

City of Goodyear

Offer and Acceptance CONTRACT NO. CON-19-4463

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

DESCRIPTION OF SERVICES: Adaman Well No. 3 Transmission Main

OFFER

To the City of Goodyear: The undersigned Contractor hereby offers and agrees to furnish the Services and/or material(s) in compliance with this Contract, as the term Contract is defined in this document.

By signing and submitting this Offer, Contractor certifies and warrants that Contractor: has read, understands and agrees to comply with the Contract as defined here; has no known, undisclosed conflict of interest; has not made an offer of any gift(s), payment(s) or other consideration to any City employee, elected official who has or may have had a role in the procurement process for this Contract; v) pursuant to A.R.S. § 41-4401, Contractor and its subcontractors will comply with all immigration laws and regulations that relate to its employees and A.R.S. § 23-214; and the signatory is an officer or duly authorized agent of the Contractor with full power and authority to submit binding offers for the goods and/or services as specified herein.

Arizona Transaction (Sales):

Arizona Contractor License Number: 299009

Privilege Tax License # 20764532

City of Goodyear Business Registration No.: NA

For clarification of this offer contact:

Name: Bronson White

Telephone: (602) 818-9901

E-Mail Address: bids@kinkaidcivil.com

Kinkaid Civil Construction LLC

Company Name

4505 E. Virginia Street

Address

Mesa, Arizona 85215

City

State

Zip Code

Sign: *Bronson White*

Authorized Signature for Offer

Bronson White

Printed Name

Chief Estimator 8/1/2018

Title

Date

ACCEPTANCE OF OFFER AND CONTRACT AWARD (For City of Goodyear Use Only)

Contractor's Offer is hereby accepted and a Contract awarded by the City. Contractor is now bound to provide the materials and/or services as specified in Scope of Work of this Contract. Contractor shall not start any billable work or provide any material/services until the Contractor receives an executed purchase order or written notice to proceed.

City Manager, City of Goodyear (if applicable)

Attested by:

Darcie McCracken, City Clerk

City Seal

Official File

City of Goodyear, Arizona.

Eff. Date: _____

Jacque Behrens, CPPB, Procurement Manager

Approved as to form:

Roric Massey, City Attorney

	City of Goodyear	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	Fee Schedule	

Prices offered shall not include applicable state and local taxes. The City will pay all applicable taxes. **For the purposes of determining the lowest cost, the City will not take tax into consideration.**

Taxes must be listed as a separate item on all invoices. Applicable tax rate: 9.8%

Description	Extended Cost
Adaman Well No. 3 Transmission Main	\$ 540,808.50
SUBTOTAL	\$ 540,808.50
TAX (9.8%) (Although taxes will be paid IF applicable. Do NOT include sales tax in unit price)	\$ 52,999.23
TOTAL LUMP SUM BID AMOUNT (All Project Elements)	\$ 593,807.73

1. Contractor Licensing Requirements:

Bid shall comply with all statutes and rules of the State of Arizona and Registrar of Contractors. In accordance with A.R.S. § 32-1151, and unless otherwise exempted by A.R.S. § 32-1151, Bidder should have the correct class of license as required by the Registrar of Contractors for the work specified, prior to submission of a bid. The Bidder certifies possession of the following license:

Licensed Contractor's Name: Kinkaid Civil Construction LLC

Class: KA Type: Dual Engineering

License Number: 299009 Expiration: 6/30/2019

Contractor shall attach a copy of Contractor's License to your bid submittal.

2. Delivery:

Bidder states that the item(s) will be delivered within 300 calendar days after receipt of order. This delivery schedule shall include any time for shipping.



City of Goodyear

**Attachment A
Non Collusion Affidavit**

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

NON-COLLUSION AFFIDAVIT

ADAMAN WELL NO. 3 TRANSMISSION MAIN

State of Arizona County of Maricopa

Jeffrie Borum, affiant,
the

Managing Member of
(TITLE)

Kinkaid Civil Construction LLC
(NAME OF COMPANY)

The person, corporation or company responsible for the accompanying Request for Qualifications, having first been duly sworn, deposes and says:

That such Request for Qualifications is genuine and not sham or collusive, nor made in the interest of or on behalf of any person not herein named, and that the Contractor has not directly or indirectly induced or solicited any other Contractor to put in a sham submittal, or any other person, firm or corporation to refrain from submitting, and that the Contractor has not in any manner sought by collusion to secure for itself an advantage over any other Contractor.

Jeffrie Borum
Managing Member
(TITLE)

Subscribed and sworn to before me this

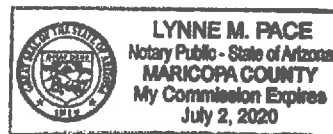
14th Day of August, 20 18

[Signature]

SIGNATURE OF NOTARY PUBLIC
IN AND FOR THE

COUNTY OF Maricopa

STATE OF Arizona



My Commission Expires 2, July 2020



City of Goodyear

Attachment B References

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

Please list a minimum of three (3) references from projects of similar size and scope whom the City may contact:

1. Company: EPCOR Water Arizona Inc.
Contact Name: Travis Nuttall Phone: (623) 445-2437
Email: tnuttall@epcor.com
Project Name: Northern Ave Waterline
Project Cost: \$619,765.00
Project Description: Installation of 5600 lf of 6" waterline, 18 water services, 2577 SY asphalt replacement
2. Company: Apache Junction Water Utilities CFD
Contact Name: Mike Loggins Phone: (480) 982-6030
Email: mloggins@ajcity.net
Project Name: Ironwood Drive 12" Waterline
Project Cost: \$433,616.00
Project Description: Installation of 2636 lf 12" waterline, 22 water services, 827 SY asphalt replacement
3. Company: City of Tempe
Contact Name: Andy Goh Phone: (480) 350-8896
Email: _____
Project Name: Waterline Replacement - Tempe Gardens and Superstition Neighborhoods
Project Cost: \$3,607,245.00
Project Description: Installation of 30,500 lf of 6"-12" waterline, 279 water services, 7335 SY asphalt replacement



City of Goodyear

Attachment C
Sub Contractor's Listing

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

SUBCONTRACTOR'S LISTING & CERTIFICATION OF CONTRACT COMPLIANCE

If bidder intends to subcontract any portion of this contract, the bidder shall submit subcontractor name, address, license number (as applicable) including the extent of subcontracting work and include with bid submittal documents. Multiple copies of this form may be made if necessary.

The undersigned hereby submits the following list of firms to be employed as subcontractors on the above referenced project:

SUBCONTRACTOR: RD Sanders Contracting Co. LLC

LICENSE 199208 A

ADDRESS: PO Box 703 Laveen, Arizona 85339

EXTENT OF WORK: Asphalt Paving

SUBCONTRACTOR: Roadsafe Traffic Systems

LICENSE 248999, 253145

ADDRESS: 3015 E. Illini St. Phoenix, Arizona 85040

EXTENT OF WORK: Traffic Control

SUBCONTRACTOR: _____

LICENSE _____

ADDRESS: _____

EXTENT OF WORK: _____

The undersigned hereby certifies that all subcontractors shall be in writing and shall provide that all work to be performed shall be in accordance with the terms of the contract. All subcontractors shall be subject to approval by the City. Certified copies of all subcontracts shall be furnished to the Project Manager or authorized representative; however, prices may be omitted. Subcontractors shall conform to the regulations governing employment of labor.

Name of Firm: Kinkaid Civil Construction LLC

Signature

Date 8/15/2018

Title: Chief Estimator

	City of Goodyear	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	Attachment D Bid Bond	

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, Kinkaid Civil Construction, LLC
(hereinafter called Principal), as Principal, and The Guarantee Company of North America USA
_____, a corporation organized and existing under the laws of
the State of Michigan _____ with its principal office in the City of
Southfield _____, (hereinafter called the Surety), as Surety, are held
and firmly bound unto the City of Goodyear, (hereinafter called the Obligee) in the penal sum of Ten Percent (10%)
of Bid Amount, Ten Percent of Bid Amount _____ (Dollars) (\$ 10% _____) lawful money of the United
States of America, to be paid to the order of the City of Goodyear, for the payment whereof, the said Principal and
Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally,
firmly by these presents and in conformance with A.R.S. Section 34-201.

WHEREAS, the Principal has submitted a bid/proposal for: Adaman Well No. 3 Transmission Main.
IFB #: 19-4463

NOW THEREFORE, if the Obligee shall accept the proposal of the Principal and the Principal shall enter
into a contract with the Obligee in accordance with the terms of the proposal and give the Bonds and Certificates
of Insurance as specified in the Standard Specifications with good and sufficient surety for the faithful performance
of the contract and for the prompt payment of labor and materials furnished in the prosecution of the contract, or in
the event of the failure of the Principal to enter into the contract and give the Bonds and Certificates of Insurance,
if the Principal pays to the Obligee the difference not to exceed the penalty of the Bond, between the amount
specified in the bid/proposal and such larger amount for which the Obligee may in good faith contract with another
party to perform the work covered by the bid/proposal, then this obligation is void. Otherwise it remains in full
force and effect provided, however, that this Bond is executed pursuant to the provisions of Section 34-201, Arizona
Revised Statutes, and all liabilities on this Bond shall be determined in accordance with the provisions of the section
to the extent as if it were copied at length herein.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable attorneys'
fees as may be fixed by a judge of the Court.

Witness our hands this 15th _____ day of August _____ 2018

Kinkaid Civil Construction, LLC
Principal _____ Seal

BY: Jeffrey Korum

The Guarantee Company of North America USA
Surety _____ Seal

BY: Holly Byrd
Holly Byrd, Attorney-In-Fact
Construction RISK Partners, Inc.
Agency of Record

BID BOND



The Guarantee Company of North America USA
Southfield, Michigan

POWER OF ATTORNEY

NOW ALL BY THESE PRESENTS: That **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, a corporation organized and existing under the laws of the State of Michigan, having its principal office in Southfield, Michigan, does hereby constitute and appoint

Ted H. Rarrick, Diane L. Arment, Holly Byrd
Construction Risk Partners, Inc.

its true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise.

The execution of such instrument(s) in pursuance of these presents, shall be as binding upon **THE GUARANTEE COMPANY OF NORTH AMERICA USA** as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at the principal office.

The Power of Attorney is executed and may be certified so, and may be revoked, pursuant to and by authority of Article IX, Section 9.03 of the By-Laws adopted by the Board of Directors of **THE GUARANTEE COMPANY OF NORTH AMERICA USA** at a meeting held on the 31st day of December, 2003. The President, or any Vice President, acting with any Secretary or Assistant Secretary, shall have power and authority:

1. To appoint Attorney(s)-in-fact, and to authorize them to execute on behalf of the Company, and attach the Seal of the Company thereto, bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof; and
2. To revoke, at any time, any such Attorney-in-fact and revoke the authority given, except as provided below
3. In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.
4. In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner - Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

Further, this Power of Attorney is signed and sealed by facsimile pursuant to resolution of the Board of Directors of the Company adopted at a meeting duly called and held on the 6th day of December 2011, of which the following is a true excerpt:

RESOLVED that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, contracts of indemnity and other writings obligatory in the nature thereof, and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, **THE GUARANTEE COMPANY OF NORTH AMERICA USA** has caused this instrument to be signed and its corporate seal to be affixed by its authorized officer, this 1st day of March, 2018.



THE GUARANTEE COMPANY OF NORTH AMERICA USA

Stephen C. Ruschak, President & Chief Operating Officer

Randall Musselman, Secretary

STATE OF MICHIGAN
County of Oakland

On this 1st day of March, 2018 before me came the individuals who executed the preceding instrument, to me personally known, and being by me duly sworn, said that each is the herein described and authorized officer of The Guarantee Company of North America USA; that the seal affixed to said instrument is the Corporate Seal of said Company; that the Corporate Seal and each signature were duly affixed by order of the Board of Directors of said Company.



Cynthia A. Takai
Notary Public, State of Michigan
County of Oakland
My Commission Expires February 27, 2024
Acting in Oakland County

IN WITNESS WHEREOF, I have hereunto set my hand at The Guarantee Company of North America USA offices the day and year above written.

I, Randall Musselman, Secretary of **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney executed by **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, which is still in full force and effect.



IN WITNESS WHEREOF, I have thereunto set my hand and attached the seal of said Company this 15th day of August, 2018.

Randall Musselman, Secretary



City of Goodyear
Attachment E
Performance Bond

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, Kinkaid Civil Construction, LLC

(hereinafter called Principal), as Principal, and The Guarantee Company of North America USA

, a corporation organized and existing under the laws of the State Of Michigan, with its principal office in the City of, Southfield (hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Goodyear (hereinafter called the Obligee) in the amount of Five Hundred Ninety Three Thousand Eight Hundred Seven & 73/100 (Dollars) (\$ 593,807.73), for the payment whereof, the said 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 the

day of _____ 20____, for the material, service or construction described as Adaman Well No. 3 Transmission Main

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 THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extension thereof, with or without notice to the Surety and during the life of any guaranty required under the contract, and shall also perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived; then the above obligations shall be 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 extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable attorneys' fees as may be fixed by a judge of the Court.

Witness our hands this 4th day of September _____ 2018

Kinkaid Civil Construction, LLC

Principal

Seal

BY: Jeffrey Borum

The Guarantee Company of North America USA

Surety

Seal

BY: Holly Byrd

Holly Byrd / Attorney-In-Fact

Construction RISK Partners, Inc.

Agency of Record

PERFORMANCE BOND

	City of Goodyear Attachment F Payment Bond	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
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KNOW ALL PERSONS BY THESE PRESENTS:

THAT, Kinkaid Civil Construction, LLC

(hereinafter called Principal), as Principal, and The Guarantee Company of North America USA

_____, a corporation organized and existing under the laws of

the State Of Michigan, with its principal office in the City of, Southfield (hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Goodyear (hereinafter called the Oblige) in the amount of Five Hundred Ninety Three Thousand Eight Hundred Seven & 73/100 (Dollars) (\$ 593,807.73), for the payment whereof, the said 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 Oblige, dated the _____ day of _____ 20____, for the material, service or construction described as Adaman Well No. 3 Transmission Main

_____ 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 THIS OBLIGATION IS SUCH, that if the said Principal shall promptly pay all monies due to all persons supplying labor or materials to him or his subcontractors in the prosecution of the work provided for in said contract, then this obligation shall be 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 extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable attorneys' fees as may be fixed by a judge of the Court.

Witness our hands this 4th day of September _____ 20 18

Kinkaid Civil Construction, LLC

Principal

Seal

BY: [Signature]

The Guarantee Company of North America USA

Surety

Seal

BY: [Signature]

Holly Byrd / Attorney-In-Fact

Construction RISK Partners, Inc.

Agency of Record

PAYMENT BOND



The Guarantee Company of North America USA
Southfield, Michigan

POWER OF ATTORNEY

NOW ALL BY THESE PRESENTS: That THE GUARANTEE COMPANY OF NORTH AMERICA USA, a corporation organized and existing under the laws of the State of Michigan, having its principal office in Southfield, Michigan, does hereby constitute and appoint

Ted H. Rarrick, Diane L. Arment, Holly Byrd
Construction Risk Partners, Inc.

its true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise.

