, and the development of geotechnical and pavement engineering recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local, or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

- Moisture content
- Dry Unit Weight
- Atterberg Limits
- Grain Size Analysis
- Swell Consolidation Test
- Standard Proctor
- Remolded Swell
- Soluble Sulfate
- Soluble Chloride
- pH
- Minimum Resistivity

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## **Site Location and Exploration Plans**

**Contents:**

Site Location

Exploration Plan

Note: All attachments are one page unless noted above.

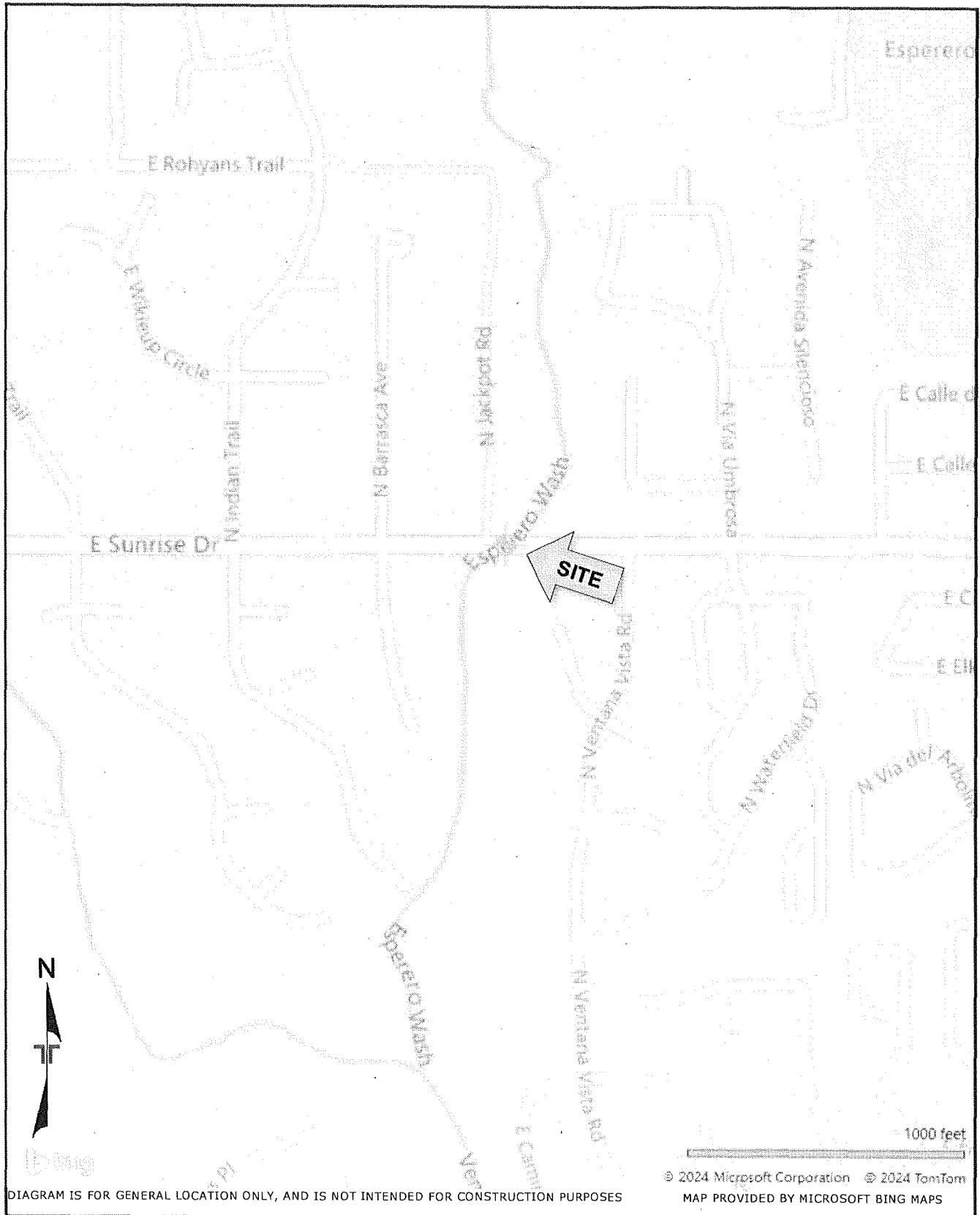
## Geotechnical Engineering Report

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## Site Location



## Geotechnical Engineering Report

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## Exploration Plan



## **Geotechnical Engineering Report**

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# **Exploration Results**

## **Contents:**

Boring Logs (B1 and B2, 2 pages)  
Atterberg Limits  
Grain Size Distribution  
Moisture Density Relationship  
Swell Consolidation Test (2 pages)  
Summary of Laboratory Results

Note: All attachments are one page unless noted above.

## Boring Log No. B1

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 32.3089° Longitude: -110.8323°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.6 <b>ASPHALT CONCRETE</b> , Approximate thickness = 6-7/8"	2721.4							
		1.2 <b>AGGREGATE BASE COURSE</b> , Approximate thickness = 6-1/2"	2720.8							
2		<b>FILL - CLAYEY SAND (SC)</b> , fine to coarse grained, angular to subrounded, medium plasticity, light brown to orange, moist, loose, weak cementation, lenses of Silty Sand								
						5-9	13.3	112	28-17-11	27
		brown to dark brown, medium dense	5			10-14	11.4	115		
		loose				5-8	11.9	111		
3		9.0 <b>SILTY CLAYEY SAND (SC-SM)</b> , trace cobbles, fine to coarse grained, angular to subrounded, low plasticity, dark brown, moist, medium dense, weak cementation, lens of cobbles	2713							
						12-20	9.3	121		
		dark brown with purple, wet, very dense				17-50/3"				
		brown, no cementation	15			50/5"				
		lens of cobbles				50/1"				
		18.5 <b>Auger Refusal at 18.5 Feet</b>	2703.5							

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).  
 See Supporting Information for explanation of symbols and abbreviations.  
 Elevation Reference: Elevations were obtained using Google Earth Pro

### Notes

### Water Level Observations

Groundwater encountered at approximately 12.5 feet below ground surface

**Drill Rig**  
CME 45

**Hammer Type**  
Automatic

**Driller**  
Southlands - Itsael

**Logged by**  
C. Wiedemann

**Boring Started**  
05-29-2024

**Boring Completed**  
05-29-2024

**Advancement Method**  
6-inch Hollow Stem Auger

**Abandonment Method**  
Boring backfilled with Auger Cuttings and/or Bentonite  
Surface Capped with Asphalt

## Boring Log No. B2

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 32.3089° Longitude: -110.8324°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		Depth (Ft.) Elevation: 2722 (Ft.) +/-								
1		0.6 <b>ASPHALT CONCRETE</b> , Approximate thickness = 6-3/8" 2721.4								
		1.3 <b>AGGREGATE BASE COURSE</b> , Approximate thickness = 8-1/2" 2720.7								
		<b>FILL - POORLY GRADED SAND (SP)</b> , fine to coarse grained, angular to subrounded, nonplastic, white to tan, medium dense								
		3.0 2719				8-41	8.9	120		
2		<b>FILL - SILTY CLAYEY SAND (SC-SM)</b> , fine to coarse grained, angular to subrounded, low plasticity, brown, medium dense, weak cementation								
		moist				15-23	0.5 8.6	119		
		9.0 2713				8-11	12.1	110		
4		<b>SANDY LEAN CLAY (CL)</b> , medium plasticity, dark brown, moist, stiff, weak cementation, occasional cobbles				8-10	12.2	116		
		12.0 2710				15-50/1"				
3		<b>SILTY CLAYEY SAND (SC-SM)</b> , fine to coarse grained, angular to subrounded, low plasticity, dark brown, wet, very dense, occasional cobbles							25-18-7	35
		lens of cobbles								
		15.5 2706.5				50/1"				
		<b>Auger Refusal at 15.5 Feet</b>								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were obtained using Google Earth Pro

### Notes

### Water Level Observations

Groundwater encountered at approximately 12.5 feet below ground surface

**Drill Rig**  
CME 45

**Hammer Type**  
Automatic

**Driller**  
Southlands - Itsael

**Logged by**  
C. Wiedemann

**Boring Started**  
05-29-2024

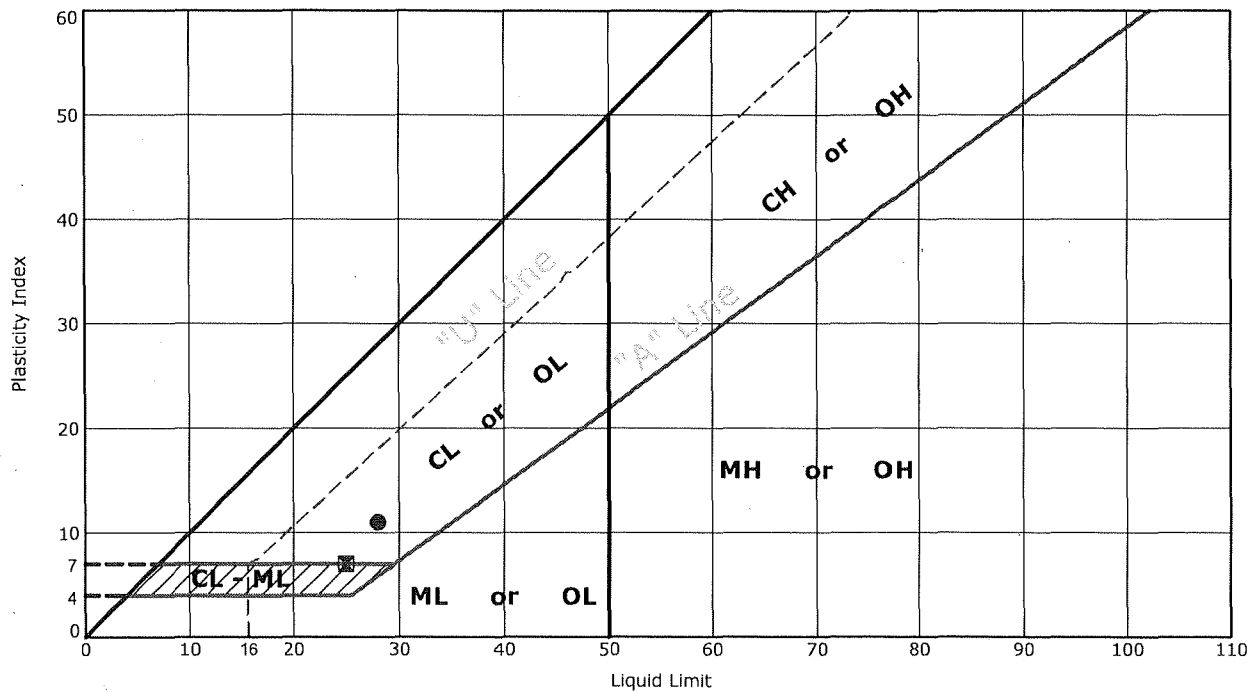
**Boring Completed**  
05-29-2024

**Advancement Method**  
6-inch Hollow Stem Auger

**Abandonment Method**  
Boring backfilled with Auger Cuttings and/or Bentonite  
Surface Capped with Asphalt

## Atterberg Limit Results

ASTM D4318

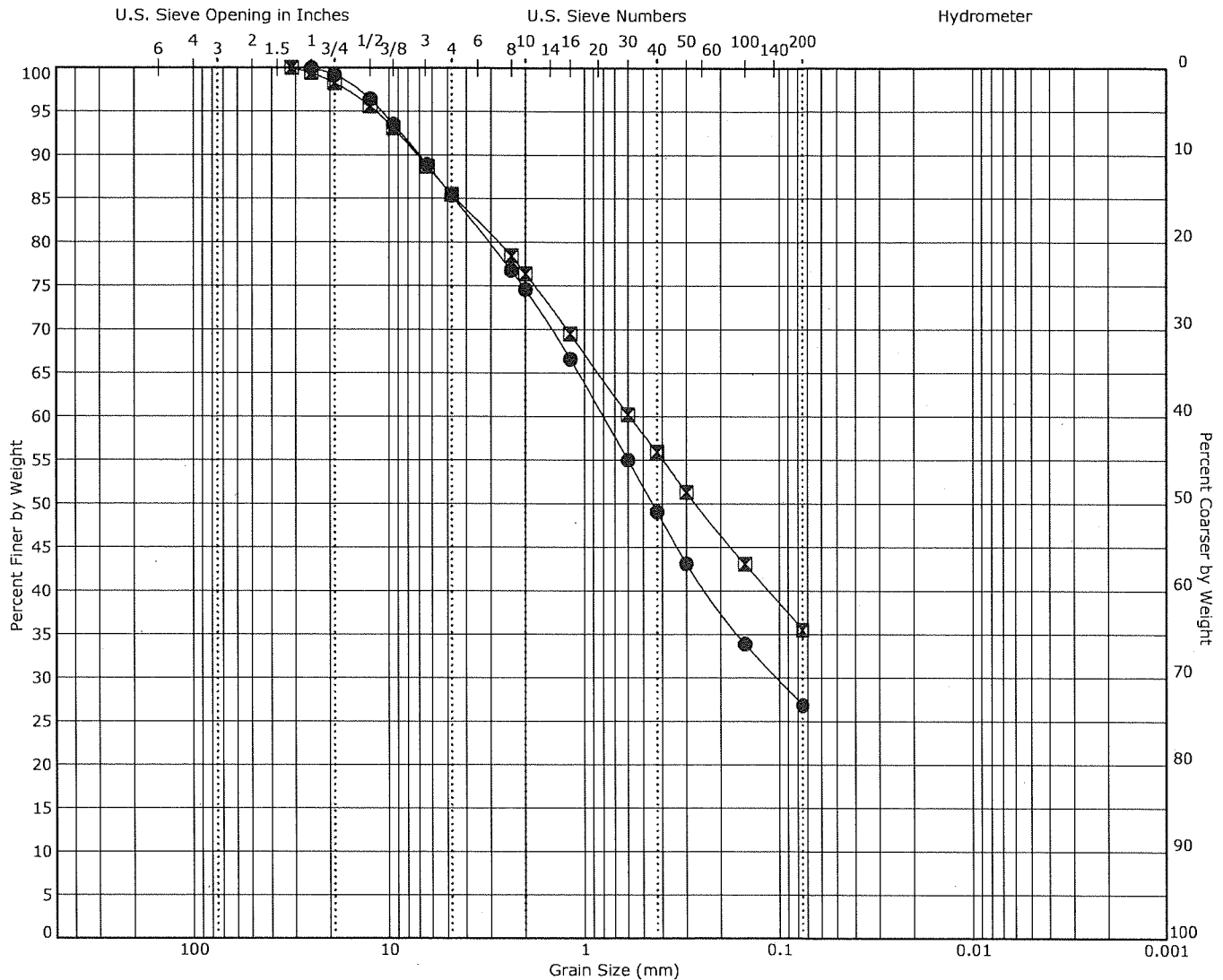


	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B1	1.3 - 6	28	17	11	26.8	SC	FILL: CLAYEY SAND
⊠	B2	12 - 15	25	18	7	35.5	SC-SM	SILTY, CLAYEY SAND



## Grain Size Distribution

ASTM D422 / ASTM C136 / AASHTO T27

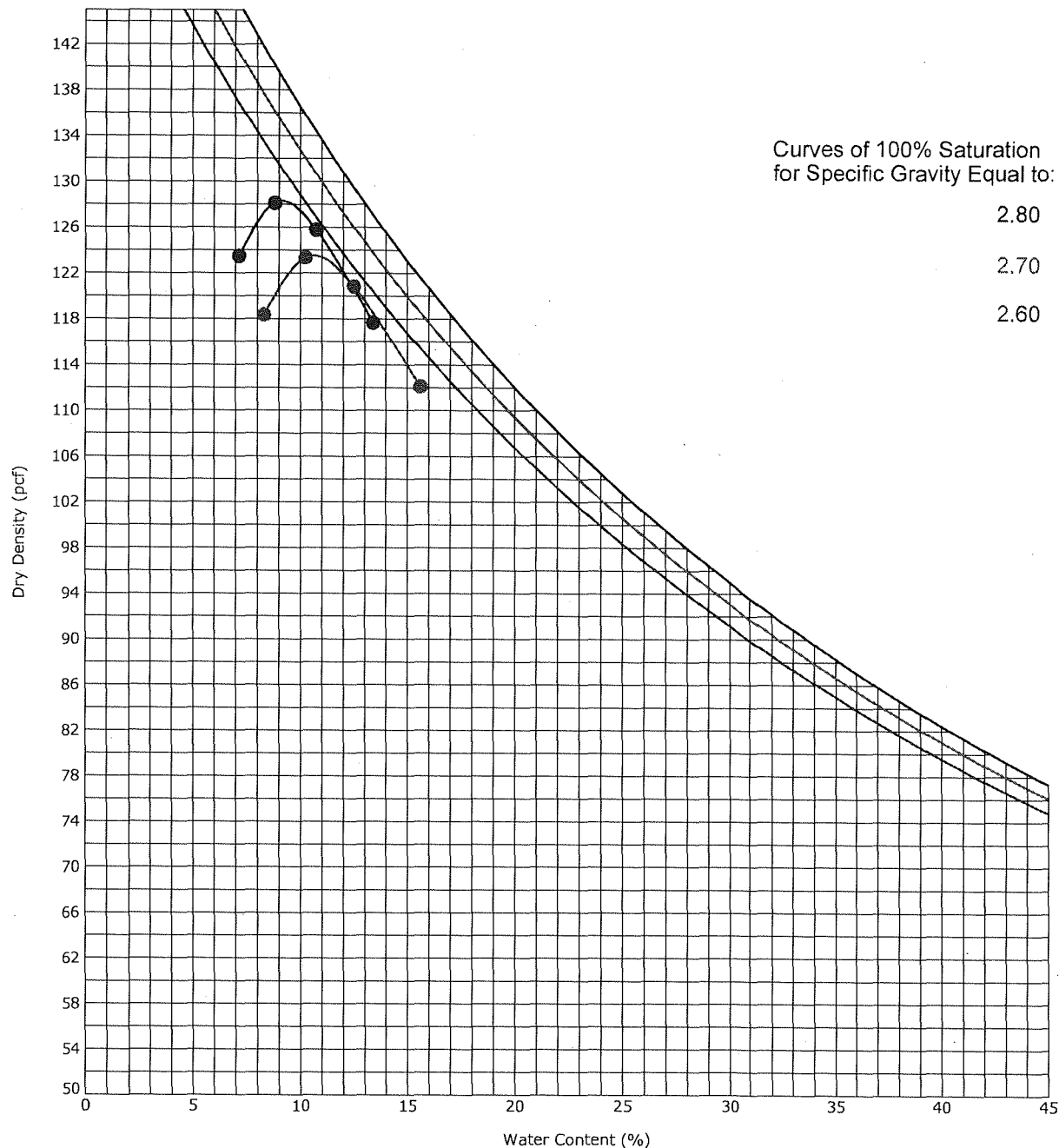


Boring ID	Depth (Ft)	Description	LL	PL	PI	Cc	Cu
● B1	1.3 - 6	FILL: CLAYEY SAND	28	17	11		
☒ B2	12 - 15	SILTY, CLAYEY SAND	25	18	7		

Boring ID	Depth (Ft)	D <sub>100</sub>	D <sub>60</sub>	D <sub>30</sub>	D <sub>10</sub>	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
● B1	1.3 - 6	25	0.802	0.102		0.0	14.6	58.5	26.8		
☒ B2	12 - 15	31.5	0.588			0.0	14.5	50.0	35.5		

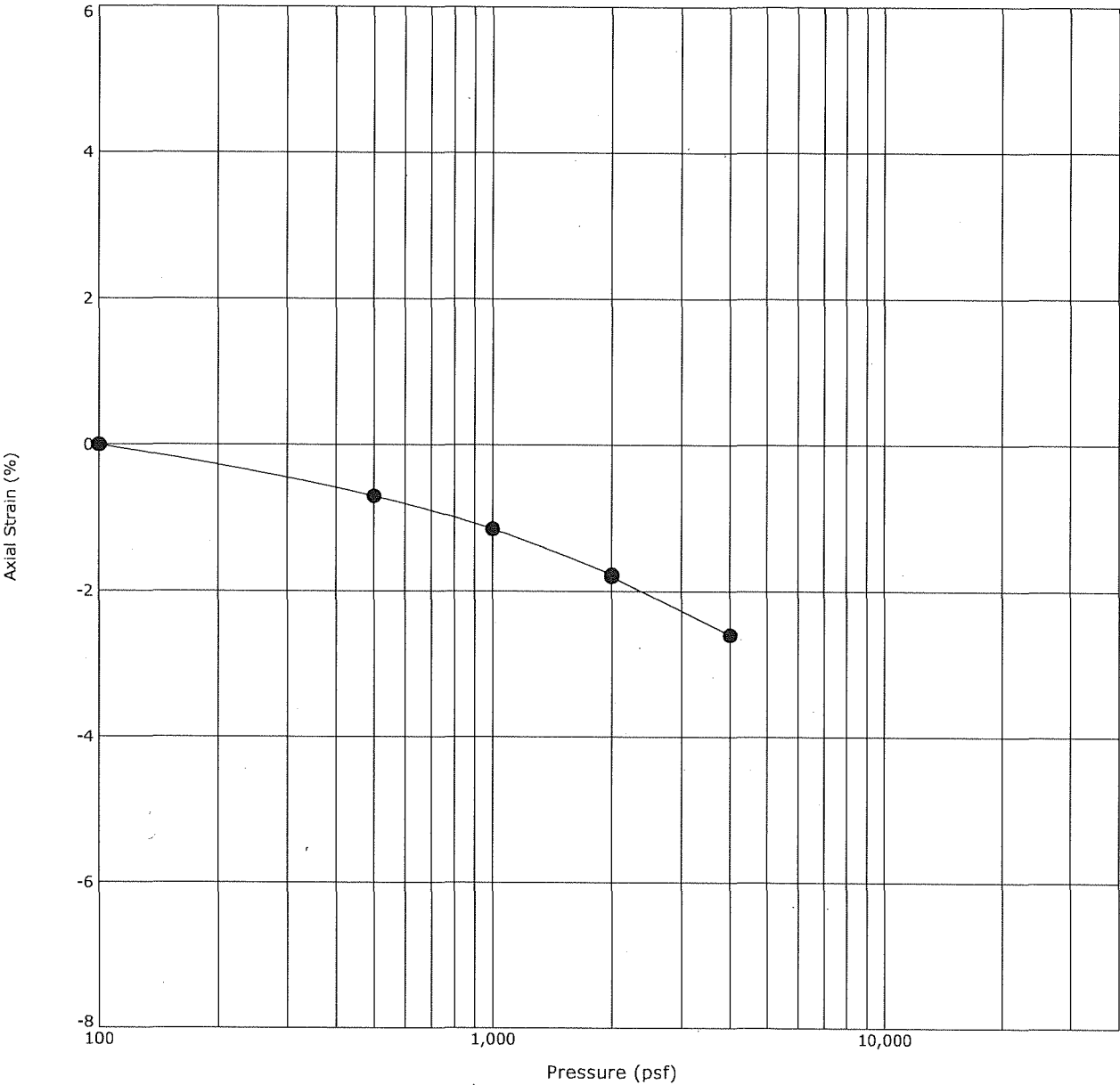
## Moisture-Density Relationship

### ASTM D698-Method A



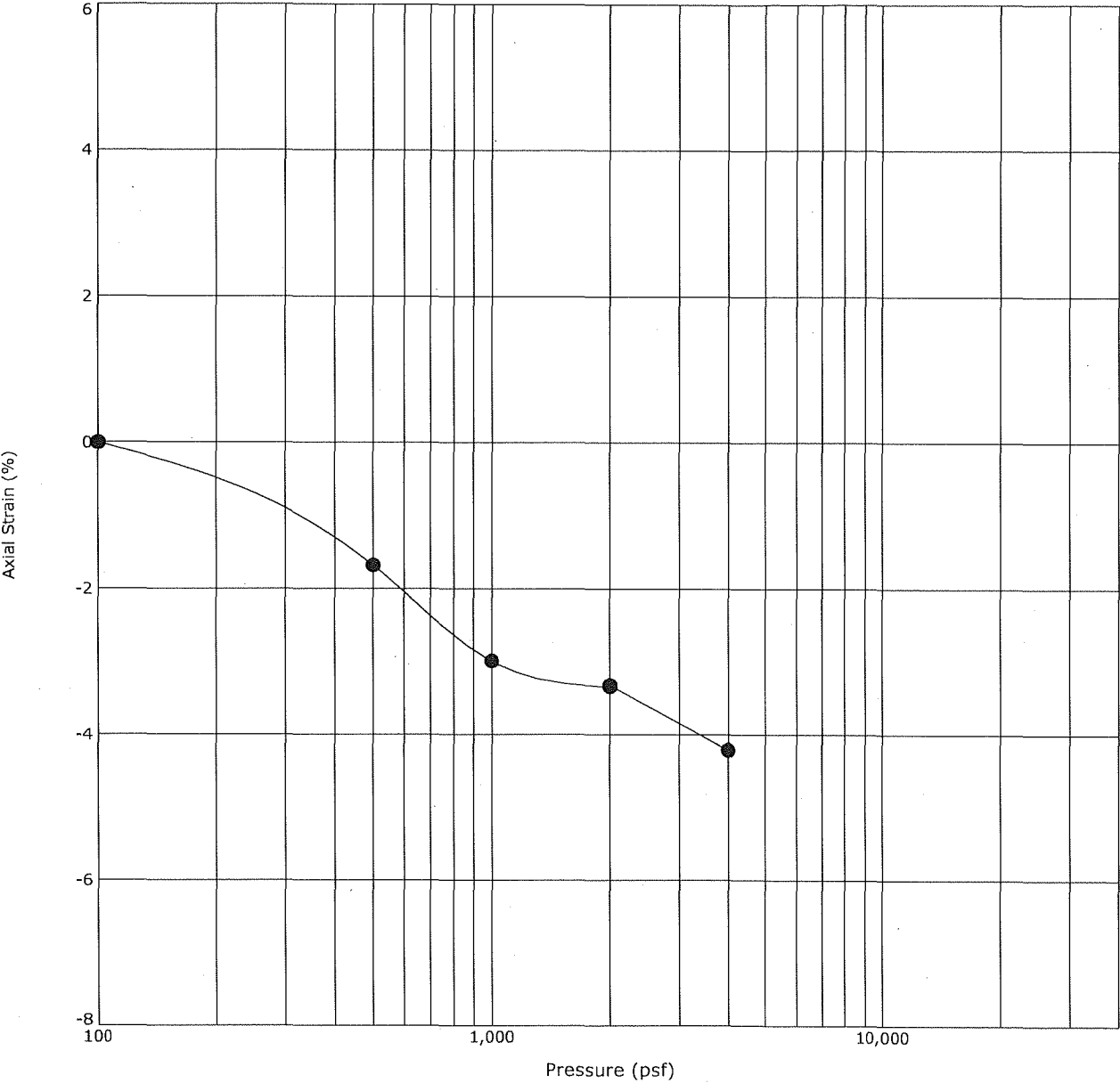
Boring ID		Depth (Ft)		Description of Materials					
B1		1.25 - 6		FILL: CLAYEY SAND					
						Uncorrected		Corrected	
Fines (%)	Fraction >4.75 mm size	LL	PL	PI	Test Method	Max DD (pcf)	Optimum WC (%)	Max DD (pcf)	Optimum WC (%)
27	14.6	28	17	11	ASTM D698-Method A	123.5	10.6	128.3	9.1

**One-Dimensional Swell or Collapse**  
ASTM D4546



Boring ID	Depth (Ft)	Description	USCS	$\gamma_d$ (pcf)	WC (%)
● B1	10 - 11	SILTY, CLAYEY SAND	SC-SM	120	9.3
Notes: Sample submerged at 2000 psf					

**One-Dimensional Swell or Collapse**  
ASTM D4546



Boring ID	Depth (Ft)	Description	USCS	$\gamma_d$ (pcf)	WC (%)
● B2	10 - 11	SANDY LEAN CLAY	CL	116	12.2

Notes: Sample submerged at 2000 psf

## SUMMARY OF LABORATORY RESULTS

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Expansion Testing					Corrosivity				Remarks	
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Dry Density (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	Expansion Index E <sub>150</sub>	pH	Resistivity (ohm-cm)	Sulfates (mg/Kg)	Chlorides (mg/Kg)		
						LL	PL	PI											
B1	1.3 - 6.0	SC			27	28	17	11	117	7.7	100	3.4							
B1	2.0 - 3.0	SC	112	13															1, 2
B1	5.0 - 6.0	SC	115	11															1, 2
B1	7.0 - 8.0	SC	111	12															1, 2
B1	10.0 - 11.0	SC-SM	121	9															1, 2
B2	2.0 - 3.0	SC-SM	120	9															1, 2
B2	3.0 - 8.0	SC-SM		0										9.0	630	240	210		2
B2	5.0 - 6.0	SC-SM	119	9															1, 2
B2	7.0 - 8.0	SC-SM	110	12															1, 2
B2	10.0 - 11.0	CL	116	12															1, 2
B2	12.0 - 15.0	SC-SM			35	25	18	7											

### REMARKS

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Sunrise Drive at Esperero Wash - Box Culvert

SITE: Sunrise Drive at Esperero Wash  
Tucson, Arizona



355 S Euclid Ave, Ste 107  
Tucson, AZ

PH. 520-770-1789

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PROJECT NUMBER: 63245025

CLIENT: PSOMAS  
Tucson, Arizona

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## **Supporting Information**

**Contents:**













General Notes

Unified Soil Classification System

Note: All attachments are one page unless noted above.

# GENERAL NOTES

## DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

<b>SAMPLING</b>				<b>WATER LEVEL</b>		Water Initially Encountered	<b>FIELD TESTS</b>	(HP) Hand Penetrometer
						Water Level After a Specified Period of Time		(T) Torvane
						Water Level After a Specified Period of Time		(b/f) Standard Penetration Test (blows per foot)
						Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.		N N value
								(PID) Photo-Ionization Detector
								(OVA) Organic Vapor Analyzer

## DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

## LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

<b>STRENGTH TERMS</b>	RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
	Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-Value Blows/Ft.
	Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1
	Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4
	Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8
	Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15
	Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30
				Hard	> 8,000	> 30
						> 42

## RELATIVE PROPORTIONS OF SAND AND GRAVEL

## GRAIN SIZE TERMINOLOGY

### Descriptive Term(s) of other constituents

### Percent of Dry Weight

### Major Component of Sample

### Particle Size

Trace  
With  
Modifier

< 15  
15 - 29  
> 30

Boulders  
Cobbles  
Gravel  
Sand  
Silt or Clay

Over 12 in. (300 mm)  
12 in. to 3 in. (300mm to 75mm)  
3 in. to #4 sieve (75mm to 4.75 mm)  
#4 to #200 sieve (4.75mm to 0.075mm)  
Passing #200 sieve (0.075mm)

## RELATIVE PROPORTIONS OF FINES

## PLASTICITY DESCRIPTION

### Descriptive Term(s) of other constituents

### Percent of Dry Weight

### Term

### Plasticity Index

Trace  
With  
Modifier

< 5  
5 - 12  
> 12

Non-plastic  
Low  
Medium  
High

0  
1 - 10  
11 - 30  
> 30

## Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests <sup>A</sup>				Soil Classification	
				Group Symbol	Group Name <sup>B</sup>
<b>Coarse-Grained Soils:</b> More than 50% retained on No. 200 sieve	<b>Gravels:</b> More than 50% of coarse fraction retained on No. 4 sieve	<b>Clean Gravels:</b> Less than 5% fines <sup>C</sup>	$Cu \geq 4$ and $1 \leq Cc \leq 3$ <sup>E</sup>	GW	Well-graded gravel <sup>F</sup>
		<b>Gravels with Fines:</b> More than 12% fines <sup>C</sup>	$Cu < 4$ and/or $[Cc < 1 \text{ or } Cc > 3.0]$ <sup>E</sup>	GP	Poorly graded gravel <sup>F</sup>
			Fines classify as ML or MH	GM	Silty gravel <sup>F, G, H</sup>
	<b>Sands:</b> 50% or more of coarse fraction passes No. 4 sieve	<b>Clean Sands:</b> Less than 5% fines <sup>D</sup>	$Cu \geq 6$ and $1 \leq Cc \leq 3$ <sup>E</sup>	SW	Well-graded sand <sup>I</sup>
		<b>Sands with Fines:</b> More than 12% fines <sup>D</sup>	$Cu < 6$ and/or $[Cc < 1 \text{ or } Cc > 3.0]$ <sup>E</sup>	SP	Poorly graded sand <sup>I</sup>
			Fines classify as ML or MH	SM	Silty sand <sup>G, H, I</sup>
<b>Fine-Grained Soils:</b> 50% or more passes the No. 200 sieve	<b>Silts and Clays:</b> Liquid limit less than 50	<b>Inorganic:</b>	Fines classify as CL or CH	SC	Clayey sand <sup>G, H, I</sup>
			$PI > 7$ and plots above "A" line <sup>J</sup>	CL	Lean clay <sup>K, L, M</sup>
			$PI < 4$ or plots below "A" line <sup>J</sup>	ML	Silt <sup>K, L, M</sup>
	<b>Silts and Clays:</b> Liquid limit 50 or more	<b>Organic:</b>	$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$	OL	Organic clay <sup>K, L, M, N</sup>
			PI plots on or above "A" line	CH	Fat clay <sup>K, L, M</sup>
			PI plots below "A" line	MH	Elastic silt <sup>K, L, M</sup>
<b>Highly organic soils:</b>	Primarily organic matter, dark in color, and organic odor	<b>Inorganic:</b>	$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$	OH	Organic clay <sup>K, L, M, P</sup>
				PT	Peat

<sup>A</sup> Based on the material passing the 3-inch (75-mm) sieve.

<sup>B</sup> If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

<sup>C</sup> Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

<sup>D</sup> Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

$$^E \quad Cu = D_{60}/D_{10} \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

<sup>F</sup> If soil contains  $\geq 15\%$  sand, add "with sand" to group name.

<sup>G</sup> If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

<sup>H</sup> If fines are organic, add "with organic fines" to group name.

<sup>I</sup> If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.

<sup>J</sup> If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

<sup>K</sup> If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

<sup>L</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.

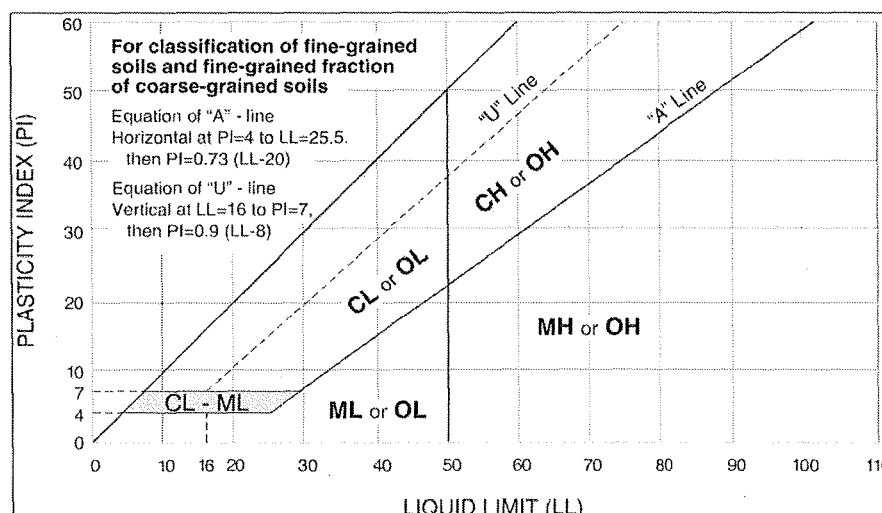
<sup>M</sup> If soil contains  $\geq 30\%$  plus No. 200, predominantly gravel, add "gravelly" to group name.

<sup>N</sup>  $PI \geq 4$  and plots on or above "A" line.

<sup>O</sup>  $PI < 4$  or plots below "A" line.

<sup>P</sup> PI plots on or above "A" line.

<sup>Q</sup> PI plots below "A" line.

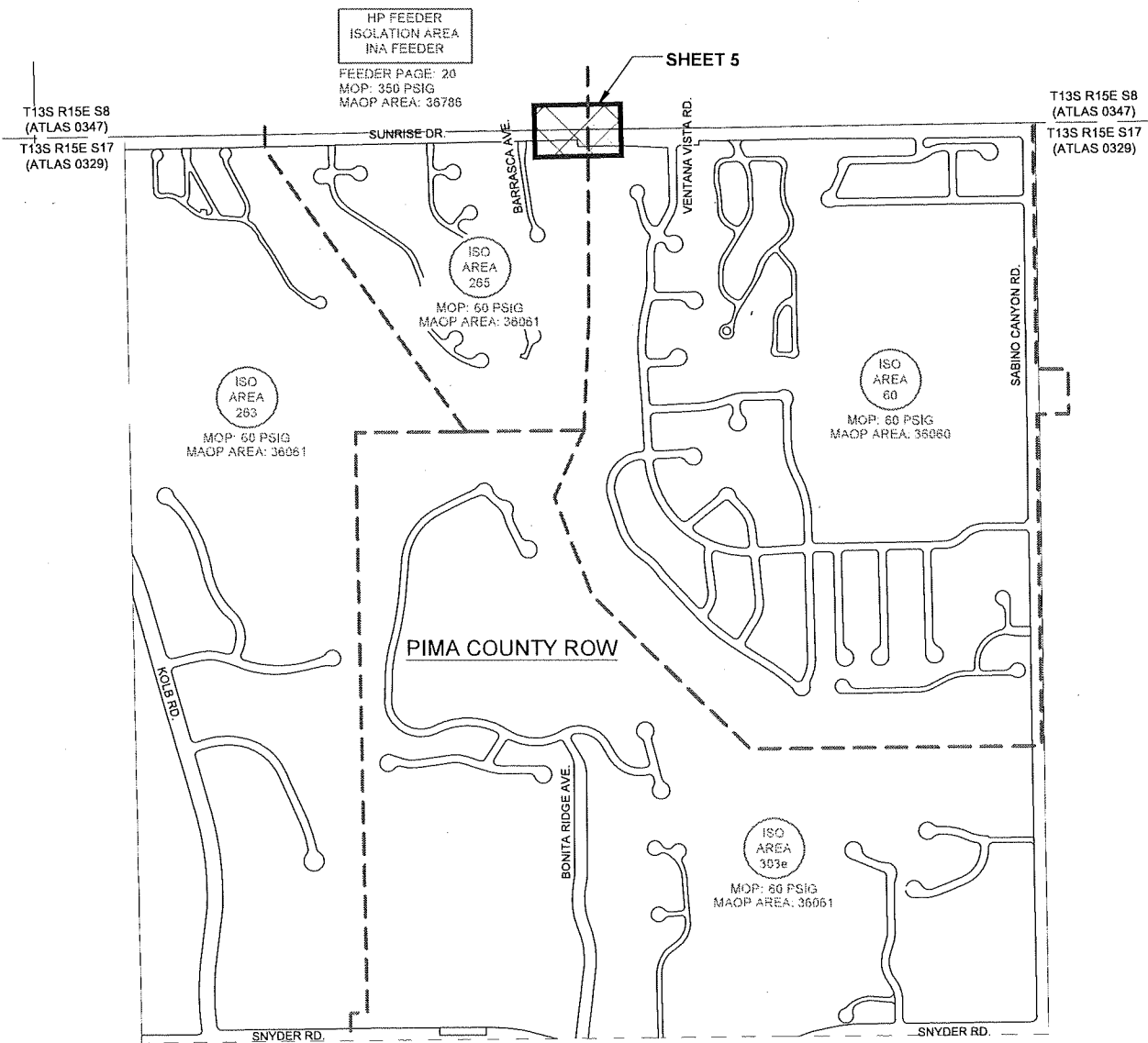


## END APPENDIX D - GEOTECHNICAL REPORT



DESIGN LEGEND

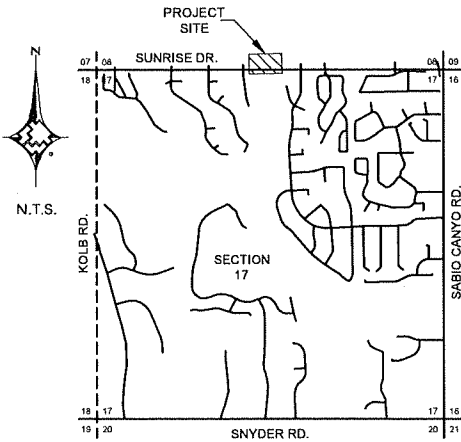
EXISTING GAS MAIN	
EXISTING GAS SERVICE	
GAS LINE TO BE ABANDONED	
PROPOSED GAS MAIN	
PROPOSED GAS SERVICE	
STEEL RISER	
ANODELESS RISER	
GASLIGHT	
GAS VALVE	
EXCESS FLOW VALVE	
RELIEF VALVE	
COUPLINGS	
BOND OVER	
CP TEST POINT	
INSULATOR	
REGULATOR STATION	
RECTIFIER	
ANODE	
SCADA	
METER SET ASSEMBLY	
PURGE POINT	
BRANCH,CVT,LINE STOPPER	
EXISTING EASEMENT	
ROW LINE	
PROPERTY LINE	
STREET CENTERLINE	
EDGE OF PAVEMENT	
CABLE LINE - UNDERGROUND	
ELECTRIC - OVERHEAD	
ELECTRIC - UNDERGROUND	
FIBER OPTIC - UNDERGROUND	
PHONE - OVERHEAD	
PHONE - UNDERGROUND	
RECLAIMED WATER	
SEWER	
STORMWATER	
WATER	
UTILITY PEDESTALS	
FIRE HYDRANT	
MANHOLE	
WATER VALVE	
SURVEY MONUMENT	
POWER POLE	
GAS FLOW ARROW	



SHEET INDEX MAP

SHEET INDEX

- 1 COVER SHEET
- 2 NOTES AND STANDARD DETAILS
- 3 NOTES AND STANDARD DETAILS
- 4 NOTES AND STANDARD DETAILS
- 5 PLAN SHEET
- 6 NON-DESTRUCTIVE TESTING
- 7 TESTING SHEET
- 8 PURGE PLANS



LOCATION MAP  
T13S R15E S8, 17

CONTACT ARIZONA 811 AT LEAST  
TWO FULL WORKING DAYS  
BEFORE YOU BEGIN EXCAVATION



SOUTHWEST GAS CORPORATION

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REVISIONS				36876 INA FEEDER	JOB TYPE	WR NO.	ENGINEER/TECHNICIAN	PHONE: (520)262-6551
				SYSTEM MAOP: 350	HP SERVICE <input type="checkbox"/>	4928617	ACCOUNT REP.	PHONE:
				SYSTEM MOP: 350	DISTRIBUTION <input type="checkbox"/>		PROJECT CONTACT	PHONE:
					FEEDER <input checked="" type="checkbox"/>		SHEET NO. 1 OF 8	SCALE N.T.S.
							DWN. BY JDM	CHKD. BY FXS9
								DATE 01/03/2025
								APPVD. BY JLS4
					TRANS. BY DEF <input type="checkbox"/>		FN HP: ESPERERO WASH AT SUNRISE DR. TUCSON, AZ.	
					TRANS > 20% <input type="checkbox"/>			

GENERAL NOTES:

1. THE SWG ENGINEERING CONTACT IS FERNANDO SOTO AT (520) 262-6551.
2. THE SWG CONSTRUCTION CONTACT IS ROBERTO BALTIERREZ AT (520) 794-6129.
3. NOTES PERTAINING TO THIS PROJECT MAY BE COVERED ON OTHER SHEETS OF THE PROVIDED DRAWINGS.
4. SWG ENGINEERING MUST APPROVE ANY DESIGN CHANGES.
5. THE PURGING, GASSING, AND DEGASSING OF THESE NEW OR ABANDONED FACILITIES SHALL BE PERFORMED PER THE SWG OPERATIONS MANUAL - PURGE PROCEDURES.
6. THE PRESSURE TESTING OF THESE FACILITIES SHALL BE PERFORMED PER THE SWG OPERATIONS MANUAL - TESTING PROCEDURES.
7. ALL LAND SURVEY REQUESTS MUST BE MADE A MINIMUM OF 5 BUSINESS DAYS IN ADVANCE. SURVEY WORK MUST BE COMPLETED BY A SOUTHWEST GAS CONTRACTED SURVEYOR.
8. CUSTOMERS IN THE PROJECT SCOPE AREA WILL BE NOTIFIED AT LEAST 5 BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION.
9. ALL PROPOSED FACILITIES REQUIRE A MINIMUM SEPARATION OF 2-FEET FROM EXISTING UTILITIES.
10. UTILITY LOCATIONS, AS SHOWN ON THE PLANS, WERE COMPILED BASED ON THE BEST INFORMATION AVAILABLE. UTILITY LOCATIONS ARE NOT INTENDED TO BE EXACT OR COMPLETE. PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES WITH THE APPROPRIATE ORGANIZATIONS. CONTACT "ARIZONA 811" TWO FULL WORKING DAYS PRIOR TO CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES IN PLACE.

HORIZONTAL CONTROL:

THIS PROJECT IS BASED ON THE ARIZONA COORDINATE SYSTEM, 1983 (ACS 83), NAD83 (2011)(2010.0000) REFERENCE FRAME, USING INTERNATIONAL FEET IN THE CENTRAL ZONE OF THIS COORDINATE SYSTEM. THE CONTROL NETWORK WAS SURVEYED IN APRIL AND MAY 2024 WITH TRIMBLE GPS UNITS, UTILIZING BOTH POST-PROCESSED STATIC AND REAL-TIME KINEMATIC METHODS. THE CONTROL POINTS USED ARE:

J05 — PIMA COUNTY CP (OPUS)  
J07 — PIMA COUNTY CP (OPUS)  
J09 — PIMA COUNTY CP (OPUS)  
1 — PSOMAS CP (PRIMARY CONTROL POINT)

COORDINATE COMPUTATION:

SURFACE COORDINATES AND/OR DISTANCES WERE DERIVED FROM ACS 83 COORDINATES BY APPLYING A PROJECT-SPECIFIC GRID WITH COMBINED ELEVATION AND SCALE FACTORS AT A CENTRAL POINT.

NP LOC = (NP ACS83 - NCP ACS83) \* CF + NCP ACS83  
EP LOC = (EP ACS83 - ECP ACS83) \* CF + ECP ACS83

WHERE:

NP LOC = LOCAL NORTH  
NP ACS83 = ACS 83 NORTH  
NCP ACS83 = ACS 83 AT CENTRAL POINT  
EP LOC = LOCAL EAST  
EP ACS83 = ACS 83 EAST  
ECP ACS83 = ACS 83 AT CENTRAL POINT  
COMBINED FACTOR (CF): 1.0000968594  
CENTRAL POINT COORDINATES: NCP 477763.59 (ACS83), ECP 1035433.12 (ACS83)

BASIS OF BEARINGS:

THE PROJECT IS BASED ON THE ARIZONA COORDINATE SYSTEM, 1983 (ACS 83), NAD83 (2011)(2010.0000) REFERENCE FRAME. THE LINE BETWEEN CONTROL POINTS J05 AND J09 HAS A SPCS GRID BEARING OF N 88°47'35" E AND A GROUND DISTANCE OF 5189.96 FEET.

VERTICAL CONTROL:

THE VERTICAL DATUM FOR THIS PROJECT IS THE NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88). ORTHOMETRIC HEIGHTS WERE DETERMINED THROUGH OPUS RESULTS FROM A STATIC GPS SURVEY. BENCHMARKS INCLUDE:

J05 — PIMA COUNTY CP (OPUS) — ELEVATION: 2743.87'  
J07 — PIMA COUNTY CP (OPUS) — ELEVATION: 2720.08'  
J09 — PIMA COUNTY CP (OPUS) — ELEVATION: 2726.89'  
1 — PSOMAS CP (PROJECT BENCHMARK) — ELEVATION: 2720.53'

NOTE: ORTHOMETRIC HEIGHTS WERE DERIVED FROM GPS ELLIPSOID HEIGHT MEASUREMENTS AND ADJUSTED WITH THE GEOID 18 HIGH-RESOLUTION HYBRID GEOID MODEL.

PROJECT NOTES:

1. CONTACT SWG INSPECTOR BEFORE MAKING A TIE-IN TO EXISTING PE8000 PIPE.
2. ALL PROPOSED MAIN INSTALLATIONS DEPTHS ARE TO BE AT A MINIMUM OF 4-FEET BELOW FINAL GRADE OR UNLESS NOTED OTHERWISE.
3. NOTES PERTAINING TO THIS PROJECT MAY BE COVERED ON OTHER SHEETS OF THE PROVIDED DRAWINGS.
4. FOR ANY DEVIATION FROM DESIGN PLEASE CONTACT FERNANDO SOTO AT (520) 262-2551 OR JODY SETTLES AT (520) 794-6087.
5. SERVICE TIE-OVERS: SOUTHWEST GAS REPLACEMENTS INSPECTOR SHALL VERIFY ALL SERVICE TIE-OVERS TO BE PE8100 OR PE8000. IF SERVICES ARE FOUND TO BE ALDYL-A OR STEEL THEY SHALL BE REPLACED.
6. SERVICE REPLACEMENTS: SOUTHWEST GAS REPLACEMENTS INSPECTOR SHALL VERIFY ALL SERVICE REPLACEMENTS TO BE ALDYL-A OR STEEL. IF SERVICE IS PE8100 OR PE8000, IN ITS ENTIRETY, IT SHALL NOT BE REPLACED.
7. CONTRACTOR MUST VERIFY THE EXISTENCE OF ALDYL-A OR STEEL PIPE PRIOR TO REPLACEMENT.

DESIGN NOTES:

1. CONTACT SWG INSPECTOR TO COORDINATE HIGH PRESSURE STAND BY.
2. CONTACT RANDALL KIMBAL WITH KINDER MORGAN AT (520) 591-5736 48 HOURS IN ADVANCE TO COORDINATE HIGH PRESSURE STANDBY.