The execution of such instrument(s) in pursuance of these presents, shall be as binding upon THE GUARANTEE COMPANY OF NORTH AMERICA USA as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at the principal office.

The Power of Attorney is executed and may be certified so, and may be revoked, pursuant to and by authority of Article IX, Section 9.03 of the By-Laws adopted by the Board of Directors of THE GUARANTEE COMPANY OF NORTH AMERICA USA at a meeting held on the 31st day of December, 2003. The President, or any Vice President, acting with any Secretary or Assistant Secretary, shall have power and authority:

1. To appoint Attorney(s)-in-fact, and to authorize them to execute on behalf of the Company, and attach the Seal of the Company thereto, bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof; and
2. To revoke, at any time, any such Attorney-in-fact and revoke the authority given, except as provided below
3. In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.
4. In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner – Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

Further, this Power of Attorney is signed and sealed by facsimile pursuant to resolution of the Board of Directors of the Company adopted at a meeting duly called and held on the 6th day of December 2011, of which the following is a true excerpt:

RESOLVED that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, contracts of indemnity and other writings obligatory in the nature thereof, and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, THE GUARANTEE COMPANY OF NORTH AMERICA USA has caused this instrument to be signed and its corporate seal to be affixed by its authorized officer, this 1st day of March, 2018.



THE GUARANTEE COMPANY OF NORTH AMERICA USA

Stephen C. Ruschak, President & Chief Operating Officer

Randall Musselman, Secretary

STATE OF MICHIGAN
County of Oakland

On this 1st day of March, 2018 before me came the individuals who executed the preceding instrument, to me personally known, and being by me duly sworn, said that each is the herein described and authorized officer of The Guarantee Company of North America USA; that the seal affixed to said instrument is the Corporate Seal of said Company; that the Corporate Seal and each signature were duly affixed by order of the Board of Directors of said Company.



Cynthia A. Takai
Notary Public, State of Michigan
County of Oakland

My Commission Expires February 27, 2024
Acting in Oakland County

IN WITNESS WHEREOF, I have hereunto set my hand at The Guarantee Company of North America USA offices the day and year above written.

I, Randall Musselman, Secretary of THE GUARANTEE COMPANY OF NORTH AMERICA USA, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney executed by THE GUARANTEE COMPANY OF NORTH AMERICA USA, which is still in full force and effect.



IN WITNESS WHEREOF, I have thereunto set my hand and attached the seal of said Company this 4th day of September, 2018.

Randall Musselman, Secretary



Business Registration Application

\$75 annual permit fee required

Application Type (Check all that apply):

☒ New Business/Owner ☐ Renewal ☐ Name Change / Location Change

Business Information:

Business Name: KINKAID CIVIL CONSTRUCTION, LLC

Legal Business Name (If different): _____

Business Address: 4505 E VIRGINIA STREET

City: MESA State: AZ Zip Code: 85215-9100

Mailing Address (If different than above): _____

City: _____ State: _____ Zip Code: _____

Business Phone: (480)646-4438 EMERGENCY Phone: _____

Start Date: 09/01/18 Sales Tax Number: 20-764532

Email Address: LYNNE@KINKAIDCIVIL.COM

Describe the nature of the business: UNDERGROUND CIVIL CONSTRUCTION

Number of Employees: 75

Ownership and Premise Information:

☒ Limited Liability Co ☐ General Partnership ☐ Limited Partnership
☐ Corporation ☐ Individual / Sole Proprietor (Additional Documentation Required)

Owners, Partners, LLC Members, Officers, etc.:

Name: JEFFRIE BORUM Title: MANAGING MEMBER

Address: 4505 E VIRGINIA STREET

City: MESA State: AZ Zip Code: 85215-9100

Name: _____ Title: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Issuance of a business registration shall not be deemed to legalize any act, which otherwise may be in violation of the law, including the city's zoning codes, or to exempt any person from any penalty of such violations. I affirm, under penalty of perjury that the statements made in this application are true and correct to the best of my knowledge,

LYNNE M PAGE

Print Name

Signature

CFO

Title

9/4/18

Date

CITY OF GOODYEAR

*** CUSTOMER RECEIPT ***

Date: 9/10/18 00 Receipt no: 55937

Year	License Name	Amount
01	REGISTRATION NEW	\$75.00
NEW BUSINESS		

Tender detail		
CK CHECK	10629	\$75.00
Total tendered		\$75.00
Total payment		\$75.00

Trans date: 9/10/18 Time: 15:49:53

Oct. 17. 2011 10:27AM

AZ Corp. Commission



03643623

**AZ CORPORATION COMMISSION
FILED**

OCT 17 2011

FILE NO. L-1714045-6**Articles of Organization**

of

Kinkaid Civil Construction LLC

Pursuant to A.R.S. §29-632, the undersigned state as follows:

Article 1 NAMEThe name of this Limited Liability Company is:
Kinkaid Civil Construction LLC**Article 2 KNOWN PLACE OF BUSINESS**The address of the known place of business in Arizona is:
3930 E Fox Circle, Mesa, AZ, 85205 located in the County of Maricopa**Article 3 STATUTORY AGENT**The name and address of the Statutory Agent for this company is: Jeffrie A. Borum
National Contractor Services Corporation - 1010 E Jefferson St, Phoenix, AZ, 85034**Article 4 DISSOLUTION**

The latest date on which the Limited Liability Company must dissolve is October 8, 2041

Article 5 MANAGEMENTManagement of this company is reserved to the members.
The names and addresses of each person who is a member is:

Jeffrie A Borum, 27808 N. 156th St., Scottsdale, AZ, 85282 - Member [X]

Shawn M LaVoie, 7751 E Downing Street, Mesa, AZ, 85207 - Member [X]

Article 6 PURPOSE

The purpose for which this Limited Liability Company is organized is GENERAL ENGINEERING contracting and any or all business for which a Limited Liability Company may be organized under the laws of Arizona, as they may be amended from time to time, except banking and insurance.

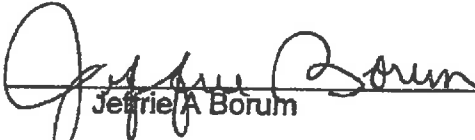
Article 7 INDEMNIFICATION

The Limited Liability Company shall indemnify any person that incurs expenses or liabilities by reason of the fact he or she is or was a manager, officer, employee or agent of the company or is or was serving at the request of the company as a manager, officer, employee or agent of another company, partnership, joint venture, trust or other enterprise. This indemnification shall be mandatory in all circumstances in which indemnification is permitted by law.

Article 8 LIMITATION OF LIABILITY

To the fullest extent permitted by the Arizona Revised Statutes as the same exist or may hereafter be amended, a member, manager, officer, employee, agent of or advisor to the Limited Liability Company shall be exempt from any liabilities of the Limited Liability Company or any liabilities arising from services performed on behalf of the Limited Liability Company. This exemption shall include any liability for monetary damages as a manager or member of the Limited Liability Company for breach of his fiduciary duty.

EXECUTED this 17th day of October, 20 11.


Jeffery A. Borum

Acceptance of Appointment by Statutory Agent

I National Contractor Services Corporation, having been designated to act as Statutory Agent, hereby consent to act in that capacity until removed or resignation is submitted in accordance with the Arizona Revised Statutes.

Effective this 17th day of October, 20 11

Signed 
William R Bowman
National Contractor Services Corporation

State of formation: Arizona

Official Address: 4505 E. Virginia Street Mesa, Arizona 85215



06/30/2019

LICENSE EFFECTIVE THROUGH:

STATE OF ARIZONA CERTIFIES THAT

KinKaid Civil Construction LLC

CONTRACTORS LICENSE NO. 299009

CLASS

Dual Engineering

KA

THIS CARD MUST BE
PRESENTED UPON DEMAND

JEFF FLEETHAM, DIRECTOR

STATE OF ARIZONA

Office of the Registrar of Contractors

License No. ROC 299009

This is to Certify That

KinKaid Civil Construction LLC

DBA (if any)

*Having been shown to possess all the necessary qualifications, and having complied with all the requirements of the law,
is by order of the Registrar of Contractors duly licensed and admitted to engage in and pursue the business of*

KA

Dual Engineering

*Contractor in the State of Arizona. Given my hand and the seal of the Registrar of Contractors
in my office, City of Phoenix, on 06/24/2015*



DIRECTOR, ARIZONA REGISTRAR OF CONTRACTORS



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/5/2018

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 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).

PRODUCER Commercial West Insurance Agency 971 North Gilbert Rd Ste 203 Gilbert AZ 85234		CONTACT NAME: Megan Bredeson PHONE (A/C, No, Ext): 480-961-5400 FAX (A/C, No): 480-961-5401 E-MAIL ADDRESS: Megan@comlwest.com	
INSURED Kinkaid Civil Construction, LLC 4505 E Virginia Street Mesa AZ 85215		INSURER(S) AFFORDING COVERAGE	
KINKA-1		INSURER A: Continental Insurance Co. NAIC # 35289	
		INSURER B: Transportation Ins Co NAIC # 20494	
		INSURER C: Travelers Property Casualty Co NAIC # 25674	
		INSURER D:	
		INSURER E:	
		INSURER F:	

COVERAGES**CERTIFICATE NUMBER:** 1882987194**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	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PRO-JECT ☐ LOC OTHER:	Y		6057573364	3/15/2018	3/15/2019	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 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 \$
A	☒ AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ ALL OWNED AUTOS ☐ HIRED AUTOS ☐ SCHEDULED AUTOS ☐ NON-OWNED AUTOS	Y		6057573333	3/15/2018	3/15/2019	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE DED RETENTION \$			6057573347	3/15/2018	3/15/2019	EACH OCCURRENCE \$ 4,000,000 AGGREGATE \$ 4,000,000 \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N ☒ N	N/A	6057573378	3/15/2018	3/15/2019	☒ PER STATUTE ☐ 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
C	Equipment Coverage			QT6608F329565TIL18	3/15/2018	3/15/2019	Leased/Rented Equip 500,000 Scheduled Equip 3,491,260 Ded 2,500

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: 19-4463, Adaman Well No 3 Transmission Main; The City of Goodyear and its elected and appointed boards, officers, officials, agents, employees, and volunteers are additional insured when required by written contract per forms attached

CERTIFICATE HOLDER**CANCELLATION**

City of Goodyear
190 N Litchfield Road
Goodyear AZ 85338

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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Contractors' General Liability Extension Endorsement

It is understood and agreed that this endorsement amends the **COMMERCIAL GENERAL LIABILITY COVERAGE PART** as follows. If any other endorsement attached to this policy amends any provision also amended by this endorsement, then that other endorsement controls with respect to such provision, and the changes made by this endorsement with respect to such provision do not apply.

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Contractors' General Liability Extension Endorsement

1. ADDITIONAL INSURED

- a. **WHO IS AN INSURED** is amended to include as an **Insured** any person or organization described in paragraphs **A.** through **H.** below whom a **Named Insured** is required to add as an additional insured on this **Coverage Part** under a written contract or written agreement, provided such contract or agreement:

(1) is currently in effect or becomes effective during the term of this **Coverage Part**; and

(2) was executed prior to:

(a) the **bodily injury** or **property damage**; or

(b) the offense that caused the **personal and advertising injury**,

for which such additional insured seeks coverage.

- b. However, subject always to the terms and conditions of this policy, including the limits of insurance, the Insurer will not provide such additional insured with:

(1) a higher limit of insurance than required by such contract or agreement; or

(2) coverage broader than required by such contract or agreement, and in no event broader than that described by the applicable paragraph **A.** through **H.** below.

Any coverage granted by this endorsement shall apply only to the extent permissible by law.

A. Controlling Interest

Any person or organization with a controlling interest in a **Named Insured**, but only with respect to such person or organization's liability for **bodily injury**, **property damage** or **personal and advertising injury** arising out of:

1. such person or organization's financial control of a **Named Insured**; or

2. premises such person or organization owns, maintains or controls while a **Named Insured** leases or occupies such premises;

provided that the coverage granted by this paragraph does not apply to structural alterations, new construction or demolition operations performed by, on behalf of, or for such additional insured.

B. Co-owner of Insured Premises

A co-owner of a premises co-owned by a **Named Insured** and covered under this insurance but only with respect to such co-owner's liability for **bodily injury**, **property damage** or **personal and advertising injury** as co-owner of such premises.

C. Lessor of Equipment

Any person or organization from whom a **Named Insured** leases equipment, but only with respect to liability for **bodily injury**, **property damage** or **personal and advertising injury** caused, in whole or in part, by the **Named Insured's** maintenance, operation or use of such equipment, provided that the **occurrence** giving rise to such **bodily injury**, **property damage** or the offense giving rise to such **personal and advertising injury** takes place prior to the termination of such lease.

D. Lessor of Land

Any person or organization from whom a **Named Insured** leases land but only with respect to liability for **bodily injury**, **property damage** or **personal and advertising injury** arising out of the ownership, maintenance or use of such land, provided that the **occurrence** giving rise to such **bodily injury**, **property damage** or the offense giving rise to such **personal and advertising injury** takes place prior to the termination of such lease. The coverage granted by this paragraph does not apply to structural alterations, new construction or demolition operations performed by, on behalf of, or for such additional insured.



Contractors' General Liability Extension Endorsement

E. Lessor of Premises

An owner or lessor of premises leased to the **Named Insured**, or such owner or lessor's real estate manager, but only with respect to liability for **bodily injury, property damage or personal and advertising injury** arising out of the ownership, maintenance or use of such part of the premises leased to the **Named Insured**, and provided that the **occurrence** giving rise to such **bodily injury or property damage**, or the offense giving rise to such **personal and advertising injury**, takes place prior to the termination of such lease. The coverage granted by this paragraph does not apply to structural alterations, new construction or demolition operations performed by, on behalf of, or for such additional insured.

F. Mortgagee, Assignee or Receiver

A mortgagee, assignee or receiver of premises but only with respect to such mortgagee, assignee or receiver's liability for **bodily injury, property damage or personal and advertising injury** arising out of the **Named Insured's** ownership, maintenance, or use of a premises by a **Named Insured**.

The coverage granted by this paragraph does not apply to structural alterations, new construction or demolition operations performed by, on behalf of, or for such additional insured.

G. State or Governmental Agency or Subdivision or Political Subdivisions – Permits

A state or governmental agency or subdivision or political subdivision that has issued a permit or authorization but only with respect to such state or governmental agency or subdivision or political subdivision's liability for **bodily injury, property damage or personal and advertising injury** arising out of:

1. the following hazards in connection with premises a **Named Insured** owns, rents, or controls and to which this insurance applies:
 - a. the existence, maintenance, repair, construction, erection, or removal of advertising signs, awnings, canopies, cellar entrances, coal holes, driveways, manholes, marquees, hoistaway openings, sidewalk vaults, street banners, or decorations and similar exposures; or
 - b. the construction, erection, or removal of elevators; or
 - c. the ownership, maintenance or use of any elevators covered by this insurance; or
2. the permitted or authorized operations performed by a **Named Insured** or on a **Named Insured's** behalf.