CORROSION NOTES:

1. FOR CORROSION CONTROL QUESTIONS CONTACT, JEFFERSON LAMPKINS SWG TECHNICAL SERVICES AT (520) 609-8734.
2. THIS PROJECT IS LOCATED WITHIN CORROSION CONTROL AREA 36DCP0000633.
3. CORROSION PROTECTION MUST REMAIN ON STEEL MAIN UNTIL NATURAL GAS IS PURGED FROM THE PIPE. PRIOR TO ABANDONMENT OF ANY EXISTING STEEL, CONTACT TECHNICAL SERVICES TO SCHEDULE CORROSION COORDINATION.

RIGHT-OF-WAY NOTES:

1. ALL WORK IS TO BE PERFORMED WITHIN THE DEDICATED PUBLIC RIGHT-OF-WAYS AND/OR EASEMENTS.
2. THE ROADWAY RIGHT-OF-WAY JURISDICTION FOR THIS PROJECT IS PIMA COUNTY.

TRIMP NOTES:

1. THERE IS NO TRANSMISSION WITHIN THE SCOPE OF THIS PROJECT.

EROSION AND SEDIMENT CONTROL NOTES:

1. IF DEEMED REQUIRED PER ADEQ REQUIREMENTS, A NOTICE OF INTENT (NOI) FOR COVERAGE UNDER THE CONSTRUCTION ACTIVITY GENERAL PERMIT (CGP) SHALL BE SUBMITTED TO ADEQ PRIOR TO COMMENCING CONSTRUCTION OR GRADING ACTIVITIES.
2. BEST MANAGEMENT PRACTICES (BMPs) SHALL BE INSTALLED SO AS TO PREVENT ALL STORM WATER, CONSTRUCTION WATER, FUELS, CHEMICALS, OR LIQUIDS TO BE DIRECTED INTO OR ONTO ANY SANITARY SEWERS, DRAINAGE SYSTEMS, OR WASHES. BMPs MUST BE INSTALLED AND IN OPERATION PRIOR TO ANY GRADING OR CLEARING & GRUBBING IS PERFORMED.
3. A DUST CONTROL PERMIT MAY BE REQUIRED BY THE GOVERNING COUNTY'S AIR QUALITY DEPARTMENT FOR ALL DUST GENERATING ACTIVITIES THAT DISTURB A 0.10 ACRE OR GREATER. THE CONTRACTOR SHALL IMPLEMENT ALL APPLICABLE CONTROL MEASURES OUTLINED BY THE GOVERNING COUNTY.

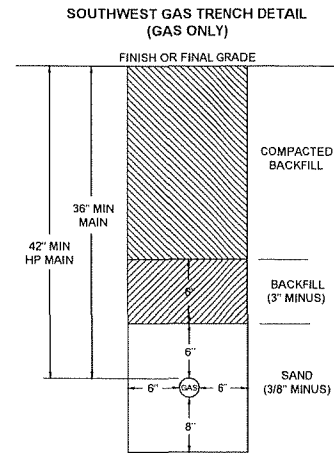
TRENCHING & PAVING NOTES:

1. ALL TRENCH IS TO BE BACKFILLED AND COMPACTED ON A DAILY BASIS. THE CREW SHOULD EXCAVATE ONLY AS MUCH TRENCH AS CAN BE COMPLETED IN A GIVEN DAY.
2. ALL SPOIL MATERIAL FROM THE EXCAVATED TRENCH IS TO BE STORED (PILED) ON THE UPHILL SIDE OF THE TRENCH PRIOR TO REMOVAL. SEDIMENT ROLLS ARE TO BE LOCATED ON THE DOWNHILL SIDE OF THE TRENCH AS PER LAHONTAN GUIDELINES. PLEASE REFER TO EROSION CONTROL DETAIL.
3. IMPORT MATERIAL IS TO BE USED TO PAD AND SHADE ALL EXCAVATED TRENCH UNLESS OTHERWISE NOTED. ALL SPOIL MATERIAL IS TO BE REMOVED AND TAKEN TO AN AUTHORIZED LANDFILL.
4. THE BACKFILLED TRENCH IS TO BE COMPACTED AS PER THE PERMITTING AGENCY SPECIFICATIONS. A MINIMUM OF 90% COMPACTION MUST BE MET IN ALL CASES.
5. TRENCH IS TO BE CONSTRUCTED WITHIN SWG EASEMENT. NO FIELD CHANGE CAN BE MADE WITHOUT REVISION TO THIS DRAWING. UNDER NO CIRCUMSTANCES IS TRENCH TO BE CONSTRUCTED IN THE UNIMPROVED (VEGETATED) AREA OF THE EASEMENT UNLESS SO SPECIFIED ON THIS DRAWING. NO FIELD CHANGE TO SUCH AN UNIMPROVED LOCATION CAN BE MADE WITHOUT REVISION OF THIS DRAWING.
6. TRENCH IS TO BE EXCAVATED TO THE DEPTH AND WIDTH AS INDICATED ON THE TRENCH DETAIL(S).

SOUTHWEST GAS TRENCH DETAIL (GAS ONLY) TRENCH PROVIDED BY DEVELOPER / OWNER

REQUIREMENTS:

1. ALL TRENCHES WILL REQUIRE A SWG INSPECTION. CALL 520-794-6060 TO ARRANGE FOR AN INSPECTION.
2. BACKFILLING OF TRENCHES MAY NOT COMMENCE UNTIL A FINAL INSPECTION CLEARANCE IS RECEIVED FROM THE SWG REPRESENTATIVE. SHADE SAND SHOULD NOT BE DISTURBED AFTER IT HAS BEEN PLACED AROUND THE GAS FACILITIES.



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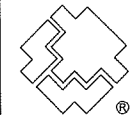
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REVISIONS						36876 INA FEEDER	JOB TYPE	WR NO.	ENGINEER/TECHNICIAN FERNANDO SOTO	PHONE: (520)262-6551
						SYSTEM MAOP: 350	HP SERVICE <input type="checkbox"/>	4928617	ACCOUNT REP.	PHONE:
						SYSTEM MOP: 350	DISTRIBUTION <input type="checkbox"/>		PROJECT CONTACT	PHONE:
NO.	DESCRIPTION	BY	DATE	APPVD			FEEDER <input checked="" type="checkbox"/>		SHEET NO. 2 OF 8	DATE 01/03/2025
								RELATED WR NO.S	SCALE N.T.S.	
PERMIT INFORMATION	ISOLATION AREA	LOCATION	ATLAS OR TILE			SYSTEM MAOP:	TRANS. BY DEF <input type="checkbox"/>		DWN. BY JDM	APPVD. BY JLS4
	INA FEEDER PG 20 ISO AREA 60, ISO AREA 265	T13S R15E S8, 17	0329, 0347			SYSTEM MOP:	TRANS > 20% <input type="checkbox"/>		CHKD. BY FXS9	

FN HP: ESPERERO WASH AT SUNRISE DR.  
TUCSON, AZ.

CONTACT ARIZONA 811 AT LEAST  
TWO FULL WORKING DAYS  
BEFORE YOU BEGIN EXCAVATION

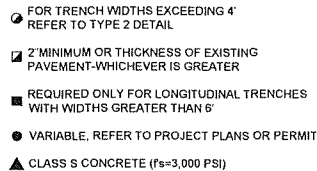
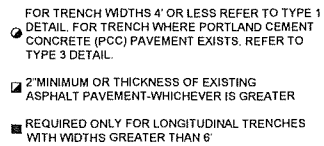
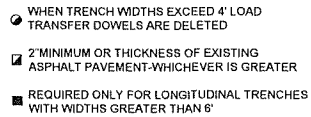
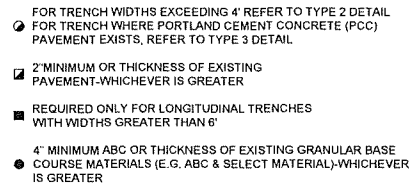


SOUTHWEST GAS CORPORATION

ABANDON PIPE SUMMARY	
ABANDON QTY.	DESCRIPTION
200'	6" STEEL

- ☐ (2) TAR WRAP
- ☐ (3) ASPHALT
- ☐ (4) PRITEC
- ☐ (6) FUSION BONDED EPOXY (FBE)
- ☐ (8) PLASTIC TAPE WRAP
- ☐ (9) EXTRUDED POLY COATING
- ☐ (10) OTHER
  - ☐ ABRASIVE RESISTANT OVERCOAT(ARO)
  - ☐ FILLER TAPE (POLYKEN AND TAC-TAPE)
  - ☐ GREASE W/LGLASS MAT WRAP & PLASTIC WRAP
  - ☐ SHRINK SLEEVE
  - ☐ POLYETHYLENE (BLACK)
  - ☐ POLYETHYLENE (YELLOW)
  - ☐ POLYETHYLENE TAPE
  - ☐ POLYPROPYLENE (BLACK)
  - ☐ POLYPROPYLENE (ORANGE)
  - ☐ SYNERGY
  - ☐ THERMIT WELD CAP
  - ☐ POWERCRETE
  - ☐ VISCOTAQ
  - ☐ WRAPID SHIELD FIBERGLASS WRAP
  - ☐ HIGH BUILD EPOXY (HBE)
  - ☐ STOP-IT BORESHIELD PIPE WRAP
  - ☐ CLOCKSPRING COMPOSITE WRAP
  - ☐ WIRE CONNECTION COVERS

N.T.S.



YD YARD(S)

PCRWDR SANITARY SEWER NOTES:

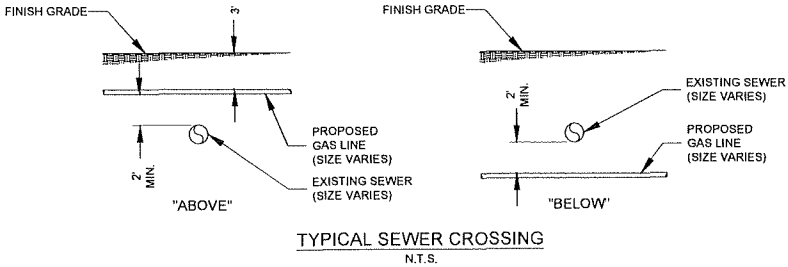
1. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL SANITARY SEWER MANHOLES AT ALL TIMES.
2. THE CONTRACTOR SHALL FIELD-VERIFY EXISTING SEWER LINE ELEVATIONS AND ALIGNMENTS PRIOR TO CONSTRUCTION. VERIFICATION MAY REQUIRE POT-HOLING.
3. ANY HOUSE CONNECTION SEWER (HCS) OR BUSINESS CONNECTION SEWER (BCS) LINES ENCOUNTERED DURING CONSTRUCTION SHALL BE PROTECTED, REPAIRED, OR REROUTED, AS THE SITUATION DICTATES, PER PCRWDR SSDC 2016 DETAIL NO. RWRD 400 AND AT NO EXPENSE TO THE PROPERTY OWNER OR PCRWDR. HCS AND BCS LINES ARE NOT OWNED OR MAINTAINED BY PCRWDR. PRIVATE CONNECTION SEWERS CONSTRUCTED PRIOR TO JANUARY 2006 ARE NOT REQUIRED TO BE LOCATED AND MARKED.
4. IMMEDIATELY REPORT ANY OF THE FOLLOWING TO THE PCRWDR OPERATIONS CONTROL CENTER (OCC) AT (520) 724-3400: ANY RELEASE OF SEWAGE, ANY DAMAGE TO THE PUBLIC SANITARY SEWER SYSTEM, OR THE DROPPING OF DEBRIS INTO A PUBLIC SANITARY SEWER MANHOLE. A PCRWDR REPRESENTATIVE WILL BE DISPATCHED TO THE SITE. THE CONTRACTOR SHALL TAKE IMMEDIATE ACTION TO CONTAIN A SANITARY SEWAGE OVERFLOW (SSO). THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO REPAIR THE SYSTEM, MITIGATE THE RELEASE OF SEWAGE, DISINFECT THE RELEASE AREAS, AND ANY REGULATORY PENALTIES LEVIED ON PCRWDR FOR SEWAGE ENTERING A NATURAL DRAINAGE WAY OR STORM WATER DRAINAGE SYSTEM. THE CONTRACTOR SHALL REPAIR ALL DAMAGE AS DIRECTED AND APPROVED BY THE PCRWDR FIELD REPRESENTATIVE.
5. THE CONTRACTOR SHALL NOTIFY THE PCRWDR CHIEF INSPECTOR (520-724-2651) AT LEAST 24 HOURS PRIOR TO TRENCH CONSTRUCTION ACROSS AN EXISTING SMALL-DIAMETER (12" DIAMETER OR LESS) SHALLOW SEWER LINE (LESS THAN 6 FEET OF COVER). REFER TO TABLE "1A" FOR SHALLOW SEWER LINE CROSSINGS IDENTIFIED WITH THIS PROJECT. THE CONTRACTOR SHALL PROVIDE THE INSPECTOR WITH THE PCRWDR MANHOLE NUMBERS WHERE THE SHALLOW SEWER LINE CROSSING IS LOCATED AND A DESCRIPTION OF THE PROPOSED CONSTRUCTION.

\*USE THE FOLLOWING NOTE FOR ANY PROPOSED CROSSING OR EXCAVATION IN THE VICINITY OF SHALLOW, LARGE-DIAMETER SEWER LINES (DIAMETERS GREATER THAN 12")\*

6. FOR PROPOSED TRENCH CONSTRUCTION ACROSS AN EXISTING LARGE-DIAMETER SEWER LINE(GREATER THAN 12-INCHES DIAMETER) OR EXCAVATION WITHIN 6 FEET HORIZONTAL OF AN EXISTING LARGE-DIAMETER SEWER LINE, WORK IN THESE LOCATIONS SHALL NOT COMMENCE UNTIL:  
(A) THE CONTRACTOR HAS OBTAINED AN OBSERVATION PERMIT FROM PCRWDR (520-724-6369)  
(B) A PRE-CONSTRUCTION MEETING WITH THE ASSIGNED PIMA COUNTY PROJECT INSPECTOR IS SCHEDULED, AT LEAST (3) FULL WORKING DAYS PRIOR TO COMMENCING WORK IN THESE LOCATIONS. FLOW MANAGEMENT PLANS SHALL BE SUBMITTED TO FIELD ENGINEERING THIRTY(30) DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. REFER TO PCRWDR STANDARDS SPECIFICATION AND DETAILS FOR CONSTRUCTION 2016, SECTION 2 FOR WASTEWATER FLOW MANAGEMENT REQUIREMENTS.

TABLE 1A (SEE NOTE 5)

SHEET#	EX. SEWER SIZE	MH#6	MH#7	GAS PIPE SIZE	ESTIMATED SEWER COVER
5	8"	4246-06	4246-07	4"	3' MIN.
5	8"	4246-06	4246-07	6"	3' MIN.



PCDOT VEGETATION NOTES:

1. THE FOLLOWING CONDITIONS EXIST WHEN DIGGING OR TRENCHING IN AN AREA WITH IRONWOODS OR SAGUAROS. THE PROJECT SHALL MAKE EVERY EFFORT TO IMPACT IRONWOODS AND SAGUAROS AS MINIMALLY AS POSSIBLE:  

A. WHERE A PROPOSED LINE CONFLICTS WITH AN EXISTING IRONWOOD OR SAGUARO, LINES SHALL EITHER BE RE-ROUTED AROUND THE EXISTING PLANTS OR BORED UNDERNEATH.

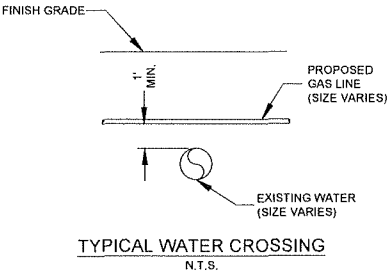
B. IF THE SAGUARO CANNOT BE AVOIDED, SAGUAROS UP TO 8' IN HEIGHT SHALL BE RELOCATED ADJACENT TO THE PIPELINE. SAGUAROS SHALL BE MOVED BY A COMPANY WITH EXPERIENCE IN TRANSPLANTING SAGUAROS.

C. NO IRONWOODS SHALL BE REMOVED. HOWEVER, IRONWOODS WITH OVERHANGING BRANCHES THAT MAY CONFLICT WITH THE PROPOSED WORK MAY BE PRUNED PRIOR TO WORK BY A CERTIFIED ARBORIST. THERE SHALL BE NO TRENCHING WITHIN THE DRIP LINE OF IRONWOOD TREES.
2. EVERY ATTEMPT SHALL BE MADE TO AVOID HARMING OR REMOVING OTHER PROTECTED NATIVE VEGETATION.  

A. IF PLANTS ADJACENT TO THE AREA TO BE TRENCHED HAVE OVERHANGING BRANCHES THAT WILL CONFLICT WITH WORK, THOSE BRANCHES SHALL BE PRUNED IN ADVANCE BY A CERTIFIED ARBORIST.

B. EXISTING VEGETATION ADJACENT TO THE WORK AREA SHALL BE FENCED OFF WITH PROTECTIVE ORANGE FENCING SO AS TO AVOID THE CONTRACTOR FROM IMPACTING THESE AREAS. FENCING SHALL OCCUR AT THE DRIPLINE OF TREES. PROHIBITED ACTIVITIES IN FENCED OFF VEGETATION AREAS INCLUDE SIDECASTING TRENCHED MATERIAL, STOCKPILING MATERIAL, OR USING THESE AREAS FOR MATERIAL STORAGE.
3. PRIOR TO CLEARING OR ANY OTHER GROUND DISTURBANCE OCCURRING IN THE PROJECT WORK AREA, THE CONTRACTOR SHALL REMOVE BUFFELGRASS AND OTHER INVASIVE SPECIES. REMOVAL SHALL BE DONE BY BEST PRACTICES ACCORDING TO THE SOUTHERN ARIZONA BUFFELGRASS COORDINATION CENTER ([WWW.BUFFELGRASS.ORG](http://WWW.BUFFELGRASS.ORG)).
4. PRESERVATION AND RE-PLANTING OF OTHER CACTUS AND SUCCULENTS TO BE IMPACTED IS STRONGLY ENCOURAGED. THE CONTRACTOR SHALL REPLANT ANY BARREL CACTUS OR OCOTILLO THAT WILL BE IMPACTED TO AN AREA ADJACENT. ALTERNATIVELY THE CONTRACTOR MAY CONTACT THE TUCSON CACTUS AND SUCCULENT SOCIETY (TCSS) PRIOR TO GROUND DISTURBANCE IN ORDER TO PROVIDE OPPORTUNITIES FOR CACTUS SALVAGE. CONTACT INFORMATION FOR THE TCSS IS: (520) 256-2447 OR [TCSS@TUCSONCACTUS.ORG](mailto:TCSS@TUCSONCACTUS.ORG)
5. ALL DISTURBED AREAS ARE TO BE SEEDED UPON COMPLETION OF WORK. SEED MIX USED SHALL BE SEED MIX #1 IN SECTION 805 OF THE 2013 PAG STANDARD SPECIFICATIONS (ALSO ATTACHED):

[HTTP://APPS.PAGNET.ORG/STANDARDSPECIFICATIONS/](http://apps.pagnet.org/standardspecifications/)



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CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION



SOUTHWEST GAS CORPORATION

REVISIONS

NO.	DESCRIPTION	BY	DATE	APPVD.

PERMIT INFORMATION	ISOLATION AREA	LOCATION	ATLAS OR TILE
	INA FEEDER PG 20 ISO AREA 60, ISO AREA 265	T13S R15E S8, 17	0329, 0347

36876 INA FEEDER

SYSTEM MAOP: 350

SYSTEM MOP: 350

SYSTEM MAOP:

SYSTEM MOP:

JOB TYPE

HP SERVICE ☐

DISTRIBUTION ☐

FEEDER ☒

TRANS. BY DEF ☐

TRANS > 20% ☐

WR NO.

4928617

RELATED WR NO.S

ENGINEER/TECHNICIAN FERNANDO SOTO

ACCOUNT REP.

PROJECT CONTACT

SHEET NO. 4 OF 8

DWN. BY JDM

SCALE N.T.S.

CHKD. BY FXS9

PHONE: (520)262-6551

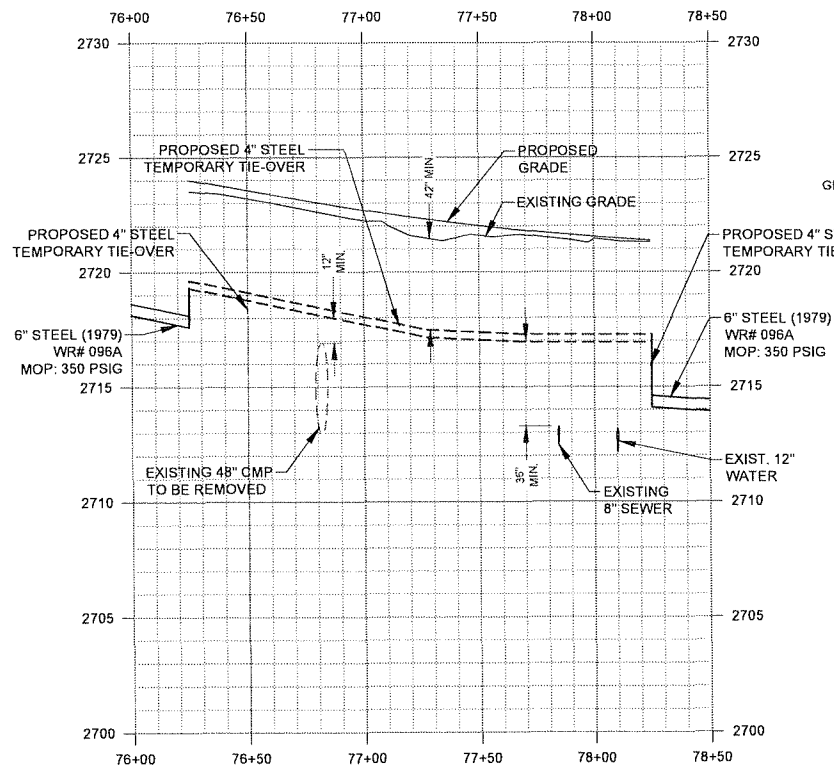
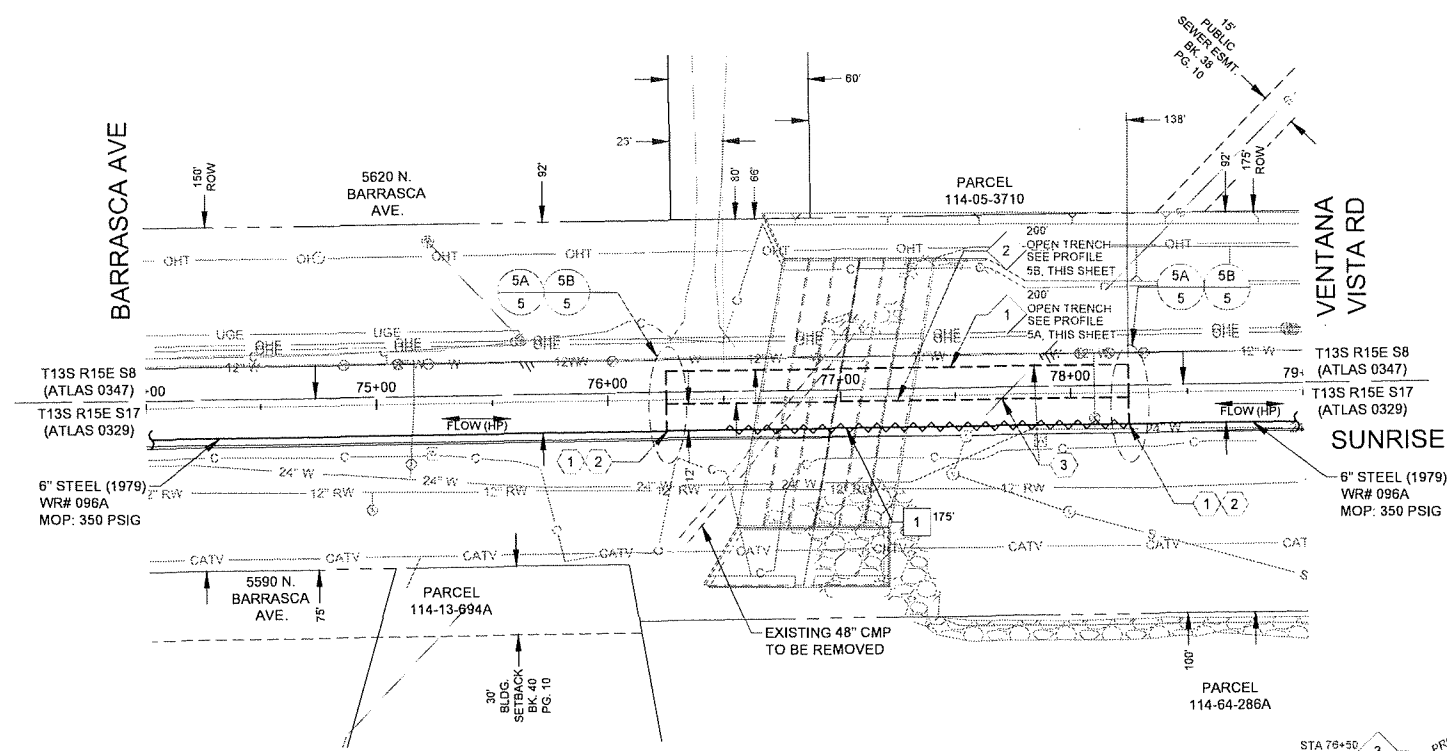
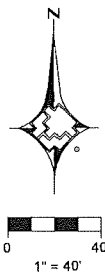
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PHONE:

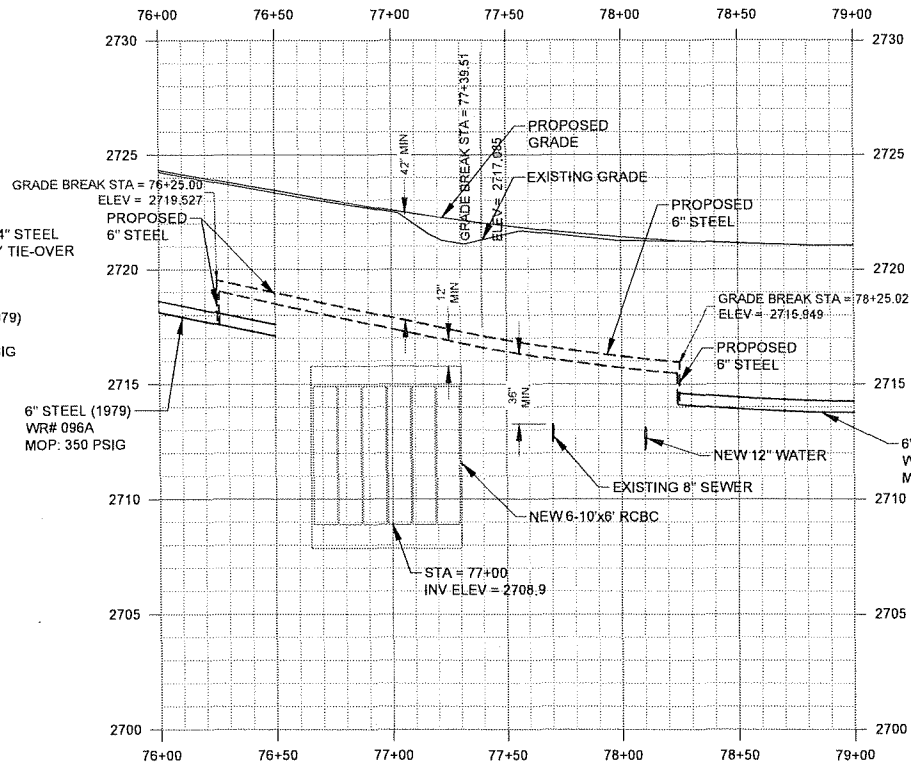
DATE 01/03/2025

APPVD. BY JLS4

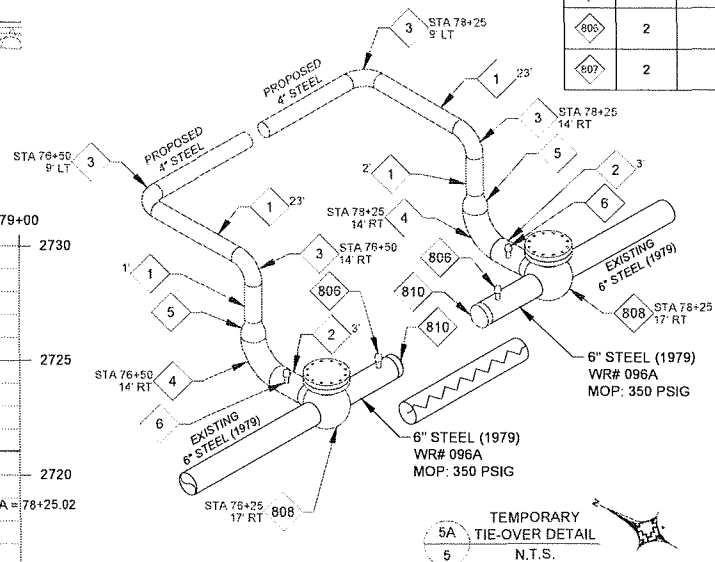
FN HP: ESPERERO WASH AT SUNRISE DR.  
TUCSON, AZ.



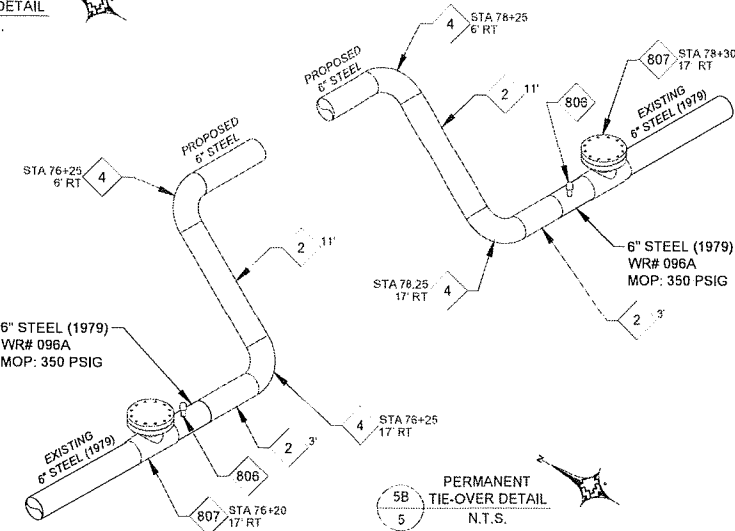
PROFILE "5A"  
TEMPORARY TIE-OVER  
HORIZ. 1" = 40' VERT. 1" = 4'  
VERIFY DEPTH OF ALL EXISTING UTILITIES - 2 MIN. CLEARANCE  
DEPTH/ELEVATIONS SHOWN TO TOP OF PIPE



PROFILE "5B"  
PERMANENT TIE-OVER  
HORIZ. 1" = 40' VERT. 1" = 4'  
VERIFY DEPTH OF ALL EXISTING UTILITIES - 2 MIN. CLEARANCE  
DEPTH/ELEVATIONS SHOWN TO TOP OF PIPE



TEMPORARY TIE-OVER DETAIL  
N.T.S.



PERMANENT TIE-OVER DETAIL  
N.T.S.

HIGH PRESSURE MATERIALS LIST - TEST 1						
CODE	DESIGN QTY.	AS-BUILT QTY.	STOCK ID	DESCRIPTION	SEAM	COATING
1	249'		100-0040	PIPE STL CTD FBE/ARO X-52 ERW 4-1/2" X 0.237" WT		
2	6'		100-0044	PIPE STL CTD FBE/ARO X-52 ERW 6-5/8" X 0.280" WT		
3	4		140-4057	ELBOW STL WELD 4" 90 DEGREE LR STD WT NMDA		
4	2		140-4490	ELBOW STL WELD 6" 90 DEGREE LR STD WT Y-52 NMDA		
5	2		140-5054	REDUCER STEEL WELD 6" X 4" STD WT GRADE B NMDA		
6	2		160-9272	EQUALIZATION FTG STL 2" X 5-5/16" MAOP 3600 TDWL		
806	2		160-9272	EQUALIZATION FTG STL 2" X 5-5/16" MAOP 3600 TDWL		
808	2		160-8181	TEE SPHERICAL 3-WAY 6" 300D 720 PSI TDWL		
810	2		140-3040	CAP STEEL WELD 6" 6-5/8" OD 0.280" WT WPHY-42 NMDA		

HIGH PRESSURE MATERIALS LIST - TEST 2						
CODE	DESIGN QTY.	AS-BUILT QTY.	STOCK ID	DESCRIPTION	SEAM	COATING
2	228'		100-0044	PIPE STL CTD FBE/ARO X-52 ERW 6-5/8" X 0.280" WT		
4	4		140-4490	ELBOW STL WELD 6" 90 DEGREE LR STD WT Y-52 NMDA		
806	2		160-9272	EQUALIZATION FTG STL 2" X 5-5/16" MAOP 3600 TDWL		
807	2		160-7651	LINE STOPPER SHORTSTOPP 300-D 6" 720 PSI TDWL		

ABANDON FACILITIES				
CODE	DESIGN QTY.	AS-BUILT QTY.	DESCRIPTION	YEAR
1	200'		6" STEEL, WR# 0986A, MOP: 350 PSIG	1979

CONSTRUCTION NOTES	
1	INSTALL 4" STEEL TEMPORARY BYPASS. SEE DETAIL "5A".
2	TIE NEW 6" STEEL TO EXISTING 6" STEEL. SEE DETAIL "5A" & "5B".
3	SEE SEWER NOTES AND TABLE 1A ON SHEET 4.

CONTACT ARIZONA 811 AT LEAST  
TWO FULL WORKING DAYS  
BEFORE YOU BEGIN EXCAVATION



SOUTHWEST GAS CORPORATION

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REVISIONS				
NO.	DESCRIPTION	BY	DATE	APPVD
PERMIT INFORMATION				
ISOLATION AREA		LOCATION	ATLAS OR TILE	
INA FEEDER PG 20 ISO AREA 60, ISO AREA 265		T13S R15E S8, 17	0329, 0347	

36876 INA FEEDER	
SYSTEM MAOP:	350
SYSTEM MOP:	350
SYSTEM MAOP:	
SYSTEM MOP:	

JOB TYPE	HP SERVICE <input type="checkbox"/>
DISTRIBUTION	<input type="checkbox"/>
FEEDER	<input checked="" type="checkbox"/>
TRANS. BY DEF	<input type="checkbox"/>
TRANS > 20%	<input type="checkbox"/>

WR NO.	4928617
RELATED WR NO.S	

ENGINEER/TECHNICIAN	FERNANDO SOTO	PHONE: (520)262-6551
ACCOUNT REP.		PHONE:
PROJECT CONTACT		PHONE:
SHEET NO. 5 OF 8	SCALE 1" = 40'	DATE 01/03/2025
DWN. BY JDM	CHKD. BY FXS9	APPVD. BY JLS4

FN HP: ESPERERO WASH AT SUNRISE DR.  
TUCSON, AZ.





# TEST DATA SHEET - TEST #1

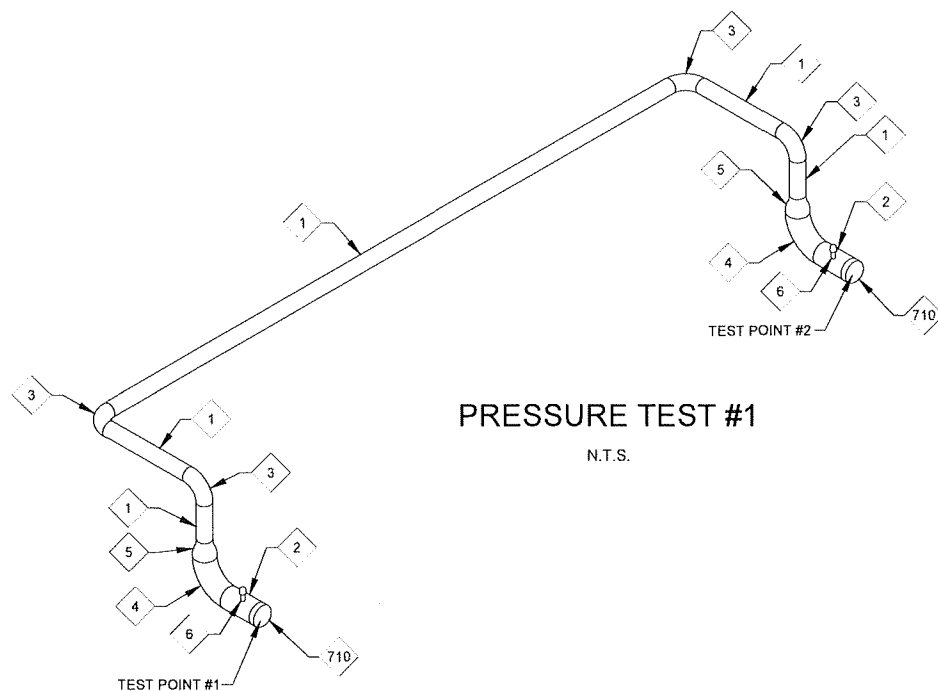
<b>TEST DATA SHEET</b>		SAZ - 4928617 - 01 - TEST 1 - BYPASS
TEST LOCATION: SUNRISE DR		DDR STATUS: CALCULATED
EXISTING CLASS LOCATION: 3	DESIGN CLASS LOCATION: 3	CLASSIFICATION: HP DISTRIBUTION
SYSTEM MAOP: 350.0	DESIGN MAOP: 400	SYSTEM NAME: 36576 INA FEEDER
SYSTEM MOP: 350.0		SUBSYSTEM NAME: SNYDER RD
TEST CLASS LOCATION: 3		
MIN TEST PRESSURE: 600 PSIG	TEST MEDIUM: NITROGEN	TESTING GROUP: CONSTRUCTION
MAX TEST PRESSURE: 900 PSIG	MIN TEST DURATION: 2:00 HRS	FABRICATED ASSEMBLY: NO
INTERMEDIATE LEAK TEST REQUIRED BETWEEN 100 PSIG AND 591 PSIG.		
GENERAL NOTES:		
LAST UPDATED BY: FERNANDO SOTO		DDCA SAZ - 4928617 - 01
DATE: 14-JAN-25		

TEST DATA SHEET SAZ - 4928617 - 01 - TEST 1 - BYPASS							PIPE ATTRIBUTES						% SMYS AT:			RATED COMPS (PSIG)	
TESTED QTY	NO	NOTES	DESIGN QTY	U	ITEM NO	DESCRIPTION	AOD	WT	SEAM	GRADE	DP	DESIGN		MAX TEST	RATING	MAX TEST	
												MOP	MACP				
608	1	M	249	FT	100-0044	PIPE STL CTD FBIEAR0.25X BRW 4.1/2" X 0.237" WT	4.500	0.237	HF WERW	X52	2738	6.58	7.30	16.44			
	2	M	6	FT	100-0044	PIPE STL CTD FBIEAR0.25X BRW 4.1/2" X 0.287" WT	4.625	0.287	HF WERW	X52	2197	7.56	9.10	20.45			
	4	M	2	EA	140-4267	ELBOW STL WELD 6" 90 DEGREE IR STD WT NMDA	4.500	0.237	35K	X52	1843	6.46	10.84	21.4			
	4	M	2	EA	140-4450	ELBOW STL WELD 6" 90 DEGREE STD WT 1/2 NMDA	6.625	0.260	DSAW	Y52	2167	7.56	9.10	20.48			
	2	EA			140-4450	REDUCER STEEL WELD 6" X 4" STD WT GRADE B NM	6.625	0.280	1.0	B 35K	1479	11.83	13.52	30.43			
	110	B,M	2	EA	130-3040	CAP STEEL WELD 6" 6.58" OD 0.260" WT WPHY-42 NM	6.625	0.260	DSAW	Y42	1775	9.65	11.26	25.30			
	810	A,M	2	EA	140-3340	CAP STEEL WELD 6" 6.58" OD 0.260" WT WPHY-42 NM	6.625	0.260	DSAW	Y42	1775	9.65	11.26	25.30			
	6				140-5012	EQUALIZATION FLYG STL 2" 5.516" MACP 35K TOW	2.375								3000	5400	
606	A	2	EA	140-5012	EQUALIZATION FLYG STL 2" 5.516" MACP 35K TOW	2.375								740	540		
608	A	2	EA	160-6181	TEE SPHERICAL S-WAY 3"X 3" 200 PSI T20	6.625								740	740		

NOTES:

A - DO NOT TEST. ITEM NOT PART OF TEST PER SWG OPERATIONS MANUAL REQUIREMENTS.  
B - TEST ONLY. REMOVE AFTER TEST. DO NOT INSTALL.  
M - MATERIAL TEST REPORT WILL BE REQUIRED IF ITEM IS CLASSIFIED AS TRANSMISSION

\*\* END OF TEST DATA SHEET SAZ - 4928617 - 01 - TEST 1 - BYPASS \*\*



## PRESSURE TEST #1

N.T.S.

## TEST DATA SHEET - TEST #2

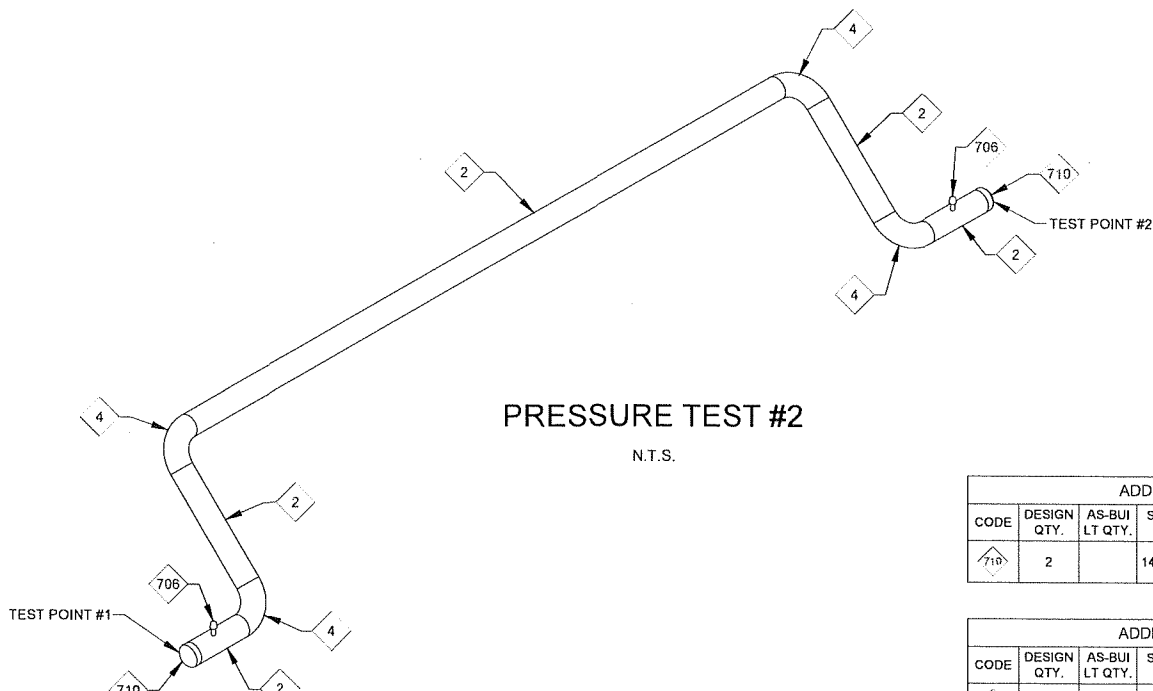
TEST DATA SHEET		SAZ - 4928617 - 02 - TEST 2
TEST LOCATION: SUNRISE DR		DDR STATUS: CALCULATED
EXISTING CLASS LOCATION: 3 SYSTEM MAOP: 350.0 SYSTEM MOP: 350.0	DESIGN CLASS LOCATION: 3 DESIGN MAOP: 400	CLASSIFICATION: HP DISTRIBUTION SYSTEM NAME: 36876 INA FEEDER SUBSYSTEM NAME: SNYDER RD
TEST CLASS LOCATION: 3 MIN TEST PRESSURE: 600 PSIG MAX TEST PRESSURE: 900 PSIG	TEST MEDIUM: NITROGEN MIN TEST DURATION: 2:00 HRS	TESTING GROUP: CONSTRUCTION FABRICATED ASSEMBLY: NO
INTERMEDIATE LEAK TEST REQUIRED BETWEEN 100 PSIG AND 710 PSIG. GENERAL NOTES:		
LAST UPDATED BY: FERNANDO SOTO	DATE: 14-JAN-25	DDCA SAZ - 4928617 - 02

[illegible]

NOTES:

A - DO NOT TEST. ITEM NOT PART OF TEST PER SWG OPERATIONS MANUAL REQUIREMENTS.  
B - TEST ONLY. REMOVE AFTER TEST. DO NOT INSTALL.  
M - MATERIAL TEST REPORT WILL BE REQUIRED IF ITEM IS CLASSIFIED AS TRANSMISSION

\*\* END OF TEST DATA SHEET SAZ - 4928517 - 02 - TEST 2 \*\*



## PRESSURE TEST #2

N.T.S.

ADDITIONAL MATERIALS FOR PRESSURE TEST ONLY - TEST 1						
CODE	DESIGN QTY.	AS-BUILT QTY.	STOCK ID	DESCRIPTION	SEAM	COATING
710	2		140-3040	CAP STL WELD 6" 6-5/8" OD 0.280" WT Y-42	N/A	N/A

ADDITIONAL MATERIALS FOR PRESSURE TEST ONLY - TEST 2						
CODE	DESIGN QTY.	AS-BUILT QTY.	STOCK ID	DESCRIPTION	SEAM	COATING
706	2		160-9272	EQUALIZATION FTG STL 2" X 5-1/16" MAOP 3600 TDWL	N/A	N/A
710	2		140-3040	CAP STL WELD 6" 5-5/8" OD 0.280" WT Y-42	N/A	N/A

WELD INSPECTION  
6" STEEL

☒ VISUAL

☒ RADIOGRAPHIC

☐ \_\_\_\_\_ % MINIMUM

☒ 100%

TEST #1	
DOCUMENT PURCHASE ORDER NUMBER (P.O.) OF STEEL PIPE INSTALLED HIGH PRESSURE (> 60 PSIG)	
P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:

WELD INSPECTION 4" STEEL	WELD INSPECTION 6" STEEL
<input checked="" type="checkbox"/> VISUAL	<input checked="" type="checkbox"/> VISUAL
<input type="checkbox"/> RADIOGRAPHIC	<input checked="" type="checkbox"/> RADIOGRAPHIC
<input type="checkbox"/> ____ % MINIMUM	<input type="checkbox"/> ____ % MINIMUM
<input type="checkbox"/> 100%	<input checked="" type="checkbox"/> 100%

TEST #2	
DOCUMENT PURCHASE ORDER NUMBER (P.O.) OF STEEL PIPE INSTALLED	
HIGH PRESSURE (> 60 PSIG)	
P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:

IF THE TEST PRESSURE PRODUCES A HOOP STRESS GREATER THAN OR EQUAL TO 20% SMYS, AND THE TEST MEDIUM IS OTHER THAN WATER, AN INTERMEDIATE LEAK TEST SHALL BE CONDUCTED AT APPROXIMATELY 200 PSIG. HOLD PRESSURE FOR A MINIMUM OF 10 MINUTES UTILIZING A GAUGE OR CHART TO VERIFY DROP OF PRESSURE (VISUALLY INSPECT PIPE, IF APPLICABLE). IF NATURAL GAS IS USED AS A TEST MEDIUM, ALSO CONDUCT A LEAK SURVEY WITH APPROPRIATE EQUIPMENT. IF PRESSURE HOLDS, THEN PROCEED WITH DESIGNED TEST PRESSURE FOR REQUIRED TEST DURATION UTILIZING CHART.

NOTIFY ENGINEERING OF ANY PROPOSED MATERIAL SUBSTITUTIONS.