The coverage granted by this paragraph does not apply to:

- a. **Bodily injury, property damage or personal and advertising injury** arising out of operations performed for the state or governmental agency or subdivision or political subdivision; or
- b. **Bodily injury or property damage** included within the **products-completed operations hazard**.

With respect to this provision's requirement that additional insured status must be requested under a written contract or agreement, the Insurer will treat as a written contract any governmental permit that requires the **Named Insured** to add the governmental entity as an additional insured.

H. Trade Show Event Lessor

1. With respect to a **Named Insured's** participation in a trade show event as an exhibitor, presenter or displayer, any person or organization whom the **Named Insured** is required to include as an additional insured, but only with respect to such person or organization's liability for **bodily injury, property damage or personal and advertising injury** caused by:
 - a. the **Named Insured's** acts or omissions; or
 - b. the acts or omissions of those acting on the **Named Insured's** behalf,



Contractors' General Liability Extension Endorsement

in the performance of the **Named Insured's** ongoing operations at the trade show event premises during the trade show event.

2. The coverage granted by this paragraph does not apply to **bodily injury** or **property damage** included within the **products-completed operations hazard**.

2. ADDITIONAL INSURED - PRIMARY AND NON-CONTRIBUTORY TO ADDITIONAL INSURED'S INSURANCE

The **Other Insurance** Condition in the **COMMERCIAL GENERAL LIABILITY CONDITIONS** Section is amended to add the following paragraph:

If the **Named Insured** has agreed in writing in a contract or agreement that this insurance is primary and non-contributory relative to an additional insured's own insurance, then this insurance is primary, and the Insurer will not seek contribution from that other insurance. For the purpose of this Provision 2., the additional insured's own insurance means insurance on which the additional insured is a named insured. Otherwise, and notwithstanding anything to the contrary elsewhere in this Condition, the insurance provided to such person or organization is excess of any other insurance available to such person or organization.

3. BODILY INJURY – EXPANDED DEFINITION

Under **DEFINITIONS**, the definition of **bodily injury** is deleted and replaced by the following:

Bodily injury means physical injury, sickness or disease sustained by a person, including death, humiliation, shock, mental anguish or mental injury sustained by that person at any time which results as a consequence of the physical injury, sickness or disease.

4. BROAD KNOWLEDGE OF OCCURRENCE/ NOTICE OF OCCURRENCE

Under **CONDITIONS**, the condition entitled **Duties in The Event of Occurrence, Offense, Claim or Suit** is amended to add the following provisions:

A. BROAD KNOWLEDGE OF OCCURRENCE

The **Named Insured** must give the Insurer or the Insurer's authorized representative notice of an **occurrence**, offense or **claim** only when the **occurrence**, offense or **claim** is known to a natural person **Named Insured**, to a partner, executive officer, manager or member of a **Named Insured**, or an **employee** designated by any of the above to give such notice.

B. NOTICE OF OCCURRENCE

The **Named Insured's** rights under this **Coverage Part** will not be prejudiced if the **Named Insured** fails to give the Insurer notice of an **occurrence**, offense or **claim** and that failure is solely due to the **Named Insured's** reasonable belief that the **bodily injury** or **property damage** is not covered under this **Coverage Part**. However, the **Named Insured** shall give written notice of such **occurrence**, offense or **claim** to the Insurer as soon as the **Named Insured** is aware that this insurance may apply to such **occurrence**, offense or **claim**.

5. BROAD NAMED INSURED

WHO IS AN INSURED is amended to delete its Paragraph 3. in its entirety and replace it with the following:

3. Pursuant to the limitations described in Paragraph 4. below, any organization in which a **Named Insured** has management control:

- a. on the effective date of this **Coverage Part**; or
- b. by reason of a **Named Insured** creating or acquiring the organization during the **policy period**,

qualifies as a **Named Insured**, provided that there is no other similar liability insurance, whether primary, contributory, excess, contingent or otherwise, which provides coverage to such organization, or which would



Contractors' General Liability Extension Endorsement

have provided coverage but for the exhaustion of its limit, and without regard to whether its coverage is broader or narrower than that provided by this insurance.

But this **BROAD NAMED INSURED** provision does not apply to:

- (a) any partnership, limited liability company or joint venture; or
- (b) any organization for which coverage is excluded by another endorsement attached to this **Coverage Part**.

For the purpose of this provision, management control means:

- A. owning interests representing more than 50% of the voting, appointment or designation power for the selection of a majority of the Board of Directors of a corporation; or
 - B. having the right, pursuant to a written trust agreement, to protect, control the use of, encumber or transfer or sell property held by a trust.
4. With respect to organizations which qualify as **Named Insureds** by virtue of Paragraph 3. above, this insurance does not apply to:
- a. **bodily injury or property damage** that first occurred prior to the date of management control, or that first occurs after management control ceases; nor
 - b. **personal or advertising injury** caused by an offense that first occurred prior to the date of management control or that first occurs after management control ceases.
5. The insurance provided by this **Coverage Part** applies to **Named Insureds** when trading under their own names or under such other trading names or doing-business-as names (dba) as any **Named Insured** should choose to employ.

6. BROADENED LIABILITY COVERAGE FOR DAMAGE TO YOUR PRODUCT AND YOUR WORK

- A. Under **COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended to delete exclusions k. and l. and replace them with the following:

This insurance does not apply to:

k. Damage to Your Product

Property damage to your product arising out of it, or any part of it except when caused by or resulting from:

- (1) fire;
- (2) smoke;
- (3) collapse; or
- (4) explosion.

l. Damage to Your Work

Property damage to your work arising out of it, or any part of it and included in the **products-completed operations hazard**.

This exclusion does not apply:

- (1) If the damaged work, or the work out of which the damage arises, was performed on the **Named Insured's** behalf by a subcontractor; or
- (2) If the cause of loss to the damaged work arises as a result of:
 - (a) fire;



Contractors' General Liability Extension Endorsement

- (b) smoke;
- (c) collapse; or
- (d) explosion.

B. The following paragraph is added to LIMITS OF INSURANCE:

Subject to 5. above, \$100,000 is the most the Insurer will pay under **Coverage A** for the sum of **damages** arising out of any one **occurrence** because of **property damage to your product and your work** that is caused by fire, smoke, collapse or explosion and is included within the **product-completed operations hazard**. This sublimit does not apply to **property damage to your work** if the damaged work, or the work out of which the damage arises, was performed on the **Named Insured's** behalf by a subcontractor.

C. This Broadened Liability Coverage For Damage To Your Product And Your Work Provision does not apply if an endorsement of the same name is attached to this policy.

7. CONTRACTUAL LIABILITY – RAILROADS

With respect to operations performed within 50 feet of railroad property, the definition of **insured contract** is replaced by the following:

Insured Contract means:

- a. A contract for a lease of premises. However, that portion of the contract for a lease of premises that indemnifies any person or organization for damage by fire to premises while rented to a **Named Insured** or temporarily occupied by a **Named Insured** with permission of the owner is not an **insured contract**;
- b. A sidetrack agreement;
- c. Any easement or license agreement;
- d. An obligation, as required by ordinance, to indemnify a municipality, except in connection with work for a municipality;
- e. An elevator maintenance agreement;
- f. That part of any other contract or agreement pertaining to the **Named Insured's** business (including an indemnification of a municipality in connection with work performed for a municipality) under which the **Named Insured** assumes the tort liability of another party to pay for **bodily injury** or **property damage** to a third person or organization. Tort liability means a liability that would be imposed by law in the absence of any contract or agreement.

Paragraph f. does not include that part of any contract or agreement:

(1) That indemnifies an architect, engineer or surveyor for injury or damage arising out of:

- (a)** Preparing, approving or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or
- (b)** Giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage;

(2) Under which the Insured, if an architect, engineer or surveyor, assumes liability for an injury or damage arising out of the insured's rendering or failure to render professional services, including those listed in (1) above and supervisory, inspection, architectural or engineering activities.

8. ELECTRONIC DATA LIABILITY

A. Under COVERAGES, Coverage A – Bodily Injury and Property Damage Liability, the paragraph entitled Exclusions is amended to delete exclusion p. Electronic Data and replace it with the following:

This insurance does not apply to:



Contractors' General Liability Extension Endorsement

p. Access Or Disclosure Of Confidential Or Personal Information And Data-related Liability

Damages arising out of:

- (1) any access to or disclosure of any person's or organization's confidential or personal information, including patents, trade secrets, processing methods, customer lists, financial information, credit card information, health information or any other type of nonpublic information; or
- (2) the loss of, loss of use of, damage to, corruption of, inability to access, or inability to manipulate **electronic data** that does not result from physical injury to tangible property.

However, unless Paragraph (1) above applies, this exclusion does not apply to **damages** because of **bodily injury**.

This exclusion applies even if damages are claimed for notification costs, credit monitoring expenses, forensic expenses, public relation expenses or any other loss, cost or expense incurred by the **Named Insured** or others arising out of that which is described in Paragraph (1) or (2) above.

B. The following paragraph is added to **LIMITS OF INSURANCE**:

Subject to 5. above, \$100,000 is the most the Insurer will pay under **Coverage A** for all **damages** arising out of any one **occurrence** because of **property damage** that results from physical injury to tangible property and arises out of **electronic data**.

C. The following definition is added to **DEFINITIONS**:

Electronic data means information, facts or programs stored as or on, created or used on, or transmitted to or from computer software (including systems and applications software), hard or floppy disks, CD-ROMS, tapes, drives, cells, data processing devices or any other media which are used with electronically controlled equipment.

D. For the purpose of the coverage provided by this **ELECTRONIC DATA LIABILITY** Provision, the definition of **property damage** in **DEFINITIONS** is replaced by the following:

Property damage means:

- a. Physical injury to tangible property, including all resulting loss of use of that property. All such loss of use shall be deemed to occur at the time of the physical injury that caused it;
- b. Loss of use of tangible property that is not physically injured. All such loss of use shall be deemed to occur at the time of the **occurrence** that caused it; or
- c. Loss of, loss of use of, damage to, corruption of, inability to access, or inability to properly manipulate **electronic data**, resulting from physical injury to tangible property. All such loss of **electronic data** shall be deemed to occur at the time of the **occurrence** that caused it.

For the purposes of this insurance, **electronic data** is not tangible property.

E. If Electronic Data Liability is provided at a higher limit by another endorsement attached to this policy, then the \$100,000 limit provided by this **ELECTRONIC DATA LIABILITY** Provision is part of, and not in addition to, that higher limit.

9. ESTATES, LEGAL REPRESENTATIVES, AND SPOUSES

The estates, heirs, legal representatives and **spouses** of any natural person **Insured** shall also be insured under this policy; provided, however, coverage is afforded to such estates, heirs, legal representatives, and **spouses** only for **claims** arising solely out of their capacity or status as such and, in the case of a **spouse**, where such **claim** seeks **damages** from marital community property, jointly held property or property transferred from such natural person **Insured** to such **spouse**. No coverage is provided for any act, error or omission of an estate, heir, legal representative, or **spouse** outside the scope of such person's capacity or status as such, provided however that the **spouse** of a natural person **Named Insured** and the **spouses** of



Contractors' General Liability Extension Endorsement

members or partners of joint venture or partnership **Named Insureds** are **Insureds** with respect to such **spouses'** acts, errors or omissions in the conduct of the **Named Insured's** business.

10. EXPECTED OR INTENDED INJURY – EXCEPTION FOR REASONABLE FORCE

Under **COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended to delete the exclusion entitled **Expected or Intended Injury** and replace it with the following:

This insurance does not apply to:

Expected or Intended Injury

Bodily injury or **property damage** expected or intended from the standpoint of the **Insured**. This exclusion does not apply to **bodily injury** or **property damage** resulting from the use of reasonable force to protect persons or property.

11. GENERAL AGGREGATE LIMITS OF INSURANCE - PER PROJECT

A. For each construction project away from premises the **Named Insured** owns or rents, a separate Construction Project General Aggregate Limit, equal to the amount of the General Aggregate Limit shown in the Declarations, is the most the Insurer will pay for the sum of:

1. All **damages** under **Coverage A**, except **damages** because of **bodily injury** or **property damage** included in the **products-completed operations hazard**; and
2. All medical expenses under **Coverage C**,

that arise from **occurrences** or accidents which can be attributed solely to ongoing operations at that construction project. Such payments shall not reduce the General Aggregate Limit shown in the Declarations, nor the Construction Project General Aggregate Limit of any other construction project.

B. All:

1. **Damages** under **Coverage B**, regardless of the number of locations or construction projects involved;
2. **Damages** under **Coverage A**, caused by **occurrences** which cannot be attributed solely to ongoing operations at a single construction project, except **damages** because of **bodily injury** or **property damage** included in the **products-completed operations hazard**; and
3. Medical expenses under **Coverage C** caused by accidents which cannot be attributed solely to ongoing operations at a single construction project,

will reduce the General Aggregate Limit shown in the Declarations.

- C. The limits shown in the Declarations for Each Occurrence, for Damage To Premises Rented To You and for Medical Expense continue to apply, but will be subject to either the Construction Project General Aggregate Limit or the General Aggregate Limit shown in the Declarations, depending on whether the **occurrence** can be attributed solely to ongoing operations at a particular construction project.
- D. When coverage for liability arising out of the **products-completed operations hazard** is provided, any payments for **damages** because of **bodily injury** or **property damage** included in the **products-completed operations hazard** will reduce the Products-Completed Operations Aggregate Limit shown in the Declarations, regardless of the number of projects involved.
- E. If a single construction project away from premises owned by or rented to the **Insured** has been abandoned and then restarted, or if the authorized contracting parties deviate from plans, blueprints, designs, specifications or timetables, the project will still be deemed to be the same construction project.
- F. The provisions of **LIMITS OF INSURANCE** not otherwise modified by this endorsement shall continue to apply as stipulated.



Contractors' General Liability Extension Endorsement

12. IN REM ACTIONS

A quasi in rem action against any vessel owned or operated by or for the **Named Insured**, or chartered by or for the **Named Insured**, will be treated in the same manner as though the action were in personam against the **Named Insured**.

13. INCIDENTAL HEALTH CARE MALPRACTICE COVERAGE

Solely with respect to **bodily injury** that arises out of a **health care incident**:

A. Under **COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Insuring Agreement** is amended to replace Paragraphs 1.b.(1) and 1.b.(2) with the following:

b. This insurance applies to **bodily injury** provided that the professional health care services are incidental to the **Named Insured's** primary business purpose, and only if:

(1) such **bodily injury** is caused by an **occurrence** that takes place in the **coverage territory**.

(2) the **bodily injury** first occurs during the **policy period**. All **bodily injury** arising from an **occurrence** will be deemed to have occurred at the time of the first act, error, or omission that is part of the **occurrence**; and

B. Under **COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended to:

i. add the following to the **Employers Liability** exclusion:

This exclusion applies only if the **bodily injury** arising from a **health care incident** is covered by other liability insurance available to the **Insured** (or which would have been available but for exhaustion of its limits).

ii. delete the exclusion entitled **Contractual Liability** and replace it with the following:

This insurance does not apply to:

Contractual Liability

the **Insured's** actual or alleged liability under any oral or written contract or agreement, including but not limited to express warranties or guarantees.

iii. add the following additional exclusions:

This insurance does not apply to:

Discrimination

any actual or alleged discrimination, humiliation or harassment, including but not limited to **claims** based on an individual's race, creed, color, age, gender, national origin, religion, disability, marital status or sexual orientation.