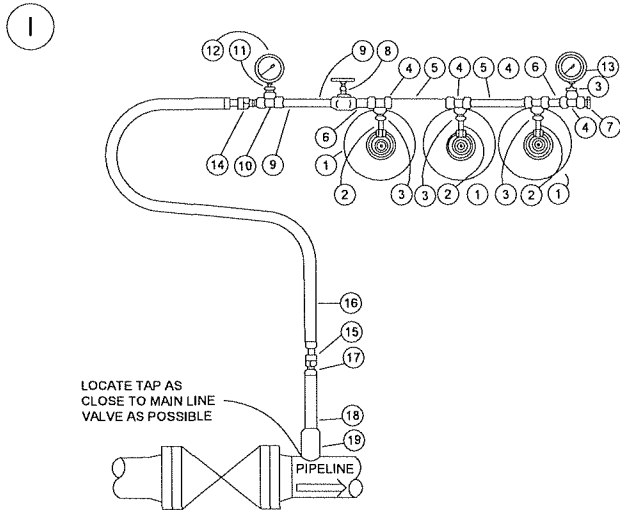
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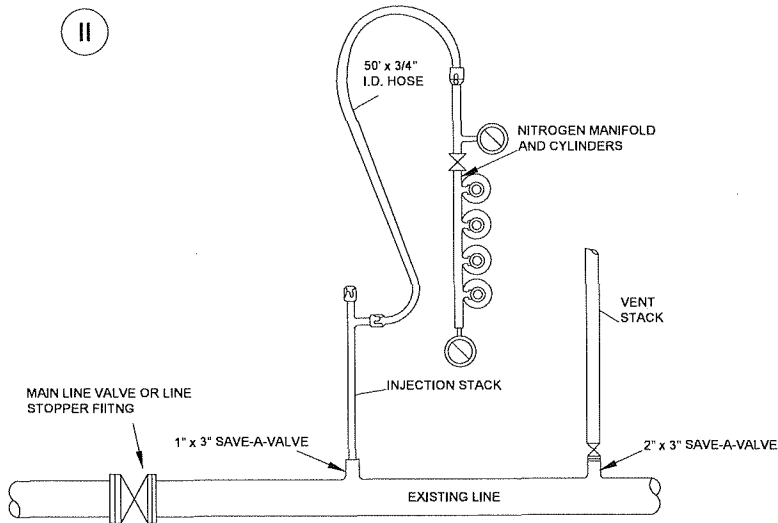
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REVISIONS					36876 INA FEEDER		JOB TYPE		WR NO.		ENGINEER/TECHNICIAN FERNANDO SOTO		PHONE: (520)262-6551			
					SYSTEM MAOP: 350		HP SERVICE <input type="checkbox"/>		4928617		ACCOUNT REP.		PHONE:			
					SYSTEM MOP: 350		DISTRIBUTION <input type="checkbox"/>				PROJECT CONTACT		PHONE:			
NO.	DESCRIPTION			BY	DATE	APPVD.					SHEET NO. 7 OF 8		SCALE N.T.S.		DATE 01/03/2025	
									RELATED WR NO.S		DWN. BY JDM		CHKD. BY FXS9		APPVD. BY JLS4	
PERMIT INFORMATION		ISOLATION AREA	LOCATION		ATLAS OR TILE		FEEDER <input checked="" type="checkbox"/>		FN HP: ESPERERO WASH AT SUNRISE DR. TUCSON, AZ.							
		INA FEEDER PG 20 ISO AREA 60, ISO AREA 265	T13S R15E S8, 17		0329, 0347		SYSTEM MAOP:				TRANS. BY DEF <input type="checkbox"/>					
							SYSTEM MOP:				TRANS > 20% <input type="checkbox"/>					



**I** TYPICAL MANIFOLD AND CONNECTION FOR INJECTING NITROGEN INTO PIPELINE.

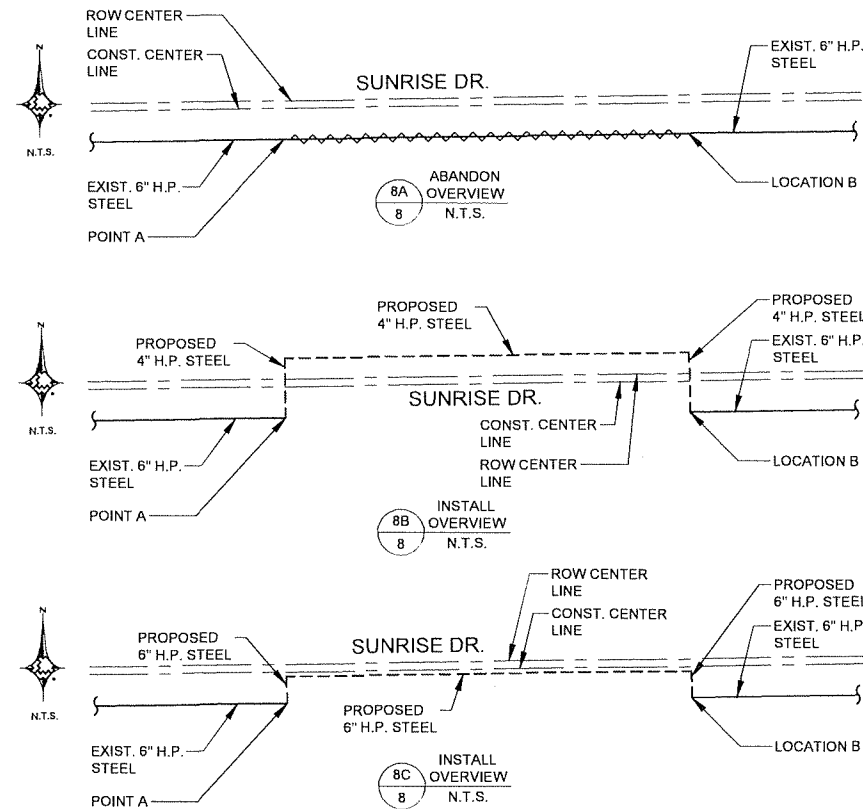
- 1) NITROGEN CYLINDERS
- 2) 1/4" IN-LET CONNECTION GLANDS AND NUTS
- 3) 1/2" x 1/4" 3000 LB FORGED STEEL BUSHINGS
- 4) 1/2" 3000 LB FORGED STEEL TEES
- 5) 1/2" x 12" 3000 LB FORGED STEEL NIPPLES
- 6) 1/2" x 2" 3000 LB FORGED STEEL TEES
- 7) 1/2" 3000 LB FORGED STEEL PLUG
- 8) 1/2" 3000 LB FORGED STEEL NEEDLE VALVE
- 9) 1/2" x 2" STD TEE
- 10) 1/2" STD TEE
- 11) 1/2" x 1/4" STD BUSHING
- 12) 0-100 PSIG INDICATING PRESSURE GAUGE
- 13) 0-3000 PSIG INDICATING PRESSURE GAUGE
- 14) 3/4" HOSE COUPLING 1/2" MALE END
- 15) 3/4" HOSE COUPLING 3/4" FEMALE END
- 16) 3/4" FLEXIBLE HOSE
- 17) 1" x 3/4" STD BUSHING
- 18) 1" STD NIPPLE
- 19) 1" x 3" SAVE-A-VALVE



**II** 6" STEEL ABANDONMENT

PROCEDURE FOR REPLACING NATURAL GAS WITH AIR UTILIZING A NITROGEN SLUG PURGE FROM POINT A TO LOCATION B.

1. NOTIFY SWG DISPATCH THAT PURGE OF NATURAL GAS IS OCCURRING IN ATLAS 0329 & 0347.
2. INSTALL 2" x 3" SAVE-A-VALVE CONNECTION TO INJECT NITROGEN AND AIR. TAP WITH A 3/8" DRILL AT INJECTION POINT A.
3. INSTALL 2" DIAMETER VENT STACK A MINIMUM OF 8 FEET ABOVE GROUND ELEVATION AT LOCATION B. REFER TO OVERVIEW PLAN.
4. VERIFY VALVES 36v\_0346-71 & 36v\_0330-71 IS IN THE OPEN POSITION.
5. VERIFY THAT THE 6" LINE STOPPER AT LOCATION B IS INSTALLED AND THAT THE STOPPING ELEMENT IS FULLY INSTALLED.
6. OPEN VENT STACK AT LOCATION B, AND BLOW DOWN TO ATMOSPHERIC PRESSURE.
7. INJECT "1" CYLINDER OF NITROGEN AT POINT A, MAINTAINING A PRESSURE OF "20" PSIG UPSTREAM OF THE NITROGEN. 80 CU/FT/MIN MUST BE INJECTED TO MAINTAIN A SLUG VELOCITY OF 305 FT/MIN.
8. INJECT AIR IMMEDIATELY FOLLOWING THE NITROGEN, MAINTAINING "20" PSIG AT THE GAUGE UPSTREAM OF THE 50' x 3/4" NITROGEN HOSE. CLOSE THE NITROGEN VALVE AS THE AIR BY-PASS VALVE IS OPENED. PURGE PROCESS MUST BE MONITORED AT THE VENT STACK WITH A COMBUSTIBLE GAS INDICATOR.
9. STOP AIR INJECTION WHEN THE COMBUSTIBLE GAS INDICATOR READS 0% NATURAL GAS AT LOCATION B. THIS PURGE WILL TAKE APPROXIMATELY "1" MINUTE TO COMPLETE.
10. CLOSE VENT STACK VALVE AT LOCATION B.
11. NOTIFY SWG DISPATCH THAT PURGE OF NATURAL GAS IS COMPLETE IN ATLAS 0329 & 0347.
12. REMOVE ALL PURGING EQUIPMENT



**III**

#### 4" STEEL INSTALLATION

PROCEDURE FOR REPLACING AIR WITH NATURAL GAS UTILIZING A NITROGEN SLUG PURGE:

1. NOTIFY DISPATCH THAT PURGE OF NATURAL GAS IS OCCURRING IN ATLAS 0329 & 0347.
2. VERIFY THAT VALVE 36v\_0346-71 & 0330-71 IS OPEN.
3. VERIFY THAT THE 6" SPHERICAL 3-WAY TEE & LINE STOPPER AT LOCATION A & B IS INSTALLED AND THAT THE STOPPING ELEMENT IS FULLY SEALED.
4. INSTALL 2" x 3" SAVE-A-VALVE CONNECTIONS TO INJECT NITROGEN AND NATURAL GAS. TAP WITH A 3/8" DRILL ON EITHER SIDE OF NEW 6" LINESTOPPERS AT LOCATION A & B.
5. INSTALL A 2" DIAMETER VENT STACK, A MINIMUM OF 8 FEET ABOVE GROUND ELEVATION AT LOCATION A & B.
6. BLOW DOWN TO ATMOSPHERIC PRESSURE AND LEAVE VENT STACK OPEN AT LOCATION B. THIS BLOW-DOWN PROCEDURE WILL TAKE APPROXIMATELY 2 MINUTES TO COMPLETE.
7. INJECT "1" CYLINDER OF NITROGEN AT LOCATION A & B, MAINTAINING A PRESSURE OF "20" PSIG UPSTREAM OF THE NITROGEN HOSE. "60" CU/FT/MIN MUST BE INJECTED TO MAINTAIN A SLUG VELOCITY OF 305 FT/MIN.
8. INJECT NATURAL GAS IMMEDIATELY FOLLOWING THE NITROGEN, MAINTAINING "20" PSIG AT THE GAUGE UPSTREAM OF THE 50' x 3/4" NITROGEN HOSE. CLOSE THE NITROGEN VALVE AS NATURAL GAS BY-PASS VALVE IS OPENED. PURGE PROCESS MUST BE MONITORED AT THE VENT STACK AT LOCATION B WITH A CONFIRMATION INSTRUMENT.
9. STOP NATURAL GAS INJECTION WHEN THE CONFIRMATION INSTRUMENT READS 100% NATURAL GAS AT LOCATION B. THIS PURGE WILL TAKE APPROXIMATELY "1" MINUTE TO COMPLETE.
10. CLOSE VENT STACK VALVE AT LOCATION B.
11. AFTER PRESSURE HAS EQUALIZED ACROSS THE 6" SPHERICAL 3-WAY TEE AT LOCATION A, SLOWLY RAISE STOPPER TO ALLOW GAS TO FLOW INTO NEW 4" STEEL.
12. AFTER PRESSURE HAS EQUALIZED ACROSS THE 6" SPHERICAL 3-WAY TEE AT LOCATION B, SLOWLY RAISE STOPPER TO ALLOW GAS TO FLOW INTO NEW 4" STEEL.
13. REMOVE ALL PURGING EQUIPMENT.
14. NOTIFY DISPATCH THAT PURGE OF NATURAL GAS IN ATLAS 0329 & 0347 IS COMPLETE.

#### 6" STEEL INSTALLATION

PROCEDURE FOR REPLACING AIR WITH NATURAL GAS UTILIZING A NITROGEN SLUG PURGE:

1. NOTIFY DISPATCH THAT PURGE OF NATURAL GAS IS OCCURRING IN ATLAS 0329 & 0347.
2. VERIFY THAT VALVE 36v\_0346-71 & 0330-71 IS OPEN.
3. VERIFY THAT THE 6" LINE STOPPER AT LOCATION A & B IS INSTALLED AND THAT THE STOPPING ELEMENT IS FULLY SEALED.
4. INSTALL 2" x 3" SAVE-A-VALVE CONNECTIONS TO INJECT NITROGEN AND NATURAL GAS. TAP WITH A 3/8" DRILL ON EITHER SIDE OF NEW 6" LINE STOPPERS AT LOCATION A & B.
5. INSTALL A 2" DIAMETER VENT STACK, A MINIMUM OF 8 FEET ABOVE GROUND ELEVATION AT LOCATION A & B.
6. BLOW DOWN TO ATMOSPHERIC PRESSURE AND LEAVE VENT STACK OPEN AT LOCATION B. THIS BLOW-DOWN PROCEDURE WILL TAKE APPROXIMATELY 2 MINUTES TO COMPLETE.
7. INJECT "1" CYLINDER OF NITROGEN AT LOCATION A & B, MAINTAINING A PRESSURE OF "16" PSIG UPSTREAM OF THE NITROGEN HOSE. "60" CU/FT/MIN MUST BE INJECTED TO MAINTAIN A SLUG VELOCITY OF 305 FT/MIN.
8. INJECT NATURAL GAS IMMEDIATELY FOLLOWING THE NITROGEN, MAINTAINING "16" PSIG AT THE GAUGE UPSTREAM OF THE 50' x 3/4" NITROGEN HOSE. CLOSE THE NITROGEN VALVE AS NATURAL GAS BY-PASS VALVE IS OPENED. PURGE PROCESS MUST BE MONITORED AT THE VENT STACK AT LOCATION B WITH A CONFIRMATION INSTRUMENT.
9. STOP NATURAL GAS INJECTION WHEN THE CONFIRMATION INSTRUMENT READS 100% NATURAL GAS AT LOCATION B. THIS PURGE WILL TAKE APPROXIMATELY "1" MINUTE TO COMPLETE.
10. CLOSE VENT STACK VALVE AT LOCATION B.
11. AFTER PRESSURE HAS EQUALIZED ACROSS THE 6" LINE STOPPER AT LOCATION A, SLOWLY RAISE STOPPER TO ALLOW GAS TO FLOW INTO NEW 6" STEEL.
12. AFTER PRESSURE HAS EQUALIZED ACROSS THE 6" LINE STOPPER AT LOCATION B, SLOWLY RAISE STOPPER TO ALLOW GAS TO FLOW INTO EXISTING 6" STEEL.
13. REMOVE ALL PURGING EQUIPMENT.
14. NOTIFY DISPATCH THAT PURGE OF NATURAL GAS IN ATLAS 0329 & 0347 IS COMPLETE.

CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION



CALL 811 OR CLICK ARIZONA811.COM



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REVISIONS						36876 INA FEEDER		JOB TYPE		WR NO.		ENGINEER/TECHNICIAN FERNANDO SOTO		PHONE: (520)262-6551		
						SYSTEM MAOP:	350	HP SERVICE	<input type="checkbox"/>	4928617	ACCOUNT REP.		PHONE:			
					SYSTEM MOP:						350	DISTRIBUTION	<input type="checkbox"/>	PROJECT CONTACT		PHONE:
						NO.	DESCRIPTION	BY	DATE					APPVD.	SHEET NO. 8 OF 8	
					DWN. BY JDM						CHKD. BY FXS9		APPVD. BY JLS4			
PERMIT INFORMATION		ISOLATION AREA	LOCATION		ATLAS OR TILE		FEEDER		<input checked="" type="checkbox"/>	RELATED WR NO S		FN HP: ESPERERO WASH AT SUNRISE DR. TUCSON, AZ.				
		INA FEEDER PG 20 ISO AREA 60, ISO AREA 265	T13S R15E S8, 17		0329, 0347		SYSTEM MAOP:		TRANS. BY DEF		<input type="checkbox"/>					
							SYSTEM MOP:		TRANS > 20%		<input type="checkbox"/>					



PIMA COUNTY DOT  
ESPERERO WASH AT SUNRISE DR - PROJECT NO. 4SUNEW  
SUNRISE DR, BARRASCA AVE TO VIA UMBROSA

CenturyLink/Lumen Civil Permit Plans



NOTES:

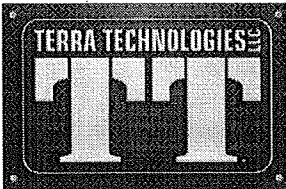
ALL EXISTING AND PROPOSED CONDITIONS ARE BASED ON INFORMATION PROVIDED BY OTHERS. CENTURYLINK CANNOT BE RESPONSIBLE FOR THE ACCURACY OF INFORMATION AND/OR PLANS PROVIDED BY OUTSIDE PARTIES. FACILITY LOCATIONS, DEPTHS AND ELEVATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

PROPOSED DESIGN MODIFICATIONS ARE RECOMMENDATIONS ONLY AND SHOULD BE VERIFIED PRIOR TO CONSTRUCTION.

Plans Prepared For:



By:



TT ENG: CHAD DALTON

PHONE: 520-891-1726

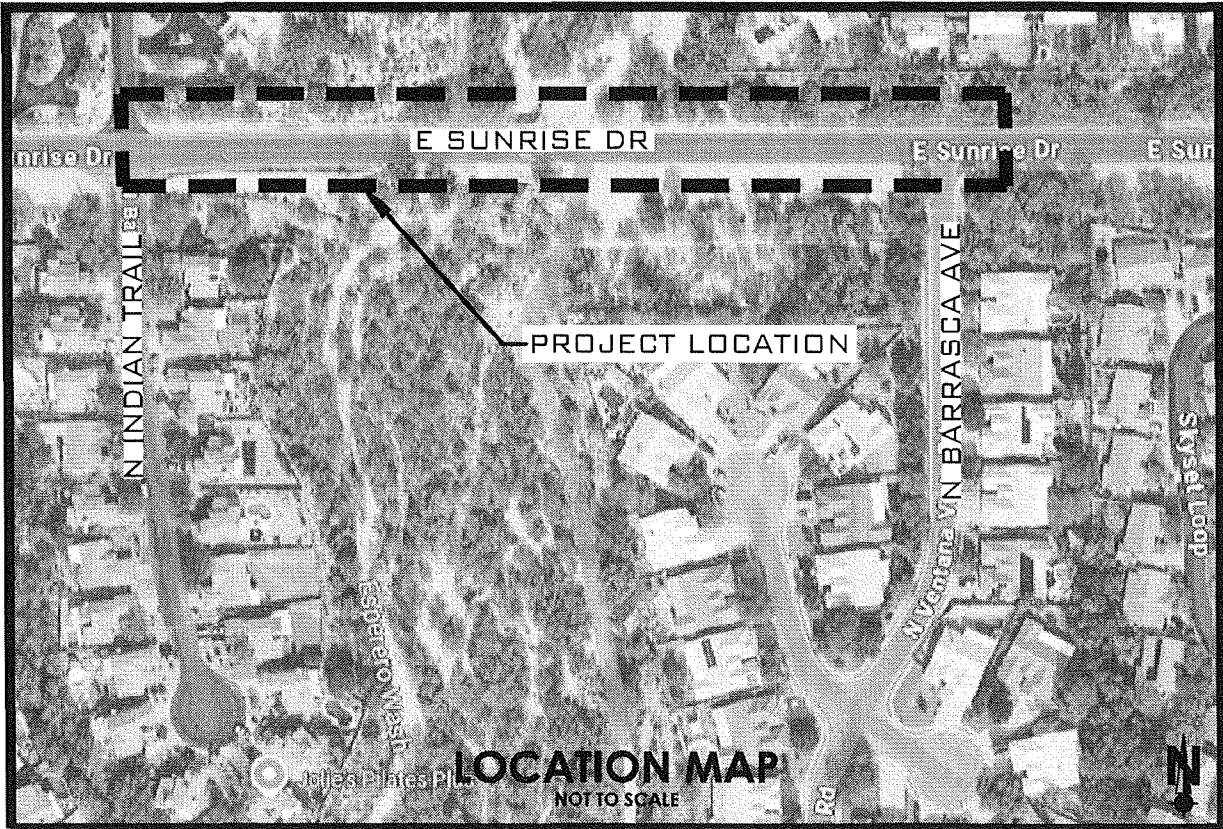
E-MAIL: [cdalton@terratechllc.net](mailto:cdalton@terratechllc.net)

TT PROJECT No: TERR-1015975

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<http://www.terratechllc.net>



INDEX OF SHEETS

T.1	TITLE SHEET
B.2	GENERAL NOTES
B.3	LEGEND & KEY MAP
C.4 - C.5	UTILITY PLANS
D.6 - D.8	DETAIL SHEET

BENCHMARK

VERTICAL CONTROL:

THE VERTICAL DATUM FOR THIS PROJECT IS THE NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88). THIS SURVEY UTILIZED THE ORTHOMETRIC HEIGHTS AS DETERMINED BY THE OPUS RESULTS OF THE STATIC GPS SURVEY. THE BENCH MARKS INCORPORATED IN THIS SURVEY ARE:

STATION	REFERENCE	ELEVATION
J05	PMIA CO CP (OPUS)	2743.87'
J07	PMIA CO CP (OPUS)	2720.08'
J09	PMIA CO CP (OPUS)	2726.89'
1	PSOMAS CP	2720.53'



JOB INFORMATION

DATE: 03/19/25

CTL JOB: P.277843

EXCHANGE: 2257

WC CLI: TCSNAZCA

ENGINEER: ANTHONY MILLER

PHONE: 520-526-1886

E-MAIL: [tony.miller@lumen.com](mailto:tony.miller@lumen.com)

REV.	DATE

SECT:  
8S

TOWN:  
13S

RNGE:  
15E

CENTURYLINK/LUMEN CONSTRUCTION NOTES

- 1) CALL BLUE STAKE, @ 811, 72 HOURS PRIOR TO TRENCHING OR DIGGING, THE LOCATION OF EXISTING UTILITIES ARE FOR REFERENCE AND SHOWN IN THEIR APPROXIMATE LOCATION ONLY.
- 2) FOR UNDERGROUND ACTIVITY: TEST AND VENTILATE MANHOLE/UTILITY VAULT PER REGN 620-140-501, PLACE WARNING DEVICES AND WORK AREA PROTECTION PER REGN 620-135-010, USE EYE AND HEAD SAFETY PROTECTION PER REGN 010-100-005 AND REGN 081-020-010.
- 3) ALL EXCAVATING, TRENCHING AND SHORING IS TO ADHERE TO THE CODE OF FEDERAL REGULATIONS (CFR) 1926.650 SUBPART P.  
A) PROVIDE ALL PITS WITH 1' x 1' SLOPE AT ONE END FOR TECHNICIAN INGRESS/EGRESS.  
B) EXCAVATED SPOILS TO BE NO LESS THAN 24" FROM EDGE OF THE PIT OR TRENCH.  
C) BARRICADE ALL OPEN PITS AND TRENCH FOR PUBLIC SAFETY. ALL BARRICADES MUST BE EQUIPPED WITH FLASHING LIGHTS FOR NIGHT VISIBILITY.  
D) FOR PITS GREATER THAN 4' IN DEPTH, USE APPROPRIATE SHORING FOR WALL STABILITY.
- 4) TRENCH COVER TO BE 36" FREE OF ROCKS, DEBRIS AND CLODS. THE TRENCH IS TO BE MINIMUM OF 36" OF COVER IN DEVELOPED AREAS AND A MINIMUM OF 48" OF COVER IN UNDEVELOPED AREAS (ANY VARIANCE FROM THESE STANDARDS WILL BE SPECIFIED ON PRINT).
- 5) ALL ASPHALT/CONCRETE AND LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION.
- 6) NORMAL/GUIDED-BORING METHOD RECOMMENDED WHEN BORING.
- 7) ADHERE TO AIRTIGHT GUIDELINES UNLESS OTHERWISE NOTED.
- 8) BOND BURIED FACILITIES PER REGN 629-020-100.
- 9) AERIAL FACILITIES ARE TO BE TESTED PRIOR BEGINNING WORK PER REGN 081-705-102, 620-131-010 AND 627-295-500
- 10) ALL AERIAL FACILITIES ARE TO BE BONDED PER REGN 627-020-005 AND 627-230-203
- 11) ALL WORK AREA PROTECTIONS FOR TRAFFIC CONTROL IS TO BE WITH APPROVED WARNING DEVICES AND PLACED PER REGN 620-135-010, STATE DEPARTMENT OF TRANSPORTATION AND LOCAL DEPARTMENT OF TRANSPORTATION REQUIREMENTS. IF REQUIRED, A TRAFFIC CONTROL PLAN MUST BE SUBMITTED TO THE REQUESTING PERMITTING AGENCY. PRIOR TO BEGINNING WORK, PERMITTING AGENCIES MUST BE NOTIFIED 48 HOURS IN ADVANCE OF STARTING ANY CONSTRUCTION WORK.
- 12) SECURE PIMA COUNTY PERMIT. (THE TYPE OF PERMIT IS IDENTIFIED IN THIS LOCATION, SUCH AS CITY, COUNTY, ETC.)  
TOTAL TRENCHING 161' TOTAL PEDESTALS/VAULTS/CABINETS 1 TOTAL SPLICE/BORE PITS 1  
TOTAL ASPHALT (SQ.FT.) REMOVED/REPLACED 0 TOTAL BORING (LINEAR FT.) 738'  
TOTAL CONCRETE (SQ.FT.) REMOVED/REPLACED 0 TOTAL POLES TO BE PLACED 0  
TOTAL ANCHORS/DOWN GUYS TO BE PLACED 0 TOTAL POLES TO BE REMOVED 0  
TYPE OF POLES TO BE PLACED (STEEL/WOOD) N/A CLASS OF WOOD POLE PLACED N/A.
- 13) EXISTING PEDESTRIAN CROSSWALKS AND WALKING AREAS SHALL BE MAINTAINED AT ALL TIMES. AS NECESSARY TEMPORARY PEDESTRIAN CROSSWALKS AND WALKING AREAS SHALL BE PROVIDED AND MAINTAINED PER SECTION VII OF THE CITY OF PHOENIX TRAFFIC AND BARRICADE MANUAL.
- 14) CONCRETE ENCASE ALL CONDUIT BENDS 80 FT RADIUS OR LESS USING 2500 PSI CONCRETE, UNLESS OTHERWISE SPECIFIED ON PRINTS.

PIMA COUNTY GENERAL NOTES FOR UTILITY CONSTRUCTION

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST PIMA COUNTY DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND SPECIAL PROVISIONS FOR CONSTRUCTION OF STREET IMPROVEMENTS.
2. CONTRACTOR TO OBTAIN NECESSARY PIMA COUNTY PERMITS PRIOR TO CONSTRUCTION WITHIN COUNTY RIGHT-OF-WAY.
3. THE ENGINEERING DESIGN ON THESE PLANS ARE ONLY APPROVED BY PIMA COUNTY DEPARTMENT OF TRANSPORTATION IN SCOPE AND NOT IN DETAIL. CONSTRUCTION QUANTITIES ON THESE PLANS ARE NOT VERIFIED BY PIMA COUNTY DEPARTMENT OF TRANSPORTATION. APPROVAL OF THESE PLANS ARE FOR PERMIT PURPOSES ONLY AND SHALL NOT PREVENT PIMA COUNTY DEPARTMENT OF TRANSPORTATION FROM REQUIRING CORRECTION OF ERRORS IN THE PLANS WHERE SUCH ERRORS ARE SUBSEQUENTLY FOUND TO BE IN VIOLATION OF ANY LAW, ORDINANCE, HEALTH, SAFETY OR OTHER DESIGN ISSUES.
4. CONTRACTOR SHALL NOTIFY THE PIMA COUNTY INSPECTION DEPARTMENT AT LEAST 24 HOURS IN ADVANCE OF ANY CONSTRUCTION AT (520) 724-6970.
5. AN APPROVED SET OF PLANS SHALL BE ON THE SITE DURING CONSTRUCTION AND INSPECTIONS.
6. CONTRACTOR PERFORMING CONSTRUCTION OR EXCAVATING OPERATIONS IS RESPONSIBLE FOR LOCATING, RELOCATING AND/OR PROTECTING ALL UTILITIES IN CONFLICT OR WITHIN THE CLEAR ZONE, AT NO EXPENSE TO PIMA COUNTY.
7. ALL COMPACTION AND BACKFILL WITHIN COUNTY RIGHT-OF-WAY SHALL CONFORM TO THE PIMA COUNTY SPECIFICATIONS. BACKFILL UNDER ANY EXISTING OR PROPOSED PAVEMENT, CURB AND GUTTER OR WITHIN TWO FEET (2') OR LESS FROM THE EDGE OF PAVEMENT SHALL CONSIST OF ONE-HALF (1/2) SACK CLSM.
8. ALL STRUCTURES, SUCH AS MANHOLES, VALVE BOX & COVERS, AND MONITORING WELLS MUST BE MARKED WITH AT LEAST TWO REFLECTIVE YELLOW FLEX POST WHEN STRUCTURES ARE LOCATED OUTSIDE THE TRAVELED WAY AND WITHIN THE RIGHT-OF-WAY. ("APPLIES ONLY WHEN THERE IS NO CURB.")
9. ALL EXISTING PAVEMENT MARKING, TRAFFIC SIGNS AND SIGNAL EQUIPMENT THAT NEEDS TO BE REMOVED, REPLACED, RELOCATED OR REPAIRED BECAUSE OF CONTRACTOR'S WORK, WILL BE DONE BY THE CONTRACTOR AT HIS EXPENSE. ALL TRAFFIC SIGNS THAT ARE REMOVED SHALL BE STOCKPILED ON THE PROJECT SITE AND THE CONTRACTOR IS TO NOTIFY THE INSPECTOR WHEN ALL SIGNS HAVE BEEN REMOVED. ALL NEW STREET NAMES SIGNS SHALL BE PROVIDED AND INSTALLED BY PERMITTEE AT NO EXPENSE TO PIMA COUNTY.
10. PAVEMENT MARKING, SIGNING AND SIGNAL WORK WILL BE INSPECTED AND WILL HAVE TO MEET COUNTY STANDARDS BEFORE RELEASE OF BOND.
11. ASPHALT MIX DESIGN SHALL BE SUBMITTED TO PIMA COUNTY A MINIMUM OF 48 HOURS PRIOR TO PLACING ANY ASPHALT COURSES. (TRENCH WORK EXCLUDED)
12. PRIOR TO CONDUCTING EXCAVATION OPERATIONS, THE CONTRACTOR SHALL OBTAIN FROM THE ARIZONA STATE HISTORICAL PRESERVATION OFFICER (SHPO) (602) 542-4009, RECOMMENDATIONS REGARDING THE NEED FOR CULTURAL RESOURCES (ARCHAEOLOGICAL) CLEARANCE. ALL DISCOVERIES OF HUMAN REMAINS, CULTURAL ARTIFACTS, OR PALEONTOLOGICAL REMAINS SHALL BE REPORTED TO THE ARIZONA STATE MUSEUM AND PIMA COUNTY. UPON DISCOVERY, CONTRACTOR SHALL CEASE OPERATIONS IN THE VICINITY OF THE FIND AND PROTECT THE DISCOVERY AREA FROM FURTHER DISTURBANCE UNTIL THE FIND CAN BE PROFESSIONALLY INVESTIGATED BY THE ARIZONA STATE MUSEUM AND PIMA COUNTY.
13. PRIOR TO MOVING OR DESTROYING PROTECTED NATIVE PLANT SPECIES, THE CONTRACTOR SHALL FILE A FORMAL NOTICE OF INTENT WITH THE ARIZONA DEPARTMENT OF AGRICULTURE NATIVE PLANTS (602) 542-6408.
14. EXCEPT UNDER EMERGENCY CONDITIONS, ROADS SHALL NOT BE CLOSED FOR CONSTRUCTION ACTIVITY UNLESS PRIOR APPROVAL IS OBTAINED FROM THE TRANSPORTATION DIRECTOR OR HIS REPRESENTATIVE.
15. ALL BOX CULVERTS CONSTRUCTED IN THE PUBLIC RIGHT-OF-WAY SHALL COMPLY WITH ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT) LATEST DESIGN SPECIFICATION AND STANDARDS. MINIMUM CLEAR HEIGHT OF BOX CULVERT SHALL BE 4 FEET.
16. PRIOR TO INSTALLATION OF THE BASE COURSE AND WEARING SURFACE, SUBMIT SOIL TEST(S) OF SUB-GRADE AND REVISED PAVEMENT DESIGN/CALCULATIONS TO THE PIMA COUNTY DEPARTMENT OF TRANSPORTATION FOR REVIEW AND APPROVAL.

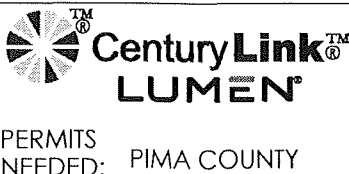
Notes

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ESPERERO WASH AT SUNRISE DR  
- PROJECT NO. 4SUNEW  
CenturyLink/Lumen Civil Permit Plans  
GENERAL NOTES



PERMITS  
NEEDED: PIMA COUNTY

CTL ENGINEER: ANTHONY MILLER  
PHONE: 520-526-1886  
E-MAIL: tony.miller@lumen.com


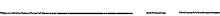








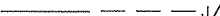
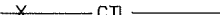



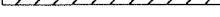























CTL JOB: P.277843  
WC CLLI: TCSNAZCA

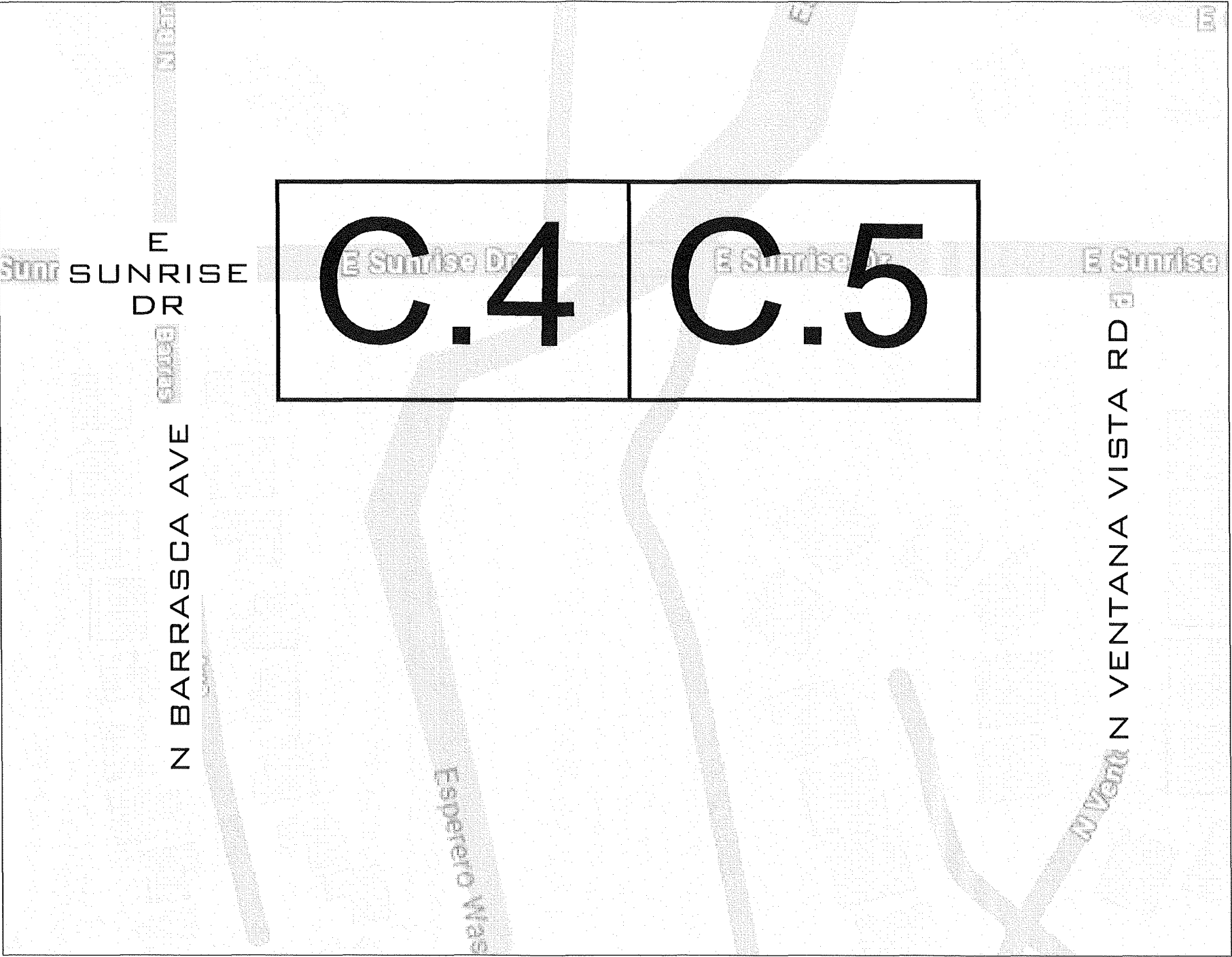
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B.2

LEGEND

SYMBOLOLOGY

EDGE OF PAVEMENT		EOP
CENTERLINES		C/L
PROPERTY LINE		P/L
PUE/ESMT		
RIGHT OF WAY		R/W
EXIST TELEPHONE		CTL
EXIST OVERHEAD TELEPHONE		OTEL
EXIST BURIED FIBER		CTL
EXIST AERIAL FIBER		CTL
JOINT TRENCH		J/T
EX ABANDONED TELCO		ABAN
PROPOSED ABANDONED TELCO		CTL
MUNICIPALITY LIMITS		
BORE		
ASPHALT CUT & RESTORE		
TRENCH		
EXIST TELEPHONE ANCHOR		
ANCHOR / DOWNGUY		
TELEPHONE PEDESTAL EXISTING		
TELEPHONE PEDESTAL NEW		
TELEPHONE BULLET PEDESTAL		
TELCO MANHOLE EXISTING		
TELCO MANHOLE NEW		
TELCO HANDHOLE NEW		
TELCO TRAF. RTD HH NEW		
TELCO HANDHOLE EXISTING		
BOREPIT		
POTHOLE		
RT NEW		
RT EXISTING		
COOLPED NEW		
COOLPED EXISTING		
SAI NEW		
SAI EXISTING		
ASPHALT CUT FOOTAGE		
BORE FOOTAGE		
TRENCH FOOTAGE		
PROTECT IN PLACE		
TO BE REMOVED		



KEY MAP  
NOT TO SCALE

Notes

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ESPERERO WASH AT SUNRISE DR  
- PROJECT NO. 4SUNEW  
CenturyLink/Lumen Civil Permit Plans  
LEGEND & KEY MAP



NOT  
TO  
SCALE

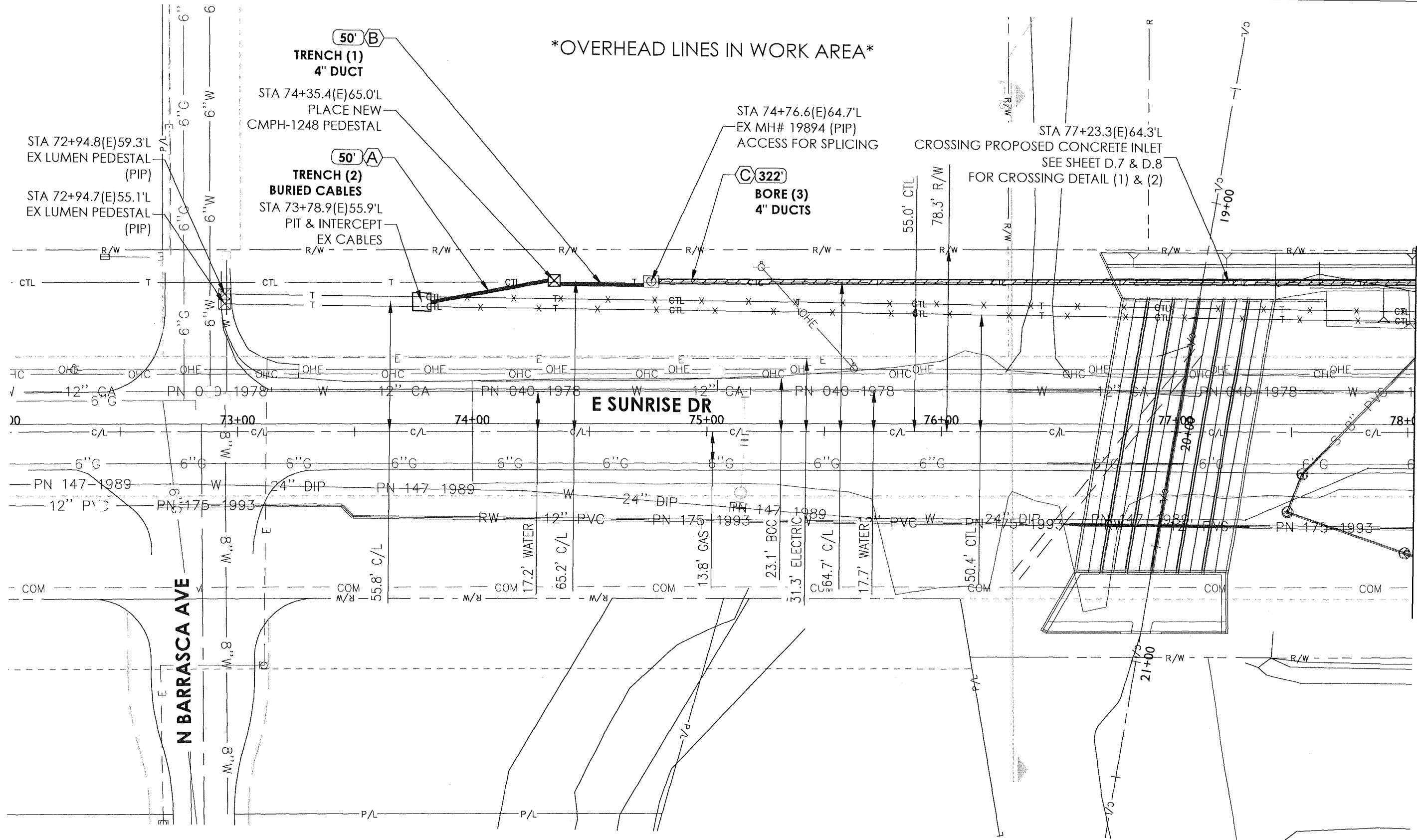


PERMITS  
NEEDED: PIMA COUNTY

CTL ENGINEER: ANTHONY MILLER  
PHONE: 520-526-1886  
E-MAIL: tony.miller@lumen.com

CTL JOB: P.277843  
WC CLI: TCSNAZCA

Sheet  
B.3



# Notes

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**ESPERERO WASH AT SUNRISE DR**  
**- PROJECT NO. 4SUNEW**  
**CenturyLink/Lumen Civil Permit Plans**  
**UTILITY PLAN**



0 20 40  
 SCALE: 1" = 40'



PERMITS  
 NEEDED: PIMA COUNTY

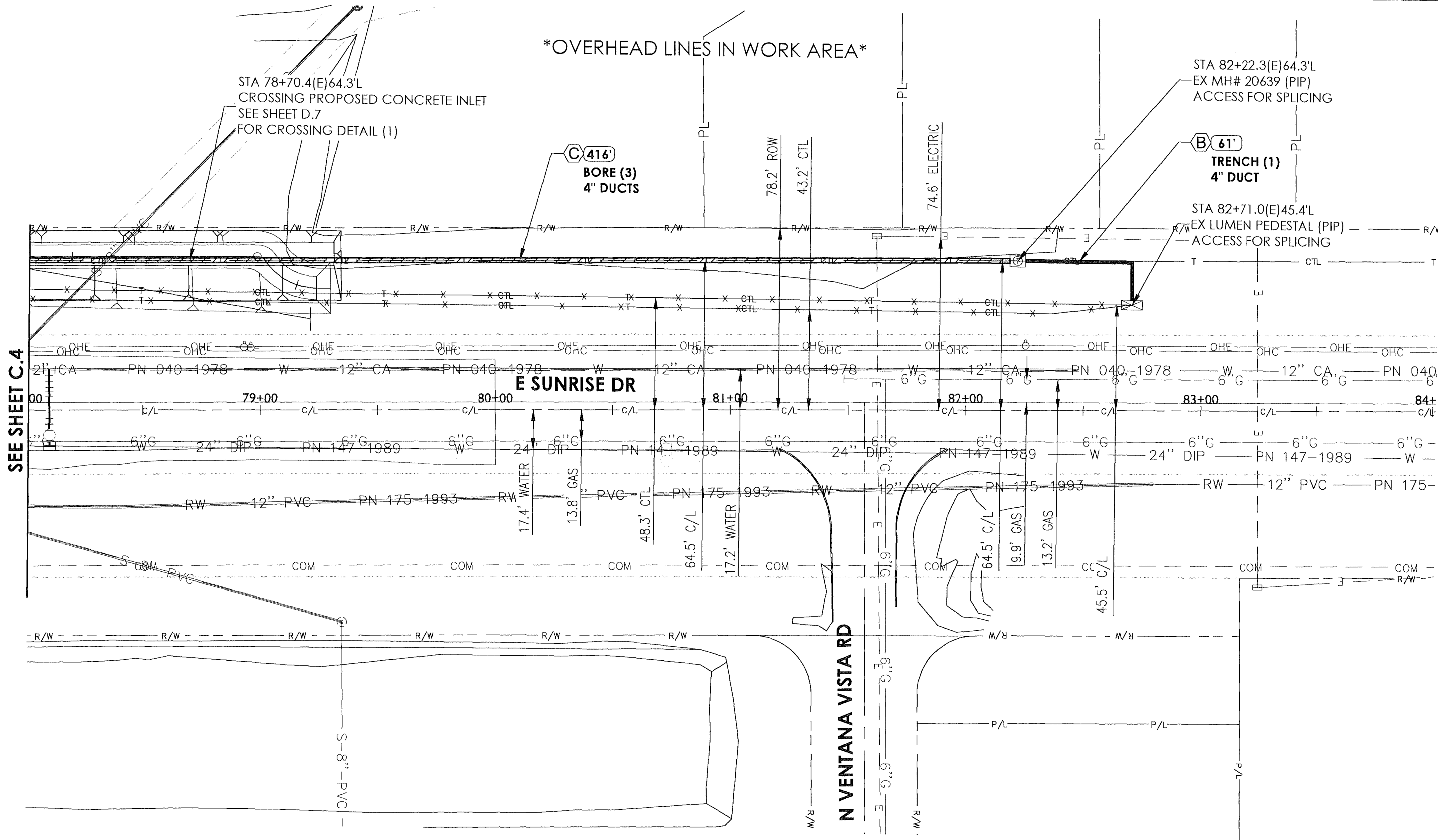
CTL ENGINEER: ANTHONY MILLER  
 PHONE: 520-526-1886  
 E-MAIL: tony.miller@lumen.com

CTL JOB: P.277843  
 WC CLI: TCSNAZCA

Sheet  
**C.4**



\*OVERHEAD LINES IN WORK AREA\*



#### Notes

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**ESPERERO WASH AT SUNRISE DR  
- PROJECT NO. 4SUNEW  
CenturyLink/Lumen Civil Permit Plans**  
UTILITY PLAN



0 20 40  
SCALE: 1" = 40'

**CenturyLink™  
LUMEN®**

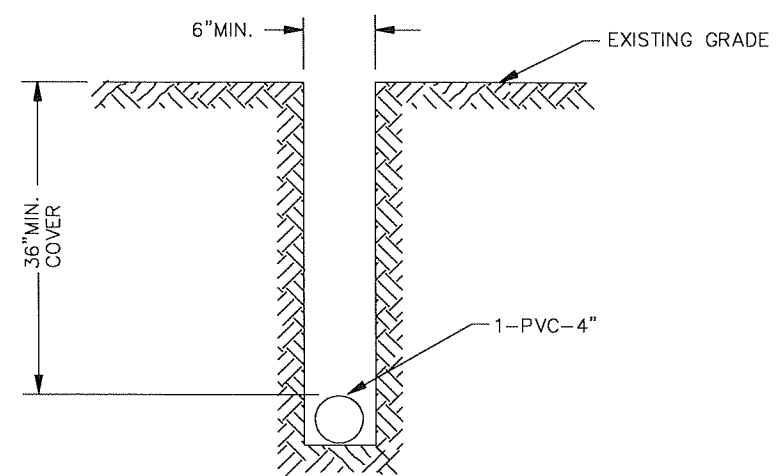
PERMITS  
NEEDED: PIMA COUNTY

CTL ENGINEER: ANTHONY MILLER  
PHONE: 520-526-1886  
E-MAIL: tony.miller@lumen.com

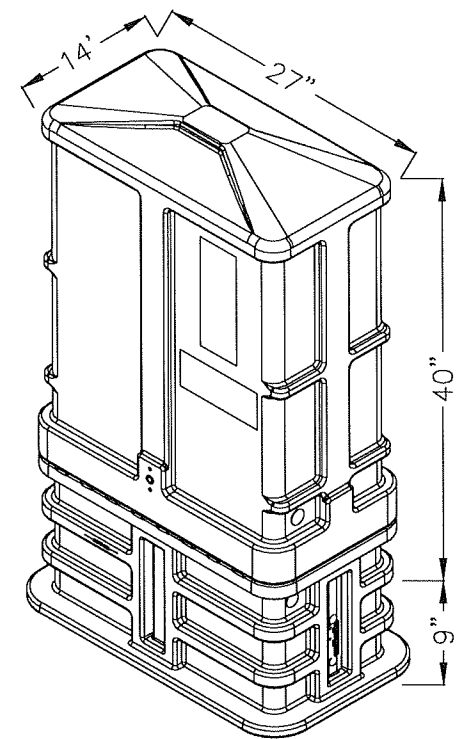
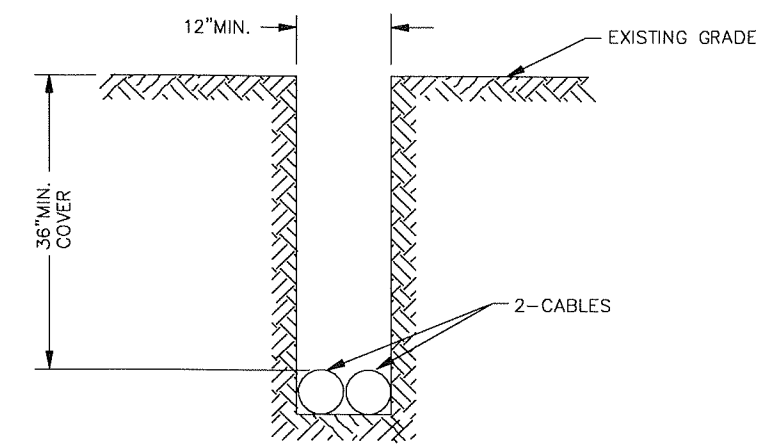
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**C.5**

TYPICAL DETAIL "A"  
TRENCH PLACEMENT OF 1-4" CONDUIT  
(36" MIN.)  
N.T.S.



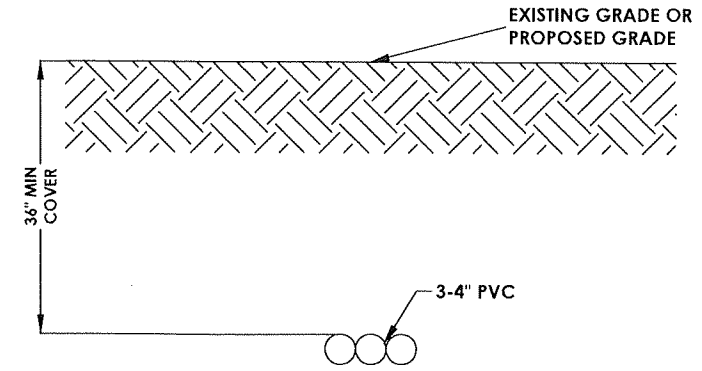
TYPICAL DETAIL "B"  
TRENCH PLACEMENT OF 2 CABLES  
(36" MIN.)  
N.T.S.



CMPH-1248

TYPICAL BORE  
TYPICAL DETAIL "C"

BORE PLACEMENT OF 3-PVC-4"  
(36" MIN.)  
N.T.S.



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ESPERERO WASH AT SUNRISE DR  
- PROJECT NO. 4SUNEW  
CenturyLink/Lumen Civil Permit Plans  
DETAIL SHEET



NOT  
TO  
SCALE

CenturyLink<sup>TM</sup>  
LUMEN<sup>®</sup>  
PERMITS  
NEEDED: PIMA COUNTY

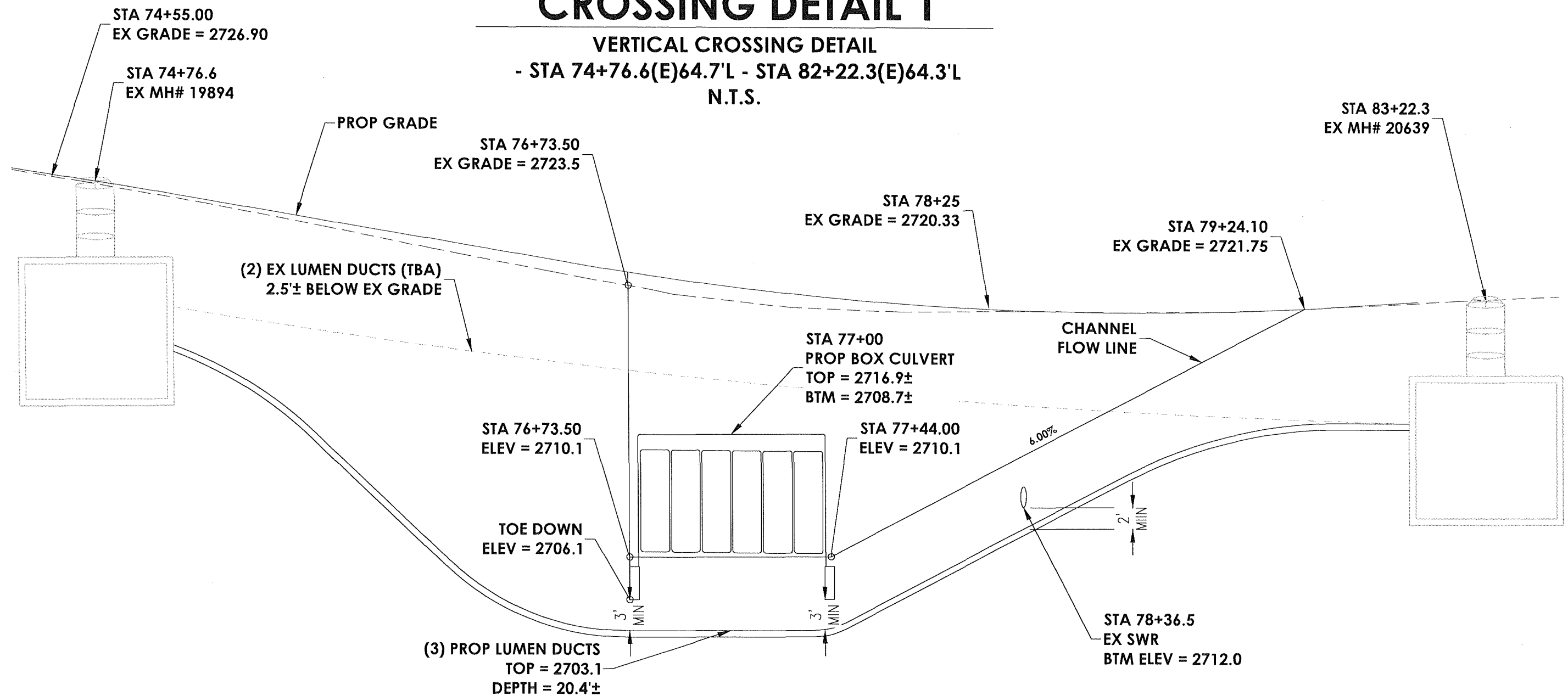
CTL ENGINEER: ANTHONY MILLER  
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E-MAIL: tony.miller@lumen.com

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WC CLLI: TCSNAZCA

Sheet  
D.6

# CROSSING DETAIL 1

VERTICAL CROSSING DETAIL  
- STA 74+76.6(E)64.7'L - STA 82+22.3(E)64.3'L  
N.T.S.



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ESPERERO WASH AT SUNRISE DR  
- PROJECT NO. 4SUNEW  
CenturyLink/Lumen Civil Permit Plans

DETAIL SHEET



NOT  
TO  
SCALE



PERMITS  
NEEDED: PIMA COUNTY

CTL ENGINEER: ANTHONY MILLER  
PHONE: 520-526-1886  
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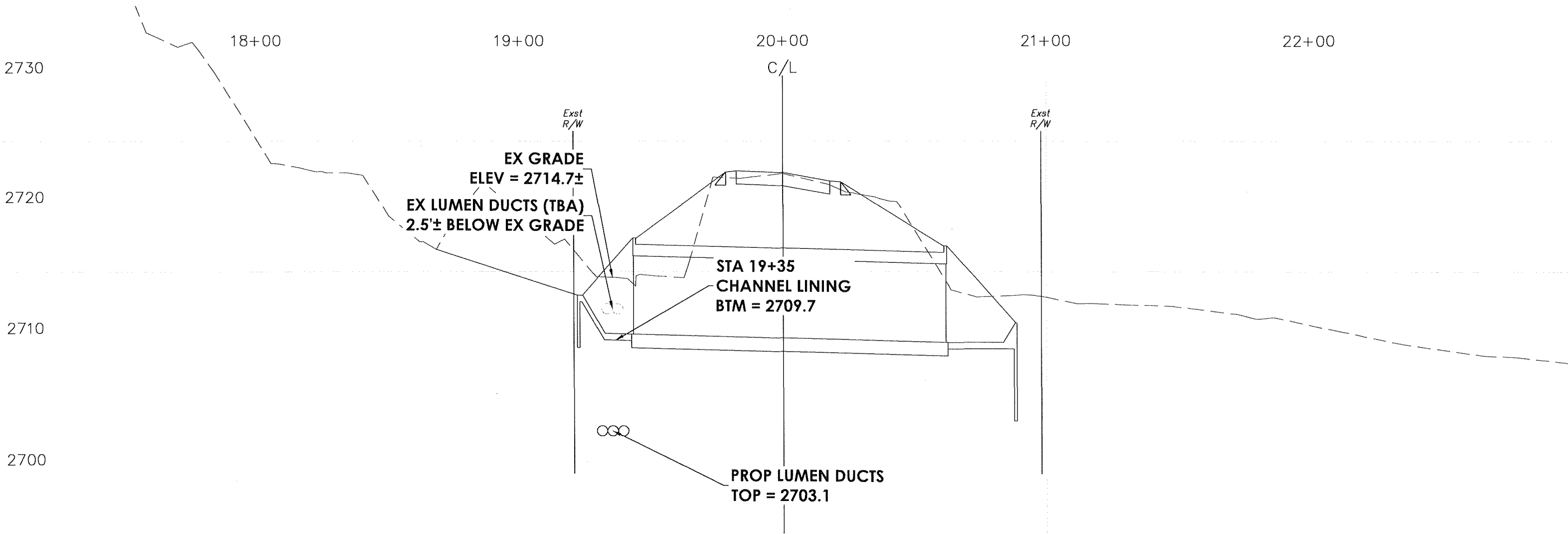
CTL JOB: P.277843  
WC CLLI: TCSNAZCA

Sheet

D.7

# CROSSING DETAIL 2

VERTICAL CROSSING DETAIL  
N.T.S.



## Notes

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ESPERERO WASH AT SUNRISE DR  
- PROJECT NO. 4SUNEW  
CenturyLink/Lumen Civil Permit Plans  
DETAIL SHEET



NOT  
TO  
SCALE

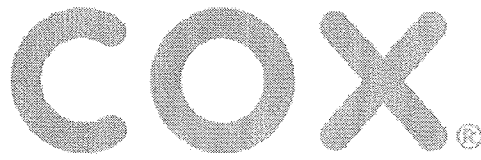
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**LUMEN<sup>®</sup>**  
PERMITS  
NEEDED: PIMA COUNTY

CTL ENGINEER: ANTHONY MILLER  
PHONE: 520-526-1886  
E-MAIL: [tony.miller@lumen.com](mailto:tony.miller@lumen.com)

CTL JOB: P.277843  
WC CLLI: TCSNAZCA

Sheet  
D.8





## Cox Communications Conflict Memorandum

**Date:** December 2, 2024

**To:** Emem Akpan (PSOMAS)  
[emem.akpan@psomas.com](mailto:emem.akpan@psomas.com)

**From:** Cox Engineer, Cox Communications

**Subject:** Cox Communications – Conflict Memo – Pima County Department of Transportation – Esperero Wash at Sunrise Drive – 90%

**Project CIP No.** 4SUNEW

**Cox Record,** CR-704637

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Cox Communications is in receipt of the 90% plans and a letter dated November 4, 2024. Below you will see an overview of Cox Communications facilities within the project limits, and a brief project overview along with comments regarding any Cox Communications facilities with respect to the proposed project.

### **Inventory of Cox Communications Facilities**

Cox Communications has facilities within the project limits. Terra Technologies anticipates that due to the drainage improvements that the Cox Communications facilities (buried facilities & aerial facilities) may be impacted.

Plan markups have been attached showing approximate locations of Cox Communications facilities.

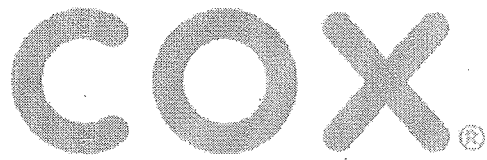
### **Project Overview**

The design intent of this project appears to be a drainage improvement project.

### **Facility Locations and Impacts**

Cox Communications underground facility mapping provided is based on GIS mapping and accuracy of vertical and horizontal location is only a representation of the exact field location. Any additional utility information gathered by Cox Communications will be promptly coordinated with the Engineer and/or its representative. Please notify Cox Communications with additional utility locating information if acquired.

Based on Cox Communications mapping, street-view imagery, and the construction drawings the following conflicts and/or potential conflicts should be addressed as part of this construction project.



## Cox Communications Conflict Memorandum

(Note: Stations and Offsets are approximate)

(See attached plan mark-ups for additional clarification of conflict locations)

### PROBABILITY OF CONFLICT (POC)

L = Low      M = Medium      H = High      K = Known (100%)

No.	LINE	STATION	OFFSET	FACILITY	CONFLICT	POC	ACTION
1	Sunrise Dr	76+50 to 77+25	RT	Buried	Proposed Box Culvert	K	Per profile Cox underground to be relocated.

To remove or minimize conflicts, please allow at least 90 days for Cox to complete this work from the date Cox and you agree on a plan to complete this work. Prior to relocation, should Project construction activities occur in the immediate vicinity of the conflict(s), it will be your responsibility to conduct potholing and to properly protect Cox's Facilities.

Cox Communications will perform a preliminary search for easements along the corridor for reimbursement.

Right of Way research will be confirmed by Cox Communications to see if any easements exist.

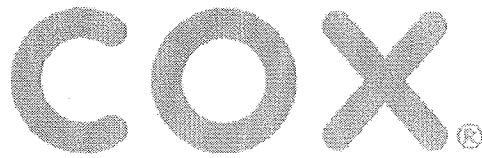
Please notify Cox Communications when further milestone coordination or a Preconstruction Meeting will take place so a representative can be in attendance.

As previously noted, design appears to be at the 90% stage. Cox Communications requests to review the updated plans for any conflicts prior to disbursement for advertising.

In accordance with state law, Blue Staking for the location of Cox Communications facilities must be completed prior to any construction. When crossing Cox Communications facilities, you will be required to pothole to determine depth and maintain a minimum of 12 inch vertical and horizontal separation from facilities.

Pursuant to state law, support and protection is required for all Cox Communications facilities during construction.

Should the Contractor locate or expose an unknown Cox Communications facility, please contact Cox as soon as possible.



## **Cox Communications Conflict Memorandum**

Acquisition of required public Rights-of-Way, and removal of encumbrances from those Rights-of-Way, is the responsibility of the municipality or their agent prior to Cox Communications excavation in, or relocation to, the newly acquired Rights-of-Way.

In the event Cox Communications' facilities need to be removed or relocated, some or all the cost may be at the expense of the sponsoring agency.

If you have any questions or concerns regarding this review, feel free to contact me immediately, either by phone or email at the number/address provided below. The contractor is also responsible for contacting Cox Communications prior to construction around the Cox Communications facilities.

### **Notification List**

<b>Cox Communications</b> Jacob Horsman, Construction Planner Jacob.horsman@cox.com 623-328-2202	<b>Cox Communications</b> Jeff Krause, Construction Planner Jeff. Krause@cox.com 520-867-7526
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# ESPERERO WASH AT SUNRISE DRIVE

## CULVERT REPLACEMENT

### GENERAL DESCRIPTION OF PROJECT

THE PROJECT INCLUDES REPLACING AN EXISTING UNDERSIZED 2-48" CMP CULVERT WITH A NEW 6-10' x 6' RCBC, A SHOTCRETE COLLECTOR CHANNEL, AND PROVIDING THE APPROPRIATE INLET AND OUTLET PROTECTION. EXISTING PAVING ON SUNRISE DRIVE TO BE REPLACED IN KIND.

PCDOT PROJECT NUMBER  
**4SUNEW**

PIMA COUNTY BOARD OF SUPERVISORS

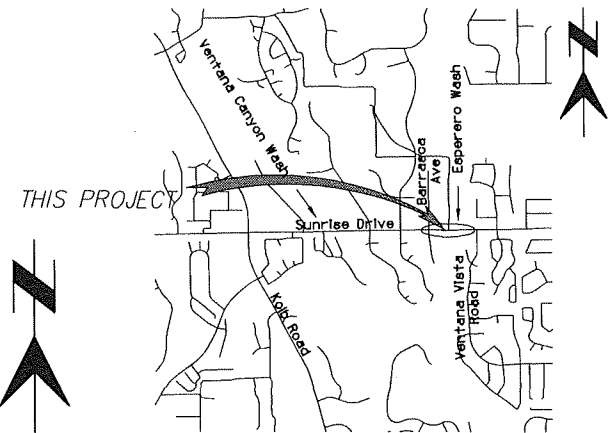
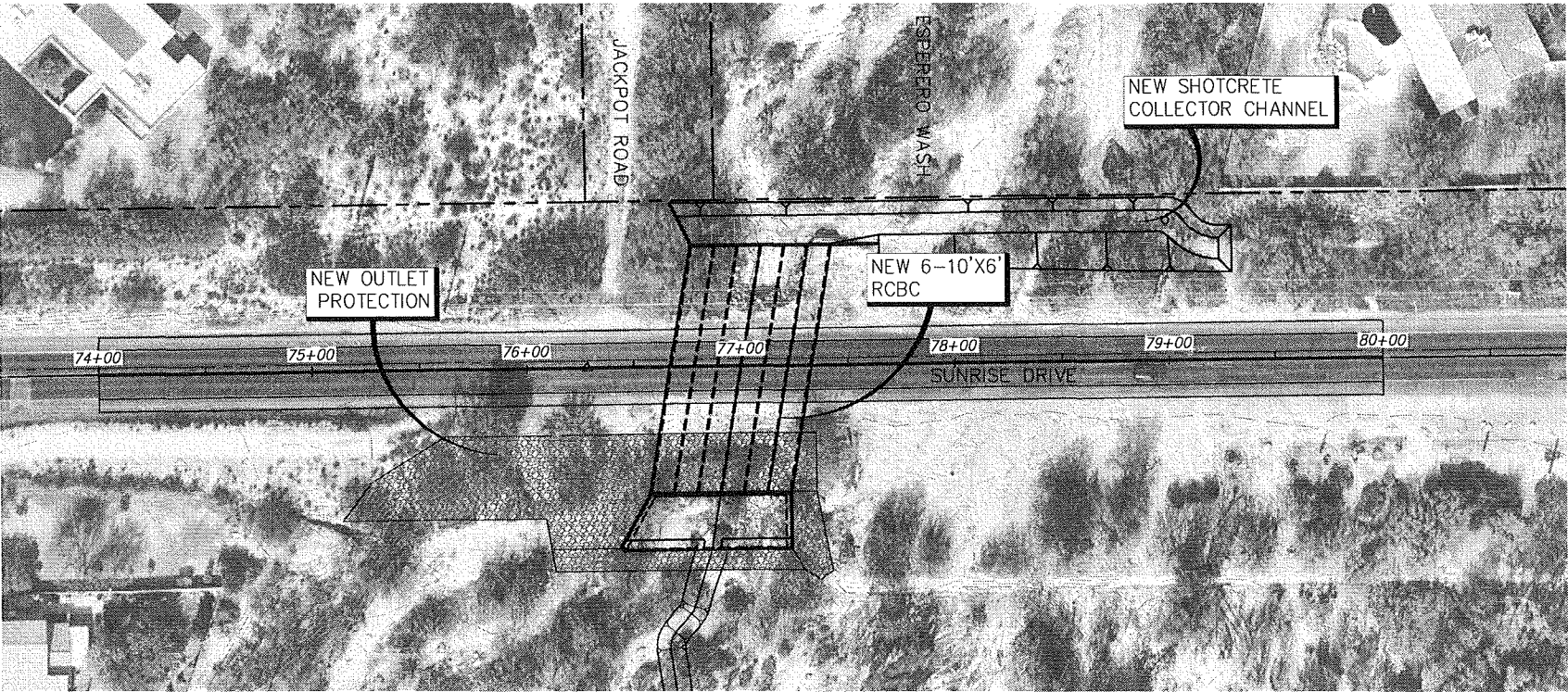
ADELITA GRIJALVA, CHAIR, DISTRICT 5

REX SCOTT, DISTRICT 1    MATT HEINZ, DISTRICT 2

SYLVIA LEE, DISTRICT 3    STEVE CHRISTY, DISTRICT 4

THIS PROJECT IS LOCATED  
WITHIN SUPERVISOR DISTRICT 1

Page No.	Sheet No.	Sheet Type
1	CV01	Cover Sheet
2	GN01	General Notes
3	TYP01	Typical Sections
4-5	DT01-DT02	Civil Details
6	HZ01	Horizontal Control Plan
7	RP01	Paving Plan
8-11	TC08-TC11	Traffic Control Plan
12	DR01	Drainage Plan
13-18	W01-W06	Water Modifications (12 Inch DIP)



LOCATION MAP  
Sections 8 and 17  
T-13-S, R-15-E, G and S R M  
Pima County, Arizona



<div>PSOMAS</div> <div>333 E. Wetmore Road, Suite 450 Tucson, AZ 85719 (520) 292-2300    (520) 292-1290 fax www.psomas.com</div>	No.	Revisions	Engineer	Date	90% PRELIMINARY NOT FOR CONSTRUCTION	Pima County Department of Transportation 201 N. Stone Ave. 4th floor    Tucson, Arizona 85701 Phone Number: 724-6410 Kathryn Skinner, P.E. Director		Approved: _____ 20__
	No.	As Built	Engineer	Date		Director		
Project No.    4SUNEW						Sheet No. CV01 of CV01		Page No. 1 of 18

UPC-2024-125

GENERAL NOTES

1. CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE PIMA ASSOCIATION OF GOVERNMENTS (PAG) SPECIFICATIONS AND DETAILS, 2015 EDITION. IN ADDITION, THE CONSTRUCTION SHALL BE IN CONFORMANCE TO ALL OTHER SPECIFICATIONS AND DETAILS LISTED IN THE SPECIAL PROVISIONS.
2. UTILITY LOCATIONS SHOWN ON THE PLANS WERE COMPILED BASED ON THE BEST INFORMATION AVAILABLE TO THE DEPARTMENT, UTILITY LOCATIONS ARE NOT INTENDED TO BE EXACT OR COMPLETE. PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES WITH THE APPROPRIATE ORGANIZATIONS. CONTACT "BLUE STAKE" AT 1-800-782-5348 TWO FULL WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION (SATURDAYS AND SUNDAYS ARE NOT CONSIDERED WORKING DAYS).
3. RIGHT-OF-WAY ENCROACHMENTS SHALL BE REMOVED ONLY BY ORDER OF PIMA COUNTY, UNLESS OTHERWISE NOTED.
4. REMOVAL OF ALL CACTI AND NATIVE PLANTS SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE "ARIZONA NATIVE PLANT LAW" A.R.S, CHAPTER 7.
5. EXISTING TOPOGRAPHIC CONDITIONS SHOWN ON PLAN SHEETS REFLECT CONDITIONS AS OF OCTOBER, 2021 AND ARE SUBJECT TO SIGNIFICANT CHANGE AFTER LARGE FLOWS.
6. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS, ALLEYS, AND MAILBOXES DURING CONSTRUCTION. THE CONTRACTOR SHALL NOT RESTRICT EMERGENCY VEHICLES, U.S. POSTAL DELIVERY, SOLID WASTE COLLECTIONS, AND/OR ACCESS TO THE ADJACENT PROPERTIES, EXCEPT AS APPROVED BY THE ENGINEER.
7. OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS, NOTES, OR DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
8. ALL STATIONING SHOWN ON THE PLANS AND PROFILES IS ALONG THE CONSTRUCTION CENTERLINE UNLESS OTHERWISE NOTED.
9. EXISTING UTILITIES INCLUDE, BUT MAY NOT BE LIMITED TO, OVERHEAD AND UNDERGROUND ELECTRIC, TELEPHONE, TELEVISION, FIBER, GAS, AND WATER, AND SHALL BE MOVED BY OTHERS WHERE NECESSARY UNLESS OTHERWISE NOTED AND SHOWN IN THESE PLANS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A PROPOSED SEQUENCE OF OPERATIONS AND A COMPATIBLE METHOD OF MAINTAINING TRAFFIC. CONSTRUCTION ZONE TRAFFIC CONTROL SHALL CONFORM TO THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 2009 EDITION AND AMENDMENTS, THE MUTCD ARIZONA SUPPLEMENT (2012). UPON COMMENCEMENT OF WORK, TRAFFIC CONTROL DEVICES SHALL BE POSTED AND MAINTAINED BY THE CONTRACTOR UNTIL SUCH A TIME AS THE WORK IS COMPLETE.

PAVEMENT MARKING GENERAL NOTES

1. ALL EQUIPMENT/MATERIALS, AND CONSTRUCTION SHALL MEET OR EXCEED THE REQUIREMENTS CONTAINED IN THE CURRENT PIMA ASSOCIATION OF GOVERNMENTS (PAG) STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS AND STANDARD DETAILS FOR PUBLIC IMPROVEMENTS, THE SPECIAL PROVISIONS, THE SUPPLEMENTAL SPECIFICATIONS AND THE APPROVED PLANS. ALL PAVEMENT MARKING SHALL BE INSTALLED IN COMPLIANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE PIMA COUNTY/CITY OF TUCSON (PC/COT) SIGNING AND PAVEMENT MARKING MANUAL AND APPLICABLE AMENDMENTS.
2. THE PAVEMENT MARKING CONTRACTOR SHALL CONTACT THE PIMA COUNTY PAVEMENT MARKING SUPERVISOR AT (520) 724-2624 AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF PAVEMENT MARKING LAYOUT AND INSTALLATION TO SCHEDULE, INSPECTION AND APPROVAL OF THE PAVEMENT MARKINGS. PAVEMENT MARKING SHOP HOURS ARE MONDAY THROUGH THURSDAY 6:00 AM TO 3:30 PM, STATE HOLIDAYS EXCLUDED.
3. UPON APPROVAL OF THE PAVEMENT MARKING LAYOUT, THE PIMA COUNTY PAVEMENT MARKING SUPERVISOR WILL ISSUE WRITTEN AUTHORIZATION TO THE CONTRACTOR TO PROCEED WITH INSTALLING ALL PAVEMENT MARKINGS AND ASSOCIATED REFLECTIVE RAISED PAVEMENT MARKERS.
4. THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED AND APPROVED BY THE COUNTY ENGINEER OR THEIR DESIGNEE.
5. THE DESIGN SPEED FOR SUNRISE DRIVE IS 50 MPH. THE DESIGN VEHICLE IS WB-62. THE POSTED SPEED LIMIT IS 45 MPH.
6. ALL LANE DIMENSIONS ARE MEASURED FROM THE CENTER OF THE LANE LINE, CENTER OF DOUBLE LANE LINES, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
7. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, APPLICABLE MARKING DETAILS, AND SPECIFIED PIMA COUNTY STANDARDS WHEN INSTALLING PAVEMENT STRIPING, SYMBOLS, LEGENDS, AND MARKERS.
8. PAINTED LAYOUT STRIPING SHALL BE 15 MIL (0.015") THICK, WATER BASED PAINT PLACED ON THE FINAL PAVEMENT SURFACE WITH 8 POUNDS PER GALLON OF AASHTO M 247-13 TYPE 1 GLASS BEADS WITH ADHESION/MOISTURE PROOF COATING. PAINTED LAYOUT STRIPING SHALL BE INSTALLED WITHIN FIVE (5) WORKING DAYS OF THE FINAL PAVEMENT SURFACE BEING COMPLETED.
9. PAINTED SYMBOLS AND LEGENDS SHALL BE APPLIED AT THE SAME TIME AS THE PAINTED STRIPING, WITH THE EXCEPTION OF BIKE LANE SYMBOLS AND WORDS (SUCH AS STOP, AHEAD, ONLY ETC.).
10. THE FINAL LONGITUDINAL STRIPING SHALL BE 90 MIL (0.090") THICK RIBBON EXTRUDED THERMOPLASTIC REFLECTORIZED STRIPING PLACED OVER THE PAINTED LAYOUT STRIPING WITH A SINGLE DROP OF 10 POUNDS PER 100 SQUARE FEET OF AASHTO M 247-13 GLASS BEADS. THE FINAL LONGITUDINAL STRIPING SHALL BE PLACED WITHIN 21 TO 30 CALENDAR DAYS OF THE FINAL PAVEMENT SURFACE BEING COMPLETED. ALL PREVIOUSLY EXEMPTED LONGLINE MARKINGS SHALL BE APPLIED DURING THE FINAL LONGITUDINAL STRIPING.
11. ALL FINAL TRANSVERSE STRIPING, INCLUDING SYMBOLS AND LEGENDS, SHALL BE 90 MIL (0.090") ALKYD HAND CART EXTRUDED THERMOPLASTIC WITH 10 POUNDS PER 100 SQUARE FEET OF AASHTO M 247-13 TYPE 1 GLASS BEADS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS ON THE FINAL SURFACE COURSE FOLLOWING ONE CONTROL LINE PER DIRECTION OF TRAVEL CONSISTING OF CONTROL POINTS THAT HAVE BEEN SET TO NO MORE THAN 50 FEET APART ON CURVE SECTIONS AND 200 FEET IN TANGENT SECTIONS WHERE THE PAVEMENT MARKING PATTERN DOES NOT CHANGE.
13. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE CONSTRUCTION JOINT IS NO MORE THAN ONE FOOT OFFSET FROM THE FINAL STRIPING.
14. ALL RETROREFLECTIVE RAISED PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. TYPE C OR G PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE CLEAR (OR WHITE) REFLECTIVE FACE OF EACH MARKER IS FACING APPROACHING TRAFFIC AND PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW TO WHICH IT APPLIES.
15. ALL RETROREFLECTIVE RAISED PAVEMENT MARKERS SHALL BE INSTALLED PER THE CURRENT EDITION OF THE PAG STANDARD SPECIFICATIONS, THE PC/COT SIGNING AND PAVEMENT MARKING MANUAL AND APPLICABLE AMENDMENTS. INSTALL 12 TYPE H PAVEMENT MARKERS AT EACH MEDIAN NOSE PER SHEET 3.3.2 IN PC/COT SIGNING AND PAVEMENT MARKING MANUAL. PAINT TOP AND FRONT FACE OF MEDIAN CURB NOSE YELLOW.
16. ALL REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 701 OF THE PAG STANDARD SPECIFICATIONS. PAINTING OVER EXISTING STRIPING DOES NOT CONSTITUTE APPROVED STRIPING OBLITERATION.
17. FOR PRIVATE DEVELOPMENT PROJECTS, THE DESIGN CONSULTANT / PROJECT MANAGER SHALL BE REQUIRED TO PRODUCE AS-BUILT STRIPING PLANS WITHIN 90 DAYS OF PROJECT COMPLETION.
18. UNLESS OTHERWISE NOTED, ALL PAVEMENT MARKINGS SHALL BE INSTALLED BY THE CONTRACTOR.
19. UPON FINAL INSPECTION BY PIMA COUNTY, A WRITTEN ACCEPTANCE OR ITEMIZED PUNCH LIST OF MISSING OR UNACCEPTABLE PAVEMENT MARKINGS SHALL BE SUBMITTED TO THE CONTRACTOR.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL STRIPING UNTIL PROJECT IS APPROVED FOR "CONSTRUCTION ACCEPTANCE" BY PIMA COUNTY (FULLY OPEN TO TRAFFIC, ALL PUNCH LIST ITEMS ARE COMPLETED, AND THE ONE YEAR WARRANTIES BEGIN). IF THE PAVEMENT MARKING MATERIAL MANUFACTURER OFFERS A LONGER WARRANTY, THE CONTRACTOR TRANSFER THAT WARRANTY TO PIMA COUNTY.

SANITARY SEWER NOTES

1. THE CONTRACTOR MUST OBTAIN A SMALL ACTIVITY CONSTRUCTION PERMIT FROM PCRWRD'S PERMIT SECTION. FOR INSTRUCTIONS AND APPLICATION, GO TO: [HTTPS://WEBCMS.PIMA.GOV/CMS/ONE.ASPX?PORTALID=169&PAGEID=59494](https://webcms.pima.gov/cms/one.aspx?portalid=169&pageid=59494). SHOULD YOU HAVE QUESTIONS IN CONNECTION WITH THE APPLICATION, EMAIL [RWRDPERMITTING@PIMA.GOV](mailto:RWRDPERMITTING@PIMA.GOV).
2. AFTER OBTAINING THE PERMIT, THE CONTRACTOR SHALL CONTACT THE PCRWRD FIELD ENGINEERING OFFICE AT (520) 724-2651 TO SCHEDULE A PRE-CONSTRUCTION MEETING.
3. A FLOW MANAGEMENT PLAN (FMP) IS REQUIRED PER PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (SSDC), SECTION 3.3.3.D; APPROPRIATE SUBSECTION AS DEFINED BY PROJECT IMPROVEMENTS. THE FMP SHALL INCLUDE THE TEMPORARY INSTALLATION OF MANHOLE FLOW CHANNEL COVERS PER STANDARD DETAIL NO. RWRD-306 OF THE PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. THESE COVERS SHALL BE INSTALLED IN EACH MANHOLE PRIOR TO PERFORMING ANY WORK ON THE MANHOLE AND REMOVED AFTER ALL WORK IS COMPLETED. PLEASE CONTACT PCRWRD FIELD ENGINEERING AT (520) 724-2651 FOR ANY QUESTIONS REGARDING FLOW CHANNEL COVERS AND/OR FMP.
4. PRIOR TO COMMENCING WITH MANHOLE ADJUSTMENT WORK (I.E. REMOVAL OF THE MANHOLE FRAME AND COVER), THE CONTRACTOR SHALL VISUALLY INSPECT THE CONDITION OF THE MANHOLE FRAME, COVER AND GRADE RINGS TO IDENTIFY ANY SPECIAL COATINGS, LININGS OR OTHER CONDITIONS THAT MAY REQUIRE ADDITIONAL WORK AND INSPECTION BY PCRWRD. IF SUCH CONDITIONS ARE IDENTIFIED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY FIELD ENGINEERING AT (520) 724-2651 FOR FURTHER DIRECTION.
5. ALL DESIGN STANDARDS, MATERIAL AND WORKMANSHIP FOR PUBLIC SANITARY SEWERS SHALL BE IN ACCORDANCE WITH THE 2022 PCRWRD ENGINEERING DESIGN STANDARDS AND THE 2022 PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. SAID DOCUMENTS ARE AVAILABLE THROUGH THE PCRWRD WEBSITE ([WWW.PIMA.GOV/WASTEWATERRECLAMATION](http://WWW.PIMA.GOV/WASTEWATERRECLAMATION)).
6. THE CONTRACTOR SHALL CONTACT "ARIZONA 811" (DIAL 811 OR 1-800-782-5348) A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL KEEP ALL UNDERGROUND FACILITY LOCATION REQUESTS UP-TO-DATE AND COMPLY WITH ARIZONA REVISED STATUTES (A.R.S) TITLE 40, CHAPTER 1, ARTICLE 6.3, SECTION 40-360.22. CONCERNS REGARDING THE ACCURACY BETWEEN THE UNDERGROUND FACILITY MARKINGS AND THE PROJECT PLANS SHALL BE IMMEDIATELY REPORTED TO THE DESIGN ENGINEER.
7. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL SANITARY SEWER MANHOLES AT ALL TIMES.
8. ANY HOUSE CONNECTION SEWERS (HCS) OR BUSINESS CONNECTION SEWERS (BCS) LINES ENCOUNTERED DURING CONSTRUCTION SHALL BE PROTECTED, REPAIRED, OR REROUTED, AS THE SITUATION DICTATES, PER PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, DETAIL NO. RWRD 400 AND AT NO EXPENSE TO THE PROPERTY OWNER OR PCRWRD. HCS AND BCS LINES ARE NOT OWNED OR MAINTAINED BY PCRWRD. PRIVATE CONNECTION SEWERS CONSTRUCTED PRIOR TO JANUARY 2006 ARE NOT REQUIRED TO BE LOCATED AND MARKED.
9. IMMEDIATELY REPORT ANY OF THE FOLLOWING TO PCRWRD OPERATIONS CONTROL CENTER (OCC) AT (520) 724-6500: ANY RELEASE OF SEWAGE, ANY DAMAGE TO THE PUBLIC SANITARY SEWER SYSTEM, OR THE DROPPING OF DEBRIS INTO A PUBLIC SANITARY SEWER MANHOLE. A PCRWRD REPRESENTATIVE WILL BE DISPATCHED TO THE SITE. THE CONTRACTOR SHALL TAKE IMMEDIATE ACTION TO CONTAIN A SANITARY SEWAGE OVERFLOW (SSO). THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO REPAIR THE SYSTEM, MITIGATE THE RELEASE OF SEWAGE, DISINFECT THE RELEASE AREAS, AND ANY REGULATORY PENALTIES LEVIED ON PCRWRD FOR SEWAGE ENTERING A NATURAL DRAINAGE WAY OR STORM WATER DRAINAGE SYSTEM. THE CONTRACTOR SHALL REPAIR ALL DAMAGE AS DIRECTED AND APPROVED BY THE PCRWRD FIELD REPRESENTATIVE.
10. MODIFICATION TO OR ADJUSTMENT OF EXISTING PIMA COUNTY SEWER FACILITIES SHALL NOT COMMENCE UNTIL: A) THE CONTRACTOR HAS OBTAINED A PCRWRD PUBLIC SEWER CONSTRUCTION PERMIT (PERMIT APPLICATION AVAILABLE BY GOING TO [HTTPS://WEBCMS.PIMA.GOV/GOVERNMENT/WASTEWATERRECLAMATION/PERMITS/](https://webcms.pima.gov/government/wastewaterreclamation/permits/)); B) THE CONTRACTOR'S FLOW MANAGEMENT PLAN, IF REQUIRED, HAS BEEN SUBMITTED THIRTY (30) CALENDAR DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING AND APPROVED BY PCRWRD FIELD ENGINEERING; C) A PRE-CONSTRUCTION MEETING WITH THE ASSIGNED PIMA COUNTY PROJECT FIELD INSPECTOR IS SCHEDULED AT LEAST THREE (3) FULL BUSINESS DAYS PRIOR TO COMMENCING WITH SEWER CONSTRUCTION.
11. THE CONTRACTOR SHALL ADJUST OR RECONSTRUCT ALL SANITARY SEWER MANHOLES TO FINISHED GRADE. ALL FRAMES AND COVER ADJUSTMENTS SHALL BE IN ACCORDANCE WITH PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, DETAIL NOS. RWRD 211, 212, 304, 305, 307, 308, AND 309 (AS APPLICABLE). THE CONTRACTOR SHALL PROTECT THE BENCH AND FLOW CHANNELS WITH A COVER PER PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, DETAIL NO. RWRD 306, PRIOR TO COMMENCING ANY WORK TO THE MANHOLE. CONTRACTOR SHALL REMOVE THE CHANNEL COVER AFTER ALL WORK IS COMPLETED (OR AFTER FINAL INSPECTION AND APPROVAL OF RWRD FIELD ENGINEERING). THE CONTRACTOR SHALL ENSURE THAT FRAMES AND COVERS ARE CLEAN AND FREE FROM ANY AND ALL ATTACHED MATERIALS (ASPHALT, CONCRETE, ETC.). AND THAT ALL VENT HOLES ARE OPEN AND CLEAR OF OBSTRUCTIONS, AS APPROVED BY THE PCRWRD FIELD ENGINEER. EXISTING FRAMES AND/OR COVERS THAT ARE DAMAGED OR CANNOT BE COMPLETELY CLEANED SHALL BE REPLACED WITH A NEW FRAME AND COVER IN ACCORDANCE WITH PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, DETAIL NO. RWRD 213-218. COSTS ASSOCIATED WITH EXISTING FRAMES AND COVERS THAT ARE LOST OR DAMAGED DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
12. THE CONTRACTOR SHALL SUBMIT A FLOW MANAGEMENT PLAN (FMP) TO PCRWRD FIELD ENGINEERING FOR APPROVAL BEFORE PROCEEDING WITH ANY WORK THAT MAY AFFECT LIVE SEWERS. THE FMP SHALL IDENTIFY AND INCLUDE ALL FLOW MANAGEMENT COSTS IN THE CONSTRUCTION BID. THE FMP SHALL BE SUBMITTED THIRTY (30) CALENDAR DAYS PRIOR TO THE SEWER PRE-CONSTRUCTION MEETING. FIELD ENGINEERING WILL REVIEW THE FMP WITHIN TEN (10) BUSINESS DAYS TO ACCOMMODATE REVIEW AND REVISION CYCLES. REFER TO PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, SECTION 2 FOR FMP REQUIREMENTS. PLEASE CONTACT PCRWRD FIELD ENGINEERING AT (520) 724-2654 FOR ANY QUESTIONS REGARDING FLOW MANAGEMENT.

13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTINUOUSLY MAINTAIN STORM WATER AND SEDIMENT CONTROL MEASURES THAT PROTECT PCRWRD FACILITIES UNDER ALL CONDITIONS FOR THE DURATION OF THE PROJECT. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR ALLOW STORM WATER, SEDIMENT, OR POTENTIAL POLLUTANTS FROM A CONSTRUCTION SITE TO ENTER A PCRWRD MANHOLE. THE CONTRACTOR SHALL ENSURE THAT THEIR FLOW MANAGEMENT OPERATIONS INCLUDE CONTROLS TO PREVENT ANY INTRODUCTION OF STORM WATER, SEDIMENT, OR POLLUTANTS INTO THE PUBLIC SANITARY SEWER SYSTEM. FAILURE TO CONFORM TO THESE REQUIREMENTS SHALL RESULT IN CANCELLATION OF THE SEWER CONSTRUCTION PERMIT.
14. PRIOR TO THE PRE-CONSTRUCTION MEETING WITH PCRWRD, THE CONTRACTOR SHALL IDENTIFY ALL EXISTING SANITARY SEWER MANHOLE COVERS HAVING FOREIGN MATERIALS ATTACHED. FOREIGN MATERIALS SHALL BE REMOVED FROM THE EXISTING MANHOLE COVERS REGARDLESS OF EXISTING OR NEW CONDITIONS. IF BUILD UP IS TOO HEAVY TO BE REMOVED, THE CONTRACTOR SHALL REPLACE THE MANHOLE FRAME AND COVER AND SALVAGED ITEMS SHALL BE DELIVERED TO PIMA COUNTY CONVEYANCE AT 3355 N. DODGE BLVD., TUCSON, AZ. THE CONTRACTOR SHALL COORDINATE WITH PCRWRD INSPECTOR TO SCHEDULE A TIME TO DELIVER THE SALVAGED FRAMES AND COVERS. AFTER THE COMPLETION OF PAVEMENT WORK, THE CONTRACTOR SHALL VERIFY THAT ALL SANITARY SEWER MANHOLE COVERS AND PICK HOLES ARE CLEAN AND FREE OF ANY CONSTRUCTION MATERIALS, DEBRIS, AND/OR OBSTRUCTIONS.
15. ANY WORK INSIDE OR AROUND AN EXISTING SANITARY SEWER MANHOLE INCLUDING MANHOLES THAT ARE LOCATED WITHIN THE ROUGH GRADING LIMITS FOR A PROJECT, SHALL BE PROTECTED FROM FALLING DEBRIS BY INSTALLING FLOW CHANNEL COVER PER PCRWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, DETAIL RWRD-306. THE CONTRACTOR SHALL REMOVE ANY DEBRIS THAT ENTERS A MANHOLE DURING CONSTRUCTION. FAILURE BY THE CONTRACTOR TO PROMPTLY REMOVE DEBRIS FROM A MANHOLE SHALL RESULT IN PCRWRD TAKING CORRECTIVE ACTION THAT WILL BE BILLED TO THE CONTRACTOR.

SIGNING GENERAL NOTES

1. ALL EQUIPMENT MATERIALS AND CONSTRUCTION SHALL MEET OR EXCEED THE REQUIREMENTS CONTAINED IN THE CURRENT PIMA ASSOCIATION OF GOVERNMENT (PAG) STANDARD SPECIFICATIONS AND STANDARD DETAILS FOR PUBLIC IMPROVEMENTS, THE SPECIAL PROVISIONS, THE SUPPLEMENTAL SPECIFICATIONS AND THE APPROVED PLANS. ALL SIGNING SHALL BE INSTALLED IN COMPLIANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE PIMA COUNTY/CITY OF TUCSON (PC/COT) SIGNING DESIGN MANUAL AND APPLICABLE AMENDMENTS.
2. THE SIGNING CONTRACTOR SHALL CONTACT THE PIMA COUNTY SIGNING SUPERVISOR AT (520) 724-2630 AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF SIGN INSTALLATION TO SCHEDULE INSPECTION AND APPROVAL OF SIGN LOCATIONS. SIGN SHOP HOURS ARE MONDAY THROUGH THURSDAY 6:00 AM TO 3:30 PM, STATE HOLIDAYS EXCLUDED.
3. PRIOR TO DISTURBING ANY TRAFFIC SIGNS, A SIGN CONDITION INVENTORY OF ALL EXISTING SIGNING SHALL BE CONDUCTED BY THE CONTRACTOR AND PROVIDED TO THE P14H COUNTY SIGN SHOP SUPERVISOR (920) 724-2630. THE INVENTORY SHALL INDICATE CURRENT SIGN LOCATIONS AND CONDITIONS, INCLUDING ANY EXISTING DAMAGE OR DEFICIENCIES.
4. SIGNS MAY BE MODIFIED AND LOCATIONS ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED AND APPROVED BY THE COUNTY ENGINEER OR THEIR DESIGNEE.
5. ALL PERFORATED POSTS SHALL BE INSTALLED IN A CONCRETE FOUNDATION, UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER OR THEIR DESIGNEE.
6. ALL SIGN STATION LOCATIONS ARE APPROXIMATE, THE CONTRACTOR SHALL VERIFY ACTUAL SIGN LOCATIONS WITH THE PIMA COUNTY SIGN SUPERVISOR OR THE PIMA COUNTY INSPECTOR.
7. ALL SIGNS SHALL HAVE TYPE XI SHEETING OR AN EQUIVALENT. ALL WARNING SIGNS HAVING YELLOW BACKGROUNDS SHALL USE FLUORESCENT YELLOW SHEETING. ALL SCHOOL SIGNS SHALL USE FLUORESCENT YELLOW/GREEN SHEETING. ALL GROUND MOUNTED SIGNS SHALL HAVE AN ANTI GRAFFITI COATING APPLIED TO SIGN FACE, 3M #1160 FILM OR EQUIVALENT.
8. A 3"x2" PRESSURE SENSITIVE, UV RESISTANT LABEL INDICATING THE SIGN MANUFACTURERS NAME AND DATE OF MANUFACTURE SHALL BE PLACED IN THE UPPER RIGHT CORNER OF THE BACK OF ALL SIGNS EXCEPT STREET INANE SIGNS AT THE TIME OF INSTALLATION. STREET NAME SIGNS SHALL INCLUDE A SIGN IDENTIFICATION DECAL AS SHOWN ON PIMA COUNTY SIGNING DETAIL 9-22A.
9. ALL NEW SIGNS SHALL HAVE 0.080 GAUGE, RADIUS CORNER, ALUMINUM BACKING UNLESS OTHERWISE NOTED.
10. UPON FINAL INSPECTION, A WRITTEN ACCEPTANCE OR ITEMIZED PUNCH LIST OF MISSING OR UNACCEPTABLE SIGN INSTALLATIONS SHALL BE SUBMITTED TO THE CONTRACTOR BY PIMA COUNTY.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH ARIZONA 811 FOR INSTALLING ALL TRAFFIC SIGNS IN THE FIELD AND FOR MAINTAINING ALL SIGNING UNTIL PROJECT IS APPROVED FOR "CONSTRUCTION ACCEPTANCE" BY PIMA COUNTY (FULLY OPEN TO TRAFFIC, ALL PUNCH LIST ITEMS ARE COMPLETED, AND THE ONE YEAR WARRANTIES BEGIN).
12. ANY SIGNS AND POSTS BEING RE-USED ON THIS PROJECT SHALL BE STOCKPILED IN A MANNER TO AVOID DAMAGE AND MAINTAIN THE INTEGRITY OF THE SIGNS. SAFE STORAGE OF STOCKPILE AND PAYMENT OF DAMAGE TO THE STOCKPILE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
13. ALL SIGNS AND POSTS NOT BEING RE-USED ON THIS PROJECT SHALL BE DISMANTLED, STACKED AND DELIVERED TO THE SIGN SHOP BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFE STORAGE AT THE CONSTRUCTION SITE UNTIL DELIVERY AND THE SAFE UNLOADING OF THE SALVAGED MATERIAL. NOTIFICATION OF DELIVERY SHALL BE MADE AT LEAST TWO (2) WORKING DAYS PRIOR TO DELIVERY. THE PIMA COUNTY SIGN SHOP IS LOCATED AT 1313 S. MISSION ROAD (520) 724-2630. NO FRIDAY DELIVERIES.
14. THE PC/COT SIGNING MANUAL IS AVAILABLE ONLINE.