Dishonesty or Crime

Any actual or alleged dishonest, criminal or malicious act, error or omission.

Medicare/Medicaid Fraud

any actual or alleged violation of law with respect to Medicare, Medicaid, Tricare or any similar federal, state or local governmental program.

Services Excluded by Endorsement

Any **health care incident** for which coverage is excluded by endorsement.

C. **DEFINITIONS** is amended to:



Contractors' General Liability Extension Endorsement

i. add the following definitions:

Health care incident means an act, error or omission by the **Named Insured's employees** or **volunteer workers** in the rendering of:

- a. **professional health care services** on behalf of the **Named Insured** or
- b. Good Samaritan services rendered in an emergency and for which no payment is demanded or received.

Professional health care services means any health care services or the related furnishing of food, beverages, medical supplies or appliances by the following providers in their capacity as such but solely to the extent they are duly licensed as required:

- a. Physician;
- b. Nurse;
- c. Nurse practitioner;
- d. Emergency medical technician;
- e. Paramedic;
- f. Dentist;
- g. Physical therapist;
- h. Psychologist;
- i. Speech therapist;
- j. Other allied health professional; or

Professional health care services does not include any services rendered in connection with human clinical trials or product testing.

ii. delete the definition of **occurrence** and replace it with the following:

Occurrence means a **health care incident**. All acts, errors or omissions that are logically connected by any common fact, circumstance, situation, transaction, event, advice or decision will be considered to constitute a single **occurrence**;

iii. amend the definition of **Insured** to:

a. add the following:

- the **Named Insured's employees** are **Insureds** with respect to:
 - (1) **bodily injury** to a co-**employee** while in the course of the co-**employee's** employment by the **Named Insured** or while performing duties related to the conduct of the **Named Insured's** business; and
 - (2) **bodily injury** to a **volunteer worker** while performing duties related to the conduct of the **Named Insured's** business;when such **bodily injury** arises out of a **health care incident**.
- the **Named Insured's volunteer workers** are **Insureds** with respect to:
 - (1) **bodily injury** to a co-**volunteer worker** while performing duties related to the conduct of the **Named Insured's** business; and



Contractors' General Liability Extension Endorsement

- (2) **bodily injury** to an **employee** while in the course of the **employee's** employment by the **Named Insured** or while performing duties related to the conduct of the **Named Insured's** business;

when such **bodily injury** arises out of a **health care incident**.

- b. delete Subparagraphs (a), (b), (c) and (d) of Paragraph 2.a.(1) of **WHO IS AN INSURED**.

- D. The **Other Insurance** condition is amended to delete Paragraph b.(1) in its entirety and replace it with the following:

Other Insurance

b. **Excess Insurance**

- (1) To the extent this insurance applies, it is excess over any other insurance, self insurance or risk transfer instrument, whether primary, excess, contingent or on any other basis, except for insurance purchased specifically by the **Named Insured** to be excess of this coverage.

14. JOINT VENTURES / PARTNERSHIP / LIMITED LIABILITY COMPANIES

WHO IS AN INSURED is amended to delete its last paragraph and replace it with the following:

No person or organization is an **Insured** with respect to the conduct of any current or past partnership, joint venture or limited liability company that is not shown as a **Named Insured** in the Declarations, except that if the **Named Insured** was a joint venturer, partner, or member of a limited liability company and such joint venture, partnership or limited liability company terminated prior to or during the **policy period**, such **Named Insured** is an **Insured** with respect to its interest in such joint venture, partnership or limited liability company but only to the extent that:

- a. any offense giving rise to **personal and advertising injury** occurred prior to such termination date, and the **personal and advertising injury** arising out of such offense first occurred after such termination date;
- b. the **bodily injury** or **property damage** first occurred after such termination date; and
- c. there is no other valid and collectible insurance purchased specifically to insure the partnership, joint venture or limited liability company; and

If the joint venture, partnership or limited liability company is or was insured under a **consolidated (wrap-up) insurance program**, then such insurance will always be considered valid and collectible for the purpose of paragraph c. above. But this provision will not serve to exclude **bodily injury**, **property damage** or **personal and advertising injury** that would otherwise be covered under the **Contractors General Liability Extension Endorsement** provision entitled **WRAP-UP EXTENSION: OCIP, CCIP, OR CONSOLIDATED (WRAP-UP) INSURANCE PROGRAMS**. Please see that provision for the definition of **consolidated (wrap-up) insurance program**.

15. LEGAL LIABILITY – DAMAGE TO PREMISES / ALIENATED PREMISES / PROPERTY IN THE NAMED INSURED'S CARE, CUSTODY OR CONTROL

- A. Under **COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended to delete exclusion j. **Damage to Property** in its entirety and replace it with the following:

This insurance does not apply to:

j. **Damage to Property**

Property damage to:

- (1) Property the **Named Insured** owns, rents, or occupies, including any costs or expenses incurred by you, or any other person, organization or entity, for repair, replacement, enhancement, restoration



Contractors' General Liability Extension Endorsement

or maintenance of such property for any reason, including prevention of injury to a person or damage to another's property;

- (2) Premises the **Named Insured** sells, gives away or abandons, if the **property damage** arises out of any part of those premises;
- (3) Property loaned to the **Named Insured**;
- (4) Personal property in the care, custody or control of the **Insured**;
- (5) That particular part of real property on which the **Named Insured** or any contractors or subcontractors working directly or indirectly on the **Named Insured's** behalf are performing operations, if the **property damage** arises out of those operations; or
- (6) That particular part of any property that must be restored, repaired or replaced because **your work** was incorrectly performed on it.

Paragraphs (1), (3) and (4) of this exclusion do not apply to **property damage** (other than damage by fire) to premises rented to the **Named Insured** or temporarily occupied by the **Named Insured** with the permission of the owner, nor to the contents of premises rented to the **Named Insured** for a period of 7 or fewer consecutive days. A separate limit of insurance applies to Damage To Premises Rented To You as described in **LIMITS OF INSURANCE**.

Paragraph (2) of this exclusion does not apply if the premises are **your work**.

Paragraphs (3), (4), (5) and (6) of this exclusion do not apply to liability assumed under a sidetrack agreement.

Paragraph (6) of this exclusion does not apply to **property damage** included in the **products-completed operations hazard**.

Paragraphs (3) and (4) of this exclusion do not apply to **property damage** to:

- i. tools, or equipment the **Named Insured** borrows from others, nor
- ii. other personal property of others in the **Named Insured's** care, custody or control while being used in the **Named Insured's** operations away from any **Named Insured's** premises.

However, the coverage granted by this exception to Paragraphs (3) and (4) does not apply to:

- a. property at a job site awaiting or during such property's installation, fabrication, or erection;
- b. property that is **mobile equipment** leased by an **Insured**;
- c. property that is an **auto**, aircraft or watercraft;
- d. property in transit; or
- e. any portion of **property damage** for which the **Insured** has available other valid and collectible insurance, or would have such insurance but for exhaustion of its limits, or but for application of one of its exclusions.

A separate limit of insurance and deductible apply to such property of others. See **LIMITS OF INSURANCE** as amended below.

- B. Under COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended to delete its last paragraph and replace it with the following:

Exclusions c. through n. do not apply to damage by fire to premises while rented to a **Named Insured** or temporarily occupied by a **Named Insured** with permission of the owner, nor to damage to the contents of premises rented to a **Named Insured** for a period of 7 or fewer consecutive days.

A separate limit of insurance applies to this coverage as described in **LIMITS OF INSURANCE**.



Contractors' General Liability Extension Endorsement

C. The following paragraph is added to LIMITS OF INSURANCE:

Subject to 5. above, \$25,000 is the most the Insurer will pay under **Coverage A** for **damages** arising out of any one **occurrence** because of the sum of all **property damage** to borrowed tools or equipment, and to other personal property of others in the **Named Insured's** care, custody or control, while being used in the **Named Insured's** operations away from any **Named Insured's** premises. The Insurer's obligation to pay such **property damage** does not apply until the amount of such **property damage** exceeds \$1,000. The Insurer has the right but not the duty to pay any portion of this \$1,000 in order to effect settlement. If the Insurer exercises that right, the **Named Insured** will promptly reimburse the Insurer for any such amount.

D. Paragraph 6., Damage To Premises Rented To You Limit, of LIMITS OF INSURANCE is deleted and replaced by the following:

6. Subject to Paragraph 5. above, (the Each Occurrence Limit), the Damage To Premises Rented To You Limit is the most the Insurer will pay under **Coverage A** for **damages** because of **property damage** to any one premises while rented to the **Named Insured** or temporarily occupied by the **Named Insured** with the permission of the owner, including contents of such premises rented to the **Named Insured** for a period of 7 or fewer consecutive days. The Damage To Premises Rented To You Limit is the greater of:

- a. \$500,000; or
- b. The Damage To Premises Rented To You Limit shown in the Declarations.

E. Paragraph 4.b.(1)(a)(ii) of the Other Insurance Condition is deleted and replaced by the following:

(ii) That is property insurance for premises rented to the **Named Insured**, for premises temporarily occupied by the **Named Insured** with the permission of the owner; or for personal property of others in the **Named Insured's** care, custody or control;

16. LIQUOR LIABILITY

Under **COVERAGES**, **Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended to delete the exclusion entitled **Liquor Liability**.

This **LIQUOR LIABILITY** provision does not apply to any person or organization who otherwise qualifies as an additional insured on this **Coverage Part**.

17. MEDICAL PAYMENTS

A. LIMITS OF INSURANCE is amended to delete Paragraph 7. (the Medical Expense Limit) and replace it with the following:

7. Subject to Paragraph 5. above (the Each Occurrence Limit), the Medical Expense Limit is the most the Insurer will pay under **Coverage C – Medical Payments** for all medical expenses because of **bodily injury** sustained by any one person. The Medical Expense Limit is the greater of:

- (1) \$15,000 unless a different amount is shown here: @ @ @ @ @ @ @ @ @ @; or
- (2) the amount shown in the Declarations for Medical Expense Limit.

B. Under COVERAGES, the **Insuring Agreement of Coverage C – Medical Payments** is amended to replace Paragraph 1.a.(3)(b) with the following:

(b) The expenses are incurred and reported to the Insurer within three years of the date of the accident; and

This Paragraph **B.** does not apply to medical expenses incurred in the state of Missouri.



Contractors' General Liability Extension Endorsement

18. NON-OWNED AIRCRAFT

Under **COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended as follows:

The exclusion entitled **Aircraft, Auto or Watercraft** is amended to add the following:

This exclusion does not apply to an aircraft not owned by any **Named Insured**, provided that:

1. the pilot in command holds a currently effective certificate issued by the duly constituted authority of the United States of America or Canada, designating that person as a commercial or airline transport pilot;
2. the aircraft is rented with a trained, paid crew to the **Named Insured**; and
3. the aircraft is not being used to carry persons or property for a charge.

19. NON-OWNED WATERCRAFT

Under **COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended to delete subparagraph (2) of the exclusion entitled **Aircraft, Auto or Watercraft**, and replace it with the following.

This exclusion does not apply to:

- (2) a watercraft that is not owned by any **Named Insured**, provided the watercraft is:
 - (a) less than 75 feet long; and
 - (b) not being used to carry persons or property for a charge.

20. PERSONAL AND ADVERTISING INJURY –DISCRIMINATION OR HUMILIATION

- A. Under **DEFINITIONS**, the definition of **personal and advertising injury** is amended to add the following tort:

- Discrimination or humiliation that results in injury to the feelings or reputation of a natural person.

- B. Under **COVERAGES, Coverage B – Personal and Advertising Injury Liability**, the paragraph entitled **Exclusions** is amended to:

1. delete the Exclusion entitled **Knowing Violation Of Rights Of Another** and replace it with the following:

This insurance does not apply to:

Knowing Violation of Rights of Another

Personal and advertising injury caused by or at the direction of the **Insured** with the knowledge that the act would violate the rights of another and would inflict **personal and advertising injury**. This exclusion shall not apply to discrimination or humiliation that results in injury to the feelings or reputation of a natural person, but only if such discrimination or humiliation is not done intentionally by or at the direction of:

- (a) the **Named Insured**; or
- (b) any **executive officer**, director, stockholder, partner, member or manager (if the **Named Insured** is a limited liability company) of the **Named Insured**.

2. add the following exclusions:

This insurance does not apply to:

Employment Related Discrimination



Contractors' General Liability Extension Endorsement

Discrimination or humiliation directly or indirectly related to the employment, prospective employment, past employment or termination of employment of any person by any **Insured**.

Premises Related Discrimination

discrimination or humiliation arising out of the sale, rental, lease or sub-lease or prospective sale, rental, lease or sub-lease of any room, dwelling or premises by or at the direction of any **Insured**.

Notwithstanding the above, there is no coverage for fines or penalties levied or imposed by a governmental entity because of discrimination.

The coverage provided by this **PERSONAL AND ADVERTISING INJURY –DISCRIMINATION OR HUMILIATION** Provision does not apply to any person or organization whose status as an **Insured** derives solely from

- Provision 1. **ADDITIONAL INSURED** of this endorsement; or
- attachment of an additional insured endorsement to this **Coverage Part**.

This **PERSONAL AND ADVERTISING INJURY –DISCRIMINATION OR HUMILIATION** Provision does not apply to any person or organization who otherwise qualifies as an additional insured on this **Coverage Part**.

21. PERSONAL AND ADVERTISING INJURY - CONTRACTUAL LIABILITY

- A. Under **COVERAGES, Coverage B –Personal and Advertising Injury Liability**, the paragraph entitled **Exclusions** is amended to delete the exclusion entitled **Contractual Liability**.
- B. Solely for the purpose of the coverage provided by this **PERSONAL AND ADVERTISING INJURY - CONTRACTUAL LIABILITY** provision, the following changes are made to the section entitled **SUPPLEMENTARY PAYMENTS – COVERAGES A AND B**:

1. Paragraph 2.d. is replaced by the following:
 - d. The allegations in the **suit** and the information the Insurer knows about the offense alleged in such **suit** are such that no conflict appears to exist between the interests of the **Insured** and the interests of the indemnitee;
2. The first unnumbered paragraph beneath Paragraph 2.f.(2)(b) is deleted and replaced by the following:

So long as the above conditions are met, attorneys fees incurred by the Insurer in the defense of that indemnitee, necessary litigation expenses incurred by the Insurer, and necessary litigation expenses incurred by the indemnitee at the Insurer's request will be paid as **defense costs**. Such payments will not be deemed to be **damages** for **personal and advertising injury** and will not reduce the limits of insurance.

- C. This **PERSONAL AND ADVERTISING INJURY - CONTRACTUAL LIABILITY** Provision does not apply if **Coverage B –Personal and Advertising Injury Liability** is excluded by another endorsement attached to this **Coverage Part**.

This **PERSONAL AND ADVERTISING INJURY - CONTRACTUAL LIABILITY** Provision does not apply to any person or organization who otherwise qualifies as an additional insured on this **Coverage Part**.

22. PROPERTY DAMAGE – ELEVATORS

- A. Under **COVERAGES, Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended such that the **Damage to Your Product** Exclusion and subparagraphs (3), (4) and (6) of the **Damage to Property** Exclusion do not apply to **property damage** that results from the use of elevators.
- B. Solely for the purpose of the coverage provided by this **PROPERTY DAMAGE – ELEVATORS** Provision, the **Other Insurance** conditions is amended to add the following paragraph:



Contractors' General Liability Extension Endorsement

This insurance is excess over any of the other insurance, whether primary, excess, contingent or on any other basis that is Property insurance covering property of others damaged from the use of elevators.

23. SUPPLEMENTARY PAYMENTS

The section entitled **SUPPLEMENTARY PAYMENTS – COVERAGES A AND B** is amended as follows:

- A. Paragraph 1.b. is amended to delete the \$250 limit shown for the cost of bail bonds and replace it with a \$5,000. limit; and
- B. Paragraph 1.d. is amended to delete the limit of \$250 shown for daily loss of earnings and replace it with a \$1,000. limit.

24. UNINTENTIONAL FAILURE TO DISCLOSE HAZARDS

If the **Named Insured** unintentionally fails to disclose all existing hazards at the inception date of the **Named Insured's Coverage Part**, the Insurer will not deny coverage under this **Coverage Part** because of such failure.

25. WAIVER OF SUBROGATION - BLANKET

Under **CONDITIONS**, the condition entitled **Transfer Of Rights Of Recovery Against Others To Us** is amended to add the following:

The Insurer waives any right of recovery the Insurer may have against any person or organization because of payments the Insurer makes for injury or damage arising out of:

- 1. the **Named Insured's** ongoing operations; or
- 2. **your work** included in the **products-completed operations hazard**.

However, this waiver applies only when the **Named Insured** has agreed in writing to waive such rights of recovery in a written contract or written agreement, and only if such contract or agreement:

- 1. is in effect or becomes effective during the term of this **Coverage Part**; and
- 2. was executed prior to the **bodily injury, property damage or personal and advertising injury** giving rise to the **claim**.

26. WRAP-UP EXTENSION: OCIP, CCIP, OR CONSOLIDATED (WRAP-UP) INSURANCE PROGRAMS

Note: The following provision does not apply to any public construction project in the state of Oklahoma, nor to any construction project in the state of Alaska, that is not permitted to be insured under a **consolidated (wrap-up) insurance program** by applicable state statute or regulation.

If the endorsement **EXCLUSION – CONSTRUCTION WRAP-UP** is attached to this policy, or another exclusionary endorsement pertaining to Owner Controlled Insurance Programs (O.C.I.P.) or Contractor Controlled Insurance Programs (C.C.I.P.) is attached, then the following changes apply:

- A. The following wording is added to the above-referenced endorsement:

With respect to a **consolidated (wrap-up) insurance program** project in which the **Named Insured** is or was involved, this exclusion does not apply to those sums the **Named Insured** become legally obligated to pay as **damages** because of:

- 1. **Bodily injury, property damage, or personal or advertising injury** that occurs during the **Named Insured's** ongoing operations at the project, or during such operations of anyone acting on the **Named Insured's** behalf; nor
- 2. **Bodily injury or property damage** included within the **products-completed operations hazard** that arises out of those portions of the project that are not **residential structures**.

- B. Condition 4. **Other Insurance** is amend to add the following subparagraph 4.b.(1)(c):



Contractors' General Liability Extension Endorsement

This insurance is excess over:

- (c) Any of the other insurance whether primary, excess, contingent or any other basis that is insurance available to the **Named Insured** as a result of the **Named Insured** being a participant in a **consolidated (wrap-up) insurance program**, but only as respects the **Named Insured's** involvement in that **consolidated (wrap-up) insurance program**.

C. DEFINITIONS is amended to add the following definitions:

Consolidated (wrap-up) insurance program means a construction, erection or demolition project for which the prime contractor/project manager or owner of the construction project has secured general liability insurance covering some or all of the contractors or subcontractors involved in the project, such as an Owner Controlled Insurance Program (O.C.I.P.) or Contractor Controlled Insurance Program (C.C.I.P.).

Residential structure means any structure where 30% or more of the square foot area is used or is intended to be used for human residency, including but not limited to:

1. single or multifamily housing, apartments, condominiums, townhouses, co-operatives or planned unit developments; and
2. the common areas and structures appurtenant to the structures in paragraph 1. (including pools, hot tubs, detached garages, guest houses or any similar structures).

However, when there is no individual ownership of units, **residential structure** does not include military housing, college/university housing or dormitories, long term care facilities, hotels or motels. **Residential structure** also does not include hospitals or prisons.

This **WRAP-UP EXTENSION: OCIP, CCIP, OR CONSOLIDATED (WRAP-UP) INSURANCE PROGRAMS** Provision does not apply to any person or organization who otherwise qualifies as an additional insured on this **Coverage Part**.

All other terms and conditions of the Policy remain unchanged.

This endorsement, which forms a part of and is for attachment to the Policy issued by the designated Insurers, takes effect on the effective date of said Policy at the hour stated in said Policy, unless another effective date is shown below, and expires concurrently with said Policy.



CNA PARAMOUNT

**Blanket Additional Insured - Owners, Lessees or
Contractors - with Products-Completed
Operations Coverage Endorsement**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

It is understood and agreed as follows:

- I. WHO IS AN INSURED** is amended to include as an **Insured** any person or organization whom you are required by **written contract** to add as an additional insured on this **coverage part**, but only with respect to liability for **bodily injury, property damage or personal and advertising injury** caused in whole or in part by your acts or omissions, or the acts or omissions of those acting on your behalf:
- A.** in the performance of your ongoing operations subject to such **written contract**; or
 - B.** in the performance of your **work** subject to such **written contract**, but only with respect to **bodily injury or property damage** included in the **products-completed operations hazard**, and only if:
 - 1. the **written contract** requires you to provide the additional insured such coverage; and
 - 2. this **coverage part** provides such coverage.
- II.** But if the **written contract** requires:
- A.** additional insured coverage under the 11-85 edition, 10-93 edition, or 10-01 edition of CG2010, or under the 10-01 edition of CG2037; or
 - B.** additional insured coverage with "arising out of" language; or
 - C.** additional insured coverage to the greatest extent permissible by law;
- then paragraph **I.** above is deleted in its entirety and replaced by the following:
- WHO IS AN INSURED** is amended to include as an **Insured** any person or organization whom you are required by **written contract** to add as an additional insured on this **coverage part**, but only with respect to liability for **bodily injury, property damage or personal and advertising injury** arising out of your **work** that is subject to such **written contract**.
- III.** Subject always to the terms and conditions of this policy, including the limits of insurance, the Insurer will not provide such additional insured with:
- A.** coverage broader than required by the **written contract**; or
 - B.** a higher limit of insurance than required by the **written contract**.
- IV.** The insurance granted by this endorsement to the additional insured does not apply to **bodily injury, property damage, or personal and advertising injury** arising out of:
- A.** the rendering of, or the failure to render, any professional architectural, engineering, or surveying services, including:
 - 1. the preparing, approving, or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; and
 - 2. supervisory, inspection, architectural or engineering activities; or
 - B.** any premises or work for which the additional insured is specifically listed as an additional insured on another endorsement attached to this **coverage part**.
- V.** Under **COMMERCIAL GENERAL LIABILITY CONDITIONS**, the Condition entitled **Other Insurance** is amended to add the following, which supersedes any provision to the contrary in this Condition or elsewhere in this **coverage part**:

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The Continental Insurance Co.

Insured Name: KINKAID CIVIL CONSTRUCTION, LLC

Policy No: 6057573364

Endorsement No: 3

Effective Date: 03/15/2018



**Blanket Additional Insured - Owners, Lessees or
Contractors - with Products-Completed
Operations Coverage Endorsement****Primary and Noncontributory Insurance**

With respect to other insurance available to the additional insured under which the additional insured is a named insured, this insurance is primary to and will not seek contribution from such other insurance, provided that a **written contract** requires the insurance provided by this policy to be:

1. primary and non-contributing with other insurance available to the additional insured; or
2. primary and to not seek contribution from any other insurance available to the additional insured.

But except as specified above, this insurance will be excess of all other insurance available to the additional insured.

VI. Solely with respect to the insurance granted by this endorsement, the section entitled COMMERCIAL GENERAL LIABILITY CONDITIONS is amended as follows:

The Condition entitled **Duties In The Event of Occurrence, Offense, Claim or Suit** is amended with the addition of the following:

Any additional insured pursuant to this endorsement will as soon as practicable:

1. give the Insurer written notice of any **claim**, or any **occurrence** or offense which may result in a **claim**;
2. send the Insurer copies of all legal papers received, and otherwise cooperate with the Insurer in the investigation, defense, or settlement of the **claim**; and
3. make available any other insurance, and tender the defense and indemnity of any **claim** to any other insurer or self-insurer, whose policy or program applies to a loss that the Insurer covers under this **coverage part**. However, if the **written contract** requires this insurance to be primary and non-contributory, this paragraph 3. does not apply to insurance on which the additional insured is a named insured.

The Insurer has no duty to defend or indemnify an additional insured under this endorsement until the Insurer receives written notice of a **claim** from the additional insured.

VII. Solely with respect to the insurance granted by this endorsement, the section entitled DEFINITIONS is amended to add the following definition:

Written contract means a written contract or written agreement that requires you to make a person or organization an additional insured on this **coverage part**, provided the contract or agreement:

- A. is currently in effect or becomes effective during the term of this policy; and
- B. was executed prior to:
 1. the **bodily injury** or **property damage**; or
 2. the offense that caused the **personal and advertising injury**;for which the additional insured seeks coverage.

Any coverage granted by this endorsement shall apply solely to the extent permissible by law.

All other terms and conditions of the Policy remain unchanged.

This endorsement, which forms a part of and is for attachment to the Policy issued by the designated Insurers, takes effect on the effective date of said Policy at the hour stated in said Policy, unless another effective date is shown below, and expires concurrently with said Policy.

CNA75079XX (10-16)

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The Continental Insurance Co.

Insured Name: KINKAID CIVIL CONSTRUCTION, LLC

Policy No: 6057573364

Endorsement No: 3

Effective Date: 03/15/2018



Policy Number: 6057573333

CNA63359XX
(Ed. 04/12)

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**CONTRACTORS EXTENDED COVERAGE ENDORSEMENT
- BUSINESS AUTO PLUS -**

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

I. LIABILITY COVERAGE

A. Who Is An Insured

The following is added to **Section II, Paragraph A.1., Who Is An Insured:**

1. a. Any incorporated entity of which the Named Insured owns a majority of the voting stock on the date of inception of this Coverage Form; provided that,
 - b. The insurance afforded by this provision A.1. does not apply to any such entity that is an "insured" under any other liability "policy" providing "auto" coverage.
2. Any organization you newly acquire or form, other than a limited liability company, partnership or joint venture, and over which you maintain majority ownership interest.

The insurance afforded by this provision A.2.:

- a. Is effective on the acquisition or formation date, and is afforded only until the end of the policy period of this Coverage Form, or the next anniversary of its inception date, whichever is earlier.
- b. Does not apply to:
 - (1) "Bodily injury" or "property damage" caused by an "accident" that occurred before you acquired or formed the organization; or
 - (2) Any such organization that is an "insured" under any other liability "policy" providing "auto" coverage.
3. Any person or organization that you are required by a written contract to name as an additional insured is an "insured" but only with respect to their legal liability for acts or omissions of a person, who qualifies as an "insured" under Section II – Who Is An Insured and for whom Liability Coverage is afforded under this policy. If required by written contract, this insurance will be primary and non-contributory to insurance on which the additional insured is a Named Insured.
4. An "employee" of yours is an "insured" while operating an "auto" hired or rented under a contract or agreement in that "employee's"

name, with your permission, while performing duties related to the conduct of your business.

"Policy," as used in this provision A. Who Is An Insured, includes those policies that were in force on the inception date of this Coverage Form but:

1. Which are no longer in force; or
2. Whose limits have been exhausted.

B. Bail Bonds and Loss of Earnings

Section II, Paragraphs A.2. (2) and A.2. (4) are revised as follows:

1. In a.(2), the limit for the cost of bail bonds is changed from \$2,000 to \$5,000; and
2. In a.(4), the limit for the loss of earnings is changed from \$250 to \$500 a day.

C. Fellow Employee

Section II, Paragraph B.5 does not apply.

Such coverage as is afforded by this provision C. is excess over any other collectible insurance.

II. PHYSICAL DAMAGE COVERAGE

A. Glass Breakage – Hitting A Bird Or Animal – Falling Objects Or Missiles

The following is added to **Section III, Paragraph A.3.:**

With respect to any covered "auto," any deductible shown in the Declarations will not apply to glass breakage if such glass is repaired, in a manner acceptable to us, rather than replaced.

B. Transportation Expenses

Section III, Paragraph A.4.a. is revised, with respect to transportation expense incurred by you, to provide:

- a. \$60 per day, in lieu of \$20; subject to
- b. \$1,800 maximum, in lieu of \$600.

C. Loss of Use Expenses

Section III, Paragraph A.4.b. is revised, with respect to loss of use expenses incurred by you, to provide:

- a. \$1,000 maximum, in lieu of \$600.

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Policy Number: 6057573333

D. Hired "Autos"

The following is added to **Section III, Paragraph A.:**

5. Hired "Autos"

If Physical Damage coverage is provided under this policy, and such coverage does not extend to Hired Autos, then Physical Damage coverage is extended to:

- a. Any covered "auto" you lease, hire, rent or borrow without a driver; and
- b. Any covered "auto" hired or rented by your "employee" without a driver, under a contract in that individual "employee's" name, with your permission, while performing duties related to the conduct of your business.
- c. The most we will pay for any one "accident" or "loss" is the actual cash value, cost of repair, cost of replacement or \$75,000, whichever is less, minus a \$500 deductible for each covered auto. No deductible applies to "loss" caused by fire or lightning.
- d. The physical damage coverage as is provided by this provision is equal to the physical damage coverage(s) provided on your owned "autos."
- e. Such physical damage coverage for hired "autos" will:
 - (1) Include loss of use, provided it is the consequence of an "accident" for which the Named Insured is legally liable, and as a result of which a monetary loss is sustained by the leasing or rental concern.
 - (2) Such coverage as is provided by this provision will be subject to a limit of \$750 per "accident."

E. Airbag Coverage

The following is added to **Section III, Paragraph B.3.:**

The accidental discharge of an airbag shall not be considered mechanical breakdown.

F. Electronic Equipment

Section III, Paragraphs B.4.c and B.4.d. are deleted and replaced by the following:

- c. Physical Damage Coverage on a covered "auto" also applies to "loss" to any permanently installed electronic equipment including its antennas and other accessories.

- d. A \$100 per occurrence deductible applies to the coverage provided by this provision.