ANA OLIVARES, P.E., DIRECTOR

DESIGNED:	JO/CZ	DATE	10/24
DRAWN:	CW	DATE	10/24
CHECKED:	JO	DATE	10/24
PROJ. ENG.:	JO/CZ	DATE	10/24

NO.	REVISION	DESCRIPTION	DIV.	ENGINEER	DATE

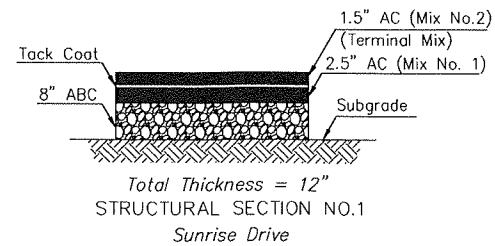
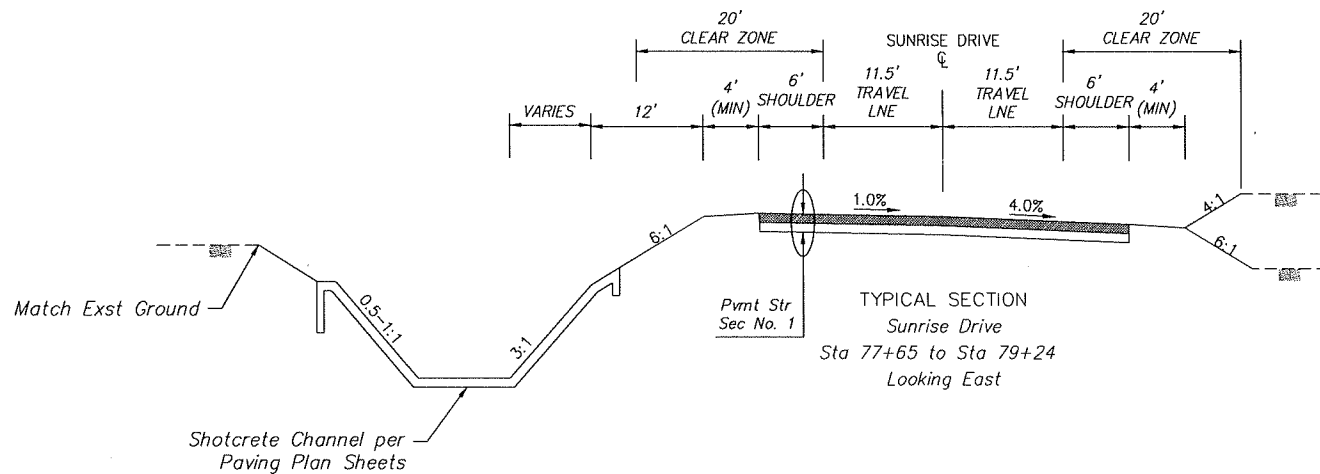
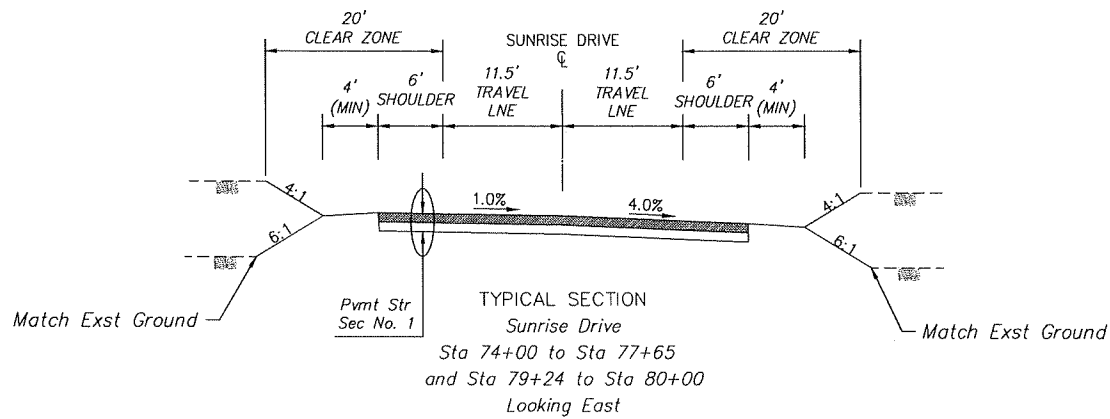
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PIMA COUNTY DEPARTMENT OF TRANSPORTATION

GENERAL NOTES  
FOR  
ESPERERO WASH  
CULVERT REPLACEMENT



TYPICAL PAVEMENT SECTION

LENGTH OF PROJECT  
Sta 74+00.00 to 80+00.00 = 600'  
Gross & Net Length = 0.08 Miles

DESIGN DATA  
Sunrise Drive  
Roadway Classification = Major Collector  
Design Speed = 50 MPH  
Posted Speed = 45 MPH  
Design Vehicle:  
Mainline = WB-62  
U Turns = P  
Large Vehicle U-Turns (Loons) = WB-62

DESIGNED:	JO/CZ	DATE	10/24
DRAWN:	CM	DATE	10/24
CHECKED:	JO	DATE	10/24
PROJ. ENG.:	JO/CZ	DATE	10/24

NO.	REVISION DESCRIPTION	DIV. ENGINEER	DATE

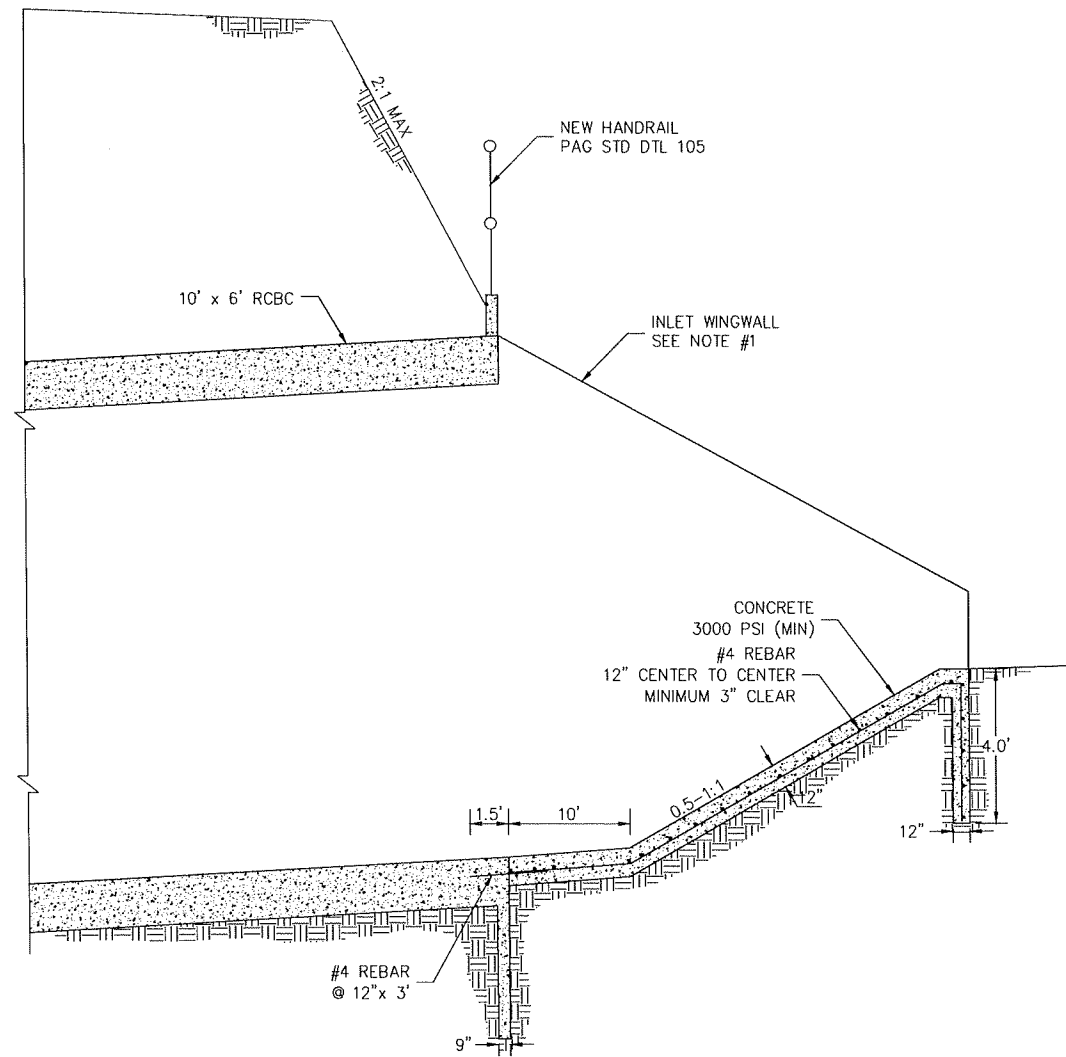
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PIMA COUNTY DEPARTMENT OF TRANSPORTATION

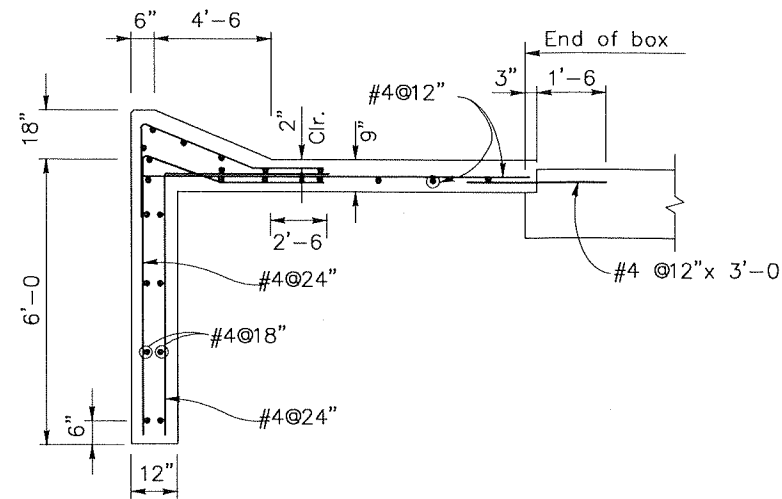
TYPICAL SECTIONS  
FOR  
ESPERERO WASH  
CULVERT REPLACEMENT





**A** CONCRETE DROP INLET DETAIL  
LOOKING WEST NTS

NOTE #1: WINGWALL FOOTER TO MATCH SLOPE  
OF INLET APRON. SEE SD-6.11 (SHEET 1) FOR  
DETAILS ON CONNECTION FROM INLET APRON  
AND WINGWALL FOOTER



**B** ADOT SD-6.11 (MODIFIED)  
OUTLET APRON (SECTION C-C) NTS

NOTE: SEE SD-6.11 FOR ALL OTHER DETAILS  
AND CONSTRUCTION SPECIFICATIONS



PIMA COUNTY DEPARTMENT OF TRANSPORTATION

CIVIL DETAILS  
FOR  
ESPERERO WASH  
CULVERT REPLACEMENT

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ANA OLIVARES, P.E., DIRECTOR

NO.	REVISION DESCRIPTION	DIV. ENGINEER	DATE

DESIGNED:	JO/CZ	DATE
		10/24

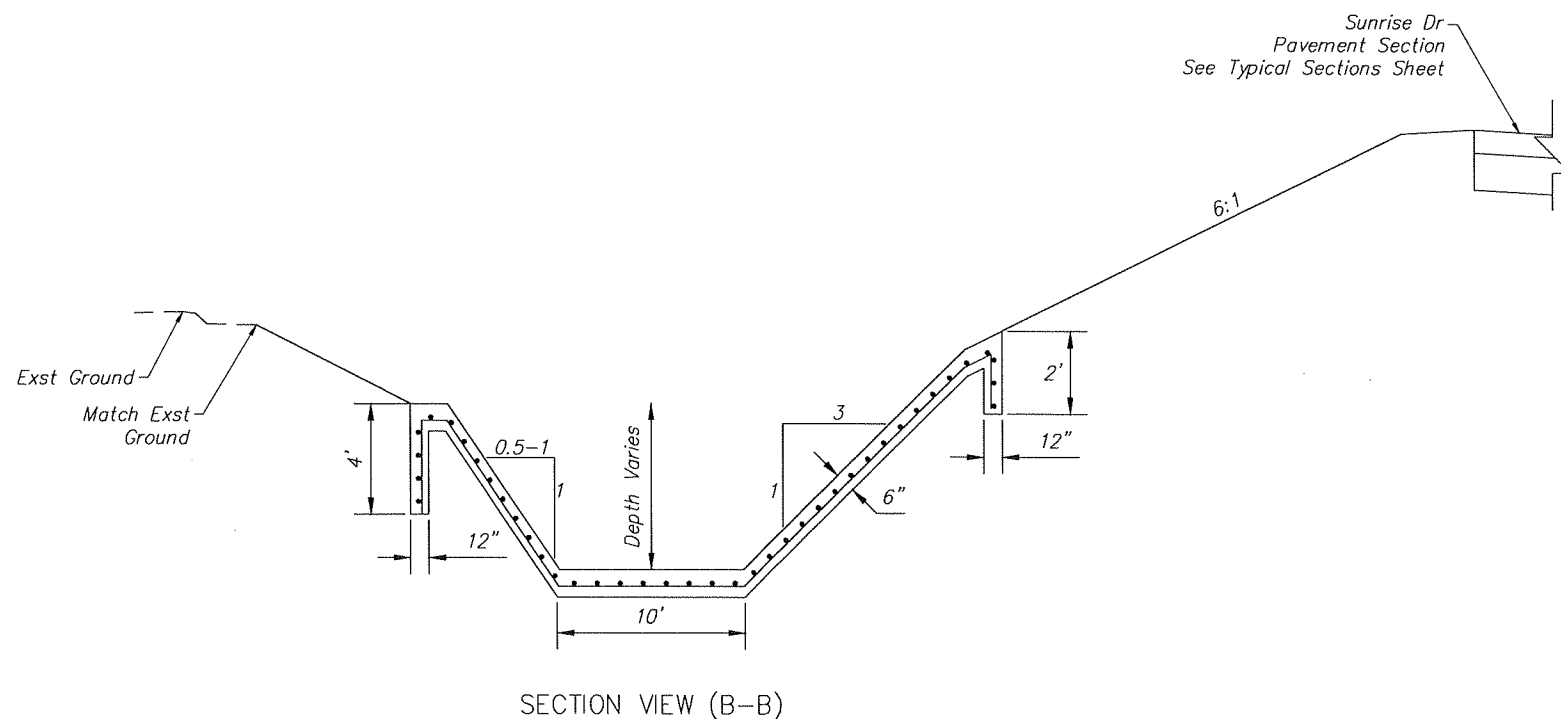
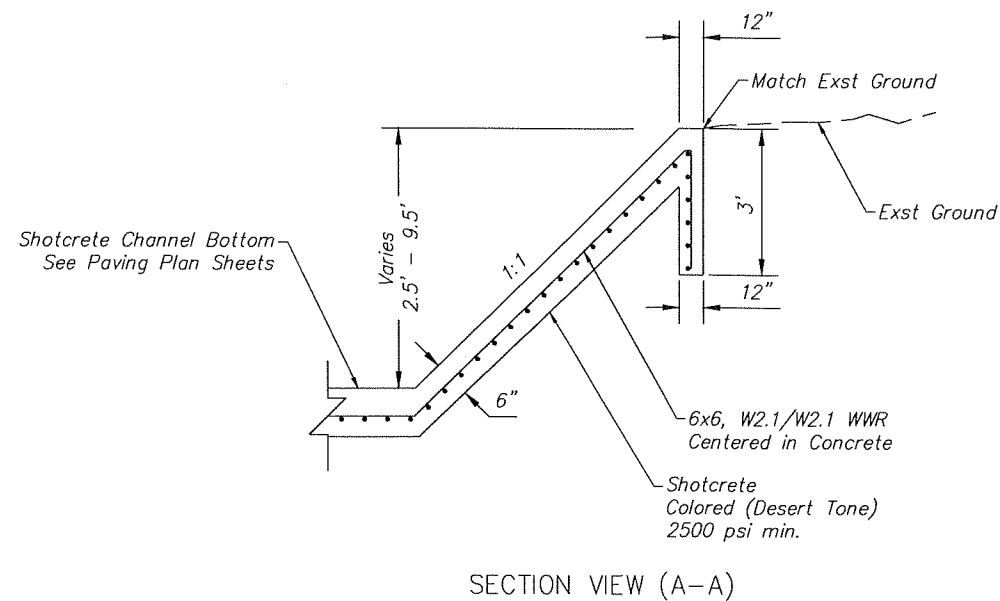
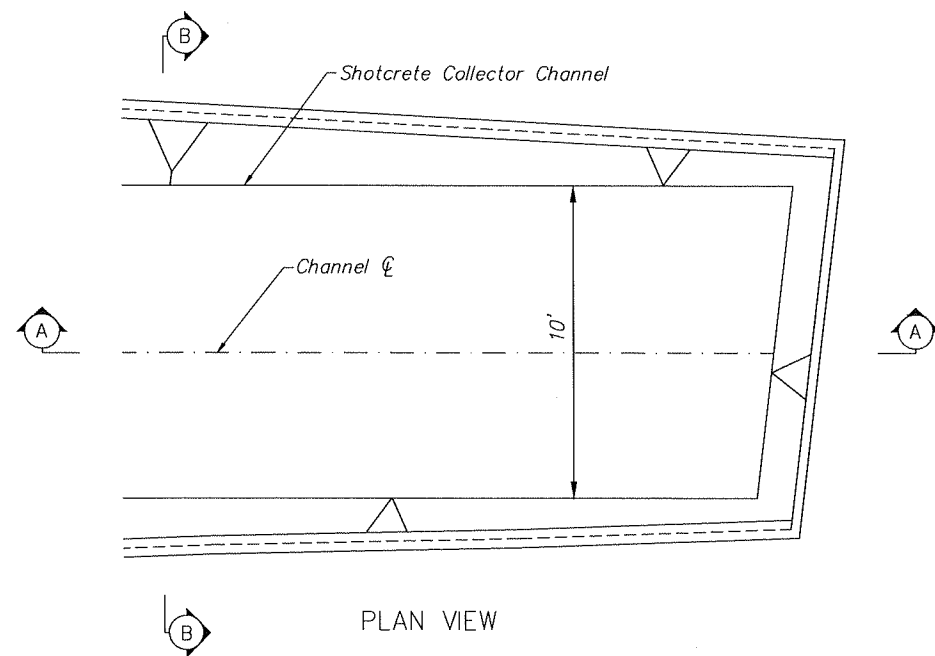
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		10/24

CHECKED:	JO	DATE
		10/24

PROJ. ENG.:	JO/CZ	DATE
		10/24

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CONSTRUCTION**





C SHOTCRETE CHANNEL DETAIL  
NTS



PIMA COUNTY DEPARTMENT OF TRANSPORTATION

CIVIL DETAILS  
FOR  
ESPERERO WASH  
CULVERT REPLACEMENT

ANA OLIVARES, P.E., DIRECTOR

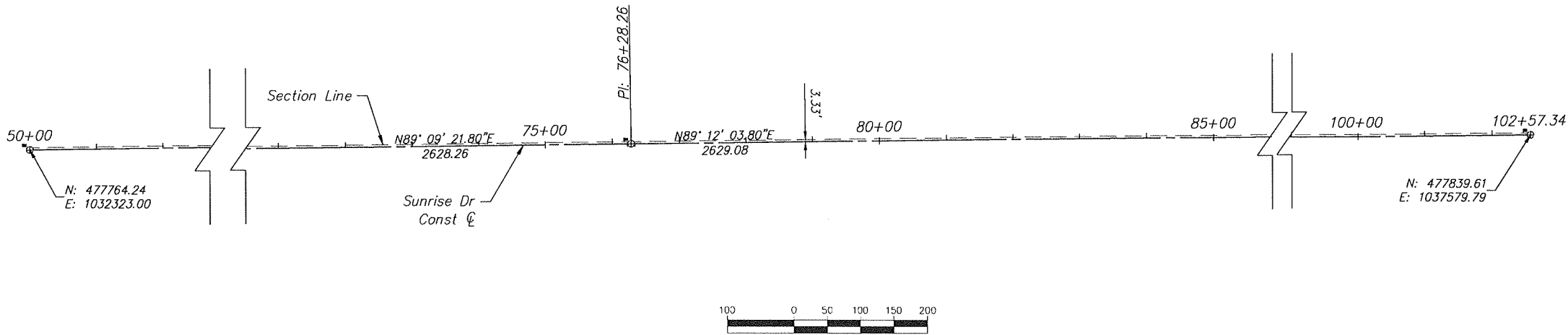
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 www.psomnas.com

NO.	REVISION DESCRIPTION	DIV. ENGINEER	DATE

DESIGNED:	JO/CZ	DATE
		10/24
DRAWN:	CM	10/24
CHECKED:	JO	10/24
PROJ. ENG.:	JO/CZ	10/24

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CONSTRUCTION





**Horizontal Control:**

This project is based upon the Arizona coordinate system, 1983 (ACS 83), NAD83 (2011)(2010.0000) reference frame, uses international feet, and is located in the central zone of said coordinate system. The control network was surveyed in April and May, 2024 using Trimble GPS units utilizing post-processed static and real-time kinematic methods and incorporated the following control points:

STATION	(REFERENCE)
J05	Pima Co CP (OPUS)
J07	Pima Co CP (OPUS)
J09	Pima Co CP (OPUS)
1	PSOMAS CP *PRIMARY CONTROL POINT

SURFACE COORDINATES AND/OR DISTANCES WERE COMPUTED FROM THE ACS 83 COORDINATES BY APPLYING A PROJECT SPECIFIC GRID TO A SURFACE COMBINED ELEVATION AND SCALE FACTOR AT A CENTRAL POINT:

$$NP\ LOC = (NP\ ACS83 - NCP\ ACS83) * CF + NCP\ ACS83$$

$$EP\ LOC = (EP\ ACS83 - ECP\ ACS83) * CF + ECP\ ACS83$$

WHERE: NP LOC = LOCAL NORTH NP ACS83 = ACS 83 NORTH  
NCP ACS83 = ACS 83 AT CENTRAL POINT  
EP LOC = LOCAL EAST EP ACS83 = ACS 83 EAST  
ECP ACS83 = ACS 83 AT CENTRAL POINT

$$COMBINED\ FACTOR\ (CF) = 1.0000968594$$

NCP 477763.59 (ACS83) ECP 1035433.12 (ACS83) \*CENTRAL POINT

**Basis of Bearings:**

This project is based upon the Arizona coordinate system, 1983 (ACS 83), NAD83 (2011)(2010.0000) reference frame. The line between Pima Co control points J05 and J09 has a SPCS grid bearing of N 88°47'35" E and a ground distance of 5189.96 feet.

**Vertical Control:**

The vertical datum for this project is the North American Vertical Datum, 1988 (NAVD88). This survey utilized the orthometric heights as determined by the OPUS results of the static GPS survey. The bench marks incorporated in this survey are:

Station	Reference	Elevation
J05	Pima Co CP (OPUS)	2743.87'
J07	Pima Co CP (OPUS)	2720.08'
J09	Pima Co CP (OPUS)	2726.89'
1	PSOMAS CP	2720.53' *PROJECT BENCH MARK

NOTE:orthometric heights (elevations) were derived from GPS ellipsoid height measurements and the application of a high-resolution hybrid geoid model, GEOID 18.



ANA OLIVARES, P.E., DIRECTOR

		DATE
DESIGNED:	JO/CZ	10/24
DRAWN:	CM	10/24
CHECKED:	JO	10/24
PROJ. ENG.:	JO/CZ	10/24

NO.	REVISION DESCRIPTION	DIV. ENGINEER	DATE

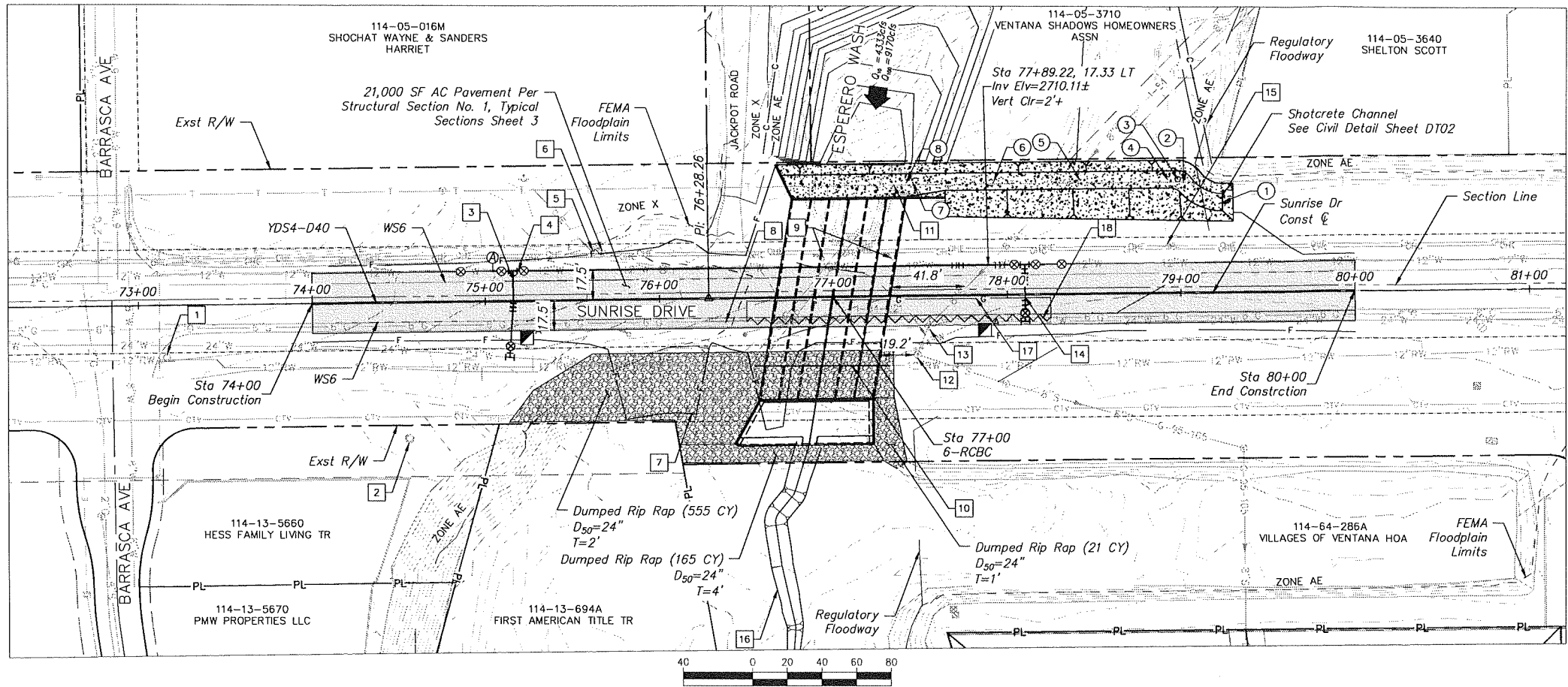
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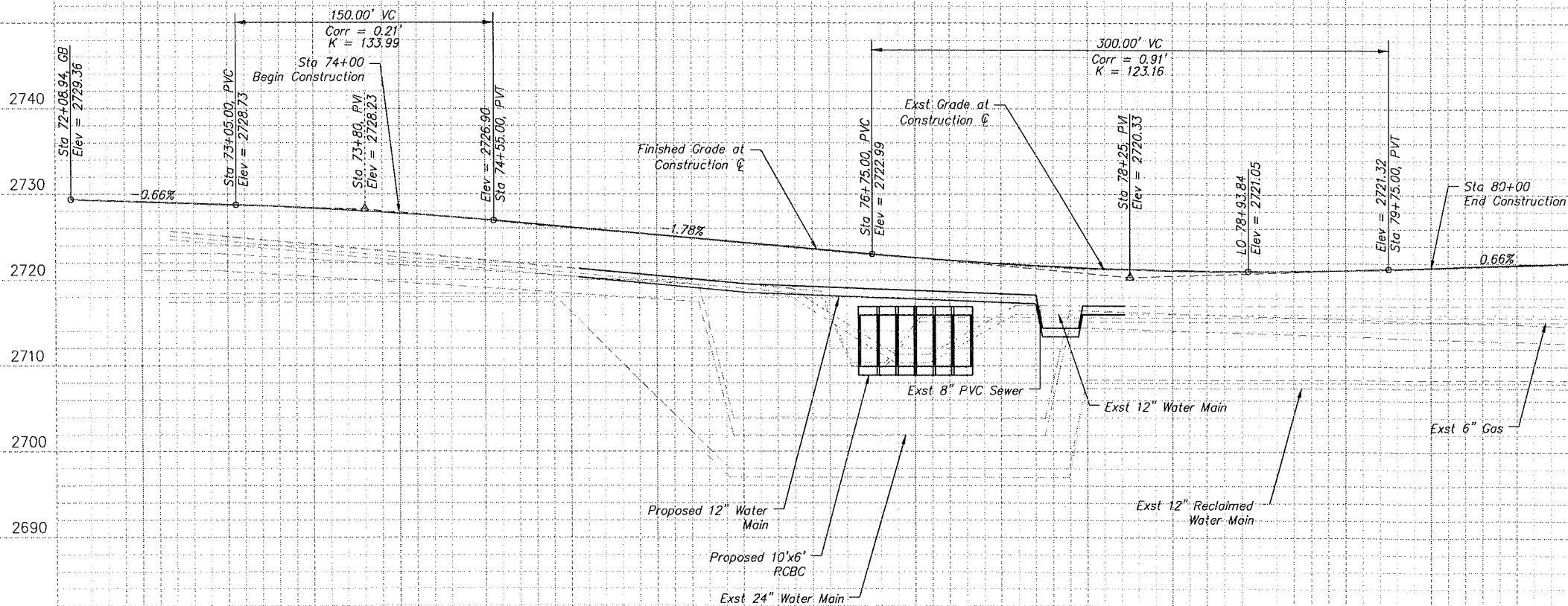
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PIMA COUNTY DEPARTMENT OF TRANSPORTATION

HORIZONTAL CONTROL PLAN  
FOR  
ESPERERO WASH  
CULVERT REPLACEMENT



72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00



# CONSTRUCTION NOTES

- Existing post to remain
- Existing water valve to remain
- Proposed 12" water main See Sheet W05
- Proposed 12" water main See Sheet W04
- Existing electric pole to remain Protect in place
- Existing marker to remain Protect in place
- Existing empty conduit to be removed Removal length TBD by Cox
- Existing 6"HP gas to be relocated by others (SWG)
- Existing markers to be removed
- Proposed 12" reclaimed water main See Sheet W06
- Existing Comm to be relocated by others (Lumen)
- Existing Sewer MH #6971-01 Protect in place
- Existing Sewer MH #4206-06; NW Inv=2708.7 Rim Elv=2720.88 Adjust to finished grade
- Proposed 12" water main See Sheet W06
- Existing electric pole to remain Protect in place
- Proposed hand dug swale shall be graded approximately to 1% slope. Contractor to determine best fit alignment to avoid protected plants.
- Proposed 6"HP Gas relocation
- Existing 6"HP Gas to be abandoned Contractor to remove

## CHANNEL CONSTRUCTION NOTES

- Begin Channel - PC 79+24.21, 52.33'LT Inv Elv=2719.30
- PRC 79+02.42, 64.15'LT Inv Elv=2718.01
- PT 78+99.12, 65.97'LT Inv Elv=2717.81
- Sta 78+93.21, 66.96'LT Inv Elv=2717.51
- Sta 78+43.21, 65.94'LT Inv Elv=2715.01
- Sta 77+93.21, 65.92'LT Inv Elv=2712.51
- Grade Break - Sta 77+46.99, 65.90'LT Inv Elv=2710.19
- End Channel - Sta 77+43.21, 65.89'LT Inv Elv=2710.19



SCALES: HORIZ. 1"=40'  
VERT. 1"=8'

SHEET RP01 OF RP01

PAGE 7 OF 18

ANA OLIVARES, P.E., DIRECTOR

DATE	JO/CZ	JO/CZ	JO/CZ
10/24	10/24	10/24	10/24
DESIGNED:	DRAWN:	CHECKED:	PROJ. ENG.:

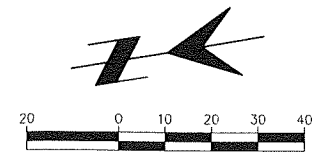
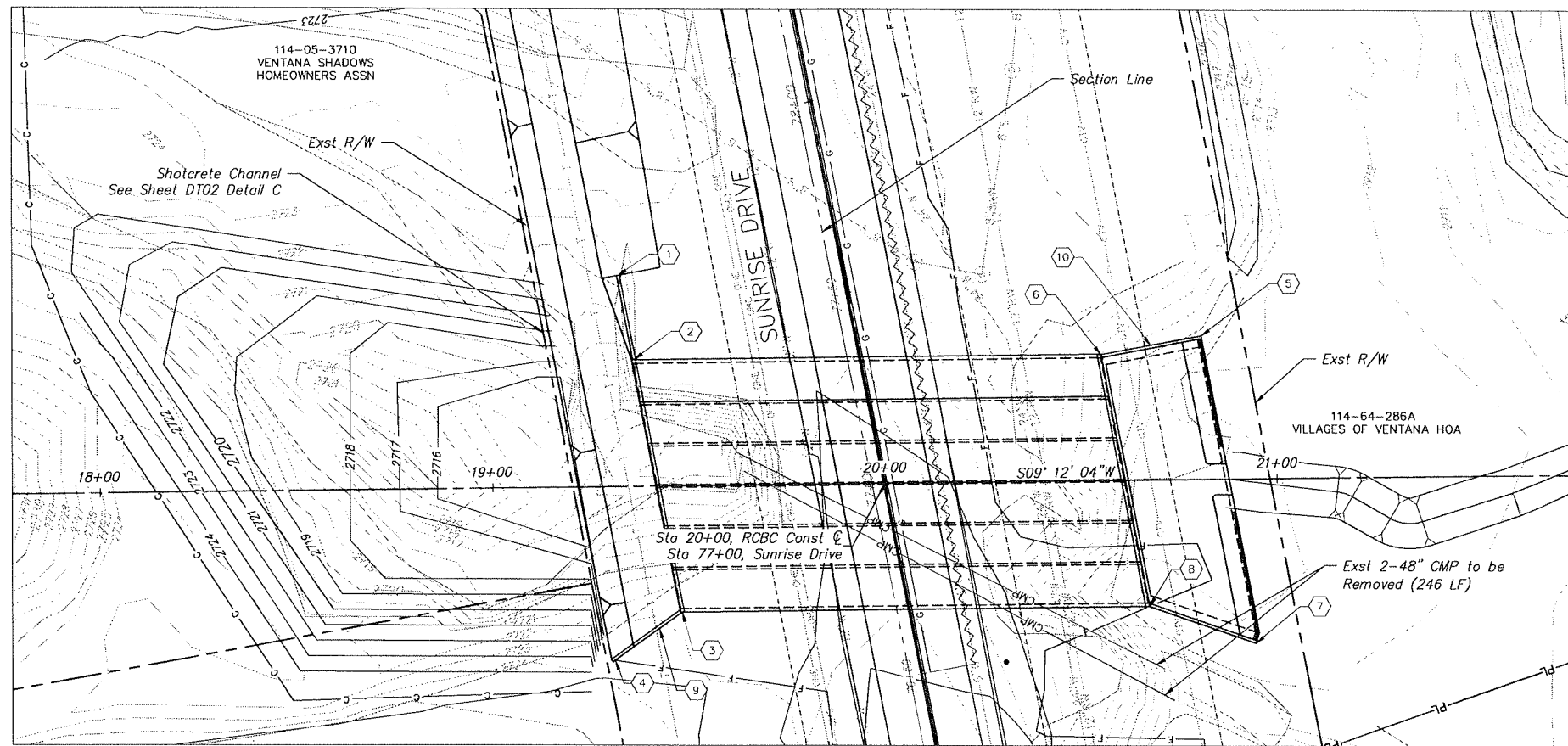
NO.	REVISION DESCRIPTION	DIV. ENGINEER	DATE

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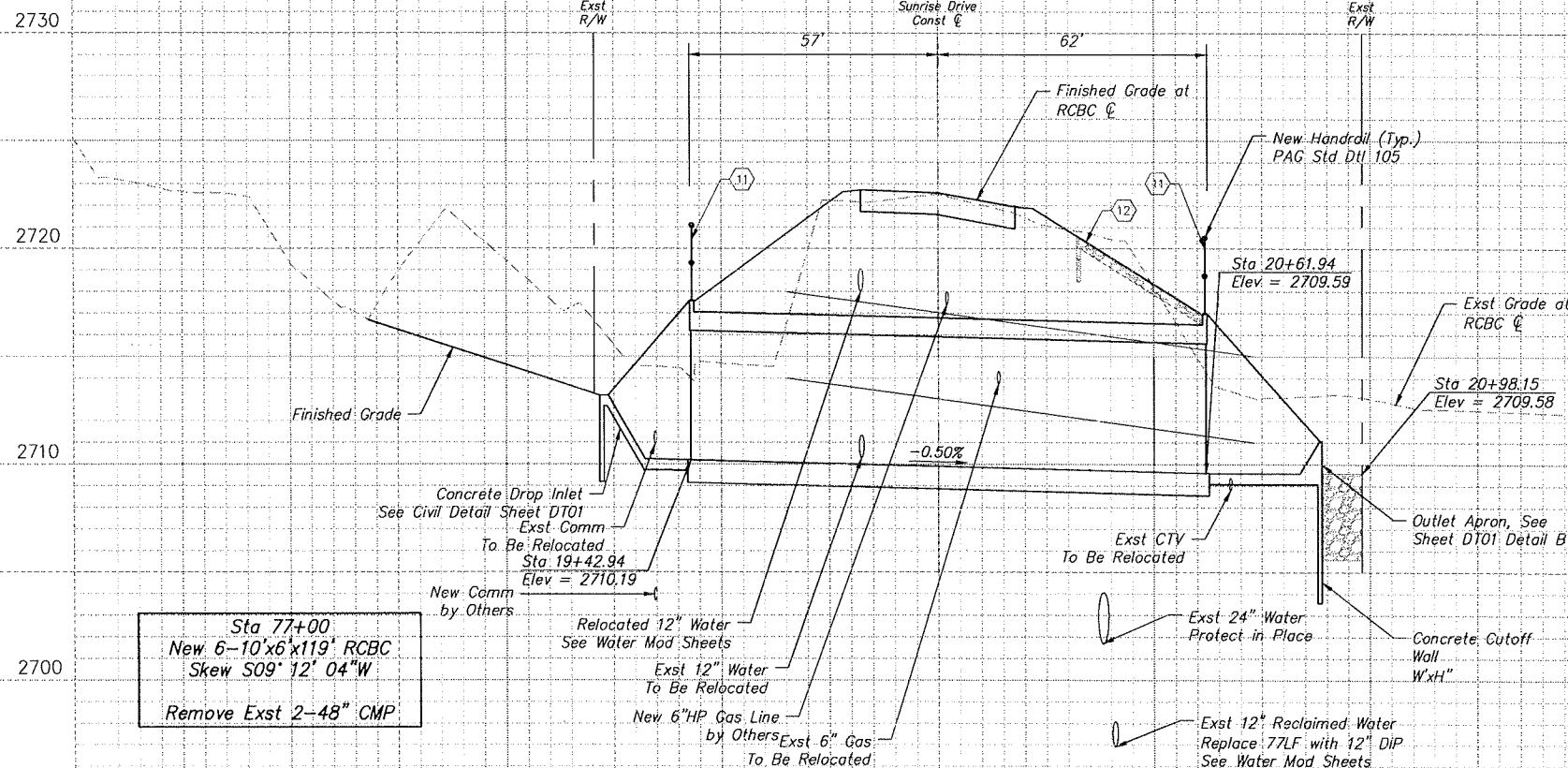
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PIMA COUNTY DEPARTMENT OF TRANSPORTATION

PAVING PLAN  
FOR  
ESPERERO WASH  
CULVERT REPLACEMENT



18+50      19+00      19+50      20+00      20+50      21+00



- 1 Sta 19+18.11, 45.71' Lt  
N: 477877.48 E: 1035080.92  
END CONCRETE WINGWALL
- 2 Sta 19+36.68, 32.71' Lt  
N: 477861.23 E: 1035065.12  
BEGIN CONCRETE WINGWALL
- 3 Sta 19+48.01, 32.59' Rt  
N: 477860.48 E: 1034998.85  
BEGIN CONCRETE WINGWALL
- 4 Sta 19+30.59, 44.79' Rt  
N: 477879.63 E: 1034989.59  
END CONCRETE WINGWALL
- 5 Sta 20+81.14, 36.97' Lt  
N: 47717.95 E: 1035046.22  
END CONCRETE WINGWALL
- 6 Sta 20+55.53, 32.45' Lt  
N: 47743.94 E: 1035045.86  
BEGIN CONCRETE WINGWALL
- 7 Sta 20+93.92 42.42' Rt  
N: 47718.02 E: 1034965.82  
END CONCRETE WINGWALL
- 8 Sta 20+66.95, 32.60' Rt  
N: 47743.08 E: 1034979.82  
BEGIN CONCRETE WINGWALL

- 9 CONCRETE INLET WINGWALL PER  
ADOT STD. DWG. 6.08
- 10 CONCRETE OUTLET WINGWALL PER  
ADOT STD. DWG. 6.08
- 11 HANDRAIL SHALL BE INSTALLED ON  
HEADWALLS AND WINGWALLS AS  
SHOWN ON THE PLANS & PER PAG  
STD DTL 105
- 12 DUMPED RIP RAP SHALL BE  
INSTALLED WITH 2' KEY-IN



SCALES: HORIZ. 1"=20'  
VERT. 1"=4' SHEET DR01 OF DR01 PAGE 12 OF 18

ANA OLIVARES, P.E., DIRECTOR

DESIGNED:	JO/CZ	DATE
DRAWN:	CM	10/24
CHECKED:	JO	10/24
PROJ. ENG.:	JO/CZ	10/24

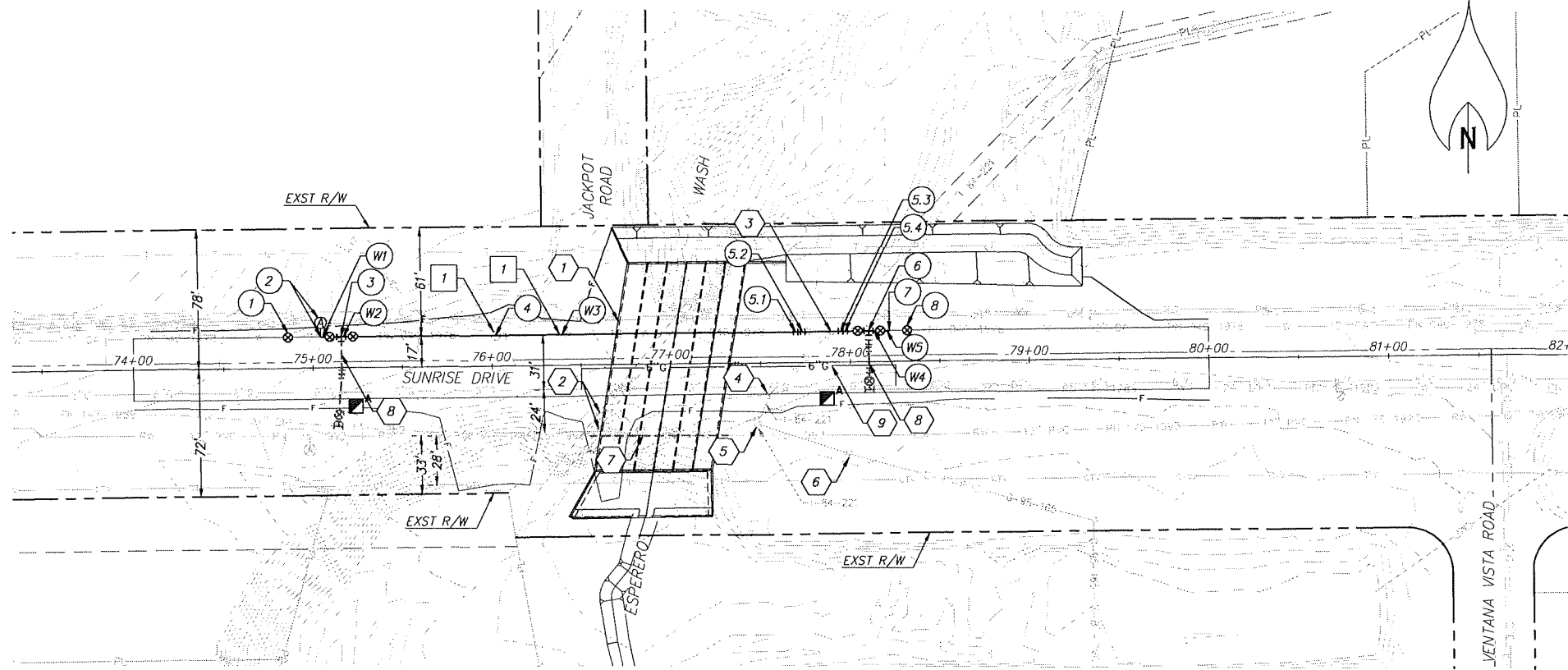
NO.	REVISION DESCRIPTION	DIV. ENGINEER	DATE

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PIMA COUNTY DEPARTMENT OF TRANSPORTATION

DRAINAGE PLAN  
FOR  
ESPERERO WASH  
CULVERT REPLACEMENT



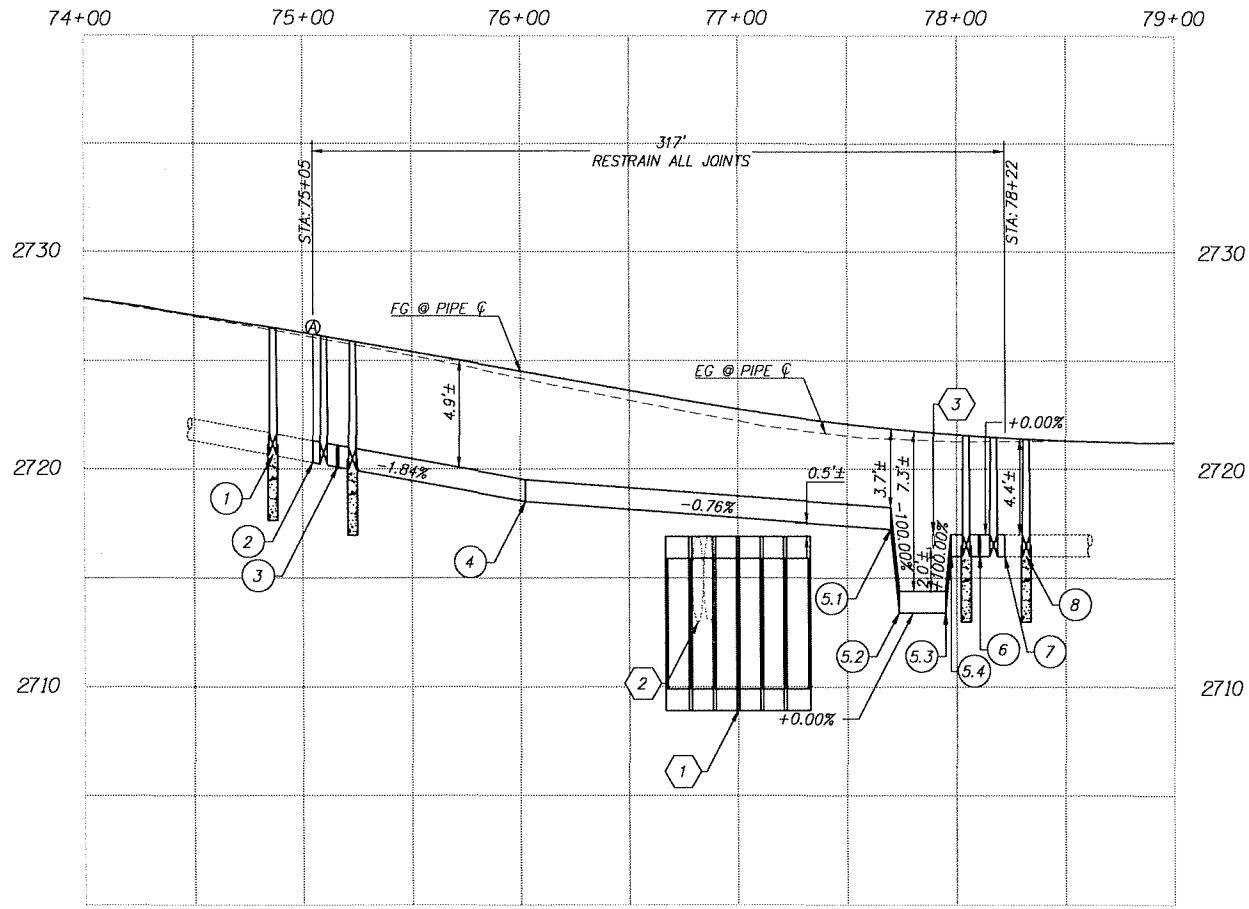
- 1 NEW 6-10x6' CONCRETE BOX CULVERT  
TOP ELEV=2716.9  
INV ELEV=2708.9
- 2 EXIST 2-48" CMP PIPE  
TO BE REMOVED
- 3 EXIST 8" SEWER PIPE (PROTECT IN PLACE)  
INV ELEV=2716.4
- 4 SEWER MANHOLE #4206-06  
RIM ELEV=2720.9  
INV ELEV=UNK
- 5 SEWER MANHOLE #6971-01  
RIM ELEV=2720.2  
INV ELEV=UNK
- 6 SEWER MANHOLE #6971-02  
RIM ELEV=2719.9  
INV ELEV=UNK
- 7 RECLAIMED WATER MAIN PLAN & PROFILE, SEE SHEET W6
- 8 LATERAL WATER MAIN PLAN & PROFILE, SEE SHEET W5
- 9 FUTURE 6"HP GAS ALIGNMENT (BY OTHERS)  
FINAL LOCATION TO BE DETERMINED BY SWG

- 1 STA 75+04.71, 17.3' LT TO  
STA 78+21.83 17.3' LT  
REMOVE & DISPOSE 12" CA AND EXIST GATE 317± LF  
WITH VALVE BOX & COVER

CONSTRUCTION NOTES

- 1 STA 74+86.22, 17.3' LT  
N 477818.19, E 1034808.69 (BEGIN CONSTRUCTION)  
INV ELEV=2720.64  
12" INLINE INSERT GATE VALVE, B&C ON EXIST (W) 1 EA  
CONCRETE THRUST BLOCKING PER SD-610 1 EA
- 2 STA 75+04.71, 17.3' LT (TAP LOCATION)  
N 477818.46, E 1034827.18  
INV ELEV=2720.30  
STA 75+04.72, 25.3' LT (ARV LOCATION)  
N 477826.40, E 1034827.07  
CONNECT TO EXIST 12" CA PIPE 1 EA  
2" ARV PER SD-331 1 EA
- 3 STA 75+16.22, 17.3' LT  
N 477818.60, E 1034838.69  
INV ELEV=2720.09  
12" X 12" TEE 2 EA (NPI)  
12" GATE VALVE, B & C, (E,W) 2 EA  
CONCRETE THRUST BLOCKING PER SD-610 (E) 1 EA
- 4 STA 76+02.42, 17.3' LT  
N 477819.85, E 1034924.88  
INV ELEV=2718.50  
GRADE BREAK 1 EA (NPI)
- 5.1 STA 77+69.84, 17.3' LT (VERT)  
N 477822.23, E 1035092.30  
INV ELEV=2717.23
- 5.2 STA 77+73.68, 17.3' LT (VERT)  
N 477822.29, E 1035096.13  
INV ELEV=2713.39
- 5.3 STA 77+94.72, 17.3' LT (VERT)  
N 477822.60, E 1035117.17  
INV ELEV=2713.39
- 5.4 STA 77+97.32, 17.3' LT (VERT)  
N 477822.63, E 1035119.77  
INV ELEV=2716.00  
12" X 45' BEND 4 EA (NPI)
- 6 STA 78+10.32, 17.3' LT  
N 477822.81, E 1035132.77  
INV ELEV=2716.00  
12" X 12" TEE 1 EA (NPI)  
12" GATE VALVE, B & C, (E,W) 2 EA  
CONCRETE THRUST BLOCKING PER SD-610 (W) 1 EA
- 7 STA 78+21.83, 17.3' LT  
N 477822.98, E 1035144.28  
INV ELEV=2716.00  
CONNECT TO EXIST 12" CA PIPE 1 EA
- 8 STA 78+31.82, 17.3' LT (END CONSTRUCTION)  
N 477823.12, E 1035154.27  
INV ELEV=2716.00  
12" INLINE INSERT GATE VALVE, B&C ON EXIST (W) 1 EA  
CONCRETE THRUST BLOCKING PER SD-610 1 EA