G. Diminution In Value

The following is added to **Section III, Paragraph B.6.:**

Subject to the following, the "diminution in value" exclusion does not apply to:

- a. Any covered "auto" of the private passenger type you lease, hire, rent or borrow, without a driver for a period of 30 days or less, while performing duties related to the conduct of your business; and
- b. Any covered "auto" of the private passenger type hired or rented by your "employee" without a driver for a period of 30 days or less, under a contract in that individual "employee's" name, with your permission, while performing duties related to the conduct of your business.
- c. Such coverage as is provided by this provision is limited to a "diminution in value" loss arising directly out of accidental damage and not as a result of the failure to make repairs; faulty or incomplete maintenance or repairs; or the installation of substandard parts.
- d. The most we will pay for "loss" to a covered "auto" in any one accident is the lesser of:
 - (1) \$5,000; or
 - (2) 20% of the "auto's" actual cash value (ACV).

III. Drive Other Car Coverage – Executive Officers

The following is added to **Sections II and III:**

- 1. Any "auto" you don't own, hire or borrow is a covered "auto" for Liability Coverage while being used by, and for Physical Damage Coverage while in the care, custody or control of, any of your "executive officers," except:
 - a. An "auto" owned by that "executive officer" or a member of that person's household; or
 - b. An "auto" used by that "executive officer" while working in a business of selling, servicing, repairing or parking "autos."

Such Liability and/or Physical Damage Coverage as is afforded by this provision.

- (1) Equal to the greatest of those coverages afforded any covered "auto"; and

Policy Number: 6057573333

(2) Excess over any other collectible insurance.

2. For purposes of this provision, "executive officer" means a person holding any of the officer positions created by your charter, constitution, by-laws or any other similar governing document, and, while a resident of the same household, includes that person's spouse.

Such "executive officers" are "insureds" while using a covered "auto" described in this provision.

IV. BUSINESS AUTO CONDITIONS

A. Duties In The Event Of Accident, Claim, Suit Or Loss

The following is added to **Section IV, Paragraph A.2.a.:**

- (4) Your "employees" may know of an "accident" or "loss." This will not mean that you have such knowledge, unless such "accident" or "loss" is known to you or if you are not an individual, to any of your executive officers or partners or your insurance manager.

The following is added to **Section IV, Paragraph A.2.b.:**

- (6) Your "employees" may know of documents received concerning a claim or "suit." This will not mean that you have such knowledge, unless receipt of such documents is known to you or if you are not an individual, to any of your executive officers or partners or your insurance manager.

B. Transfer Of Rights Of Recovery Against Others To Us

The following is added to **Section IV, Paragraph A.5. Transfer Of Rights Of Recovery Against Others To Us:**

We waive any right of recovery we may have, because of payments we make for injury or

damage, against any person or organization for whom or which you are required by written contract or agreement to obtain this waiver from us.

This injury or damage must arise out of your activities under a contract with that person or organization.

You must agree to that requirement prior to an "accident" or "loss."

C. Concealment, Misrepresentation or Fraud

The following is added to **Section IV, Paragraph B.2.:**

Your failure to disclose all hazards existing on the date of inception of this Coverage Form shall not prejudice you with respect to the coverage afforded provided such failure or omission is not intentional.

D. Other Insurance

The following is added to **Section IV, Paragraph B.5.:**

Regardless of the provisions of Paragraphs 5.a. and 5.d. above, the coverage provided by this policy shall be on a primary non-contributory basis. This provision is applicable only when required by a written contract. That written contract must have been entered into prior to "Accident" or "Loss."

E. Policy Period, Coverage Territory

Section IV, Paragraph B. 7.(5).(a). is revised to provide:

- a. 45 days of coverage in lieu of 30 days.

V. DEFINITIONS

Section V. Paragraph C. is deleted and replaced by the following:

"Bodily injury" means bodily injury, sickness or disease sustained by a person, including mental anguish, mental injury or death resulting from any of these.

40020009 160143 11891 3068





Workers Compensation And Employers Liability Insurance Policy Endorsement

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 shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

Any Person or Organization on whose behalf you are required to obtain this waiver of our right to recover from under a written contract or agreement.

The premium charge for the endorsement is reflected in the Schedule of Operations.

All other terms and conditions of the policy remain unchanged.

This endorsement, which forms a part of and is for attachment to the policy issued by the designated Insurers, takes effect on the Policy Effective Date of said policy at the hour stated in said policy, unless another effective date (the Endorsement Effective Date) is shown below, and expires concurrently with said policy unless another expiration date is shown below.

Form No: WC 00 03 13 (04-1984)

Endorsement Effective Date:

Endorsement Expiration Date:

Endorsement No: 2; Page: 1 of 1

Underwriting Company: Transportation Insurance Company, 333 S Wabash Ave, Chicago, IL 60604

Policy No: 6057573378

Policy Effective Date: 03/15/2018

Policy Page: 23 of 33



Solicitation Amendment No. 1

Solicitation No. 19-4463
(REVISED) Solicitation Due Date: August 15, 2018
Time: 3:00 pm

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

Adaman Well No. 3 Transmission Main

Solicitation Amendment 1 is hereby issued as a result of questions received regarding the above mentioned solicitation.

The Solicitation Due Date has been changed from August 8, 2018 to: August 15, 2018, 3:00 p.m. (Arizona Time)

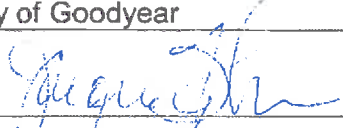
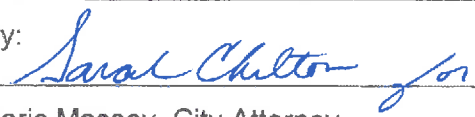
- Q1: Are the existing asphalt depths know at the two locations where the water line extends into the existing pavement section?
A1: No, we do not have information on the pavement thickness.
- Q2: Trench backfill: Sheet C-011 Pipe Trench Detail, note 2, calls for ½ sack slurry if within 7' of the pavement edge and native backfill if outside the 7' range. Specification section 31 23 00 – 4, paragraph 3.b indicates aggregate base backfill. McDOT supplements would indicate most of the alignment will receive ½ sack slurry backfill based on the alignment being in the roadway shoulder. Can you clarify how to reconcile the differences?
A2: The trench detail prevails over the specification.
DELETE the first sentence in Specification Section 31 23 00, Part 3.04-C-3-b and REPLACE with the following: "Backfill shall be per Detail A, Drawing C-011.
- Q3: The fee schedule, page 37, has a line item for tax to be calculated at 9.8%. The contracting rate is usually 65% of the 9.8% amount. Should the fee schedule line item be revised?
A3: The fee schedule will remain as written. The sales tax for Goodyear is 9.8%, the calculation of the tax rate is Contractor's responsibility.
- Q4: Do you have an engineer's estimate for this project? We are interested in providing a proposal to you for the work?
A4: \$1.8M.
- Q5: Is there a planholder's list for the project bidding next week?
A5: The City doesn't maintain a planholder's list.

Clarification:

Change: Page 30, Item 2.6, Umbrella/Excess Liability: Change from \$2M to \$5M. per occurrence...

No other terms, conditions, or performance standards written or implied are changed.

Procurement Officer: Victoria Jackson, CPPB

City of Goodyear	Approved as to form
By: 	By: 
Jacque Behrens, CPPB	Roric Massey, City Attorney

Acknowledgement by Contractor

Contractor hereby acknowledges receipt and understanding of the above amendment. Contractor shall sign and return with their submittal.

Contractor Signature: 

Date: 8/15/18

	Solicitation Amendment No. 2	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	Solicitation No. 19-4463 (REVISED) Solicitation Due Date: August 15, 2018 Time: 3:00 pm	

Adaman Well No. 3 Transmission Main

Solicitation Amendment 2 is hereby issued as a result of questions received regarding the above mentioned solicitation.

- Q1: On sheet C-011 (13 of 17) note number 2 of the pipe trench detail states that all trenches within 7' of edge of pavement shall be slurry backfilled, can you confirm that this note is only applicable to transverse trenches.
- A1: Any trench within 7 feet of the edge of pavement requires slurry. The direction of the trench does not matter.

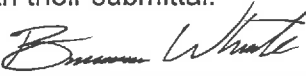
No other terms, conditions, or performance standards written or implied are changed.

Procurement Officer: Victoria Jackson, CPPB

City of Goodyear	Approved as to form
By:	By:
Jacque Behrens, CPPB	Roric Massey, City Attorney

Acknowledgement by Contractor

Contractor hereby acknowledges receipt and understanding of the above amendment. Contractor shall sign and return with their submittal.

Contractor Signature: 

Date: 8/15/18



City of Goodyear

Invitation For Bid

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

Solicitation Number: IFB 19-4463

Materials and/or Service: Adaman Well No. 3 Transmission Main

Solicitation Due Date: August 8, 2018 **Time:** 3:00 pm (Arizona Time)

Mailing Address: City of Goodyear, City Hall Front Desk
190 North Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338

Procurement Officer: Victoria Jackson, CPPB
Phone: (623) 882-7845
Email: Victoria.jackson@goodyearaz.gov

All bids must be received by the City of Goodyear, City Hall Front Desk, at the specified location by the date and time cited above. Late bids will not be considered. Bids received by the correct date and time shall be publicly opened and read. Bidders are advised to carefully read the entire Solicitation Package. Bids that do not comply with all Instructions to Bidders may be disqualified.

Solicitation packages can be obtained by downloading from the City of Goodyear's website: www.goodyearaz.gov and following these instructions: Enter City website, click on BUSINESS, click on Vendor Services/Procurement, click on Solicitations for Bids/Proposals, click on IFB 19-4463. Should you experience problems downloading the solicitation, contact Victoria Jackson, CPPB at the above email address.

All communications concerning this solicitation must be directed to responsible procurement staff person identified above, via email only. Communications with other city staff may disqualify you from the evaluation process.

OFFERORS ARE STRONGLY ENCOURAGED TO READ THE ENTIRE SOLICITATION



City of Goodyear

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Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

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City of Goodyear

Instructions to Bidders

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

1. PREPARATION OF OFFER

- a. It is the responsibility of all Bidders to examine the entire solicitation package and seek clarification from the responsible Procurement Specialist of any item or requirement that may not be clear, and to check all responses for accuracy before submitting a bid.
- b. All offers shall be on the forms provided in the solicitation package. It is permissible to copy these forms if required. Telegraphic (facsimile) or email bids will not be considered
- c. The Offer and Acceptance document shall be returned with the submittal with an original blue ink signature by a person authorized to sign the Offer. Pricing documents and other documents which require information to be filled in must be done in ink, typewritten or computer printed. No bids will be accepted if pencil is used. Erasures, interlineations, or other modifications in the bid shall be initialed in original blue ink by the authorized person signing the bid.
- d. It is the Bidder's responsibility to obtain a copy of any addenda relevant to this solicitation. Failure to submit addenda with the solicitation response may be grounds for deeming a bid non-responsive.
- e. Bids shall be submitted in a sealed envelope provided by the Bidder, and should include the Bidder's name, address and solicitation number on outside of the sealed envelope/package.
- f. Periods of time, stated as a number of days, shall be calendar days.
- g. It is the responsibility of the Bidder to submit the bid at the place and by the time provided in the solicitation.
- h. Negligence in preparing a bid confers no right of withdrawal after the due date and time of the bid. No bid shall be altered, amended, or withdrawn after the specified offer due date and time.
- i. Offers shall include all costs as described and indicated by the specifications. The City is exempt from Federal Excise Tax, including the Federal Transportation Tax. Sales tax, if any, shall be indicated as a separate item.
- j. If price is a consideration, and in case of error in the extension of prices in the bid, the unit price shall govern.
- k. The City shall not reimburse the cost of developing, presenting, or providing any responses to this solicitation. Bids submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner.
- l. Bidder shall submit one (1) bid response, marked "original" of their bid submittal. Bid shall be submitted single-sided containing all original documents.

2. SERIAL NUMBERS

Bids shall be for equipment on which the original manufacturer's serial number, if applicable, has not been altered in any way. Throughout the contract term, the City reserves the right to reject any altered equipment.



City of Goodyear

Instructions to Bidders

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

3. **BRAND NAMES**

Any manufacturer's names, trade names, brand names, or catalog numbers used in the specifications are for the purposes of describing and establishing the quality level, design and performance desired. Such references are not intended to limit or restrict bidding by other vendors, but are intended to establish the quality, design or performance which is desired. Any Bidder which proposes equal or greater quality, design or performance may be considered. The city has the sole authority to accept or reject any like items.

4. **SUBSTITUTIONS OR EXCEPTIONS**

The City reserves the option to not consider bids for award if the Bidder: i) takes any exception to the specifications and the City does not agree or accept the proposed changes; or ii) proposes a unit which does not meet the City's specifications exactly and the Bidder does not additionally propose the specified unit prior to bid opening, and the City rejects the alternative identified.

5. **DESCRIPTIVE LITERATURE**

All bidders shall include complete manufacturer's descriptive literature regarding the equipment and goods they propose to furnish. Literature shall be sufficient in detail in order to allow full and fair evaluation of the bid submitted. Failure to include this information may result may result in the bid being rejected.

6. **PREPARATION OF SPECIFICATIONS BY PERSONS OTHER THAN CITY PERSONNEL**

All specifications shall seek to promote overall economy for the purposes intended and encourage competition and not be unduly restrictive in satisfying the City's needs. No person preparing specifications shall receive any direct or indirect benefit from the utilization of specifications, other than fees paid for the preparation of specifications.

7. **INQUIRIES**

Any questions related to the solicitation shall be directed to the responsible Procurement Specialist whose name appears on the front page **via email only**. The Bidder shall not contact or ask questions of other City staff or the City department for which the requirement is being procured. Any correspondence related to a solicitation should refer to the solicitation number, page, and paragraph number. All questions must be submitted no later than the close of business five (5) calendar days after the Pre-Bid Conference.

8. **PRE-BID CONFERENCE (not applicable for this solicitation)**

A Pre-Bid Conference may be held. Attendance at the scheduled Pre-Bid Conferences is not mandatory. The date, time and location of the conference are indicated on the cover page of this document. The purpose of this conference will be to clarify the contents of this solicitation in order to prevent any misunderstanding of the City's position. Any doubt as to the requirements of this solicitation or any apparent omission or discrepancy should be presented to the City at this conference. The City will then determine if any action is necessary and may issue a written amendment to the solicitation. *Oral statements or instructions will not constitute an amendment to this solicitation.*

9. **LATE BIDS/MODIFICATIONS/WITHDRAWALS**

Bids, modifications of bids, and withdrawals received *after* the due date and time specified for receipt will be rejected. A Bidder (or designated representative) may withdraw their bid via email to the responsible Procurement Specialist any time *prior* to the solicitation due date and time.



City of Goodyear

Instructions to Bidders

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

10. PUBLIC RECORD/CONFIDENTIAL INFORMATION

All bids submitted in response to this solicitation shall become the property of the City and shall become a matter of public record available for review, subsequent to the award. If the Bidder believes that any information provided throughout the procurement process should be withheld as confidential, it is the responsibility of the Bidder to submit to the Procurement Manager a statement when the confidential information is submitted which identifies those items the Bidder believes to be confidential and the legal reason(s) why they are confidential. The Procurement Manager shall review the request for confidentiality and advise the Bidder in writing if the information will be treated as confidential by the City. If the City receives a public records request for any of the information determined to be confidential by the Procurement Manager, the City will use reasonable efforts to give notice to the Bidder prior to the release of the information.