WATERLINE TABLE			
W#	BEARING	LENGTH	SIZE / MATERIAL
W1	N89°09'48"E	5.0 LF	12" DIP (PC 350)
W2	N89°07'55"E	13.0 LF	12" DIP (PC 350)
W3	N89°11'09"E	281.6 LF	12" DIP (PC 350)
W4	N89°12'23"E	12.5 LF	12" DIP (PC 350)
W5	N89°05'43"E	5.0 LF	12" DIP (PC 350)



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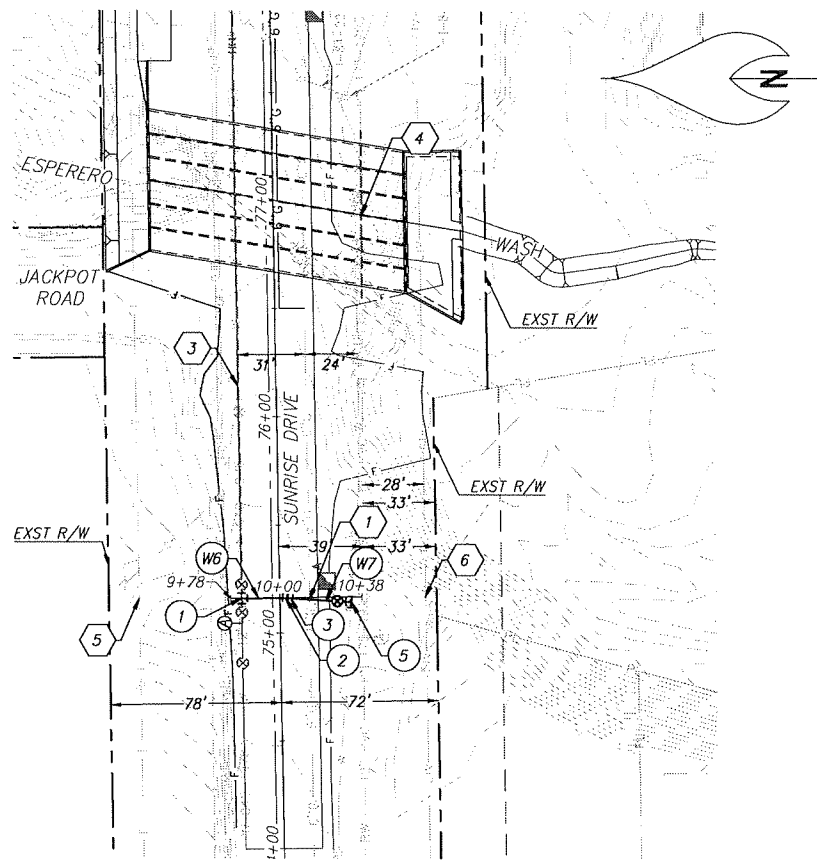
NO.	BY	DATE	REVISION	APPR.	DATE

CITY OF TUCSON  
**ESPERERO WASH AT SUNRISE DRIVE**  
CULVERT REPLACEMENT  
WATER MODIFICATIONS

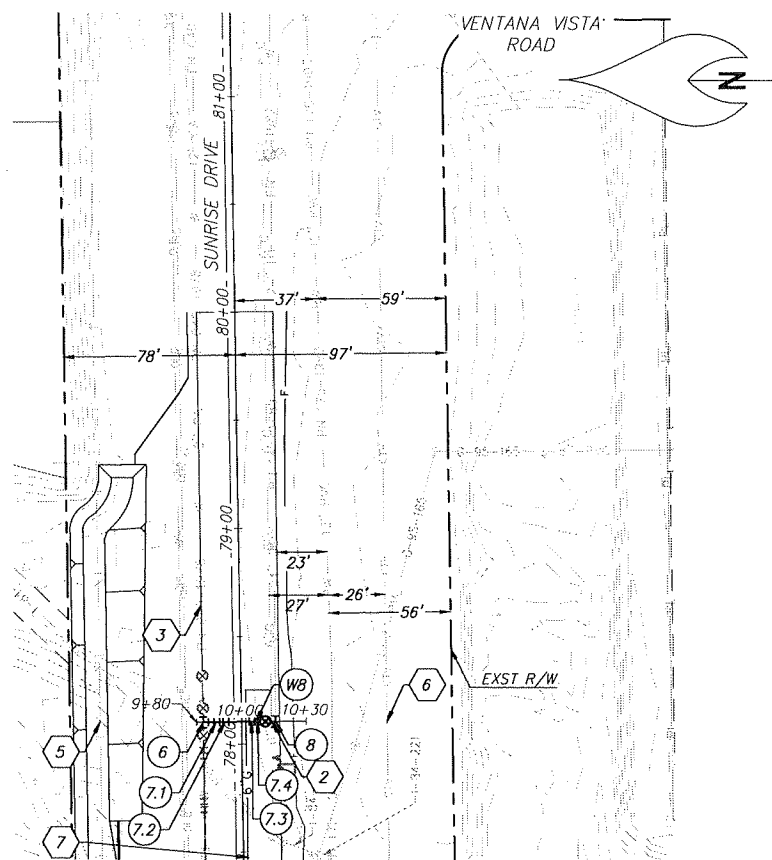
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**SUNRISE DRIVE**  
STA 74+000 TO STA 79+00

DESIGNED BY: EA	DATE: 10/24	SURVEY PROJECT NO: XXX	16 OF 18
DRAWN BY: EA/CM	DATE: 10/24	SCALE: HORIZ: 1"=40'	
CHECKED BY: JO	DATE: 10/24	PLAN NO: 4SUNEW	

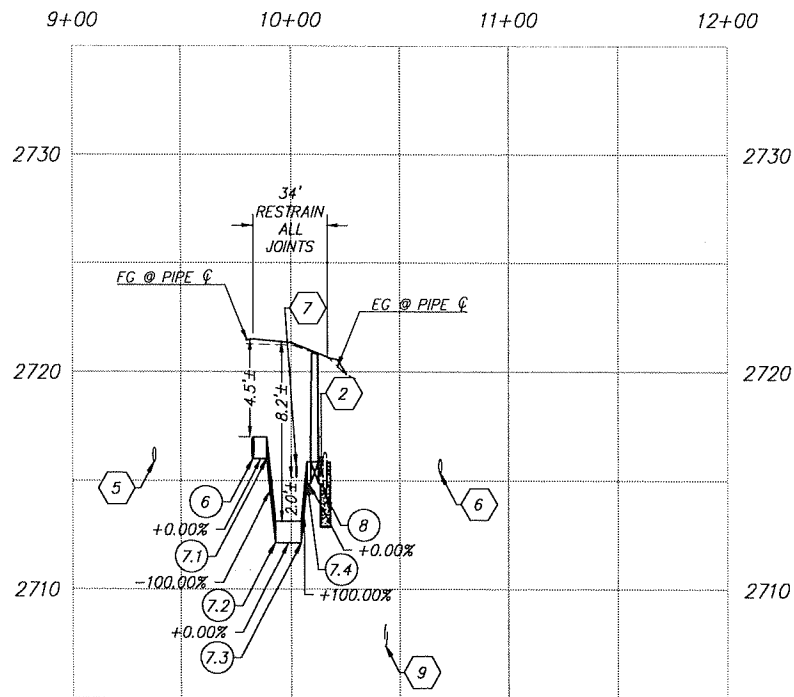
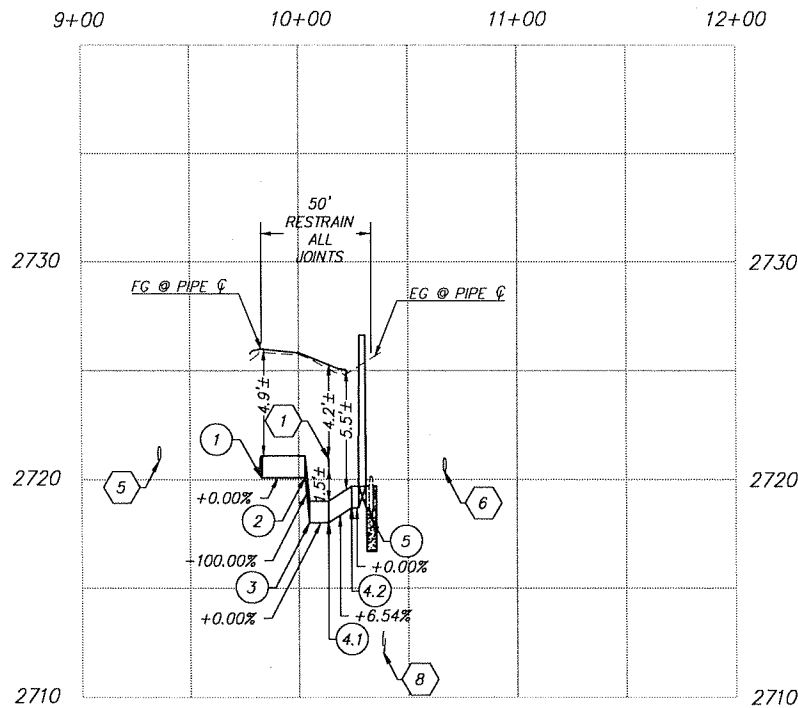


STA 75+16.22 - JACKPOT ROAD 12" LATERAL



STA 78+10.31 - VENTANA VISTA ROAD 12" LATERAL

WATERLINE TABLE			
W#	BEARING	LENGTH	SIZE / MATERIAL
W6	S0°50'38"E	20.0 LF	12" DIP (PC 350)
W7	S3°43'48"W	30.3 LF	12" DIP (PC 350)
W8	S0°45'34"E	33.0 LF	12" DIP (PC 350)



CONSTRUCTION NOTES			
1	STA 9+82.67, 0.0' LT N 477818.63, E 1034838.71 INV ELEV=2720.09 CONNECT TO 12" X 12" TEE	1 EA (NPI)	
2	STA 10+02.67, 0.0' (HORIZ & VERT) N 477798.63, E 1034838.99 INV ELEV=2720.09 HORIZONTAL DEFLECTION (SOLID SLEEVE) $\Delta = 4'34.26"$ 12" X 45' BEND (RO)	1 EA 1 EA (NPI)	
3	STA 10+04.98, 0.2' RT (VERT) N 477796.32, E 1034838.84 INV ELEV=2718.00 12" X 45' BEND	1 EA (NPI)	
4.1	STA 10+13.53, 0.9' RT (VERT) N 477787.76, E 1034838.28 INV ELEV=2718.00 $\Delta = 3'44.31"$		
4.2	STA 10+24.09, 1.7' RT (VERT) N 477777.19, E 1034837.59 INV ELEV=2833.52 $\Delta = 3'44.31"$ GRADE BREAK (SOLID SLEEVE)	1 EA	
5	STA 10+32.84, 2.4' RT N 477768.43, E 1034837.02 12" INV ELEV=2718.69 24" INV ELEV=2718.20 12" GATE VALVE, B&C (N) 24" X 12" TAP AND SLEEVE VALVE CONCRETE THRUST BLOCK PER SD-610	1 EA 1 EA 1 EA	
6	STA 9+82.68, 0.0' RT N 477822.81, E 1035132.76 INV ELEV=2716.00 CONNECT TO 12" X 24" TEE	1 EA (NPI)	
7.1	STA 9+89.10, 0.0' RT (VERT) N 477816.39, E 1035132.86 INV ELEV=2716.00		
7.2	STA 9+92.97, 0.0' (VERT) N 477812.52, E 1035132.91 INV ELEV=2712.13		
7.3	STA 10+04.83, 0.0' (VERT) N 477800.66, E 1035133.06 INV ELEV=2712.13		
7.4	STA 10+07.54, 0.0' (VERT) N 477797.95, E 1035133.10 INV ELEV=2714.84 12" X 45' BEND	4 EA (NPI)	
8	STA 10+15.63, 0.0' N 477789.85, E 1035133.21 12" INV ELEV=2714.84 24" INV ELEV=2714.35 12" GATE VALVE, B&C (N) 24" X 12" TAP AND SLEEVE VALVE CONCRETE THRUST BLOCK PER SD-610	1 EA 1 EA 1 EA	
CATHODIC PROTECTION NOTES			
A TO BE INCLUDED NEXT SUBMITTAL			
REFERENCE NOTES			
1	EXIST 6"HP GAS (PROTECT IN PLACE) INV ELEV=2720.5		
2	EXIST 6"HP GAS (ABANDONED, TO BE REMOVED) CONTRACTOR TO VERIFY INV ELEV=2715.1		
3	WATER MAIN PLAN & PROFILE, SEE SHEET W4		
4	RECLAIMED WATER MAIN PLAN & PROFILE, SEE SHEET W6		
5	EXIST TEL (PROTECT IN PLACE) INV ELEV=UNK		
6	EXIST COMM (PROTECT IN PLACE) INV ELEV=UNK		
7	FUTURE 6"HP GAS ALIGNMENT (BY OTHERS)		
8	EXIST 12" RECLAIMED WATER (PROTECT IN PLACE) INV ELEV=2712.0		
9	EXIST 12" RECLAIMED WATER (PROTECT IN PLACE) INV ELEV=2707.4		

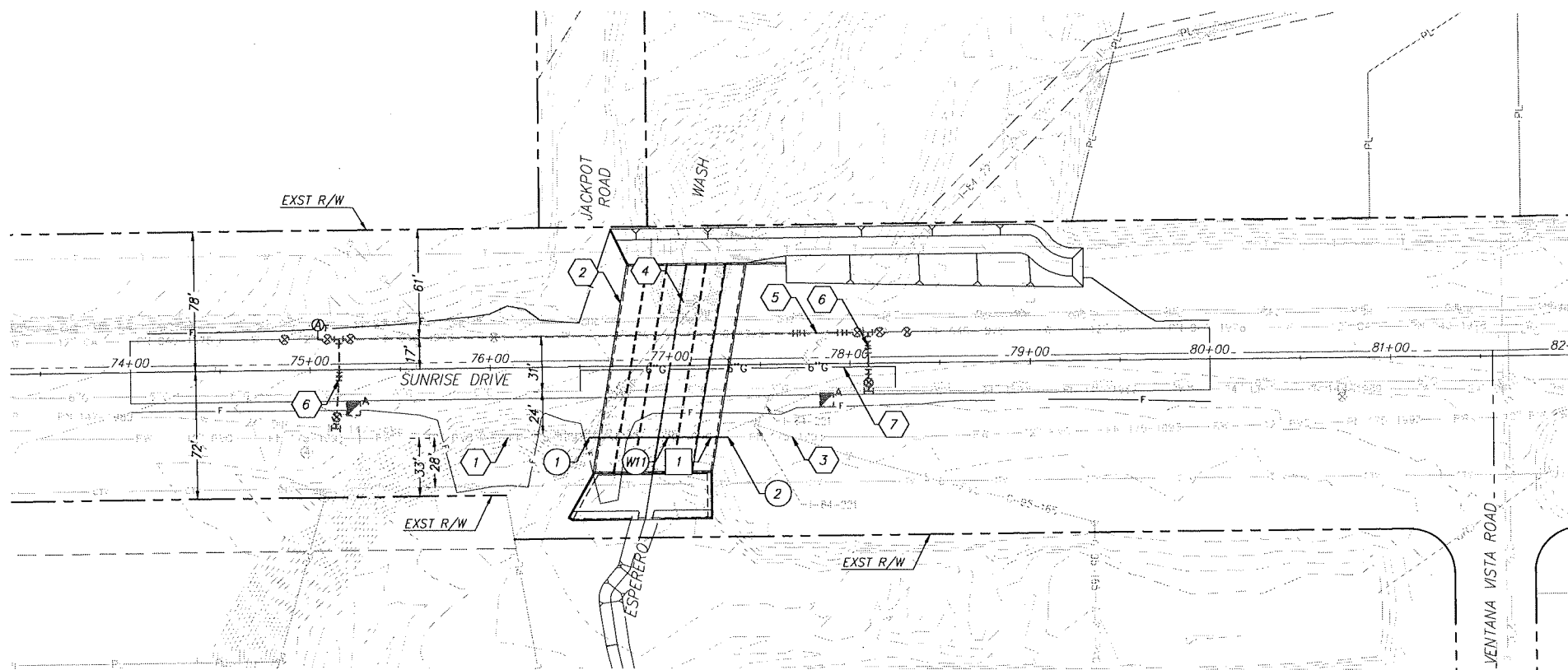
W5 OF W6			
		CITY OF TUCSON <b>ESPERERO WASH AT SUNRISE DRIVE</b> CULVERT REPLACEMENT WATER MODIFICATIONS	
90% NOT FOR CONSTRUCTION		<b>JACKPOT ROAD</b> STA 9+00 TO STA 12+00 <b>VENTANA VISTA ROAD</b> STA 9+00 TO STA 12+00	
DESIGNED BY: EA	DATE: 10/24	SURVEY PROJECT NO. XXX	17 OF 18
DRAWN BY: EA/CM	DATE: 10/24	SCALE: HORIZ: 1"=40'	PLAN NO. 4SUNEW
CHECKED BY: JO	DATE: 10/24	HORIZ: 1"=40'	



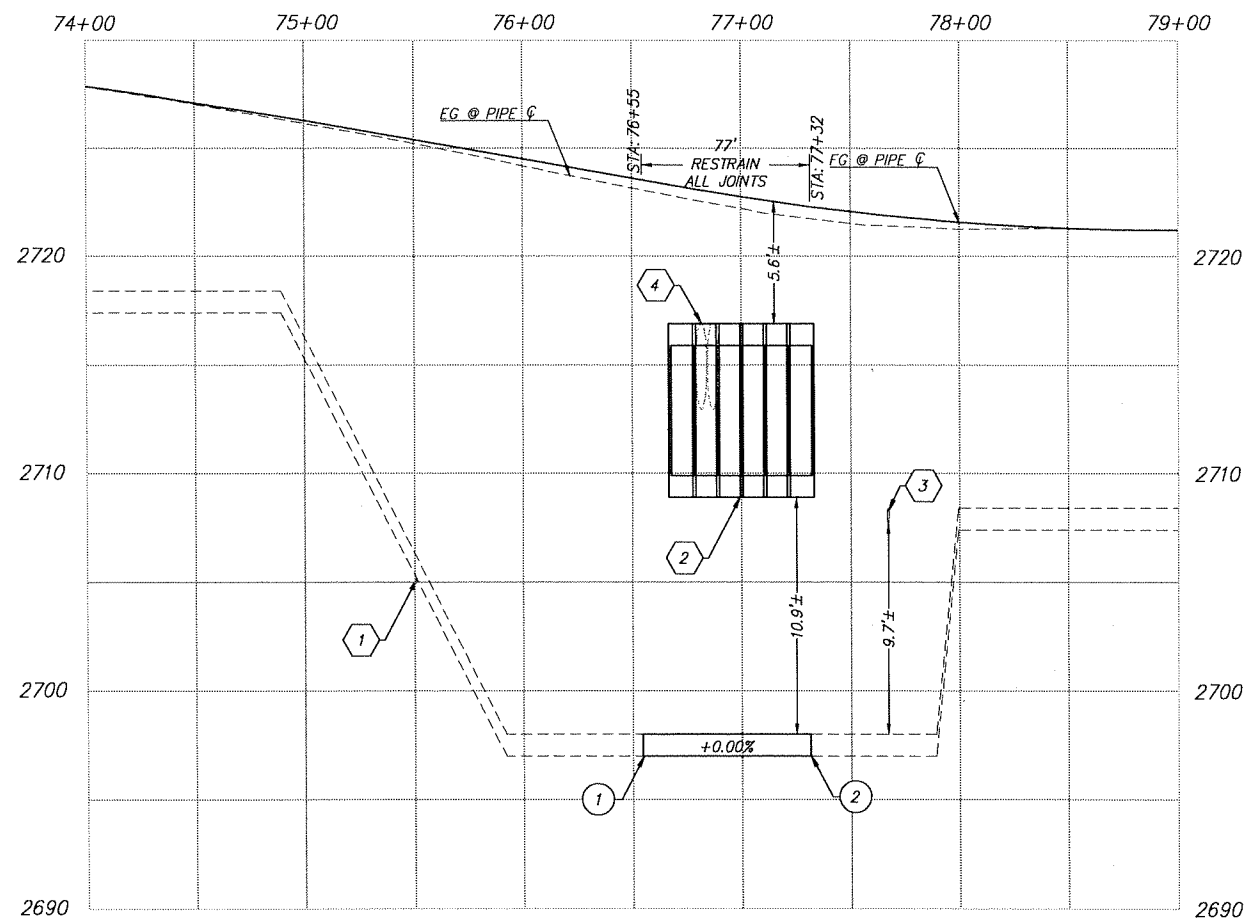
**PSOMAS**

333 E. Wetmore Road, Suite 450  
Tucson, AZ 85705  
(520) 292-2300 (520) 292-1290 fax  
www.psomas.com

NO.	BY	DATE	REVISION	APPR.	DATE



1	STA 76+55.26, 39.9' RT TO STA 77+31.53 40.6' RT REMOVE & DISPOSE 12" PVC	77± LF
CONSTRUCTION NOTES		
1	STA 76+54.53, 39.9' RT N 477763.44, E 1034977.80 INV ELEV=2697.00 CONNECT TO EXIST 12" PVC (PN-175-1993)	1 EA
2	STA 77+31.53, 40.6' RT N 477763.76, E 1035054.80 INV ELEV=2697.00 CONNECT TO EXIST 12" PVC (PN-175-1993)	1 EA
CATHODIC PROTECTION NOTES		
TO BE INCLUDED NEXT SUBMITTAL		
REFERENCE NOTES		
1	EXIST RECLAIMED 12" PVC (TO REMAIN)	
2	NEW 6-10'x6' CONCRETE BOX CULVERT TOP ELEV=2716.9 INV ELEV=2708.9	
3	EXIST 8" SEWER PIPE (TO REMAIN) INV ELEV=2707.7	
4	EXIST 48" CMP PIPE TO BE REMOVED	
5	WATER MAIN PLAN & PROFILE, SEE SHEET W4	
6	LATERAL WATER MAIN PLAN & PROFILE, SEE SHEET W5	
7	FUTURE 6"HP GAS ALIGNMENT (BY OTHERS)	



WATERLINE TABLE			
W#	BEARING	LENGTH	SIZE / MATERIAL
W9	N89°45'46"E	77.0 LF	12" DIP (PC 350)



**PSOMAS**

333 E. Wetmore Road, Suite 450  
Tucson, AZ 85705  
(520) 292-2300 (520) 292-1290 fax  
www.psomas.com

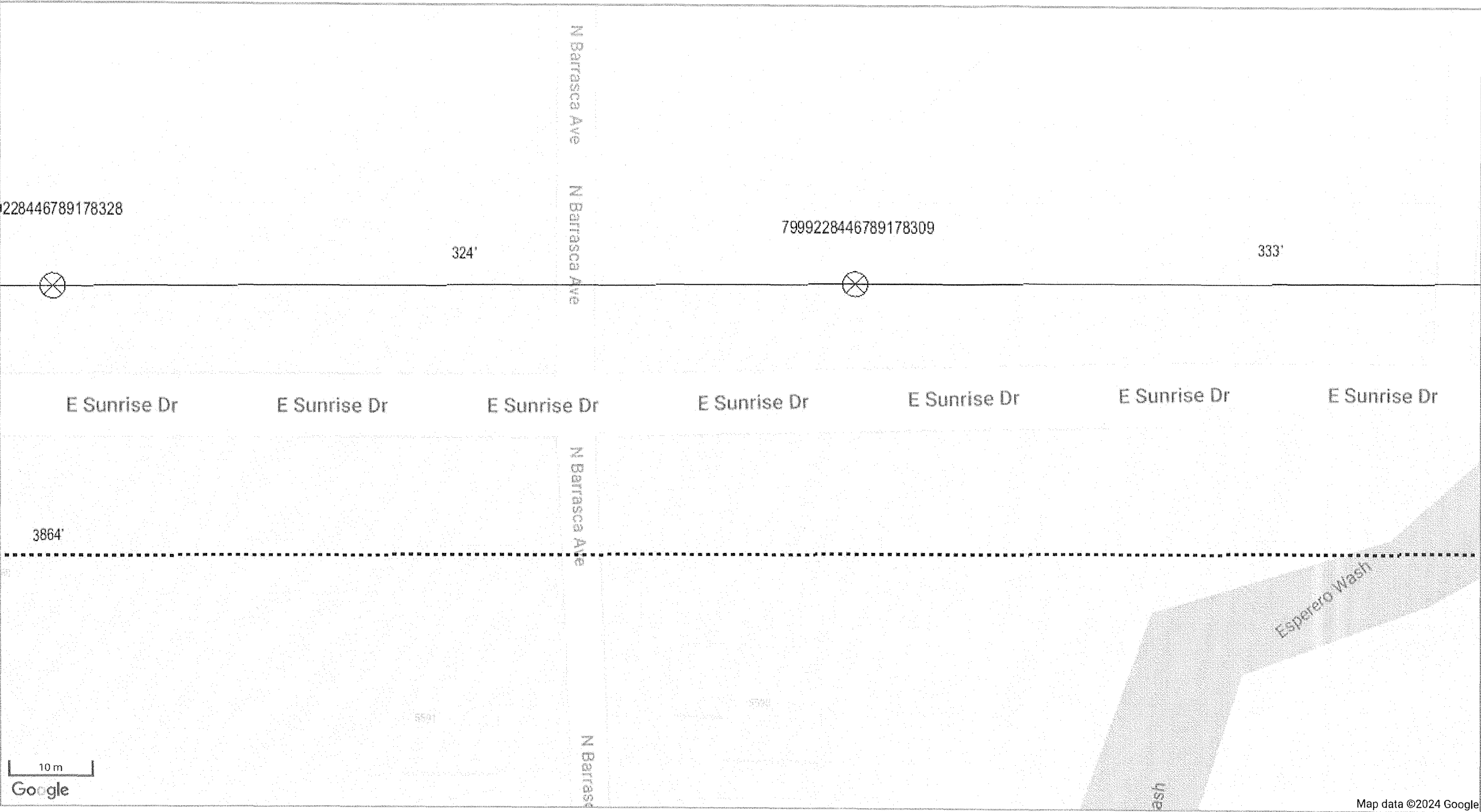
NO.	BY	DATE	REVISION	APPR.	DATE

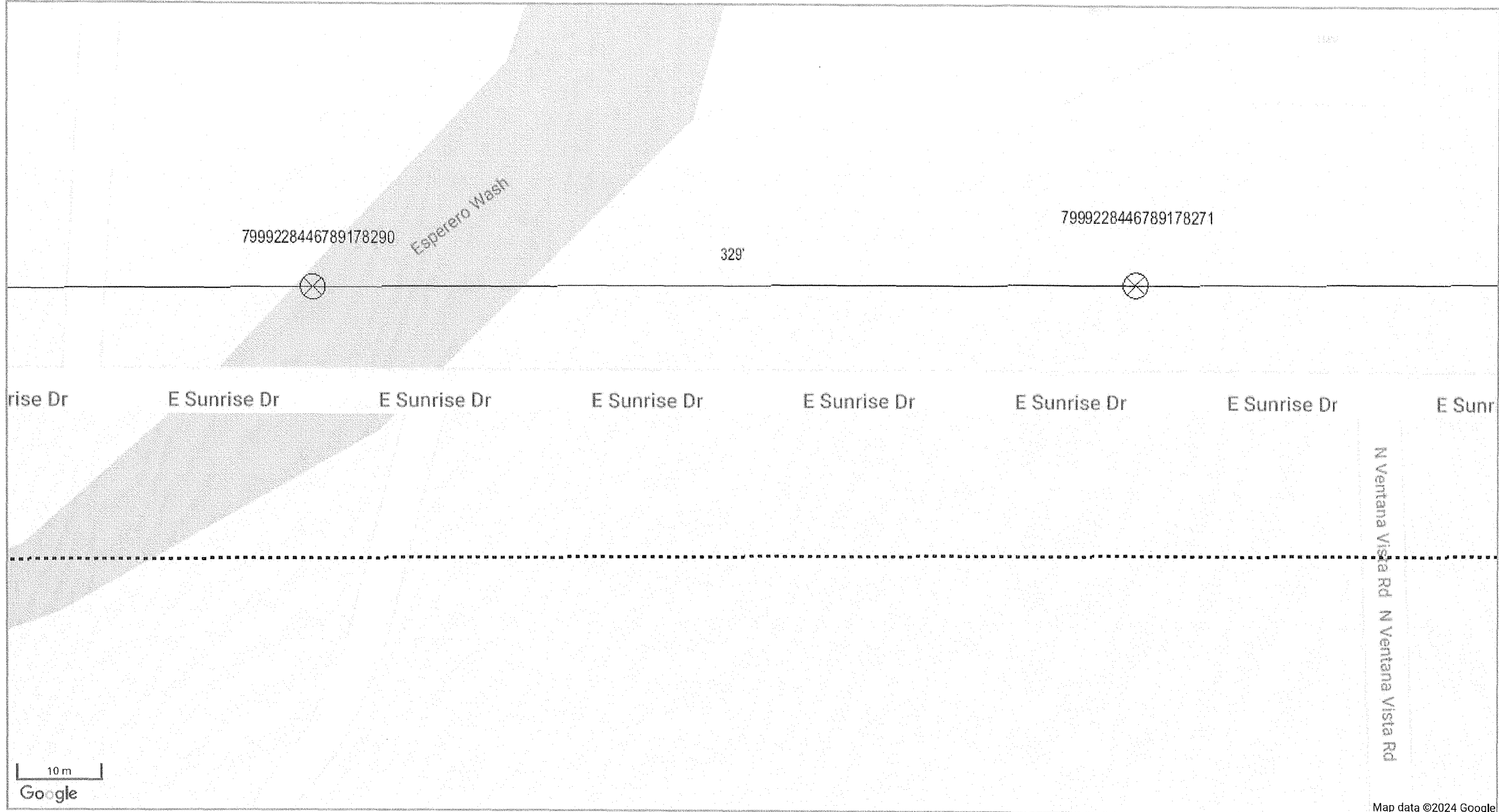
90%  
NOT FOR  
CONSTRUCTION

CITY OF TUCSON			
TUCSON WATER			
W6 OF W6			
ESPERERO WASH AT SUNRISE DRIVE CULVERT REPLACEMENT WATER MODIFICATIONS			
SUNRISE DRIVE STA 74+00 TO STA 79+00			
DESIGNED BY: EA	DATE: 10/24	SURVEY REQUEST NO. XXX	18 OF 18
DRAWN BY: EA/CM	DATE: 10/24	SCALE: 1"=40'	PLAN NO. 4SUNEW
CHECKED BY: JO	DATE: 10/24	HORIZ. SCALE: 1"=40'	

TW PLAN NO 5-077-2024









Date: 12/02/2024

Emem Akpan  
PSOMAS  
1745 E. River Rd, Suite 245  
Tucson, AZ 85718



To Whom It May Concern,

**Reference Number:** CR- 704637

**Referenced Project:** Esperero Wash at Sunrise Drive Culvert Replacement

**Response:** CONFLICTS IDENTIFIED

Cox Communications (Cox) has received and reviewed the 90% design stage plans you submitted for the above-referenced Project. Based on the documentation you submitted, Cox finds one or more conflicts exist between the proposed Project and Cox infrastructure and/or communication facilities (Facilities) within the identified area of Project construction or development.

To remove or minimize conflicts, please allow at least 90 days for Cox to complete this work from the date Cox and you agree on a plan to complete this work. Prior to relocation, should Project construction activities occur in the immediate vicinity of the conflict(s), it will be your responsibility to conduct potholing and to properly protect Cox's Facilities. Cox requests that a minimum of 12 inches of vertical and horizontal separation from existing Cox Facilities be maintained at all times.

Please note, Cox has made no determination as to the accuracy of the drawings or plans you submitted. You are solely responsible for complying with all utility locate laws (i.e., 811 Locate Services, One Call, etc.) to verify the location of all utilities, including Cox Facilities, which may be in the area of the Project. Throughout the duration of the Project, should construction activities occur outside the identified area and near other Cox Facilities, it will be your responsibility to notify Cox and to assure such Cox Facilities are supported, protected or otherwise remain undisturbed by construction activity.

If you have any questions or require additional information, please contact our Corporate Traffic Management center at [constructionsupport@cox.com](mailto:constructionsupport@cox.com).

Sincerely,

Cox Communications' Construction Engineering Team

END APPENDIX G - COX POTHOLE AND RELOCATION REQUIREMENTS

## APPENDIX H - GUIDELINES FOR HANDLING OF DESERT TORTOISE

### GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department

Revised October 23, 2007

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

The Sonoran population of desert tortoises occurs south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position parallel to the ground at all times, and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 40° Celsius (105° Fahrenheit) unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to one-half mile, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 40° Celsius (105° Fahrenheit), the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

These guidelines do not apply to the Mojave population of desert tortoises (north and west of the Colorado River). Mojave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.

These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.

Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

END APPENDIX H - GUIDELINES FOR HANDLING OF DESERT TORTOISE

## APPENDIX I - SWG HP EXCAVATOR RESPONSIBILITIES



**SOUTHWEST GAS CORPORATION**

April 15, 2025

PSOMAS

Emem Akpan

333 E Wetmore Rd, Suite 450

Tucson, AZ 85705

RE: Esperero Wash Culvert Improvement

Ms. Akpan,

The 100% plans for the above-referenced project have been reviewed by Southwest Gas Corporation (SWG). Existing SWG facilities are generally shown correctly on the plans. However, SWG anticipates conflicts with the following facilities within the project limit:

No.	Potential Conflict	Sheet No.	Location	SWG Facility	Comment
1	RCBC	12 of 22	STA 76+50 to 78+25	6" STL	Temporary relocation completed by SWG to prevent conflict. SWG to complete permanent relocation once Pima County completes Southern portion of culvert installation.

SWG requires a stand-by when the contractor is working within 10 feet of all high pressure and 6" or greater diameter distribution gas facilities. The contractor must call (520) 289-0481 to schedule the stand-by a minimum of 24 hours in advance (see attached Excavator's Responsibilities). *Please add this information to the general notes and special provisions.*

SWG's existing 6" STL gas main is cathodically protected. Should the proposed water main require any cathodic protection, measures should be taken to assure that both systems function as intended and do not interfere with each other, especially at points where the two mains are adjacent to each other (or cross each other). Please contact SWG Technical Services, Seth Tate, at (602) 882-1984 for further information.

Please be aware that if structures are to be installed above/underneath these existing SWG facilities, the contractor's responsibility is to support and protect them in place during construction. If exposed, SWG personnel will have to inspect the gas main to ensure there

3401 East Gas Road / Tucson, Arizona 85714-1994

P.O. Box 26500 / Tucson, Arizona 85726-6500 / (877) 860-6020

[www.swgas.com](http://www.swgas.com)



is no damage prior to re-shading. SWG requests the contractor use extreme caution when crossing or working near existing gas facilities located within the project limits.

All information is provided for reference use only, and potholing and Blue Stake are suggested for the best accuracy. Please be aware that SWG requires a minimum **two-foot** separation from all high pressure facilities. SWG requests the contractor use caution when working in the vicinity of gas facilities.

SWG requests to be included in the distribution of future submittals and final plans in order to verify further if SWG facilities will be in conflict with proposed improvements. If you have any questions or require any additional information, please contact me at (520) 667-5442.

Very Respectfully,

Aridai V. Rosas  
Engineer I  
Southern Arizona Division  
[Aridai.rosas@swgas.com](mailto:Aridai.rosas@swgas.com)

To: \_\_\_\_\_

Fax: \_\_\_\_\_

Date: \_\_\_\_\_

### **Excavator's Responsibilities**

Dear Excavator:

In accordance with Southwest Gas Corporation's operation guidelines on file with the State of Arizona, the following procedure has been implemented. This procedure was created to help ensure the excavating industry and the general public's safety by providing a positive identification of Southwest Gas (SWG) facilities that could be in conflict with a directional boring excavation or an excavation project that may require an excavator to cross a high-pressure gas facility.

At the time a line location is completed and it is identified as being in conflict with high-pressure gas facilities, or the line location request indicates boring is required; the SWG representative will notify the excavator of the following requirements.

#### **HIGH PRESSURE OR 6" & ABOVE DISTRIBUTION MAIN**

- If the excavation will cross or be in conflict with a Southwest Gas underground facility (within 10' of the HP gas facility) the excavator will call Southwest Gas to schedule a standby 24 hours prior to the excavation. Phone # (520)-794-6021. Requestor will also notify all subcontractors listed on the Blue Stake request of the excavator's responsibilities.
- Prior to the scheduled standby the gas facility should be potholed and exposed in a careful and prudent manner as required by Arizona State Law (40-360.22) 2' on all sides of the facility for a positive identification, and to ensure proper required separation of all underground facilities.
- The SWG representative will make positive identification of the underground facility. The SWG representative will observe the excavation operation for the duration of the operation or until it had been determined that the equipment will no longer be in conflict or pose possible hazard to Southwest Gas facilities or the excavator/general public.
- The SWG representative will inspect the condition of the gas facility at the time of the excavation completion to ensure no damage to the gas facility has occurred as a result of the potholing or boring operations. As required by Arizona State Law (40-360.21) it is the excavator's responsibility to protect and support facilities. In the event there is damage to the facility, it is the responsibility of the excavator and the SWG representative to notify emergency resources, 911, and SWG (800)-722-4277 for repairs to the facility.

**Please contact me with confirmation of receipt of this notification and if you need additional information at (520)-794-6021.**

Sincerely,

Jim Capono  
Supervisor, Construction

Blue Stake#: \_\_\_\_\_

Location: \_\_\_\_\_

Locator: \_\_\_\_\_

# APPENDIX J - RWRD MANHOLE ASSESSMENT



**PIMA COUNTY**

WASTEWATER RECLAMATION

## Manhole Assessment Request Form

Date Issued: 6/17/2024

Project Name: Esperero Wash Culvert Improvement

Primary

PCRWRD & PDOT

Contact: Emem Akpan

Reference Numbers: CTC.49JNEW

Firm/Agency: PSOMAS

Percent Design Completion: Mapguide

Address: 333 E. Wetmore Rd., Suite 450  
Tucson, AZ 85705

Type of Improvement Project: Temporary Roadway Access at Sunrise Drive

Phone: 520-690-7821

Requested Date of Completion: July 12, 2024

(ASAP is NOT an acceptable response)

Email: Emem.Akpan@psomas.com

**NOTE:** PCRWRD Manhole Assessment services are currently available for PDOT Public Improvement Projects only. Please complete this form and submit in person to the PCRWRD Construction Permitting Section, 201 N. Stone Ave., 1<sup>st</sup> Floor, Tucson, AZ 85701. Please also attach a copy of the plan sheets (11"x17") or plan from Mapguide showing the MH location and IMS numbers.

For PCRWRD use ONLY

Permit Date:

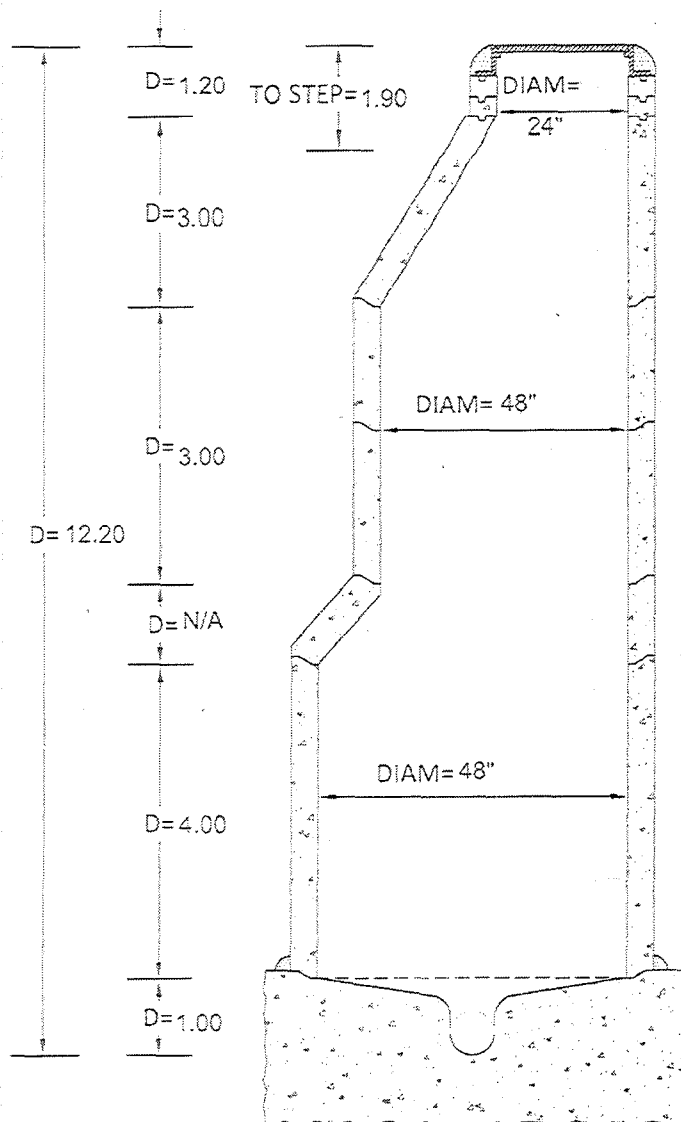
Date Received  
by F.E.

Date Completed  
by F.E.

6/19/24  
6/26/24

Item No.	PCRWRD MH ID No.	Location Description or Station/Offset	Existing Rim Elevation	Proposed Rim Elevation	Elevation Difference (Cut-/Fill+)	Adjust, Reconstruct or Rebuild? (ADJ/RCN/RBL)	Brick? (Y/N)	Lining? (Y/N)	Additional Notes (e.g. RCN depth, lining type, inaccessible, etc.)
1.	MH 4246-06	East of N Jackpot Rd	2720.88'	2721.12'	0.24'	ADJ	NO	NO	—
2.	MH 6971-01	East of N Jackpot Rd	2720.21'	2720.21'	0.00'	N/A	NO	NO	—
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
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15.									
16.									
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21.									
22.									
23.									
24.									
25.									
26.									
27.									
28.									
29.									
30.									

Inconsistencies or revisions to the final MH design drawings will nullify and void the recommendations provided by PCRWRD on this form. Field conditions such as linings and coatings may prevent PCRWRD's ability to complete an assessment.

ITEM NO. 1MH PLACEMENTLOCATION: ROADWAY ☐ SHOULDER ☒ EASEMENT ☐ OTHER: \_\_\_\_\_SURFACE TYPE: PAVED ☒ UNPAVED ☐ NOTE: Half Paved, Half DirtFINISH CONDITION: AT GRADE ☐ INCHES ABOVE ☐ INCHES BELOW 1" SUMP ☐MH FRAME/COVERDIAMETER 48" VENTED ☒ WATERTIGHT ☐ BOLTED ☐ HINGED ☐ COMP ☐CONDITION: GOOD ☒ POOR ☐ REPLACE ☐ CLEAN ☐ NOTE: \_\_\_\_\_MH COLLAR: TYPE 212 CONDITION: GOOD ☒ POOR ☐ REPAIR ☐ REPLACE ☐MH CONSTRUCTIONTYPE: BRICK ☐ PRECAST ☒ CIP ☐ FIBERGLASS ☐ POLYMER ☐ COMBINATION ☐

NOTE: \_\_\_\_\_

CONE GEOMETRY: CONCENTRIC ☐ ECCENTRIC ☒SPECIAL FEATURE(S): SHALLOW ☐ DROP ☐ WEIR ☐ SIPHON ☐ VALVE ☐ GATE ☐ADJUSTMT RING #/HT: TOP RING 3" " RING 2 3" " RING 3        " RING 4        "MH STEPS: TYPE Poly Steel CONDITION: GOOD ☒ POOR ☐ REPAIR ☐ REPLACE ☐COATING OR LINING TYPE(S): NONE ☒ EPOXY ☐ T-LOCK ☐ OTHER ☐COATING OR LINING CONDITION: N/AGENERAL RISER CONDITION: Good ConditionBENCH: TYPE Concrete CONDITION: GOOD ☒ POOR ☐ REPAIR ☐ REPLACE ☐

NOTE: \_\_\_\_\_

GENERAL RECOMMENDATIONS/REQUIRED MAINTENANCEPROJECT-SPECIFIC RECOMMENDATIONSRELATIVE ADJUST REQ'D BY PROJECT: NONE ☐ ADJ 0.24' FT UP ☒ DOWN ☐PROJECT REQUIRES MH: ADJUSTMENT ☒ PARTIAL RECONSTRUCT ☐ REPLACEMENT ☐

NOTES: \_\_\_\_\_

Adjustment can be completed through the grade ring components.

PERFORMED BY: Carl Lee JoyDATE ASSESSED: 6-26-2024

ISSUED:

8/8/2016

REVISED:

N/A

FIELD ENGINEERING UNIT

MH IMS # 4246-06

CONDITION ASSESSMENT



PIMA COUNTY

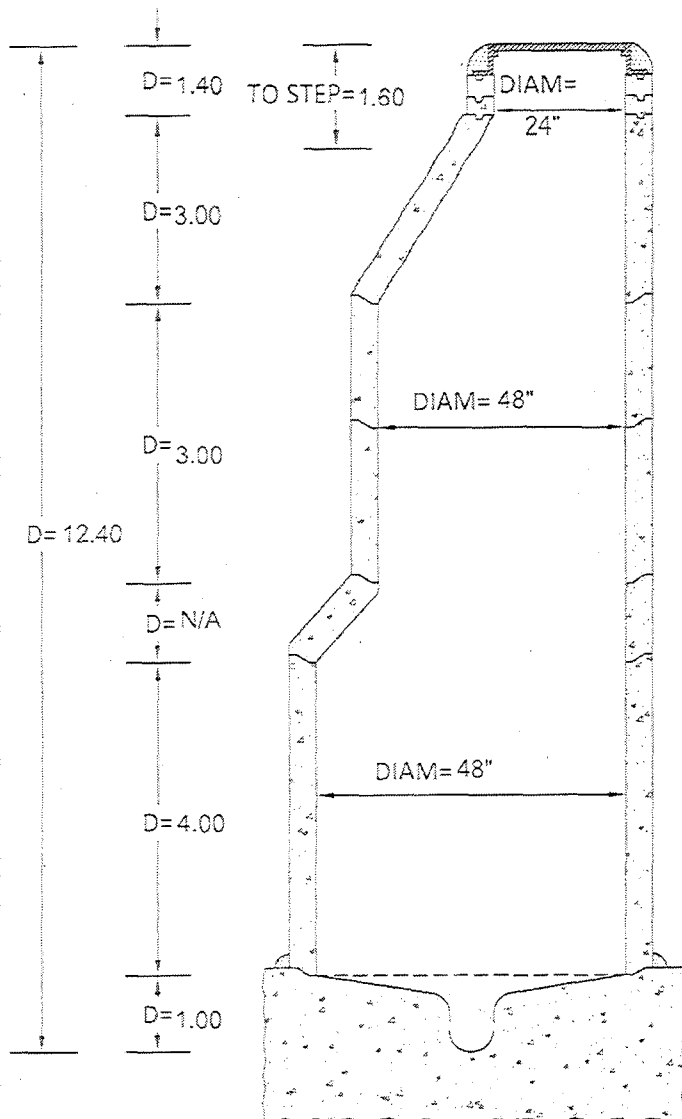
WASTEWATER RECLAMATION

DRAWN BY: PJMCHECK BY: ELO

DETAIL NO.

CONE

SHEET 1 OF 1

ITEM NO. 2MH PLACEMENTLOCATION: ROADWAY ☐ SHOULDER ☒ EASEMENT ☐ OTHER: ☐SURFACE TYPE: PAVED ☐ UNPAVED ☒ NOTE: ☐FINISH CONDITION: AT GRADE ☐ INCHES ABOVE 3" ☐ INCHES BELOW ☐ SUMP ☐MH FRAME/COVERDIAMETER 24" ☐ VENTED ☒ WATERTIGHT ☐ BOLTED ☐ HINGED ☐ COMP ☐CONDITION: GOOD ☒ POOR ☐ REPLACE ☐ CLEAN ☐ NOTE: ☐MH COLLAR: TYPE 212 ☐ CONDITION: GOOD ☐ POOR ☒ REPAIR ☐ REPLACE ☒MH CONSTRUCTIONTYPE: BRICK ☐ PRECAST ☒ CIP ☐ FIBERGLASS ☐ POLYMER ☐ COMBINATION ☐NOTE: ☐CONE GEOMETRY: CONCENTRIC ☐ ECCENTRIC ☒SPECIAL FEATURE(S): SHALLOW ☐ DROP ☐ WEIR ☐ SIPHON ☐ VALVE ☐ GATE ☐ADJUSTMT RING #/HT: TOP RING 6" ☐ " RING 2 ☐ " RING 3 ☐ " RING 4 ☐ "MH STEPS: TYPE Poly Steel ☐ CONDITION: GOOD ☒ POOR ☐ REPAIR ☐ REPLACE ☐COATING OR LINING TYPE(S): NONE ☒ EPOXY ☐ T-LOCK ☐ OTHER ☐COATING OR LINING CONDITION: N/A ☐GENERAL RISER CONDITION: GOOD Condition ☐BENCH: TYPE Concrete ☐ CONDITION: GOOD ☒ POOR ☐ REPAIR ☐ REPLACE ☐NOTE: ☐GENERAL RECOMMENDATIONS/REQUIRED MAINTENANCEPROJECT-SPECIFIC RECOMMENDATIONSRELATIVE ADJUST REQ'D BY PROJECT: NONE ☒ ADJ 0.00 ☐ FT UP ☐ DOWN ☐PROJECT REQUIRES MH: ADJUSTMENT ☐ PARTIAL RECONSTRUCT ☐ REPLACEMENT ☐NOTES: ☐PERFORMED BY: Carl Lee JoyDATE ASSESSED: 6-26-2024

ISSUED:

8/8/2016

REVISED:

N/A

FIELD ENGINEERING UNIT

MH IMS # 6971-01

CONDITION ASSESSMENT



PIMA COUNTY

WASTEWATER RECLAMATION

DRAWN BY: PJMCHECK BY: ELO

DETAIL NO.