11. BID ACCEPTANCE PERIOD

In order to allow for an adequate evaluation, the City requires a bid in response to this Solicitation to be valid for one hundred twenty (120) days after the opening time and date.

12. DISCUSSIONS

The City reserves the right to conduct discussions with Bidders for the purpose of eliminating minor irregularities, informalities, or apparent clerical mistakes in the submittal in order to clarify a bid and assure full understanding of, and responsiveness to, solicitation requirements.

13. PERSONNEL

It is essential that the Bidder provide adequate experienced personnel, capable of and devoted to the successful accomplishment of the work to be performed in this Solicitation. The Bidder agrees that those persons identified in their submittal shall not be removed or replaced without a written request to and approval from the City.

14. AWARD OF CONTRACT

- a. The contract will be awarded pursuant to the provisions of the City of Goodyear Procurement Code. Unless the Bidder states otherwise, or unless provided within this solicitation, the City reserves the right to award by individual line item, by group of line items, or as a total, whichever is deemed most advantageous to the City. Notwithstanding any other provision of this solicitation, the Procurement Manager further reserves the right to i) waive any immaterial defect or informality; ii) reject any or all bids, or portions thereof; iii) reissue the solicitation; or iv) modify or cancel this solicitation.
- b. A response to a solicitation is an offer to contract with the City based upon the terms, conditions and specifications contained in the City's solicitation and the written amendments thereto, if any. If City Council approval is necessary, bids do not become contracts unless and until they are accepted by the City Council. A contract is formed when written notice of award(s) is provided to the successful Bidder(s). The Contract has its inception in the award document, eliminating a formal signing of a separate contract.
- c. In the event the City should receive two or more identical bids, the awardee will be determined by lottery.

15. BUSINESS REGISTRATION PERMIT

All Bidders awarded contracts with the City shall be required to obtain a City of Goodyear Business Registration Permit through the Goodyear Business Registration Office. For further information call Finance, Joe Lewandowski at (623) 882-7899 or joe.lewandowski@goodyearaz.gov



City of Goodyear

Instructions to Bidders

Office of Procurement
190 N. Litchfield Road
P.O. Box 5100
Goodyear, AZ 85338
Phone: 623-882-7845

16. PROTESTS

- a. Any interested party may protest a solicitation issued by the City or the proposed award or the award of a City Contract by submitting a request in writing with the Procurement Manager for the City of Goodyear, with a copy directed to the City Attorney for the City of Goodyear as follows:

Jacque Behrens, CPPB
Procurement Manager
City of Goodyear
P.O. Box 5100
190 North Litchfield Road
Goodyear, AZ 85338

Roric Massey
City Attorney
City of Goodyear
P.O. Box 5100
190 North Litchfield Road
Goodyear, AZ 85338

- b. Writing: All protests must be in writing and shall include the following information:
- The name, address and telephone number of the protester;
 - The signature of the protester or its representative;
 - The solicitation or contract number;
 - A detailed statement of the legal or factual grounds of the protest including copies of relevant documents; and
 - The form of relief requested. R3-4-16.01
- c. Time Frame: To be considered, protests must be filed during the time frame identified in the procurement code.
- *Protests of a solicitation* must be filed within five (5) days of the first advertising of the solicitation.
 - *Protests of an award* must be filed within ten (10) days of the issue date of the Notice of Award or Notice of Intent to Negotiate and Award.
- d. The Procurement Manager is required to notify all interested parties that a protest has been filed.

17. CONFLICT OF INTEREST Offerors shall fully disclose all known and potential conflicts that could influence or appear to influence their judgment or the quality of their services.

18. OFFER RESULTS

Bids will be opened on the bid due date, time and location indicated on the cover sheet of the solicitation at which time the name of each bidder and the prices shall be read. Bids and other information received in response to the Invitation for Bid shall be shown only to authorized City personnel having a legitimate interest in them or persons assisting the City in the evaluation. Bids are not available for public inspection until after award recommendation has been posted on the City's website.

A preliminary bid tabulation will be posted on the City's website, <http://www.goodyearaz.gov/business/vendor-services-procurement/bid-results> within five (5) calendar days of the bid opening. The information on the preliminary tabulation will be posted as it was read during the bid opening. The City makes no guarantee as to the accuracy of any information on the preliminary tabulation. Once the City has evaluated the bids an award recommendation will be posted on the website. No further notification will be provided to unsuccessful bidders.

END OF INSTRUCTIONS TO OFFERORS

	City of Goodyear	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	Standard Terms and Conditions	

SECTION 1. DEFINITIONS

- 1.1 “Addenda” written or graphic instruments issued prior to the submittal of the Bid(s), which clarify, correct or change the Bids(s) requirements.
- 1.2 “Agreement” or “Contract” means this written document signed by the City and Contractor covering the construction of the Project, and including other documents itemized and referenced in or attached to and made part of this Contract.
- 1.3 “Change Order” means a written instrument issued after execution of this Agreement signed by City and Contractor, stating their agreement upon all of the following: the scope of the change in the Work; the amount of the adjustment to the Contract Price; the extent of the adjustment to the Contract Time(s) or modifications of other contract terms.
- 1.4 “City” means the City of Goodyear.
- 1.5 “City Manager” means the manager of the City of Goodyear or designee.
- 1.6 “City’s Representative” means the person or his/her designee authorized by the City of Goodyear to function on behalf of the City with reference to this Project.
- 1.7 “Contract” means this Goods/Services Contract and any attachments referenced herein, fully completed and executed between the City of Goodyear and the Contractor.
- 1.8 “Contract Documents” means the Notice to Contractors, Solicitation, Instructions to Bidders, Standard Terms and Conditions, Scope of Work, Supplemental General Conditions, Special Provisions, Supplemental Specifications, Proposal, Proposal Acknowledgement, Contract, Payment Bond, Performance Bond, Certificates of Insurance, Construction Documents, Bid Proposal, Subcontractor Listing, Construction Drawings, Contractor’s Affidavit Regarding Settlement of Claims, Plans, Addenda and Exhibits.
- 1.9 “Contract Price/Fee Schedule” means the amount or amounts set forth in the Fee Schedule subject to adjustment in accordance with this Agreement.
- 1.10 “Contractor” means the individual, partnership, entity or corporation who, as a result of the competitive process, is awarded a contract by the City of Goodyear to provide goods and/or services.
- 1.11 “Construction Documents” means the approved construction plans, specifications and drawings prepared by the engineer.
- 1.12 “Days” means calendar days unless otherwise specified herein.
- 1.13 “Litigation Expense” means any court filing fee and costs, arbitration fees or costs, witness fee, arbitration fees, and each other fee and cost of investigating and defending or asserting any claim for indemnification under this Contract, including, without limitation, in each case, attorneys’ fees, professional fees, disbursements and each other fee and cost of investigating and defending, appealing or asserting any claim for indemnification under this Contract.

	City of Goodyear	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	Standard Terms and Conditions	

- 1.14 “Loss” means any liability, loss, claim, settlement payment, cost and expense, interest, award, judgment, damages (including punitive damages), diminution in value, fines, fees and penalties or other charge, other than a litigation expense.
- 1.15 “Project” “Services” or “Work” means the subject matter of this Contract as more fully set forth in the attached Scope of Work, which may include delivery of goods and/or services.
- 1.16 “Subcontractor” means any individual, corporation, company, or other entity who contracts to perform work or render services or provide goods to a Contractor or to another subcontractor as part of this Contract with the City.
- 1.17 “Substantial Completion” means when the Work, or an agreed upon portion of the Work, is sufficiently complete so that City can occupy and use the Project or a portion thereof for its intended purposes. This may include, but is not limited to: (i) approval by City Fire Marshall and local authorities (Certificate of Occupancy); (ii) Elevator Permit; (iii) all systems in place, functional, and displayed to the City or its representative; (iv) all materials and equipment installed; (v) all systems reviewed and accepted by the City; (vi) draft O&M manuals and record documents reviewed and accepted by the City; (vii) City operation and maintenance training complete; (viii) HVAC test and balance completed (Provide minimum thirty (30) days prior to projected substantial completion); (ix) landscaping and site work; and (x) final cleaning.

SECTION 2. TERM OF CONTRACT

- 2.1 The term of the contract may be automatically extended to include the warranty period.
- 2.2 Contractor shall not commence work until Contractor receives a purchase order signed by the City procurement manager or designee.

SECTION 3. COMPENSATION AND PAYMENTS

- 3.1 **COMPENSATION**: Total compensation to be paid under this Contract shall not exceed the purchase order amount.
- 3.2 Contractor shall invoice City on or before the 10th day of each month for goods and/or services provided under this contract during the prior month. All invoices shall contain itemized hourly fees, unit cost, extended cost of goods and supporting documentation for all invoiced amounts. All invoices to the City shall identify the specific item(s) being billed and the Purchase Order number. Items are to be identified by the name, model number, and/or serial number most applicable.
- 3.3 City shall make every effort to process payments to Contractor within thirty (30) calendar days after the receipt of a correct and approved invoice, unless a good faith dispute exists to any obligation to pay all or a portion of the invoice or account.
- 3.4 **PRICE ADJUSTMENT/CONTRACT EXTENSION**: The City’s Office of Procurement will review fully documented requests for price increase after any contract has been in effect for one (1) year. Any price increase adjustment will only be made at the time of contract extension and will be a factor in the extension review process. The Office of Procurement will determine whether the requested price increase or alternate option is in the best interest of the City. Any price adjustment will be effective upon the effective date of the contract extension.



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- 3.5 **PRICE REDUCTION:** A price reduction may be offered at any time during the term of the contract and shall become effective upon notice.
- 3.6 **LATE SUBMISSION OF CLAIM BY CONTRACTOR:** The City will not honor any invoices or claims which are tendered one (1) year after the last item of the account accrued.
- 3.7 **ESTIMATED QUANTITIES:** Quantities identified in the Solicitation are the City's best estimate and do not obligate the City to order or accept more than the City's actual requirements during the period of this Contract as determined by actual needs and availability of appropriate funds. It is expressly understood and agreed that Contractor is to supply the City with its complete and actual requirements for the contract period.
- 3.8 **PRODUCT DISCONTINUANCE:** In the event that a product or model identified in the offer is subsequently discontinued by the manufacturer, the City at its sole discretion may allow the Contractor to provide a substitute for the discontinued item. The Contractor shall request permission to substitute a new product or model and provide all of the following:
1. A formal announcement from the manufacturer that the product or model has been discontinued;
 2. Documentation from the manufacturer that names the replacement product or model;
 3. Documentation that provides clear and convincing evidence that the replacement meets or exceeds all specifications required by the original solicitation;
 4. Documentation that provides clear and convincing evidence that the replacement will be compatible with all the functions or uses of the discontinued product or model; and
 5. Documentation confirming that the price for the replacement is the same as or less than the discontinued product or model.
- 3.9 **USAGE REPORT:** The Contractor may be required to provide a usage report to the Procurement Manager.
- 3.10 **DISCOUNTS:** Payment discounts will be computed from the date receiving acceptable goods, materials and/or services or correct invoice, whichever is later to the date payment is mailed.
- 3.11 **NO ADVANCE PAYMENT:** Advance payments will not be authorized; payment will be made only for actual goods or services that have been received.
- 3.12 **FUND APPROPRIATION CONTINGENCY:** The Parties recognize that the continuation of any contract after the close of any given fiscal year of the City of Goodyear, which fiscal year ends on June 30 of each year, shall be subject to appropriation and allocation of funds by the Goodyear City Council.
- 3.13 **F.O.B. POINT:** All prices are to be quoted F.O.B final destination, unless otherwise specified elsewhere in the solicitation.
- 3.14 **TAXES:** Contractor shall be solely responsible for the reporting of any and all tax obligations that may result from Contractor's performance of this Contract.

SECTION 4. TERMINATION

- 4.1 **TERMINATION FOR CONVENIENCE:** City at any time and for any reason and without cause may terminate, suspend or abandon any portion, or all, of this Contract at City's convenience. In the event that the City terminates, suspends or abandons any part of the services, the City shall provide notice to the

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Contractor. Upon receipt of notice, the Contractor shall, unless the notice directs otherwise, immediately discontinue further services and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

The Contractor shall appraise the services completed prior to receiving notice of the termination, abandonment or suspension and deliver to the City all drawings, special provisions, field survey notes, reports, estimates and any and all other documents or work product generated by the Contractor under the contract, entirely or partially completed, together with all unused materials supplied by the City.

In the event of termination, abandonment or suspension, Contractor shall be paid for services satisfactorily performed prior to receipt of such notice including reimbursable expenses then incurred. However, in no event shall the fee exceed that set forth in Section 4 of this Contract. Contractor shall not be entitled to any claim or claim of lien against Owner for any additional compensation or damages in the event of such termination and payment.

The City shall make final payment within thirty (30) days after the Contractor has fully complied with the provisions of Section 5 and Contractor submits a correct and approved final invoice for the fee that has been agreed to by the Parties.

- 4.2 Any attempt to represent any material and/or service not specifically awarded as being under contract with the City of Goodyear is a violation of the contract and the City of Goodyear Procurement Code. Any such action is subject to the legal and contractual remedies available to the City inclusive of, but not limited to, contract cancellation, suspension and/or debarment of the Contractor.

SECTION 5. RISK OF LOSS AND LIABILITY

- 5.1 **INDEMNIFICATION:** Unless a federal and state statute that expressly prohibits such indemnification, Contractor shall defend, indemnify, save and hold harmless the City of Goodyear, its officials, directors, officers, employees, agents, and representatives (hereinafter referred to as "Indemnatee") at all times after the date of this Contract from and against any and all Claims, caused by, relating to, arising out of, or alleged to have resulted from, in whole or in part, any negligent, reckless or intentional acts, errors, fault, mistakes, omissions, work, goods or service of the Contractor, its directors, officers, employees, agents, representatives, or any tier of subcontractors or any other person for whose acts, errors, fault, mistakes omissions, work, goods or service the Contractor may be legally liable in the performance of this Contract. The Indemnification provided hereunder shall extend to Claims arising out of, or recovered under, Arizona's Workers' Compensation Law or the failure of Contractor to conform to any applicable and appropriate federal, state, or local law, statute, ordinance, rule, regulation or court decree. It is the specific intention of the Parties that the Indemnatee shall, in all instances, except for Claims arising solely from the negligent or willful acts or omissions of the Indemnatee, be indemnified by Contractor from and against any and all Claims. It is agreed that the Contractor will be responsible for primary loss investigation, defense and judgment costs where this indemnification is applicable.

In consideration of the award of this contract, Contractor agrees to waive all rights of subrogation against Indemnatee for Claims arising from the work performed by Contractor, its directors, officers, employees, agents, representatives, or any tier of subcontractors pursuant to this Contract. This indemnification provision shall survive the expiration or earlier termination of this Contract.