CONE

SHEET 1 OF 1





JACKSON JENKINS  
DIRECTOR

201 NORTH STONE AVENUE  
TUCSON, ARIZONA 85701-1207

PH: (520) 724-6500  
FAX: (520) 724-9635

## Review Comment Letter

March 17, 2025

Attn.: Emem Akpan  
Utility Coordinator  
PSOMAS  
33 E Wetmore Road, Suite 450  
Tucson, AZ 85705

**RE: Utility Coordination Review Comments for Esperero Wash at Sunrise Drive Culvert Replacement**

PCRWRD UPC Tracking No.: UPC-2024-125

In accordance with Pima County, AZ Code of Ordinances §13.20.450 - Protection of the Existing Public Sewage Conveyance System (PSCS), Pima County Regional Wastewater Reclamation Department's (PCRWRD) Utility Coordination group has reviewed the above-referenced submittal for conformance with the PCRWRD Engineering Design Standards and PCRWRD Standard Specifications and Details for Construction (current adopted editions). Comments have been generated from the review of your project and a utility clearance will require that these items be addressed.

*Note that this project is not eligible for cost sharing and PCRWRD is not responsible for any costs associated with this project.*

Address the attached comments as part of your next submittal. Include a completed review comment/resolution form for all sanitary sewer work. Send your next submittal by email with all files attached (20 megabytes maximum). In your email or transmittal, include the name of the project, any agency-specific designations, and the assigned PCRWRD UPC number.

If you have any additional questions, please feel free to contact me at either (520) 724-6719 or Thomas.Porter@pima.gov.

Respectfully Submitted,

Thomas W. Porter, P.E.  
Technical Services and Engineering/Utility Coordination

Attached: review comment / resolution form

CC: RWRD Utility Coordination



### REVIEW COMMENT / RESOLUTION FORM

Project Name: Esperero Wash at Sunrise Drive Culvert Replacement			Reviewer: J. Lizardi	
Project Number: UPC-2024-125			Dept. (Division) Position: T.S.&E. / WW Engr. Plans Tech.	
Submittal: 3 <sup>rd</sup> – 100% Preliminary Mainline Replacement Plans			Date: 11/07/2024	
Item	Sheet	Comment	Code	Resolution (Required)
1.	General	In accordance with Pima County RWRD Engineering Design Standard 4.1.2.C., please submit the final sealed plans to receive a Letter of Clearance.		
2.				
3.				
4.				
5.				
6.				
7.				
8.				

### END APPENDIX J - RWRD MANHOLE ASSESSMENT

**Code**

A – Will Comply

B – Consultant to Evaluate

C – RWRD to Evaluate

D – Recommend no Further Action

Page 1 of 1

**All printed versions of this document are uncontrolled copies**

#### APPENDIX K - TEP CLEARANCE LETTER AND OVERHEAD PROTECTION NOTES



Date Received: 3/21/2025

## PUBLIC IMPROVEMENT PLAN REVIEW SUMMARY

PCN#: 2024-3-T126674

PFN WORK ORDER#: T126676

PERCENT PLANS: 100%

NAME OF JOB: PFN - ESPERERO WASH CULVERT

(SUNRISE DRIVE & JACKPOT ROAD)

### ROUTING:

### INITIALS

### DATE

DESIGNER

AMS

04/29/25

CIVIL ENGINEERING

DISTRIBUTION ENGINEERING

TRANSMISSION ENGINEERING

LAND MANAGEMENT

☒ NO CONFLICTS: Voltage of lines within project area

13.8kV

### CONFLICTS:

Bluestake and pothole to determine UG Conflicts. Overhead Protection maybe needed during construction.

#### • Voltage:

• 46	kV OH/UG;	ft of 4"/6";	# of poles or pad mounts switches
• 13.8	kV OH/UG;	ft of 4"/6";	# of poles or pad mounts switches
• 4.16	kV OH/UG;	ft of 4"/6";	# of poles or pad mounts switches

#### • Potholes required?

YES

If YES Please Explain:

When crossing UG electric or if too close to UG electric (2') pothole to verify depth of existing underground electric.

#### • Joint Use Participates

NO

If YES Please List:

N/A

#### • Are there additional drawings attached to this review?

YES

If YES Please List:

Ad\_HOC Facilites Map

#### • Dusk to Dawn Lights?

NO

#### • Customer Owned Cable or Meterbase in ROW?

NO

#### • Pages of Plans of Red Lines to send to Agency:

#### • Does TEP have Easements?

YES

### Designer Comments:

Contractor to protect all existing not in conflict TEP poles in place during construction. TEP's overhead protection will have to be notified anytime a pole is exposed more than 12" from grade or when getting within 10' of an over head power line. Contact Arizona 811 from anywhere in Arizona at least two full working days prior to digging. Please make sure to maintain proper separation from all TEP underground facilities when installing new pedestrian crossing facilities.

Response sent on:

By:

**\*\*PLEASE FLAG THE PAGES YOU MARKED-UP ON THE ROADWAY PLANS.**

END APPENDIX K - TEP CLEARANCE LETTER AND OVERHEAD PROTECTION NOTES



## BIOLOGICAL EVALUATION SHORT FORM

### Environmental Planning

Form Date: 1/29/2019

**1. PROJECT INFORMATION**

Project Name	Sunrise Drive at Esperero Wash Culvert Replacement Project				
Pima County DOT & RFCD Project Number	CTC.4SUNEW	TRACS Number	Click here to enter text.		
Lead Federal Agency		LPA/Tribe Name			
Submittal Date	Click here to enter text.	ADOT District	Choose an item.	Admin by:	Other
Land Ownership	Pima County and private				
USFWS IPaC /Consultation Code	2024-0098271	Date	6/14/2024		
AGFD Online Review ID	HGIS-22124	Date	6/14/2024		

**2. LOCATION INFORMATION**

Route and Mileposts	Sunrise Drive				
Town/City and County	Tucson, Pima County				
Date of Site Visit (if conducted)	May 31 and June 3 and 4, 2024				
Biotic Community (per Brown 1994)	Arizona Upland Subdivision – Sonoran Desertscrub				
Elevation (feet above mean sea level)	2,704–2,742				
PLSS (if on BLM land)					

**Describe Dominant Vegetation:**

The dominant plant species present throughout the project area is velvet mesquite (*Prosopis velutina*).

**3. PROJECT/ACTIVITY DESCRIPTION**

Does the Project/Activity Require:	Yes	No
Work outside of existing ROW or easement?	X	
New ROW?	X	
New Easement(s)?		X
Temporary Construction Easement(s)?	X	

**Acronyms Used in This Form**

- ac. - acre
- AGFD – Arizona Game and Fish Department
- AWLW – Arizona Wildlife Linkages Workgroup
- BE – Biological Evaluation
- BESF – BE Short Form
- BGEPA – Bald and Golden Eagle Protection Act
- BLM – US Bureau of Land Management
- CA – Certification Acceptance
- CH – critical habitat
- E – endangered
- ESA – Endangered Species Act
- FHWA – Federal Highway Administration
- ID – identification number
- IPaC – Information, Planning, and Consultation system
- LPA – Local Public Agency
- MBTA – Migratory Bird Treaty Act
- MP – milepost
- NA – not applicable
- P – proposed
- PLSS – Public Land Survey System
- ROW – right-of-way
- SGCN – Species of Greatest Conservation Need
- T – threatened
- TRACS – Transportation Accounting System
- USFS – U.S. Forest Service
- USFWS – U.S. Fish and Wildlife Service



**BIOLOGICAL EVALUATION SHORT FORM**  
**Environmental Planning**

**3. PROJECT/ACTIVITY DESCRIPTION (Continued)**

The Sunrise Drive at Esperero Wash Culvert Replacement Project will involve increasing the stormwater conveyance capacity at the Sunrise Drive Esperero Wash crossing by replacing the two existing 48-inch-diameter corrugated metal pipe (CMP) culverts with a new reinforced concrete box culvert with four 12-foot-wide, 8-foot-high, 85-foot-long barrels. The existing CMP culverts have frequently clogged since the 2020 Bighorn Fire, putting Sunrise Drive and associated utilities at risk of failure due to erosion. The new box culvert will reduce the risk to the traveling public by conveying flows of up to 4,300 cubic feet per second under the roadway, which corresponds with the 10-year storm event. Project construction activities will include the following:

- Establishing a staging area east of Esperero Wash in the southern ROW of Sunrise Drive
- Removing and reconstructing the two-lane Sunrise Drive roadway surface
- Phase 1 culvert replacement under the westbound (southern) travel lane
- Phase 2 culvert replacement under the eastbound (northern) travel lane
- Concrete apron construction within Esperero Wash at culvert inlet and outfall approximately 20 feet upstream and downstream, with riprap extending downstream from the outfall apron approximately 35 feet to the southern ROW boundary

ROW requirements for the project include the need for temporary construction access and staging areas, as well as a permanent drainage easement on one current private property parcel (open drainage space) for the new outlet structure that will allow the County to maintain the outlet in perpetuity.

Site preparation during construction will include three major areas of work: grading, demolition, and utility coordination. Grading will include preparing the ground for installation of the new culvert and outlet, removal of vegetation, removal of excess soil, and required compaction for structures. Demolition will include the removal of existing roadbed at the new culvert, removal of the existing CMP culverts, and any ancillary items within the project area such as existing guardrails. Utilities adjacent to the work area include gas, water, reclaimed water, and sewer. Most of the utilities will remain protected in place. Coordination with utilities in advance of construction will provide them with an opportunity to relocate during the project, at their cost.

**4. GENERAL IMPACTS**

Does the Project/Activity:	Yes	No	NA
Involve ground disturbance?	X		
Involve vegetation removal?	X		
Include potential for use of herbicide?	X		
Include work in actively flowing or intermittent watercourse?		X	
Include impacts to Riparian Vegetation or Wetland Habitat?	X		
Occur within identified wildlife linkage(s)? (per 2006 AWLW map on ADOT website)		X	
If yes, enter AWLW wildlife linkage number/name:			
Does the project have the potential to affect the wildlife linkage(s)?			X



**BIOLOGICAL EVALUATION SHORT FORM**  
**Environmental Planning**

<b>Description of ground disturbance and/or vegetation removal</b>			
Construction of the project will involve up to 4.5 acres of ground disturbance and associated vegetation removal. The project is subject to the Pima County Native Plant Preservation Ordinance (NPPO), and it also contains regulated riparian habit (RRH) classified under Pima County Ordinance 2005-FC2 as Important Riparian Area – Xeroriparian A. A native plant inventory was conducted in the project area and will be used to develop a Native Plant Preservation Plan for the project in compliance with the NPPO and RRH regulations.			
<b>5. ESA-PROTECTED SPECIES &amp; HABITAT</b>		<b>Yes</b>	<b>No</b>
Are any threatened, endangered or proposed species likely present in the project area?			X
Is any designated or proposed critical habitat present in the project area?			X
Is suitable habitat for threatened, endangered or proposed species present in the project area?			X
<i>If a "Yes" answer is given for any of the questions above, include a brief additional evaluation summary for each applicable species along with a determination of effects for each species addressed.</i>			
<b>Additional ESA Species Evaluation included in Section 10?</b>			X
<b>5. ESA-PROTECTED SPECIES &amp; HABITAT (Continued)</b>			
<b>Determination of Effects</b>			<b>Mark One</b>
1. No effect to species or critical habitat.			X
2. May affect, but is not likely to adversely affect species or critical habitat.			
3. May affect, and is likely to adversely affect species or critical habitat.			
<i>Coordinate with the ADOT biologist if any commitments are required to protect ESA species or habitat, or if any "may affect" determinations are anticipated, as a Biological Evaluation may be required.</i>			

<b>6. OTHER SPECIAL STATUS SPECIES/RESOURCES</b>			
Does the project have the potential to impact:	<b>Yes</b>	<b>No</b>	<b>NA</b>
ESA Candidate Species or other species under review for ESA listing?	X		
ESA Candidate Conservation Agreement species?	X		
Bald and/or golden eagles as protected by the BGEPA?		X	
Agency special status or sensitive species (USFS, BLM, Tribal, etc.)? <i>(Only applies if the project is on the agency's land and the agency requested evaluation of those species)</i>			X
USFS only: Management Indicator Species – Change in population or trend?			X
Migratory birds, nests, or eggs as protected by the MBTA?	X		
Native plants protected by the <u>Arizona Native Plant Law</u> ? <i>(Non-tribal lands only)</i>	X		
Potential for Bat Roosts? <u>  </u> Day, <u>  </u> Night, <u>  </u> Maternity?		X	
Are commitments included to protect other state sensitive species (e.g. SGCN Tier 1a)?	X		
Are invasive species from the <u>ADOT list</u> found in the project area?	X		
<i>If a "Yes" answer is given for any of the questions above, include a brief additional evaluation summary and determination of impacts (as applicable) for each species/resource. Include any necessary commitments in the Environmental Commitments section.</i>			
<b>Additional Special Status Species Evaluation included in Section 10?</b>	X		

**7. ENVIRONMENTAL COMMITMENTS**

- If vegetation clearing will occur during the migratory bird breeding season (March 1–August 31), the contractor shall avoid any active bird nests. If the active nests cannot be avoided, the contractor shall notify Pima County to evaluate the situation. During the non-breeding season (September 1–February 28), vegetation removal is not subject to this restriction.
- The contractor shall develop a Noxious and Invasive Plant Species Treatment and Control Plan in accordance with the requirements in the contract documents. Plants to be controlled shall include those listed in the state and federal noxious weed lists and the state invasive species list in accordance with state and federal laws and executive orders. The plan and associated treatments shall include all areas within the project ROW and easements as shown on the project plans. The treatment and control plan shall be submitted to Pima County for review and approval prior to implementation by the contractor.
- Prior to the start of ground-disturbing activities and throughout the duration of construction and any landscape establishment period, the contractor shall arrange for and perform the control of noxious and invasive species in the project area.
- To prevent the introduction of invasive species seeds, all earthmoving and hauling equipment shall be washed prior to entering the construction site and the contractor shall inspect all construction equipment and remove all attached debris, including plant parts, soil, and mud, prior to the equipment entering the construction site.
- To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction and hauling equipment and remove all debris, including plant parts, soil, and mud, prior to leaving the construction site.
- Protected native plants within the project limits will be impacted by this project; therefore, Pima County will determine if Arizona Department of Agriculture notification is needed. If notification is needed, Pima County will send the notification at least 60 calendar days prior to the start of construction.
- If any Sonoran desert tortoises (*Gopherus morafkai*) are encountered during construction, the contractor shall adhere to the attached AGFD "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects". If any tortoise is encountered during construction, the contractor shall notify Pima County to report the encounter.

**8. SIGNATURES**

Prepared By

Signature



6/14/2024

Date

Typed Name: Tim Jordan

Title, Firm: Environmental Scientist/Biologist, SWCA Environmental Consultants

Reviewed By

Signature



6/14/2024

Date

Typed Name: Eleanor R. Gladding





**BIOLOGICAL EVALUATION SHORT FORM**  
**Environmental Planning**

Title, Firm: Lead Biologist II, SWCA Environmental Consultants

**9. ATTACHMENTS (Mark all that apply)**

<input checked="" type="checkbox"/>	State and Project Location Maps
<input checked="" type="checkbox"/>	USFWS IPaC Results
<input checked="" type="checkbox"/>	AGFD On-Line Environmental Review Tool Results
	Agency Correspondence (Letters, E-mails, Phone Records, etc.)
	Other (List):
<input checked="" type="checkbox"/>	AGFD Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects

**10. ADDITIONAL TEXT (Only if needed; specify the section it applies to; continue to extra page if needed)**

**6. Other Special Status Species/Resources**

The monarch butterfly (*Danaus plexippus*) is a candidate species not currently afforded protection under the ESA. No monarchs were observed in the project area during SWCA's BE survey; however, this species may occur in the project area due to the presence of nectar plants and the presence of other butterflies such as checkered white (*Pontia protodice*) and painted lady (*Vanessa cardui*) butterflies. Climbing milkweed (*Funastrum heterophyllum*) was also observed in the project area, which could be used by this species as breeding habitat.

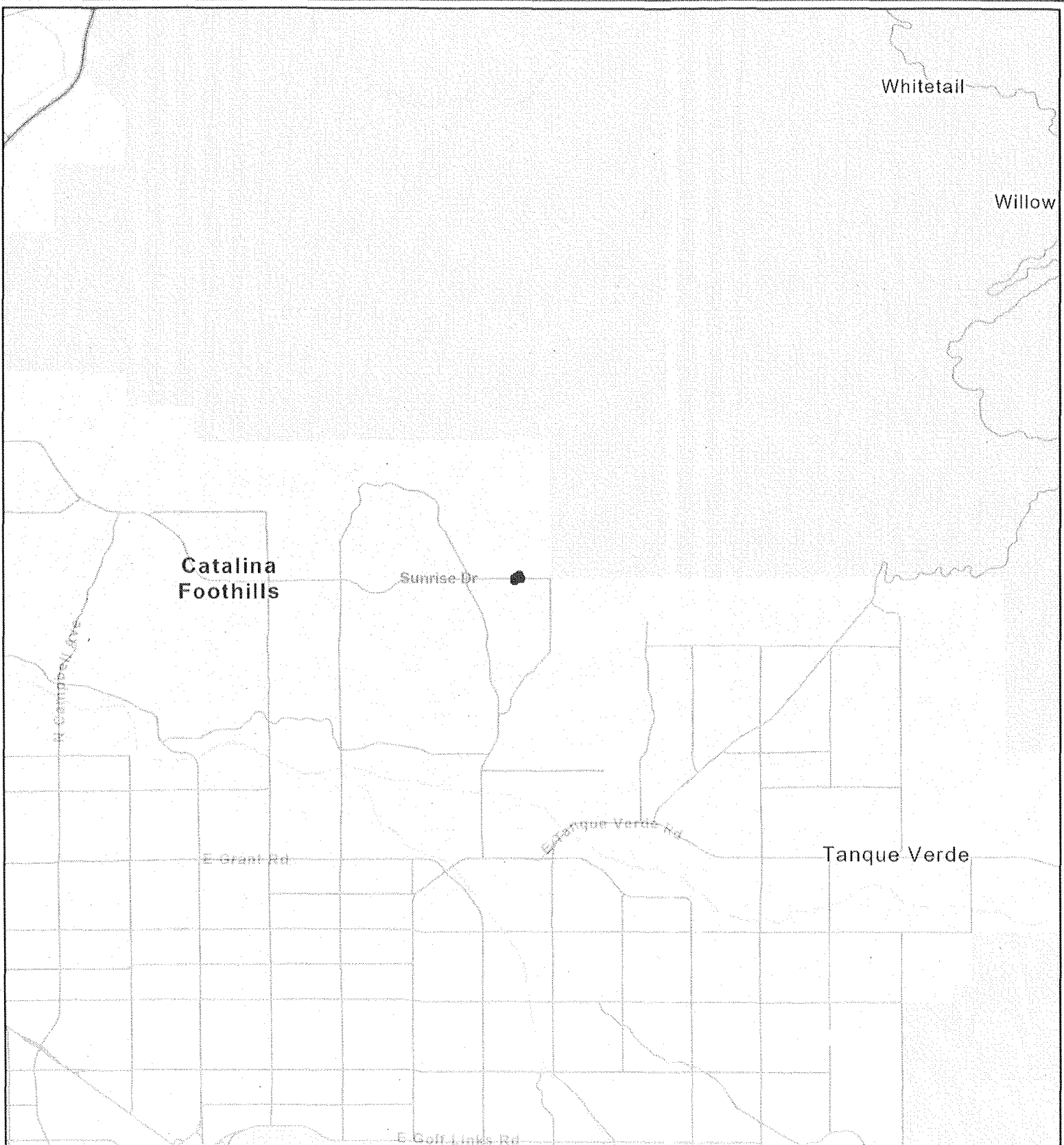
High bird activity was noted within the project area during SWCA's biological survey, and highly suitable nesting habitat for migratory birds is present. One active Bell's vireo (*Vireo bellii*) nest with three eggs was documented, and a few non-active verdin (*Auriparus flaviceps*) nests were observed.

The Sonoran desert tortoise is an AGFD SGCN Tier 1 species, and it is also subject to a Candidate Conservation Agreement. Suitable habitat for this species is present within the project area, including the portions of Esperero Wash with caliche walls that represent suitable burrowing habitat, as well as the wash itself, which could be used as a movement corridor.

No bat roosts were observed within the project area during SWCA's biological survey; however, a palm tree was observed adjacent to the project area that could be used by western yellow bat (*Lasiurus xanthinus*), an AGFD SGCN Tier 2 species, as a roosting site during the species' summer maternity season.

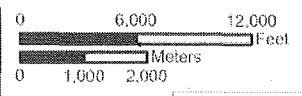
Invasive and noxious weeds present within the project area include buffelgrass (*Pennisetum ciliare*), fountain grass (*Pennisetum setaceum*), Lehmann lovegrass (*Eragrostis lehmanniana*), red brome (*Bromus rubens*), and cheatgrass (*Bromus tectorum*).

Bell's vireo, Sonoran desert tortoise, and western yellow bat are species covered by the County's Multi-species Conservation Plan (MSCP). One additional species covered by the MSCP, Abert's towhee (*Melospiza aberti*), was also observed within the project area during SWCA's biological survey. Since these are covered species under the MSCP, any impacts are covered under the County's Section 10 Permit.

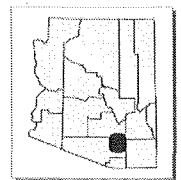


 Project Area

Pima County, AZ  
T13S R15E Sections 8, 17  
NAD 1983 UTM Zone 12N

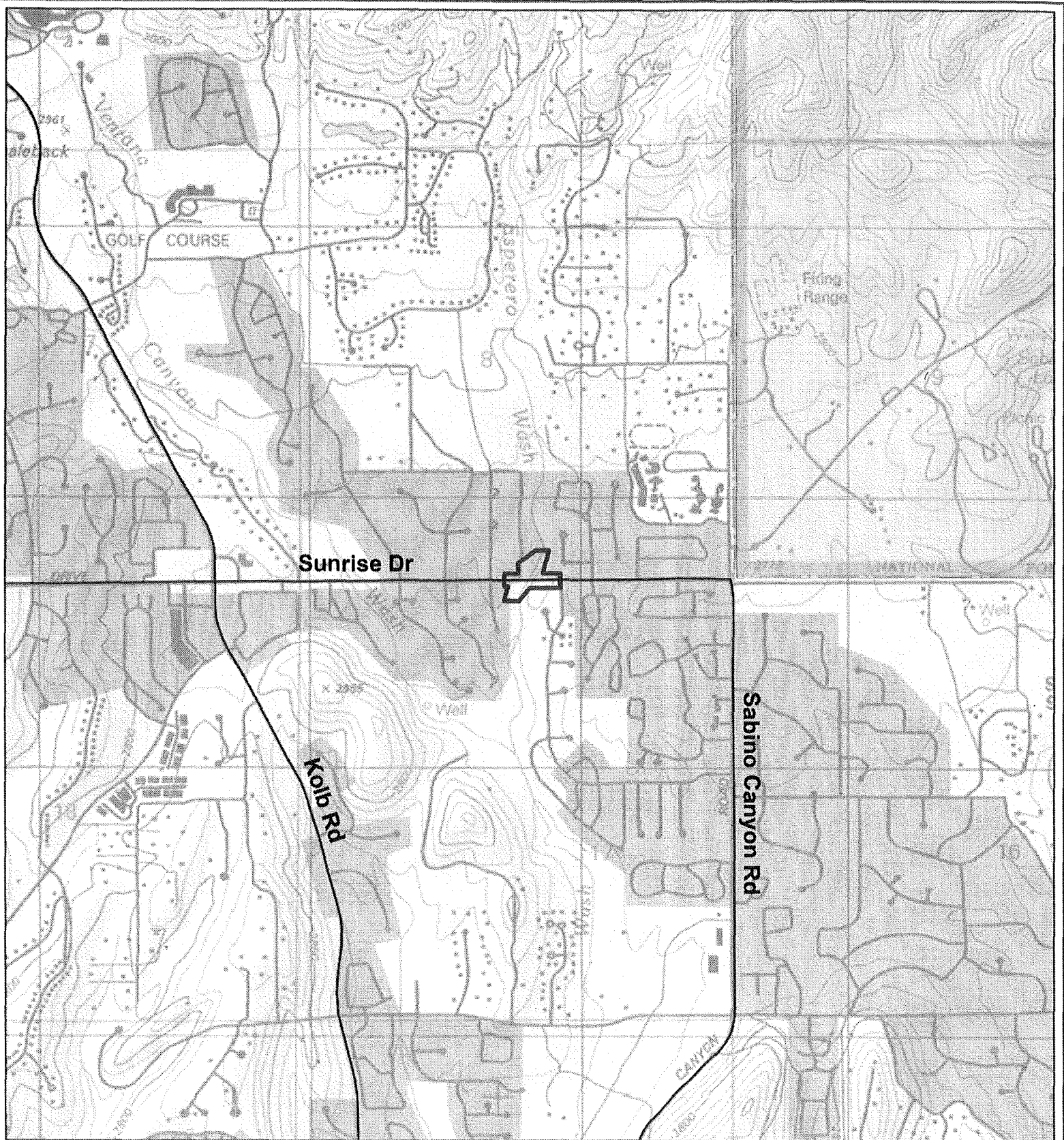





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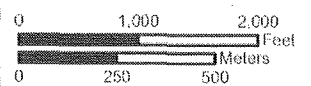
Base Map: Esri ArcGIS Online,  
accessed June 2024  
Updated: 6/14/2024  
Project No. 88493  
Layout: OV\_BESF  
Aprx: 88493\_SunriseDrive

**SWCA**  
ENVIRONMENTAL CONSULTANTS

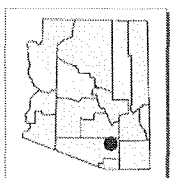


-  Project Area
- Land Ownership
  -  Private
  -  US Forest Service

Pima County, AZ  
 USGS 7.5' Quadrangle:  
 Sabino Canyon, AZ  
 T13S R15E Sections 8,17  
 NAD 1983 UTM Zone 12N

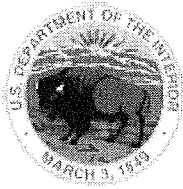


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Base Map: Esri ArcGIS Online,  
 accessed June 2024  
 Updated: 6/14/2024  
 Project No. 88493  
 Layout: USGS, BESF  
 Aprx. 88493\_SunriseDrive

**SWCA**  
 ENVIRONMENTAL CONSULTANTS



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Arizona Ecological Services Field Office

9828 North 31st Ave

#c3

Phoenix, AZ 85051-2517

Phone: (602) 242-0210 Fax: (602) 242-2513



In Reply Refer To:

06/02/2024 18:26:41 UTC

Project Code: 2024-0098271

Project Name: Sunrise Drive at Esperero Wash Culvert Replacement Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that *may* occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and its critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If the Federal action agency determines that listed species or critical habitat *may be affected* by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a *proposed* species or may adversely modify *proposed* critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 *et seq.*). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Athene cunicularia hypugaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see <https://www.fws.gov/law/bald-and-golden-eagle-protection-act> and <https://www.fws.gov/program/eagle-management>).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: <https://www.fws.gov/program/migratory-bird-permit>. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at <https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation>.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit [this link](#) or visit <https://www.fws.gov/program/national->

wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or [John\\_Nystedt@fws.gov](mailto:John_Nystedt@fws.gov).

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (<https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/project-evaluation-program/>).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely,  
/s/

Heather Whitlaw  
Field Supervisor  
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

## OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Arizona Ecological Services Field Office**

9828 North 31st Ave

#c3

Phoenix, AZ 85051-2517

(602) 242-0210

## PROJECT SUMMARY

Project Code: 2024-0098271

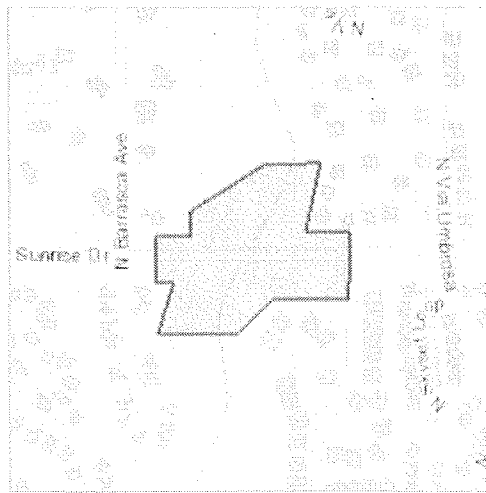
Project Name: Sunrise Drive at Esperero Wash Culvert Replacement Project

Project Type: Culvert Repair/Replacement/Maintenance

Project Description: The project consists of replacing a severely undersized culvert with a multiple cell box culvert where Esperero Wash crosses Sunrise Drive in Unincorporated Pima County, Arizona.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@32.308979550000004,-110.83202416916842,14z>



Counties: Pima County, Arizona



## ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

**MAMMALS**

NAME	STATUS
Ocelot <i>Leopardus</i> (= <i>Felis</i> ) <i>pardalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4474">https://ecos.fws.gov/ecp/species/4474</a>	Endangered

**BIRDS**

NAME	STATUS
Cactus Ferruginous Pygmy-owl <i>Glaucidium brasilianum cactorum</i> There is <b>final</b> critical habitat for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1225">https://ecos.fws.gov/ecp/species/1225</a>	Threatened
California Least Tern <i>Sternula antillarum browni</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8104">https://ecos.fws.gov/ecp/species/8104</a>	Endangered
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/8196">https://ecos.fws.gov/ecp/species/8196</a>	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a>	Threatened

**REPTILES**

NAME	STATUS
Sonoyta Mud Turtle <i>Kinosternon sonoriense longifemorale</i> There is <b>final</b> critical habitat for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/7276">https://ecos.fws.gov/ecp/species/7276</a>	Endangered

**FISHES**

NAME	STATUS
Gila Chub <i>Gila intermedia</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/51">https://ecos.fws.gov/ecp/species/51</a>	Endangered
Gila Topminnow (incl. Yaqui) <i>Poeciliopsis occidentalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1116">https://ecos.fws.gov/ecp/species/1116</a>	Endangered

**INSECTS**

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i>	Candidate

## NAME

## STATUS

No critical habitat has been designated for this species.  
Species profile: <https://ecos.fws.gov/ecp/species/9743>

**FLOWERING PLANTS**

## NAME

## STATUS

Arizona Eryngo *Eryngium sparganophyllum*

Endangered

Population:

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

Species profile: <https://ecos.fws.gov/ecp/species/10705>

**CRITICAL HABITATS**

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

**USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES**

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

**BALD & GOLDEN EAGLES**

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act<sup>1</sup> and the Migratory Bird Treaty Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats<sup>3</sup>, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

- 
1. The Bald and Golden Eagle Protection Act of 1940.
  2. The Migratory Birds Treaty Act of 1918.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds Dec 1 to Aug 31

## PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

### Breeding Season (■)

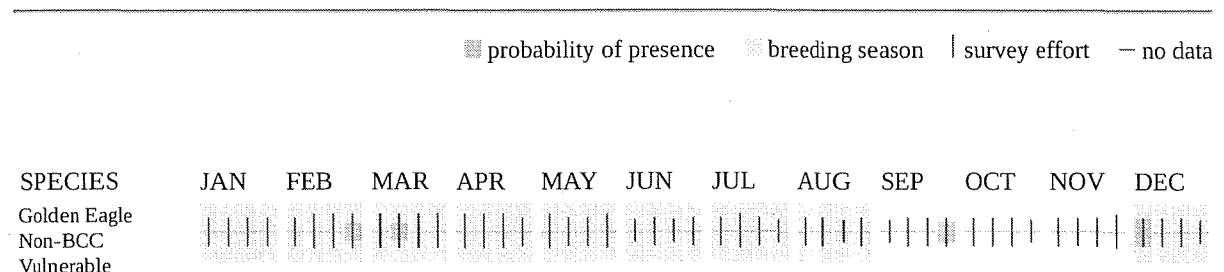
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

### Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

## MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats<sup>3</sup> should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

- 
1. The [Migratory Birds Treaty Act](#) of 1918.
  2. The [Bald and Golden Eagle Protection Act](#) of 1940.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<b>Black-chinned Sparrow <i>Spizella atrogularis</i></b> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9447">https://ecos.fws.gov/ecp/species/9447</a>	Breeds Apr 15 to Jul 31
<b>Costa's Hummingbird <i>Calypte costae</i></b> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9470">https://ecos.fws.gov/ecp/species/9470</a>	Breeds Jan 15 to Jun 10
<b>Gila Woodpecker <i>Melanerpes uropygialis</i></b> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA. <a href="https://ecos.fws.gov/ecp/species/5960">https://ecos.fws.gov/ecp/species/5960</a>	Breeds Apr 1 to Aug 31

NAME	BREEDING SEASON
<div>Golden Eagle <i>Aquila chrysaetos</i></div> <div>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</div> <div><a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a></div>	Breeds Dec 1 to Aug 31
<div>Lawrence's Goldfinch <i>Spinus lawrencei</i></div> <div>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</div> <div><a href="https://ecos.fws.gov/ecp/species/9464">https://ecos.fws.gov/ecp/species/9464</a></div>	Breeds Mar 20 to Sep 20

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

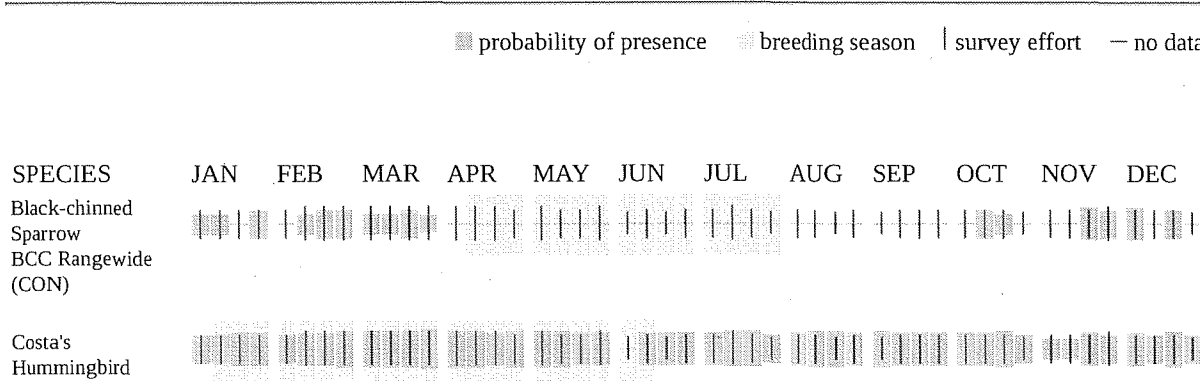
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.



BCC - BCR

Gila Woodpecker  
BCC - BCRGolden Eagle  
Non-BCC  
VulnerableLawrence's  
Goldfinch  
BCC Rangewide  
(CON)

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

## WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R4SBC

## **IPAC USER CONTACT INFORMATION**

Agency: SWCA Environmental Consultants

Name: Robert Hergenrother

Address: 343 W Franklin St

City: Tucson

State: AZ

Zip: 85701

Email: robert.hergenrother@swca.com

Phone: 5203259194



# Arizona Environmental Online Review Tool Report



## ***Arizona Game and Fish Department Mission***

***To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.***

### **Project Name:**

Sunrise Drive at Esperero Wash Culvert Replacement Project

### **Project Description:**

The project consists of replacing a severely undersized culvert with a multiple cell box culvert where Esperero Wash crosses Sunrise Drive in Unincorporated Pima County, Arizona.

### **Project Type:**

Transportation & Infrastructure, Roadway Maintenance (including staging areas), Bridge maintenance (culvert maintenance, abutment repair, channel cleaning, deck replacement)

### **Contact Person:**

Robert Hergenrother

### **Organization:**

SWCA

### **On Behalf Of:**

PRIVATE

### **Project ID:**

HGIS-22124

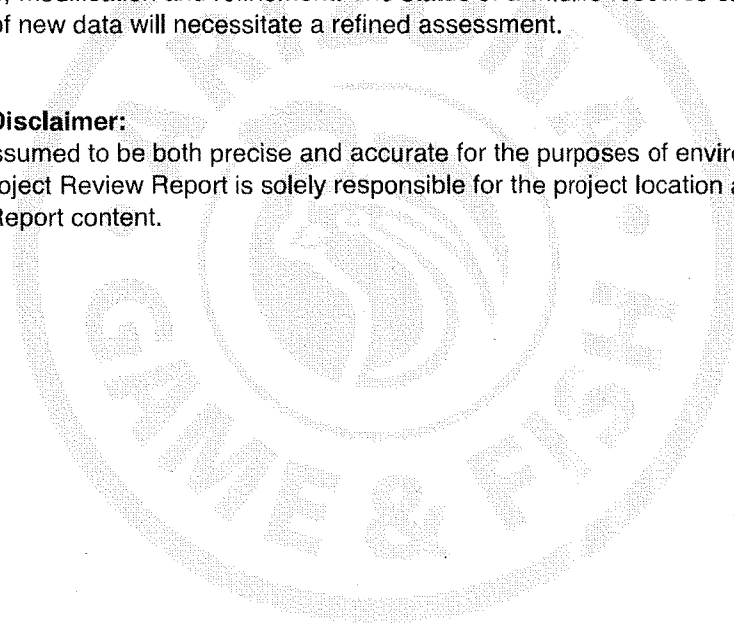
***Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.***

**Disclaimer:**

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

**Locations Accuracy Disclaimer:**

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

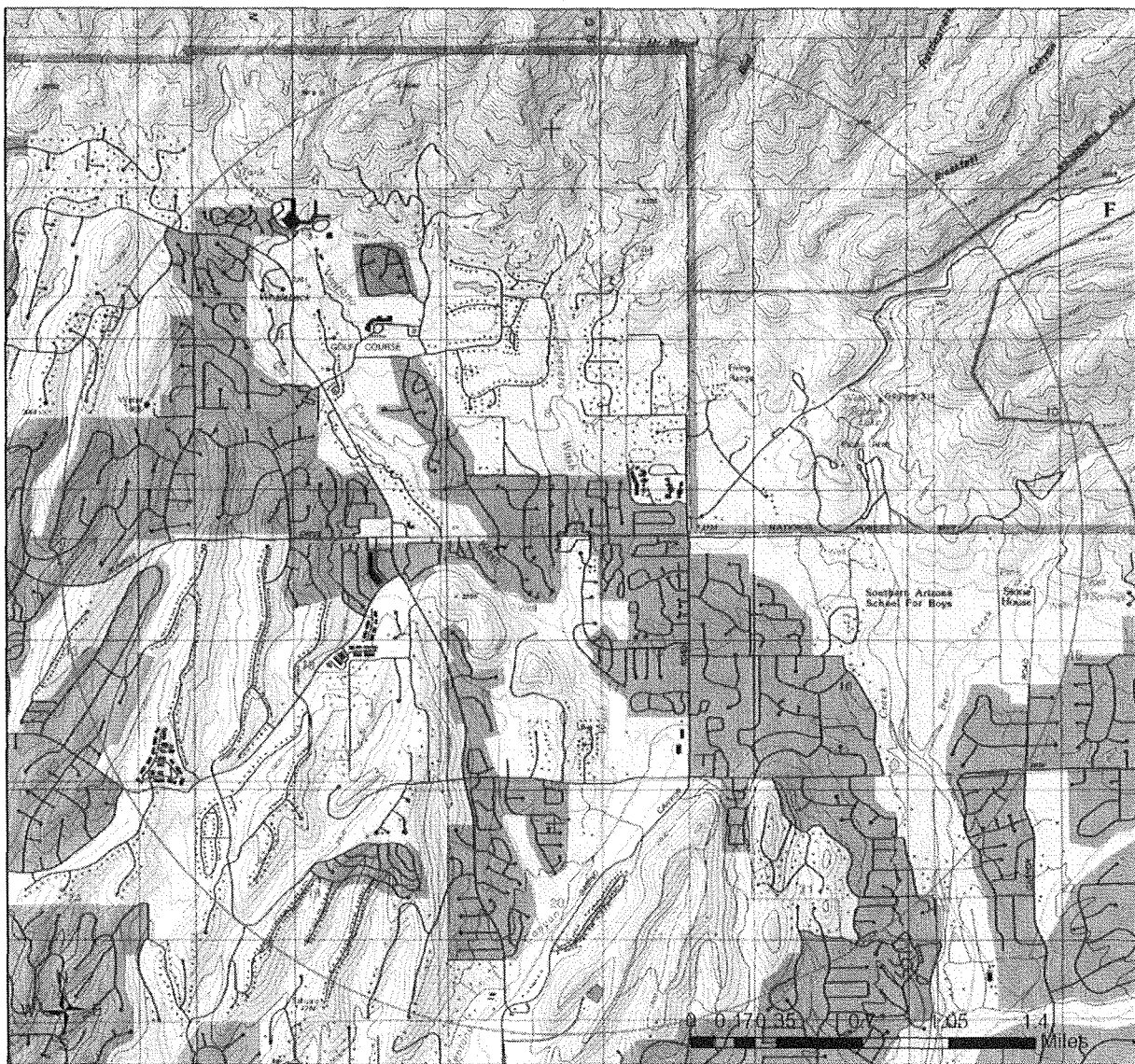




**Recommendations Disclaimer:**

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:  
**Project Evaluation Program, Habitat Branch**  
**Arizona Game and Fish Department**  
**5000 West Carefree Highway**  
**Phoenix, Arizona 85086-5000**  
**Phone Number: (623) 236-7600**  
**Fax Number: (623) 236-7366**  
**Or**  
**[PEP@azgfd.gov](mailto:PEP@azgfd.gov)**
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.

## Sunrise Drive at Esperero Wash Culvert Replacement Project

### USA Topo Basemap With Locator Map



-  Buffered Project Boundary
-  Project Boundary

Project Size (acres): 6.16

Lat/Long (DD): 32.3089 / -110.8321

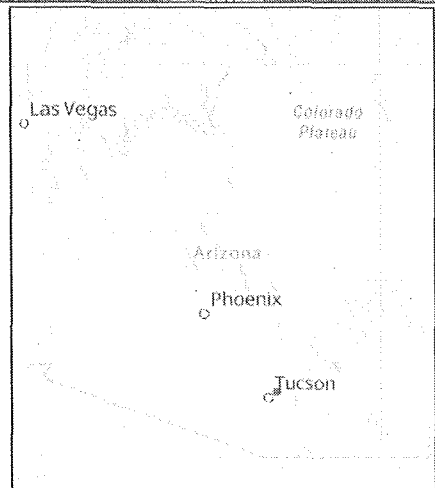
County(s): Pima

AGFD Region(s): Tucson

Township/Range(s): T13S, R15E

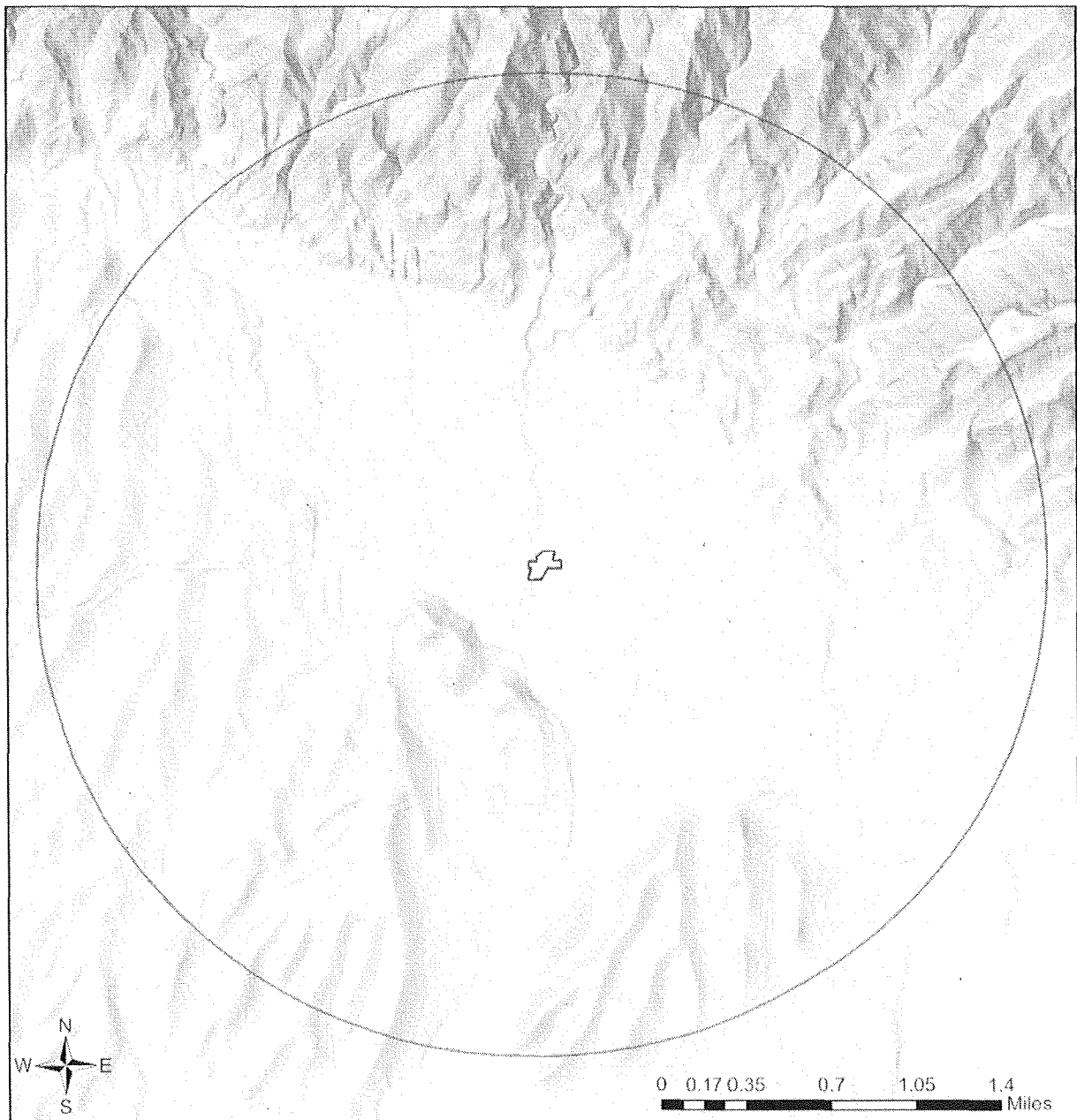
USGS Quad(s): SABINO CANYON

County of Yavapai, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS  
Copyright © 2013 National Geographic Society, i-cubed  
Esri, USGS



## Sunrise Drive at Esperero Wash Culvert Replacement Project

Web Map As Submitted By User



- ☐ Buffered Project Boundary
- ☐ Project Boundary

Project Size (acres): 6.16  
Lat/Long (DD): 32.3089 / -110.8321  
County(s): Pima  
AGFD Region(s): Tucson  
Township/Range(s): T13S, R15E  
USGS Quad(s): SABINO CANYON  
Esri, NASA, NOAA, USGS, FEMA

The map shows a study area in southeastern Arizona. Key features include:

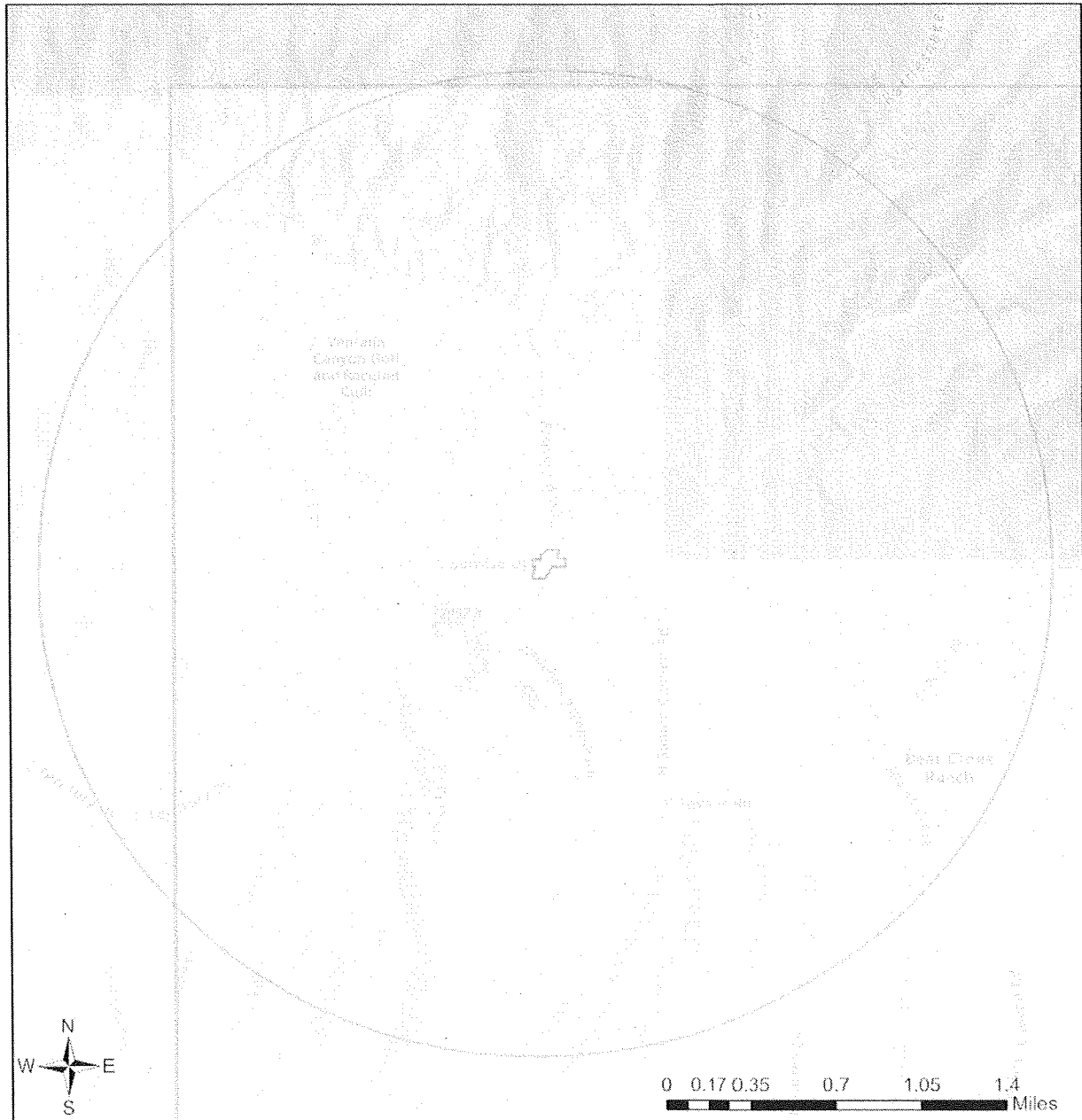
- Ventana Canyon Golf and Racquet Club**: Located in the upper left quadrant.
- F. Sunrise Dr**: A road marked with a house icon, located near the center.
- Bear Creek Ranch**: Located in the lower right quadrant.
- Roads**: Labeled roads include N Sabine Canyon Rd, E Snyder Rd, K-10 Rd, and Bear Canyon Rd.
- Geographical Features**: Features include Bear Creek, Ventana Creek, and various ridges and canyons.
- Scale and Orientation**: A compass rose indicates North (N), South (S), East (E), and West (W). A scale bar shows distances from 0 to 1.4 miles.

- Project Size (acres): 6.16  
Lat/Long (DD): 32.3089 / -110.8321  
County(s): Pima  
AGFD Region(s): Tucson  
Township/Range(s): T13S, R15E  
USGS Quad(s): SABINO CANYON

CONAIP, Esa, Tenthren, Gamm, Poursquare, Safegraph, GeoTechnology, or METENASA.  
USGS, Bureau of Land Management, EPA, FWS, USDA, USFWS  
Esa, HASA, HGA, USGS, ILLGA

## Sunrise Drive at Esperero Wash Culvert Replacement Project

### Township/Ranges and Land Ownership



- |                           |                        |
|---------------------------|------------------------|
| Buffered Project Boundary | Mixed/Other            |
| Project Boundary          | National Park/Mon.     |
| AZ Game & Fish Dept.      | Private                |
| BLM                       | State & Regional Parks |
| BOR                       | State Trust            |
| Indian Res.               | US Forest Service      |
| Military                  | Wildlife Area/Refuge   |
|                           | Township/Ranges        |

Project Size (acres): 6.16  
Lat/Long (DD): 32.3089 / -110.8321  
County(s): Pima  
AGFD Region(s): Tucson  
Township/Range(s): T13S, R15E  
USGS Quad(s): SABINO CANYON

COI/APP: Esri, TomTom, Garmin, Foundation, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, IPR, USDA, USFWS, Esri, NASA, NOAA, USGS, FEMA

**Special Status Species Documented within 2 Miles of Project Vicinity**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Abutilon parishii</i>	Pima Indian Mallow	SC	S	S	SR	
<i>Accipiter atricapillus</i>	American Goshawk	SC	S	S		2
<i>Ammospermophilus harrisi</i>	Harris' Antelope Squirrel					2
<i>Amphispiza bilineata</i>	Black-throated Sparrow					2
<i>Anthus rubescens</i>	American Pipit					2
<i>Aphelocoma woodhouseii</i>	Woodhouse's Scrub-Jay					2
<i>Aquila chrysaetos</i>	Golden Eagle			S		2
<i>Argia sabino</i>	Sabino Canyon Dancer	SC	S			
<i>Aspidoscelis sonora</i>	Sonoran Spotted Whiptail					2
<i>Aspidoscelis stictogrammus</i>	Giant Spotted Whiptail	SC	S			2
<i>Auriparus flaviceps</i>	Verdin					2
<i>Buteo swainsoni</i>	Swainson's Hawk					2
<i>Calypte costae</i>	Costa's Hummingbird					2
<i>Camptostoma imberbe</i>	Northern Beardless-Tyrannulet		S			2
<i>Campylorhynchus brunneicapillus</i>	Cactus Wren					2
<i>Cardellina rubrifrons</i>	Red-faced Warbler					2
<i>Cardinalis sinuatus</i>	Pyrrhuloxia					2
<i>Catharus guttatus</i>	Hermit Thrush					2
<i>Catharus ustulatus</i>	Swainson's Thrush					2
<i>Charadrius vociferus</i>	Killdeer					2
<i>Chilomeniscus cinctus</i>	Variable Sandsnake					2
<i>Choeronycteris mexicana</i>	Mexican Long-tongued Bat	SC	S	S		2
<i>Colaptes chrysoides</i>	Gilded Flicker			S		2
<i>Coluber bilineatus</i>	Sonoran Whipsnake					2
<i>Columbina inca</i>	Inca Dove					2
<i>Contopus cooperi</i>	Olive-sided Flycatcher	SC				2
<i>Contopus sordidulus</i>	Western Wood-Pewee					2
<i>Corynorhinus townsendii pallescens</i>	Pale Townsend's Big-eared Bat	SC	S	S		1
<i>Crotalus tigris</i>	Tiger Rattlesnake					2
<i>Cynanthus latirostris</i>	Broad-billed Hummingbird		S			2
<i>Danaus plexippus</i>	Monarch	C		S		
<i>Elgaria kingii</i>	Madrean Alligator Lizard					2
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	LE		S		1
<i>Empidonax wrightii</i>	Gray Flycatcher					2
<i>Eugenes fulgens</i>	Rivoli's Hummingbird					2
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird					2
<i>Falco mexicanus</i>	Prairie Falcon					2
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	SC	S	S		1
<i>Falco sparverius</i>	American Kestrel					2



**Special Status Species Documented within 2 Miles of Project Vicinity**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Geothlypis tolmiei	MacGillivray's Warbler					2
Gila intermedia	Gila Chub	LE		S		1
Gila robusta	Roundtail Chub	SC	S	S		1
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	LT	S	S		1
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Heloderma suspectum	Gila Monster					1
Icterus bullockii	Bullock's Oriole					2
Icterus cucullatus	Hooded Oriole					2
Icterus parisorum	Scott's Oriole					2
Incilius alvarius	Sonoran Desert Toad					2
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		2
Lasiurus cinereus	Hoary Bat					2
Lasiurus frantzii	Desert Red Bat		S			2
Lasiurus xanthinus	Western Yellow Bat		S			2
Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC		S		1
Megascops kennicottii	Western Screech-owl					2
Melanerpes uropygialis	Gila Woodpecker					2
Melospiza lincolnii	Lincoln's Sparrow					2
Melospiza aberti	Abert's Towhee		S			2
Melospiza fusca	Canyon Towhee					2
Micruroides euryxanthus	Sonoran Coralsnake					2
Muhlenbergia palmeri	Palmer's Muhly		S			
Myotis auriculus	Southwestern Myotis					2
Myotis thysanodes	Fringed Myotis	SC				2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Notholaena lemmonii	Lemmon Cloak Fern	SC				
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Nyctinomops macrotis	Big Free-tailed Bat	SC				2
Opuntia versicolor	Stag-horn Cholla				SR	
Parabuteo unicinctus	Harris's Hawk					2
Patagioenas fasciata	Band-tailed Pigeon					2
Peucaea carpalis	Rufous-winged Sparrow					2
Phrynosoma solare	Regal Horned Lizard					2
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE,UR		S		1
Poecetes gramineus	Vesper Sparrow					2
Rana yavapaiensis	Lowland Leopard Frog	SC	S	S		1
Selasphorus platycercus	Broad-tailed Hummingbird					2
Setophaga graciae	Grace's Warbler					2

**Special Status Species Documented within 2 Miles of Project Vicinity**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Setophaga nigrescens	Black-throated Gray Warbler					2
Spizella breweri	Brewer's Sparrow					2
Strix occidentalis lucida	Mexican Spotted Owl	LT		S		1
Tadarida brasiliensis	Brazilian Free-tailed Bat					2
Terrapene ornata luteola	Desert Box Turtle			S		1
Tumamoca macdougallii	Tumamoc Globeberry	SC	S	S	SR	

Note: Status code definitions can be found at <https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/state-wildlife-action-plan/state-wildlife-action-plan-status-definitions/>.

**Special Areas Documented that Intersect with Project Footprint as Drawn**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Ventana Canyon Wash	Pima County Wildlife Movement Area - Riparian/Wash					

Note: Status code definitions can be found at <https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/state-wildlife-action-plan/state-wildlife-action-plan-status-definitions/>.

**Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Accipiter gentilis	Northern Goshawk	SC	S	S		2
Ammodramus savannarum perpallidus	Western Grasshopper Sparrow					
Ammospermophilus harrisi	Harris' Antelope Squirrel					
Antrostomus ridgwayi	Buff-collared Nightjar		S			2
Aquila chrysaetos	Golden Eagle			S		2
Asio otus	Long-eared Owl					2
Aspidoscelis sonora	Sonoran Spotted Whiptail					2
Aspidoscelis stictogramma	Giant Spotted Whiptail					
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		2
Auriparus flaviceps	Verdin					2
Buteo regalis	Ferruginous Hawk	SC		S		2
Buteo swainsoni	Swainson's Hawk					2
Buteogallus anthracinus	Common Black Hawk					2
Calypte costae	Costa's Hummingbird					2
Camptostoma imberbe	Northern Beardless-Tyrannulet		S			2
Campylorhynchus brunneicapillus	Cactus Wren					2
Catharus ustulatus	Swainson's Thrush					2
Chaetodipus baileyi	Bailey's Pocket Mouse					2
Chilomeniscus stramineus	Variable Sandsnake					2

**Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on  
Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		2
Chordeiles minor	Common Nighthawk					2
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)					
Colaptes chrysoides	Gilded Flicker			S		2
Coluber bilineatus	Sonoran Whipsnake					2
Columbina inca	Inca Dove					2
Corvus cryptoleucus	Chihuahuan Raven					2
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1
Crotalus tigris	Tiger Rattlesnake					2
Cynanthus latirostris	Broad-billed Hummingbird		S			2
Empidonax wrightii	Gray Flycatcher					2
Euderma maculatum	Spotted Bat	SC	S	S		2
Eugenes fulgens	Rivoli's Hummingbird					2
Eumops perotis californicus	Greater Western Bonneted Bat					
Falco mexicanus	Prairie Falcon					2
Falco peregrinus anatum	American Peregrine Falcon					
Falco sparverius	American Kestrel					2
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl					
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Haemorhous cassinii	Cassin's Finch					2
Heloderma suspectum	Gila Monster					1
Icterus bullockii	Bullock's Oriole					2
Icterus cucullatus	Hooded Oriole					2
Icterus parisorum	Scott's Oriole					2
Incilius alvarius	Sonoran Desert Toad					2
Kinosternon sonoriense sonoriense	Desert Mud Turtle					
Lanius ludovicianus	Loggerhead Shrike	SC				2
Lasiurus blossevillei	Western Red Bat		S			2
Lasiurus cinereus	Hoary Bat					2
Lasiurus xanthinus	Western Yellow Bat		S			2
Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				1
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1
Macrotus californicus	California Leaf-nosed Bat	SC		S		2
Megascops kennicottii	Western Screech-owl					
Melanerpes uropygialis	Gila Woodpecker					2
Melospiza lincolnii	Lincoln's Sparrow					2
Melospiza aberti	Abert's Towhee		S			2
Micrathene whitneyi	Elf Owl					
Micruroides euryxanthus	Sonoran Coralsnake					2

**Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Myadestes townsendi	Townsend's Solitaire					2
Myiodynastes luteiventris	Sulphur-bellied Flycatcher		S			2
Myotis auriculus	Southwestern Myotis					2
Myotis thysanodes	Fringed Myotis	SC				2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Nyctinomops macrotis	Big Free-tailed Bat	SC				2
Parabuteo unicinctus	Harris's Hawk					2
Passerculus sandwichensis	Savannah Sparrow					2
Perognathus amplus	Arizona Pocket Mouse					2
Peucaea carpalis	Rufous-winged Sparrow					2
Phrynosoma solare	Regal Horned Lizard					2
Phyllorhynchus browni	Saddled Leaf-nosed Snake					2
Poocetes gramineus	Vesper Sparrow					2
Progne subis hesperia	Desert Purple Martin					2
Setophaga nigrescens	Black-throated Gray Warbler					2
Sigmodon arizonae cienegae	Arizona Cotton Rat					2
Sonorella sabinoensis	Santa Catalina Talussnail					2
Spizella breweri	Brewer's Sparrow					2
Strix occidentalis lucida	Mexican Spotted Owl	LT				1
Tadarida brasiliensis	Brazilian Free-tailed Bat					2
Thomomys umbrinus intermedius	Southern Pocket Gopher					2
Troglodytes pacificus	Pacific Wren					2

**Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Odocoileus virginianus	White-tailed Deer					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

**Project Type: Transportation & Infrastructure, Roadway Maintenance (including staging areas), Bridge maintenance (culvert maintenance, abutment repair, channel cleaning, deck replacement)**

**Project Type Recommendations:**

**Bridge Maintenance/Construction**

Identify whether wildlife species use the structure for roosting or nesting during anticipated maintenance/construction period. Plan the timing of maintenance/construction to minimize impacts to wildlife species. In addition to the species list generated by the Arizona's On-line Environmental Review Tool, the Department recommends that surveys be conducted at the bridge and in the vicinity of the bridge to identify additional or currently undocumented bat, bird, or aquatic species in the project area. To minimize impacts to birds and bats, as well as aquatic species, consider conducting maintenance and construction activities outside the breeding/maternity season (breeding seasons for birds and bats usually occur spring - summer). Examining the crevices for the presence of bats prior to pouring new paving materials or that the top of those crevices be sealed to prevent material from dripping or falling through the cracks and potentially onto bats. If bats are present, maintenance and construction (including paving and milling) activities should be conducted during nighttime hours, if possible, when the fewest number of bats will be roosting. Minimize impacts to the vegetation community. Unavoidable impacts to vegetation should be mitigated on-site whenever possible. A revegetation plan should be developed to replace impacted communities.

Consider design structures and construction plans that minimize impacts to channel geometry (i.e., width/depth ratio, sinuosity, allow overflow channels), to avoid alteration of hydrological function. Consider incorporating roosting sites for bats into bridge designs. During construction, erosion control structures and drainage features should be used to prevent introduction of sediment laden runoff into the waterway. Minimize instream construction activity. If culverts are planned, use wildlife friendly designs to mitigate impacts to wildlife and fish movement. Guidelines for bridge designs to facilitate wildlife passage can be found on our Wildlife Friendly Guidelines web page under the Wildlife Planning button, at <https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/>.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: <https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/>.

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at <https://www.invasivespeciesinfo.gov/unitedstates/az.shtml> and the Arizona Native Plant Society <https://aznps.com/invas> for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at <https://imap.natureserve.org/imap/services/page/map.html>.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select "See What's Here" for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

Design culverts to minimize impacts to channel geometry, or design channel geometry (low flow, overbank, floodplains) and substrates to carry expected discharge using local drainages of appropriate size as templates. Reduce/minimize barriers to allow movement of amphibians or fish (e.g., eliminate falls). Also for terrestrial wildlife, washes and stream corridors often provide important corridors for movement. Overall culvert width, height, and length should be optimized for movement of the greatest number and diversity of species expected to utilize the passage. Culvert designs should consider moisture, light, and noise, while providing clear views at both ends to maximize utilization. For many species, fencing is an important design feature that can be utilized with culverts to funnel wildlife into these areas and minimize the potential for roadway collisions. Guidelines for culvert designs to facilitate wildlife passage can be found on the home page of this application at <https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/>.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly at [PEP@azgfd.gov](mailto:PEP@azgfd.gov).

#### Project Location and/or Species Recommendations:

HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:

Arizona Department of Agriculture

1688 W Adams St.

Phoenix, AZ 85007

Phone: 602.542.4373

<https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf> starts on page 44

Analysis indicates that your project is located in the vicinity of an identified wildlife habitat connectivity feature. The **County-level Stakeholder Assessments** contain five categories of data (Barrier/Development, Wildlife Crossing Area, Wildlife Movement Area- Diffuse, Wildlife movement Area- Landscape, Wildlife Movement Area- Riparian/Washes) that provide a context of select anthropogenic barriers, and potential connectivity. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer

to: <https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-identifying-corridors/>.

Please contact the Project Evaluation Program ([pep@azgfd.gov](mailto:pep@azgfd.gov)) for specific project recommendations.

HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at <https://www.fws.gov/office/arizona-ecological-services> or:

#### Phoenix Main Office

9828 North 31st Avenue #C3

Phoenix, AZ 85051-2517

Phone: 602-242-0210

Fax: 602-242-2513

#### Tucson Sub-Office

201 N. Bonita Suite 141

Tucson, AZ 85745

Phone: 520-670-6144

Fax: 520-670-6155

#### Flagstaff Sub-Office

SW Forest Science Complex

2500 S. Pine Knoll Dr.

Flagstaff, AZ 86001

Phone: 928-556-2157

Fax: 928-556-2121

HDMS records indicate that **Sonoran Desert Tortoise** have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at <https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/2014%20Tortoise%20handling%20guidelines.pdf>.

## GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department  
Revised September 22, 2014

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

The Sonoran desert tortoise occurs south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position parallel to the ground at all times, and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 40°C (105°F) unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to one-half mile, but no further than necessary from its original location. If a release site or alternate burrow is unavailable within this distance, and ambient air temperature exceeds 40°C (105°F), contact the Department for guidance. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, may be placed in the Department's tortoise adoption program. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting license from the Department to facilitate handling or temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- ☐ Use the Department's Environmental On-Line Review Tool during the planning stages of any project that may affect desert tortoise habitat.
- ☐ Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.
- ☐ Take is prohibited by state law.
- ☐ These guidelines do not apply to Mojave desert tortoises (north and west of the Colorado River). Mojave desert tortoises are listed as threatened under the Endangered Species Act, administered by the U.S. Fish and Wildlife Service.
- ☐ These guidelines are subject to revision at the discretion of the Department.



NATIVE PLANT PLAN

**SWCA**  
ENVIRONMENTAL CONSULTANTS

Russell Waldron, SWCA  
343 West Franklin Street  
Tucson, AZ 85701  
www.swca.com

Prepared For:

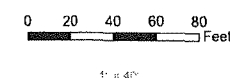
Pima County, Arizona

Date: 6/20/2024

DRAFT

Sunrise Drive at Esperero Wash  
Native Plant Inventory

- Project Area
- Landscaped Area
- Protected Plant
  - Surveyed Native Plant
  - Surveyed Saguaro







# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

10/8/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Marsh & McLennan Agency LLC 4703 E Camp Lowell Drive, #101 Tucson AZ 85712	<b>CONTACT NAME:</b> Cherie Pijanowski, Senior Account Manager	
	<b>PHONE (A/C, No, Ext):</b> 520-722-3000 x284 <b>FAX (A/C, No):</b>	
	<b>E-MAIL ADDRESS:</b> cherie.pijanowski@marshmma.com	
	<b>INSURER(S) AFFORDING COVERAGE</b>	<b>NAIC #</b>
	<b>INSURER A:</b> Phoenix Insurance Company	25623
	<b>INSURER B:</b> Travelers Property Casualty Co of Amer	25674
	<b>INSURER C:</b> Travelers Casualty and Surety Company	19038
	<b>INSURER D:</b>	
	<b>INSURER E:</b>	
	<b>INSURER F:</b>	

**COVERAGES** **CERTIFICATE NUMBER:** 267951670 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:	Y	Y	DTCO2G092610PHX25	8/1/2025	8/1/2026	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
B	<input checked="" type="checkbox"/> <b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	Y	Y	8102N9463402526G	8/1/2025	8/1/2026	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
B	<input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000 <input type="checkbox"/> CLAIMS-MADE			CUP4J2512792526	8/1/2025	8/1/2026	EACH OCCURRENCE \$ 8,000,000 AGGREGATE \$ 8,000,000 \$
C	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	Y	UB6S8320532526G	8/1/2025	8/1/2026	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

COVERAGE IS SUBJECT TO ALL POLICY TERMS, CONDITIONS, DEFINITIONS, EXCLUSIONS, FORMS, ENDORSEMENTS.

POLICY FORMS/ENDORSEMENTS ARE ATTACHED (Applicable ONLY if required by written contract). The umbrella liability policy is following form over the underlying general liability, automobile liability and employers liability policies noted above.

Forms Listing & Project Information (If Applicable) follows on page #2 (Acord 101):

1) FORM #CGD246 (04-19) GENERAL LIABILITY: Blanket Additional Insured (Contractors)  
See Attached...

**CERTIFICATE HOLDER****CANCELLATION**

Pima County Procurement Department  
Design & Construction Division  
150 W Congress, 5th Floor  
Tucson AZ 85701

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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**ADDITIONAL REMARKS SCHEDULE**Page 1 of 1

AGENCY Marsh & McLennan Agency LLC		NAMED INSURED Southern Arizona Paving & Construction Company Inc 4102 E Illinois Street Tucson AZ 85714-2106
POLICY NUMBER		
CARRIER	NAIC CODE	EFFECTIVE DATE:

**ADDITIONAL REMARKS****THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,****FORM NUMBER:** 25 **FORM TITLE:** CERTIFICATE OF LIABILITY INSURANCE

- 2) FORM #CGT100 (02-19) pages 15-16 GENERAL LIABILITY: Primary and Non-Contributory if required by written contract  
3) FORM #CGD316 (02-19) GENERAL LIABILITY: Contractors XTEND Endorsement, including (L) Blanket Waiver of Subrogation  
4) FORM #CAT499 (02-16) AUTO LIABILITY: Blanket Additional Insured - Primary and Non-contributory  
5) FORM #CAT353 (02-15) AUTO LIABILITY: Business Auto Extension Endorsement, including (B) Blanket Additional Insured and (M) Blanket Waiver of Subrogation  
6) FORM #WC000313(00) WORKERS COMPENSATION: Blanket Waiver of Subrogation

RE: Esperero Wash @ Sunrise Drive Culvert Replacement Contract #PO2500031897 SAP Job #437Additional Insured per attached endorsements: Pima County, its departments, districts, boards, commissions, officers, officials, agents, and employees and RTA with respect to liability arising out of the activities performed by or on behalf of Contractor 30 day notice of cancellation

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**BLANKET ADDITIONAL INSURED**  
**(Includes Products-Completed Operations If Required By Contract)**

This endorsement modifies insurance provided under the following:

**COMMERCIAL GENERAL LIABILITY COVERAGE PART**

**PROVISIONS**

The following is added to **SECTION II – WHO IS AN INSURED**:

Any person or organization that you agree in a written contract or agreement to include as an additional insured on this Coverage Part is an insured, but only:

- a. With respect to liability for "bodily injury" or "property damage" that occurs, or for "personal injury" caused by an offense that is committed, subsequent to the signing of that contract or agreement and while that part of the contract or agreement is in effect; and
- b. If, and only to the extent that, such injury or damage is caused by acts or omissions of you or your subcontractor in the performance of "your work" to which the written contract or agreement applies. Such person or organization does not qualify as an additional insured with respect to the independent acts or omissions of such person or organization.

The insurance provided to such additional insured is subject to the following provisions:

- a. If the Limits of Insurance of this Coverage Part shown in the Declarations exceed the minimum limits required by the written contract or agreement, the insurance provided to the additional insured will be limited to such minimum required limits. For the purposes of determining whether this limitation applies, the minimum limits required by the written contract or agreement will be considered to include the minimum limits of any Umbrella or Excess liability coverage required for the additional insured by that written contract or agreement. This provision will not increase the limits of insurance described in Section III – Limits Of Insurance.
- b. The insurance provided to such additional insured does not apply to:

(1) Any "bodily injury", "property damage" or "personal injury" arising out of the providing, or failure to provide, any professional architectural, engineering or surveying services, including:

- (a) The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders or change orders, or the preparing, approving, or failing to prepare or approve, drawings and specifications; and
- (b) Supervisory, inspection, architectural or engineering activities.

(2) Any "bodily injury" or "property damage" caused by "your work" and included in the "products-completed operations hazard" unless the written contract or agreement specifically requires you to provide such coverage for that additional insured during the policy period.

c. The additional insured must comply with the following duties:

(1) Give us written notice as soon as practicable of an "occurrence" or an offense which may result in a claim. To the extent possible, such notice should include:

- (a) How, when and where the "occurrence" or offense took place;
- (b) The names and addresses of any injured persons and witnesses; and
- (c) The nature and location of any injury or damage arising out of the "occurrence" or offense.

(2) If a claim is made or "suit" is brought against the additional insured:

## COMMERCIAL GENERAL LIABILITY

- (a) Immediately record the specifics of the claim or "suit" and the date received; and
  - (b) Notify us as soon as practicable and see to it that we receive written notice of the claim or "suit" as soon as practicable.
- (3) Immediately send us copies of all legal papers received in connection with the claim or "suit", cooperate with us in the investigation or settlement of the claim or defense against the "suit", and otherwise comply with all policy conditions.
- (4) Tender the defense and indemnity of any claim or "suit" to any provider of other insurance which would cover such additional insured for a loss we cover. However, this condition does not affect whether the insurance provided to such additional insured is primary to other insurance available to such additional insured which covers that person or organization as a named insured as described in Paragraph 4., Other Insurance, of Section IV – Commercial General Liability Conditions.

## COMMERCIAL GENERAL LIABILITY

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

## XTEND ENDORSEMENT FOR CONTRACTORS

This endorsement modifies insurance provided under the following:

### COMMERCIAL GENERAL LIABILITY COVERAGE PART

**GENERAL DESCRIPTION OF COVERAGE** – This endorsement broadens coverage. However, coverage for any injury, damage or medical expenses described in any of the provisions of this endorsement may be excluded or limited by another endorsement to this Coverage Part, and these coverage broadening provisions do not apply to the extent that coverage is excluded or limited by such an endorsement. The following listing is a general coverage description only. Read all the provisions of this endorsement and the rest of your policy carefully to determine rights, duties, and what is and is not covered.

- |  |   |
|--|---|
| <p><b>A. Who Is An Insured – Unnamed Subsidiaries</b></p> <p><b>B. Blanket Additional Insured – Governmental Entities – Permits Or Authorizations Relating To Operations</b></p> | <p><b>C. Incidental Medical Malpractice</b></p> <p><b>D. Blanket Waiver Of Subrogation</b></p> <p><b>E. Contractual Liability – Railroads</b></p> <p><b>F. Damage To Premises Rented To You</b></p> |
|--|---|

### PROVISIONS

#### A. WHO IS AN INSURED – UNNAMED SUBSIDIARIES

The following is added to **SECTION II – WHO IS AN INSURED**:

Any of your subsidiaries, other than a partnership, joint venture or limited liability company, that is not shown as a Named Insured in the Declarations is a Named Insured if:

- a. You are the sole owner of, or maintain an ownership interest of more than 50% in, such subsidiary on the first day of the policy period; and
- b. Such subsidiary is not an insured under similar other insurance.

No such subsidiary is an insured for "bodily injury" or "property damage" that occurred, or "personal and advertising injury" caused by an offense committed:

- a. Before you maintained an ownership interest of more than 50% in such subsidiary; or
- b. After the date, if any, during the policy period that you no longer maintain an ownership interest of more than 50% in such subsidiary.

For purposes of Paragraph 1. of Section II – Who Is An Insured, each such subsidiary will be deemed to be designated in the Declarations as:

- a. An organization other than a partnership, joint venture or limited liability company; or
- b. A trust;

as indicated in its name or the documents that govern its structure.

#### B. BLANKET ADDITIONAL INSURED – GOVERNMENTAL ENTITIES – PERMITS OR AUTHORIZATIONS RELATING TO OPERATIONS

The following is added to **SECTION II – WHO IS AN INSURED**:

Any governmental entity that has issued a permit or authorization with respect to operations performed by you or on your behalf and that you are required by any ordinance, law, building code or written contract or agreement to include as an additional insured on this Coverage Part is an insured, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" arising out of such operations.

The insurance provided to such governmental entity does not apply to:

- a. Any "bodily injury", "property damage" or "personal and advertising injury" arising out of operations performed for the governmental entity; or
- b. Any "bodily injury" or "property damage" included in the "products-completed operations hazard".

## COMMERCIAL GENERAL LIABILITY

### C. INCIDENTAL MEDICAL MALPRACTICE

1. The following replaces Paragraph **b.** of the definition of "occurrence" in the **DEFINITIONS** Section:

- b. An act or omission committed in providing or failing to provide "incidental medical services", first aid or "Good Samaritan services" to a person, unless you are in the business or occupation of providing professional health care services.

2. The following replaces the last paragraph of Paragraph **2.a.(1)** of **SECTION II – WHO IS AN INSURED**:

Unless you are in the business or occupation of providing professional health care services, Paragraphs **(1)(a), (b), (c)** and **(d)** above do not apply to "bodily injury" arising out of providing or failing to provide:

- (a) "Incidental medical services" by any of your "employees" who is a nurse, nurse assistant, emergency medical technician or paramedic; or
  - (b) First aid or "Good Samaritan services" by any of your "employees" or "volunteer workers", other than an employed or volunteer doctor. Any such "employees" or "volunteer workers" providing or failing to provide first aid or "Good Samaritan services" during their work hours for you will be deemed to be acting within the scope of their employment by you or performing duties related to the conduct of your business.
3. The following replaces the last sentence of Paragraph **5.** of **SECTION III – LIMITS OF INSURANCE**:

For the purposes of determining the applicable Each Occurrence Limit, all related acts or omissions committed in providing or failing to provide "incidental medical services", first aid or "Good Samaritan services" to any one person will be deemed to be one "occurrence".
4. The following exclusion is added to Paragraph **2.**, **Exclusions**, of **SECTION I – COVERAGES – COVERAGE A – BODILY INJURY AND PROPERTY DAMAGE LIABILITY**:

**Sale Of Pharmaceuticals**

"Bodily injury" or "property damage" arising out of the violation of a penal statute or ordinance relating to the sale of

pharmaceuticals committed by, or with the knowledge or consent of, the insured.

5. The following is added to the **DEFINITIONS** Section:

"Incidental medical services" means:

- a. Medical, surgical, dental, laboratory, x-ray or nursing service or treatment, advice or instruction, or the related furnishing of food or beverages; or
  - b. The furnishing or dispensing of drugs or medical, dental, or surgical supplies or appliances.

6. The following is added to Paragraph **4.b.**, **Excess Insurance**, of **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS**:

This insurance is excess over any valid and collectible other insurance, whether primary, excess, contingent or on any other basis, that is available to any of your "employees" for "bodily injury" that arises out of providing or failing to provide "incidental medical services" to any person to the extent not subject to Paragraph **2.a.(1)** of Section II – Who Is An Insured.

### D. BLANKET WAIVER OF SUBROGATION

The following is added to Paragraph **8.**, **Transfer Of Rights Of Recovery Against Others To Us**, of **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS**:

If the insured has agreed in a contract or agreement to waive that insured's right of recovery against any person or organization, we waive our right of recovery against such person or organization, but only for payments we make because of:

- a. "Bodily injury" or "property damage" that occurs; or
  - b. "Personal and advertising injury" caused by an offense that is committed;

subsequent to the execution of the contract or agreement.

### E. CONTRACTUAL LIABILITY – RAILROADS

1. The following replaces Paragraph **c.** of the definition of "insured contract" in the **DEFINITIONS** Section:

- c. Any easement or license agreement;

2. Paragraph f.(1) of the definition of "insured contract" in the **DEFINITIONS** Section is deleted.

**F. DAMAGE TO PREMISES RENTED TO YOU**

The following replaces the definition of "premises damage" in the **DEFINITIONS** Section:

"Premises damage" means "property damage" to:

- a. Any premises while rented to you or temporarily occupied by you with permission of the owner; or
- b. The contents of any premises while such premises is rented to you, if you rent such premises for a period of seven or fewer consecutive days.

## COMMERCIAL GENERAL LIABILITY

**c. Method Of Sharing**

If all of the other insurance permits contribution by equal shares, we will follow this method also. Under this approach each insurer contributes equal amounts until it has paid its applicable limit of insurance or none of the loss remains, whichever comes first. If any of the other insurance does not permit contribution by equal shares, we will contribute limits. Under this method, each insurer's share is based on the ratio of its applicable limit of insurance to the total applicable limits of insurance of all insurers.

**d. Primary And Non-Contributory Insurance If Required By Written Contract**

If you specifically agree in a written contract or agreement that the insurance afforded to an insured under this Coverage Part must apply on a primary basis, or a primary and non-contributory basis, this insurance is primary to other insurance that is available to such insured

which covers such insured as a named insured, and we will not share with that other insurance, provided that:

- (1) The "bodily injury" or "property damage" for which coverage is sought occurs; and
- (2) The "personal and advertising injury" for which coverage is sought is caused by an offense that is committed;

subsequent to the signing of that contract or agreement by you.

**5. Premium Audit**

- a. We will compute all premiums for this Coverage Part in accordance with our rules and rates.

- b. Premium shown in this Coverage Part as advance premium is a deposit premium only. At the close of each audit period we will compute

the earned premium for that period and send notice to the first Named Insured. The due date for audit and retrospective premiums is the date shown as the due date on the bill. If the sum of the advance and audit premiums paid for the policy period is greater than the earned premium, we will return the excess to the first Named Insured.

- c. The first Named Insured must keep records of the information we need for premium computation, and send us copies at such times as we may request.

**6. Representations**

By accepting this policy, you agree:

- a. The statements in the Declarations are accurate and complete;

- b. Those statements are based upon representations you made to us; and

- c. We have issued this policy in reliance upon your representations.

The unintentional omission of, or unintentional error in, any information provided by you which we relied upon in issuing this policy will not prejudice your rights under this insurance. However, this provision does not affect our right to collect additional premium or to exercise our rights of cancellation or nonrenewal in accordance with applicable insurance laws or regulations.

**7. Separation Of Insureds**

Except with respect to the Limits of Insurance, and any rights or duties specifically assigned in this Coverage Part to the first Named Insured, this insurance applies:

- a. As if each Named Insured were the only Named Insured; and
- b. Separately to each insured against whom claim is made or "suit" is brought.

**8. Transfer Of Rights Of Recovery Against Others To Us**

If the insured has rights to recover all or part of any payment we have made under this Coverage Part, those rights are transferred to us. The insured must do nothing after loss to impair them. At our request,

the insured will bring "suit" or transfer those rights

to us and help us enforce them.

**9. When We Do Not Renew**

If we decide not to renew this Coverage Part, we will

mail or deliver to the first Named Insured shown in the Declarations written notice of the nonrenewal not less than 30 days before the expiration date.

If notice is mailed, proof of mailing will be sufficient proof of notice.

**SECTION V – DEFINITIONS**

1. "Advertisement" means a notice that is broadcast or published to the general public or specific market segments about your goods, products or services for the purpose of attracting customers or supporters. For the purposes of this definition:

- a. Notices that are published include material placed on the Internet or on similar electronic means of communication; and
- b. Regarding websites, only that part of a website that is about your goods, products or services for the purposes of attracting customers or supporters is considered an advertisement.



INSURED: Southern Arizona Paving & Construction Company Inc

POLICY#: 8102N9463402526G

POLICY PERIOD: 08/01/2025

TO: 08/01/2026

COMMERCIAL AUTO

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

## **BLANKET ADDITIONAL INSURED – PRIMARY AND NON-CONTRIBUTORY WITH OTHER INSURANCE – CONTRACTORS**

This endorsement modifies insurance provided under the following:

**BUSINESS AUTO COVERAGE FORM**

### **PROVISIONS**

1. The following is added to Paragraph c. in **A.1., Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

This includes any person or organization who you are required under a written contract or agreement, that is signed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, to name as an additional insured for Covered Autos Liability Coverage, but only for damages to which this insurance applies and only to the extent of that person's or organization's liability for the conduct of another "insured".

2. The following is added to Paragraph **B.5., Other Insurance** of **SECTION IV – BUSINESS AUTO CONDITIONS**:

Regardless of the provisions of paragraph a. and paragraph d. of this part **5. Other Insurance**, this insurance is primary to and non-contributory with applicable other insurance under which an additional insured person or organization is a named insured when a written contract or agreement with you, that is signed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, requires this insurance to be primary and non-contributory.

## COMMERCIAL AUTO

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.  
BUSINESS AUTO EXTENSION ENDORSEMENT**

This endorsement modifies insurance provided under the following:

**BUSINESS AUTO COVERAGE FORM**

**GENERAL DESCRIPTION OF COVERAGE** – This endorsement broadens coverage. However, coverage for any injury, damage or medical expenses described in any of the provisions of this endorsement may be excluded or limited by another endorsement to the Coverage Part, and these coverage broadening provisions do not apply to the extent that coverage is excluded or limited by such an endorsement. The following listing is a general coverage description only. Limitations and exclusions may apply to these coverages. Read all the provisions of this endorsement and the rest of your policy carefully to determine rights, duties, and what is and is not covered.

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>A. BROAD FORM NAMED INSURED</li><li>B. BLANKET ADDITIONAL INSURED</li><li>C. EMPLOYEE HIRED AUTO</li><li>D. EMPLOYEES AS INSURED</li><li>E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS</li><li>F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS</li><li>G. WAIVER OF DEDUCTIBLE – GLASS</li></ul> | <ul style="list-style-type: none"><li>H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT</li><li>I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT</li><li>J. PERSONAL PROPERTY</li><li>K. AIRBAGS</li><li>L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS</li><li>M. BLANKET WAIVER OF SUBROGATION</li><li>N. UNINTENTIONAL ERRORS OR OMISSIONS</li></ul> |
|--|--|

**PROVISIONS****A. BROAD FORM NAMED INSURED**

The following is added to Paragraph A.1., **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any organization you newly acquire or form during the policy period over which you maintain 50% or more ownership interest and that is not separately insured for Business Auto Coverage. Coverage under this provision is afforded only until the 180th day after you acquire or form the organization or the end of the policy period, whichever is earlier.

**B. BLANKET ADDITIONAL INSURED**

The following is added to Paragraph c. in A.1., **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any person or organization who is required under a written contract or agreement between you and that person or organization, that is signed and executed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, to be named as an additional insured is an "insured" for Covered Autos Liability Coverage, but only for damages to which

this insurance applies and only to the extent that person or organization qualifies as an "insured" under the Who Is An Insured provision contained in Section II.

**C. EMPLOYEE HIRED AUTO**

1. The following is added to Paragraph A.1., **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

An "employee" of yours is an "insured" while operating an "auto" hired or rented under a contract or agreement in an "employee's" name, with your permission, while performing duties related to the conduct of your business.

2. The following replaces Paragraph b. in B.5., **Other Insurance**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

b. For Hired Auto Physical Damage Coverage, the following are deemed to be covered "autos" you own:

- (1) Any covered "auto" you lease, hire, rent or borrow; and
- (2) Any covered "auto" hired or rented by your "employee" under a contract in an "employee's" name, with your

## COMMERCIAL AUTO

permission, while performing duties related to the conduct of your business.

However, any "auto" that is leased, hired, rented or borrowed with a driver is not a covered "auto".

### D. EMPLOYEES AS INSURED

The following is added to Paragraph A.1., **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any "employee" of yours is an "insured" while using a covered "auto" you don't own, hire or borrow in your business or your personal affairs.

### E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS

1. The following replaces Paragraph A.2.a.(2), of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

(2) Up to \$3,000 for cost of bail bonds (including bonds for related traffic law violations) required because of an "accident" we cover. We do not have to furnish these bonds.

2. The following replaces Paragraph A.2.a.(4), of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

(4) All reasonable expenses incurred by the "insured" at our request, including actual loss of earnings up to \$500 a day because of time off from work.

### F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS

The following replaces Subparagraph (5) in Paragraph B.7., **Policy Period, Coverage Territory**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

(5) Anywhere in the world, except any country or jurisdiction while any trade sanction, embargo, or similar regulation imposed by the United States of America applies to and prohibits the transaction of business with or within such country or jurisdiction, for Covered Autos Liability Coverage for any covered "auto" that you lease, hire, rent or borrow without a driver for a period of 30 days or less and that is not an "auto" you lease, hire, rent or borrow from any of your "employees", partners (if you are a partnership), members (if you are a limited liability company) or members of their households.

(a) With respect to any claim made or "suit" brought outside the United States of America, the territories and possessions of the United States of America, Puerto Rico and Canada:

(i) You must arrange to defend the "insured" against, and investigate or settle any such claim or "suit" and keep us advised of all proceedings and actions.

(ii) Neither you nor any other involved "insured" will make any settlement without our consent.

(iii) We may, at our discretion, participate in defending the "insured" against, or in the settlement of, any claim or "suit".

(iv) We will reimburse the "insured" for sums that the "insured" legally must pay as damages because of "bodily injury" or "property damage" to which this insurance applies, that the "insured" pays with our consent, but only up to the limit described in Paragraph C., **Limits Of Insurance**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**.

(v) We will reimburse the "insured" for the reasonable expenses incurred with our consent for your investigation of such claims and your defense of the "insured" against any such "suit", but only up to and included within the limit described in Paragraph C., **Limits Of Insurance**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**, and not in addition to such limit. Our duty to make such payments ends when we have used up the applicable limit of insurance in payments for damages, settlements or defense expenses.

(b) This insurance is excess over any valid and collectible other insurance available to the "insured" whether primary, excess, contingent or on any other basis.

(c) This insurance is not a substitute for required or compulsory insurance in any country outside the United States, its territories and possessions, Puerto Rico and Canada.

You agree to maintain all required or compulsory insurance in any such country up to the minimum limits required by local law. Your failure to comply with compulsory insurance requirements will not invalidate the coverage afforded by this policy, but we will only be liable to the same extent we would have been liable had you complied with the compulsory insurance requirements.

- (d) It is understood that we are not an admitted or authorized insurer outside the United States of America, its territories and possessions, Puerto Rico and Canada. We assume no responsibility for the furnishing of certificates of insurance, or for compliance in any way with the laws of other countries relating to insurance.

#### **G. WAIVER OF DEDUCTIBLE – GLASS**

The following is added to Paragraph D., **Deductible**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

No deductible for a covered "auto" will apply to glass damage if the glass is repaired rather than replaced.

#### **H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT**

The following replaces the last sentence of Paragraph A.4.b., **Loss Of Use Expenses**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

However, the most we will pay for any expenses for loss of use is \$65 per day, to a maximum of \$750 for any one "accident".

#### **I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT**

The following replaces the first sentence in Paragraph A.4.a., **Transportation Expenses**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

We will pay up to \$50 per day to a maximum of \$1,500 for temporary transportation expense incurred by you because of the total theft of a covered "auto" of the private passenger type.

#### **J. PERSONAL PROPERTY**

The following is added to Paragraph A.4., **Coverage Extensions**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

##### **Personal Property**

We will pay up to \$400 for "loss" to wearing apparel and other personal property which is:

- (1) Owned by an "insured"; and

- (2) In or on your covered "auto".

This coverage applies only in the event of a total theft of your covered "auto".

No deductibles apply to this Personal Property coverage.

#### **K. AIRBAGS**

The following is added to Paragraph B.3., **Exclusions**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

Exclusion 3.a. does not apply to "loss" to one or more airbags in a covered "auto" you own that inflate due to a cause other than a cause of "loss" set forth in Paragraphs A.1.b. and A.1.c., but only:

- a. If that "auto" is a covered "auto" for Comprehensive Coverage under this policy;
- b. The airbags are not covered under any warranty; and
- c. The airbags were not intentionally inflated.

We will pay up to a maximum of \$1,000 for any one "loss".

#### **L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS**

The following is added to Paragraph A.2.a., of **SECTION IV – BUSINESS AUTO CONDITIONS**:

Your duty to give us or our authorized representative prompt notice of the "accident" or "loss" applies only when the "accident" or "loss" is known to:

- (a) You (if you are an individual);
- (b) A partner (if you are a partnership);
- (c) A member (if you are a limited liability company);
- (d) An executive officer, director or insurance manager (if you are a corporation or other organization); or
- (e) Any "employee" authorized by you to give notice of the "accident" or "loss".

#### **M. BLANKET WAIVER OF SUBROGATION**

The following replaces Paragraph A.5., **Transfer Of Rights Of Recovery Against Others To Us**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

##### **5. Transfer Of Rights Of Recovery Against Others To Us**

We waive any right of recovery we may have against any person or organization to the extent required of you by a written contract signed and executed prior to any "accident" or "loss", provided that the "accident" or "loss" arises out of operations contemplated by

## COMMERCIAL AUTO

such contract. The waiver applies only to the person or organization designated in such contract.

### **N. UNINTENTIONAL ERRORS OR OMISSIONS**

The following is added to Paragraph **B.2., Concealment, Misrepresentation, Or Fraud**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:


The unintentional omission of, or unintentional error in, any information given by you shall not prejudice your rights under this insurance. However this provision does not affect our right to collect additional premium or exercise our right of cancellation or non-renewal.

INSURED: Southern Arizona Paving & Construction Company Inc

POLICY #: UB6S8320532526G

POLICY EFFECTIVE: 08/01/2025

TO: 08/01/2026

**TRAVELERS**   
ONE TOWER SQUARE  
HARTFORD CT 06183

**WORKERS COMPENSATION  
AND  
EMPLOYERS LIABILITY POLICY**

**ENDORSEMENT WC 00 03 13 (00) - 001**

## **WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT**

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit any one not named in the Schedule.

### **SCHEDULE**

**DESIGNATED PERSON:**

**DESIGNATED ORGANIZATION:**

ANY PERSON OR ORGANIZATION FOR WHICH THE INSURED HAS AGREED  
BY WRITTEN CONTRACT EXECUTED PRIOR TO LOSS TO FURNISH THIS  
WAIVER.

**ARIZONA STATUTORY PAYMENT BOND**  
**PURSUANT TO TITLE 34, ARIZONA REVISED STATUTES**  
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS THAT:

**Southern Arizona Paving & Construction Co.**

(hereinafter "Principal"), as Principal, and Liberty Mutual Insurance Company  
(hereinafter "Surety"), a corporation organized and existing under the laws of the State of Massachusetts,  
with its principal office in the City of Boston, MA, holding a certificate of authority to transact  
surety business in Arizona issued by the Director of Department of Insurance pursuant to Title 20, Chapter  
2, Article 1, as Surety, are held and firmly bound unto Pima County (hereinafter "Obligee") in the amount  
of \* **\$2,883,544.00**, for the payment whereof, Principal and Surety bind themselves, and their heirs,  
administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated 10/21/2025  
for:

Contract #PO2500031897

**IFB-PO-2500015692 Esperero Wash at Sunrise Drive Culvert Replacement**

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied  
at length herein.

NOW, THEREFORE, THE CONDITION OF THE OBLIGATION IS SUCH, that if the Principal promptly  
pays all monies due to all persons supplying labor or materials to the Principal or the Principal's  
subcontractors in the prosecution of the work provided for in the contract, this obligation is void. Otherwise  
it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2,  
Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with  
the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to  
the same extent as if it were copied at length in this Contract.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees  
that may be fixed by a judge in the court.

Witness our hands this 21st day of October, 2025.

Southern Arizona Paving & Construction Co.  
Principal

By: 

*Rocco W. Bone, Vice President*

Liberty Mutual Insurance Company  
Surety

By: 

*Tina Marie Perkins, Attorney-In-Fact*

\* Two Million Eight Hundred Eighty Three Thousand Five Hundred Forty Four and 00/100 Dollars

**ARIZONA STATUTORY PERFORMANCE BOND**  
**PURSUANT TO TITLE 34, ARIZONA REVISED STATUTES**  
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS THAT:

**Southern Arizona Paving & Construction Co.**

(hereinafter "Principal"), as Principal, and Liberty Mutual Insurance Company  
(hereinafter "Surety"), a corporation organized and existing under the laws of the State of Massachusetts  
with its principal office in the City of Boston, MA, holding a certificate of authority to transact  
surety business in Arizona issued by the Director of Insurance pursuant to Title 20, Chapter 2, Article 1,  
as Surety, are held and firmly bound unto Pima County, Arizona (hereinafter "Obligee") in the amount  
of \* **\$2,883,544.00**, for the payment whereof, Principal and Surety bind themselves, and their heirs,  
administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated 10/21/2025  
for:

Contract #PO2500031897  
**IFB-PO-2500015692 Esperero Wash at Sunrise Drive Culvert Replacement**

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied  
at length herein.

NOW, THEREFORE, THE CONDITION OF THE OBLIGATION IS SUCH, that if the Principal faithfully  
performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of the contract  
during the original term of the contract and any extension of the contract, with or without notice to the  
Surety, and during the life of any guaranty required under the contract, and also performs and fulfills all  
of the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications  
of the contract that may hereafter be made, notice of which modifications to the Surety being hereby  
waived, the above obligation is void. Otherwise it remains in full force and effect.


PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2,  
Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance  
with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it  
were copies at length in this Contract.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees  
that may be fixed by a judge of the court.

Witness our hands this 21st day of October, 2025.

Southern Arizona Paving & Construction Co.  
Principal

By:

  
Rocco G. Bony, Vice President

Liberty Mutual Insurance Company  
Surety

By:

  
Tina Marie Perkins, Attorney-In-Fact





# POWER OF ATTORNEY

Liberty Mutual Insurance Company  
The Ohio Casualty Insurance Company  
West American Insurance Company

Certificate No. **8213543 - 969682**

**KNOWN ALL PERSONS BY THESE PRESENTS:** That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Alexandra Haas, Brian D. Wilder, Debbie Clayton, Holly Byrd, Randi L. Morgan, Tina Marie Perkins, Tyler Graves

all of the city of Scottsdale state of AZ each individually if there be more than one named its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

**IN WITNESS WHEREOF**, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 28th day of March, 2025.



Liberty Mutual Insurance Company  
The Ohio Casualty Insurance Company  
West American Insurance Company

By:

Nathan J. Zangerle  
Nathan J. Zangerle, Assistant Secretary

State of PENNSYLVANIA ss  
County of MONTGOMERY

On this 28th day of March, 2025 before me personally appeared Nathan J. Zangerle who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

**IN WITNESS WHEREOF**, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal  
Teresa Pastella, Notary Public  
Montgomery County  
My commission expires March 28, 2029  
Commission number 1126044  
Member, Pennsylvania Association of Notaries

By:

Teresa Pastella  
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company and West American Insurance Company which resolutions are now in full force and effect reading as follows:

## ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

## ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

**Certificate of Designation** - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

**Authorization** - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

**IN TESTIMONY WHEREOF** I have hereunto set my hand and affixed the seals of said Companies this 21st day of October, 2025.



By:

Renee C. Llewellyn  
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.