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For purposes of this Indemnification provision the term Claims shall mean claims, suits, actions, demands, proceedings, losses, settlement payments, disbursements, expenses, and damages of every kind and description (including but not limited to costs, interest, awards, judgments, diminution in value, fines, penalties or other charges, reasonable attorneys' fees, other professionals' fees, court filing fees and costs, arbitration fees, witness fees, and each other fee and cost of investigating and defending, negotiating, appealing or asserting any claim for indemnification under this Contract) (collectively referred to "Litigation Expenses").

- 5.2 **INDEMNIFICATION – PATENT, COPYRIGHT AND TRADEMARK:** The Contractor shall indemnify and hold harmless the City against any liability, including costs and expenses, for infringement of any patent, copyright or trademark or other proprietary rights of any third parties arising out of contract performance or use by the City of materials furnished or Services performed under this Contract. The Contractor agrees upon receipt of notification to promptly assume full responsibility for the defense of any claim, suit or proceeding which is, has been, or may be brought against the City and its agents for alleged infringement, as well as for the alleged unfair competition resulting from similarity in design, trademark or appearance of goods by reason of the use or sale of any goods furnished under this Contract and the Contractor further agrees to indemnify the City against any and all expenses, losses, royalties, profits and damages including courts costs and attorney's fees resulting from the bringing of such suit or proceedings including any settlement or decree of judgment entered therein. The City may be represented by and actively participate through its own counsel in such suit or proceedings, it is so desires. It is expressly agreed by the Contractor that these covenants are irrevocable and perpetual.
- 5.3 **TITLE AND RISK OF LOSS:** The title and risk of loss of material or services shall not pass to the City until the City actually receives and accepts the materials or services at the point of delivery; and such loss, injury or destruction shall not release the Contractor from any obligation hereunder.
- 5.4 **ACCEPTANCE:** All materials or services are subject to final inspection and acceptance by the City. Materials or services failing to conform to the specifications of this Contract shall be held at Contractor's risk and may be returned to the Contractor. If returned, all costs are the responsibility of the Contractor. The City may elect to do any or all of the following: a) Waive the non-conformance; b) Stop the work immediately; c) Bring materials into compliance; and/or d) Terminate the Contract and seek all remedies available in law and in equity. This shall be accomplished by a written determination by the City.
- 5.5 **LOSS OF MATERIALS:** The City does not assume any responsibility, at any time, for the protection of or for the loss of materials, from the execution of this Contract until the final acceptance of the work by the City.
- 5.6 **DEFAULT IN ONE INSTALLMENT TO CONSTITUTE TOTAL BREACH:** Contractor shall deliver conforming materials in each installment of lot of this Contract and may not substitute nonconforming materials and/or services. Delivery of nonconforming materials or a default of any nature, at the option of the City, shall constitute a breach of the Contract as a whole.
- 5.7 **SHIPMENT UNDER RESERVATION PROHIBITED:** Contractor is not authorized to ship goods or perform services under reservation, and no tender of an invoice or bill of lading will operate as a tender of the goods or services.



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- 5.8 **WORK PERFORMED AT CONTRACTOR'S RISK:** Contractor shall take all precautions reasonably necessary and shall be responsible for the safety of its employees, agents and subcontractors in the performance of the work hereunder and shall utilize all protections reasonably necessary for that purpose. All work shall be done at Contractor's own risk, and Contractor shall be responsible for any loss of or damage to materials, tools, or other articles used or held for use in connection with the work.
- 5.9 **SAFETY STANDARDS:** All items supplied pursuant to this Contract shall comply with the current applicable Occupational Safety and Health Standards of the State of Arizona Industrial Commission, the National Electric Code, and the National Fire Protection Association Standards.
- 5.10 **PROJECT STAFFING:** Prior to the start of any Services under this Contract, the Contractor shall submit to the City detailed resumes of key personnel that will be involved in performing Services prescribed in the Contract for review and approval. At any time hereafter that the Contractor desires to change key personnel while performing under the Scope, the Contractor shall submit the qualifications of the new personnel to the City for prior approval. Key personnel include but are not limited to the Contractor's principal-in-charge, project manager, project designer, project architect, system architect, system manager and system engineer.

The Contractor will maintain an adequate and competent staff of qualified persons throughout the performance of this Contract as necessary for acceptable and timely completion of the services. If the City objects, with reasonable cause, to any of the Contractor's staff, the Contractor shall take prompt corrective action and, if required, remove such personnel from the Project and replace them with the new personnel agreed to by the City.

- 5.11 **SUBCONTRACTORS:** Prior to beginning the work, the Contractor shall furnish the City for approval the names of subcontractors to be used on this Project. Any subsequent changes are subject to the approval of the City.
- 5.12 **DAMAGE TO CITY PROPERTY:** Contractor shall perform all work so that no damage to any City buildings or property results. Contractor shall repair any damage caused to the satisfaction of the City at no cost to the City. Contractor shall take care to avoid damage to adjacent finished materials that are to remain. If finished materials are damaged, Contractor shall repair and finish in a manner which matches existing material as approved by the City at the Contractor's expense.
- 5.13 **FORCE MAJEURE:** Neither Party shall be in default by reason of any failure in performance of this Contract if such failure arises out of causes beyond their reasonable control and without the fault or negligence of said Party including, unforeseeable Acts of God; terrorism or other acts of public enemy; war and epidemics or quarantine restrictions.

If either Party is delayed at any time in the progress of the Work by force majeure, the delayed Party shall notify the other Party in writing of such delay, as soon as is practical, of the commencement thereof and shall specify the causes of such delay in the notice. The notice shall be hand-delivered or mailed certified-return receipt and shall make a specific reference to this provision. The delayed Party shall cause such delay to cease as soon as practicable and shall notify the other party in writing when it has done so. The time of completion shall be extended by contract modification for a period of time equal to the time that results or effects of such delay prevent the delayed Party from performing in accordance with this contract.



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SECTION 6. CONTRACT INTERPRETATION

- 6.1 DISPUTES, GOVERNING LAW, ATTORNEY FEES: Should any dispute, misunderstanding or conflict arise as to the terms or provisions contained in this Contract, the matter shall first be referred to the City, and the City shall determine the term or provision's true intent and meaning.

This Contract shall be deemed to be made under, shall be construed in accordance with, and shall be governed by the laws of the State of Arizona, without regard to choice of law or conflicts of laws principles thereof. Any action arising out of this Contract shall be commenced and maintained in the Superior Court of the State of Arizona in and for the County of Maricopa. The prevailing Party shall be reimbursed by the other Party for all attorney fees and all costs and expenses, including but not limited to all service of process, filing fees, court and court report costs, investigative costs, and expert witness fees which are incurred in any legal proceeding whatsoever arising out of this Contract, including, bankruptcy, arbitration, declaratory relief or other litigation, including appeals or rehearing.

- 6.2 PROVISIONS REQUIRED BY LAW: Each and every provision of law and any clause required by federal, state or local law to be in this Contract shall be read and enforced as though it were included herein and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either Party the Contract shall forthwith be physically amended to make such insertion or correction.

- 6.3 PAROL EVIDENCE: This Contract is intended by the parties as a final expression of their agreement and is intended also as a complete and exclusive statement of the terms of this agreement. No course of prior dealings between the parties and no usage in trade shall be relevant to contradict, supplement or explain any term used in this Contract.

- 6.4 SEVERABILITY: If any provision in this Contract or the application thereof to any person or circumstance shall be invalid, illegal or unenforceable to any extent, the remainder of this Contract and the application thereof shall not be affected and shall be enforceable to the fullest extent permitted by law.

- 6.5 CONTRACT ORDER OF PRECEDENCE: In the event of a conflict in the provisions of the Contract, as accepted by the City and as they may be amended, the following shall prevail in the order set forth below:

1. Special Terms and Conditions
2. Standard Terms and Conditions
3. Specifications
4. Fee Schedule
5. Attachments
6. Exhibits
7. Invitation to Bid, Instructions to Bidders and other documents referenced or included.

In the event of a conflict in language between the Solicitation and the Offer, the provisions and requirements in the Solicitation shall govern. However, the City reserves the right to clarify, in writing, any contractual terms with the concurrence of the Contractor, and such written contract shall govern in case of conflict with the applicable requirements stated in the Solicitation or the Offer. The Solicitation shall govern in all other matters not affected by the written contract.



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- 6.6 **INTEGRATION:** This Contract contains the full agreement of the parties hereto. Any prior or contemporaneous written or oral agreement between the parties regarding the subject matter hereof is merged and superseded hereby.
- 6.7 **INDEPENDENT CONTRACTOR:** Each Party will act in its individual capacity and not as an agent, employee, partner, joint venture, or associate of the other. An employee or agent of one Party shall not be deemed or construed to be the employee or agent of the other for any purpose whatsoever. The Contractor is advised that taxes or Social Security payments will not be withheld from any City payments issued hereunder and that the Contractor should make arrangements to directly pay such expenses, if any.
- 6.8 **NON-WAIVER MONIES DUE:** The City of Goodyear as a public entity supported by tax monies, in execution of its public trust, cannot agree to waive any lawful or legitimate right to recover monies lawfully due it. Therefore, Contractor agrees that it will not insist upon or demand any statement whereby the City agrees to limit in advance or waive any right the City might have to recover actual lawful damages in any court of law under applicable Arizona law.
- 6.9 **AMBIGUITIES NOT HELD AGAINST DRAFTER:** This Contract having been freely and voluntarily negotiated by all parties and the rule of contract construction that ambiguities, if any, in any term or condition of an agreement are held against the drafter of the agreement is not applicable to this Contract.
- 6.10 **NON-WAIVER CONTRACT PROVISION:** The failure of either Party to enforce any of the provisions of this Contract or to require performance of the other Party of any of the provisions hereof shall not be construed to be a waiver of such provisions, nor shall it affect the validity of this Contract or any part thereof, or the right of either Party to thereafter enforce each and every provision.
- 6.11 **COOPERATION AND FURTHER DOCUMENTATION:** The Contractor agrees to provide the City all duly executed documents as shall be reasonably requested by the City to implement the intent of this Contract.

SECTION 7. CONTRACT ADMINISTRATION AND OPERATION

- 7.1 **WORK PRODUCT, EQUIPMENT AND MATERIALS:** All work product, equipment, or materials created or purchased under this Contract are considered the sole property of the City and must be delivered to the City upon termination, abandonment of the Contract or final payment to the Contractor and shall not be used or released by the Contractor without prior authorization from the City. Work product includes, but is not limited to, plans, specifications, cost estimates, tracings, studies, design analyses, original Mylar drawings, computer aided drafting and design (CADD) file, computer disks and/or other electronic records and media. Contractor agrees that all materials prepared under this Contract are "works for hire" within the meaning of the copyright laws of the United States and assigns to City all rights and interest Contractor may have in the materials it prepares under this Contract, including any right to derivative use of the materials. Contractor shall place the professional seal of Contractor on all plans and documents prepared in the performance of this Contract.
- 7.2 **CONFIDENTIALITY AND ENCRYPTION:** All data, regardless of form, including originals, images and reproductions, prepared by, obtained by, or transmitted to Contractor in connection with this Contract are confidential, proprietary information owned by the City. Except as specifically provided in this Contract, the Contractor shall not disclose data generated in the performance of the Service to any third person without the prior written consent of the City Manager.



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Personal identifying information, financial account information or restricted City information, whether electronic format or hard copy, are considered confidential information and must be secured and protected at all times to avoid unauthorized access. At a minimum Contractor shall ensure that all electronic transmissions of confidential data are encrypted and any cryptographic algorithm implementations used must have been validated by the National Institute of Standards and Technology (NIST). The use of proprietary encryption algorithms will not be allowed for any purpose. The export of encryption technologies is restricted by the U.S. Government.

In the event that data collected or obtained by Contractor in connection with this Contract is believed to have been compromised, Contractor shall notify the City Attorney immediately. Contractor agrees to reimburse the City for any costs incurred by the City to investigate potential breaches of this data and, where applicable, the cost of notifying individuals who may be impacted by the breach.

Contractor agrees that the requirements of this section shall be incorporated into all subcontractor agreements entered into by the Contractor. It is further agreed that a violation of this section shall be deemed to cause irreparable harm and justifies injunctive relief in court. A violation of this section may result in immediate termination of this Contract without further notice. The obligations of Contractor under this section shall survive the termination of this Contract.

- 7.3 **CONFLICT OF INTEREST/THIRD PARTIES:** Contractor shall provide written notice to the City as set forth in this section, of any work or Services performed by the Contractor for third parties that, to the extent that the Contractor is aware, involves or is associated with any real property or personal property owned or leased by the City or which may be adverse to the City. Notice shall be given seven (7) days prior to commencement of the Services by the Contractor for a third party. Written notice and disclosure shall be sent to:

Roric Massey, City Attorney
City of Goodyear
190 N. Litchfield Rd
Goodyear, Arizona 85338

Actions that are considered to be adverse to the City include but are not limited to:

1. Using data acquired in connection with this Contract to assist a third party in pursuing administrative or judicial action against the City;
2. Testifying or providing evidence on behalf of any third party in connection with an administrative or judicial action against the City; and
3. Using data to produce income for the Contractor, its subcontractors or employees independently of performing the services under this Contract, without the prior written consent of the City.

The Contractor represents that except for those persons, entities and projects identified to the City, the Services to be performed by the Contractor under this Contract are not expected to create an interest with any person, entity, or third party project that is or may be adverse to the interests of the City. The Contractor's failure to provide a written notice and disclosure of the information as set forth in this section shall constitute a material breach of Contract.

- 7.4 **CONFLICT AUDIT:** Within thirty (30) days of being requested to do so, Contractor agrees to provide the City an itemized summary of any and all gifts a Contractor, its directors, officers, managers, employees,



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agents and/or representatives have made to any City employee during the year prior to the date of the Contract through the date of the request. The summary shall include the date the gift was made, a description of the gift, the City employee(s) that received the gift, and the value of the gift. The summary shall be signed and its truthfulness certified by Contractor. For purposes of this section the terms "Gift" means anything of value that is provided to the employee and includes, by way of example, but not limitation, meals, free use of vacation homes, low interest or no interest loans, tickets to sporting events, tickets to charitable events, entertainment expenses, travel expenses, drinks, and the like. The failure to comply with any request made pursuant to this section and/or the submission of a summary that contains material misrepresentations constitutes grounds for debarment and the refusal to allow Contractor to participate in any future contracts with the City.

7.5 **AUDIT OF RECORDS:** Contractor shall retain, and shall contractually require each and every subcontractor that performs any Work under this Contract to retain all books, accounts, reports, files and any and all other records relating to the contract (hereinafter referred to as "Contract Documents") for six (6) years after completion of the Contract. City, upon written request and at reasonable times, shall have the right to review, inspect, audit and copy all Contract Documents of the Contractor and any subcontractors. Contractor shall produce the original Contract Documents at City Hall, currently located at 190 N. Litchfield Road, Goodyear, Arizona, or at such other City facility within the City as designated by the City in writing. If approved by City Attorney in writing, photographs, microphotographs, or other authentic reproductions may be maintained instead of original Contract Documents.

7.6 **AUDIT/BILLING AND EXPENSES:** The City reserves the right to request supporting documentation for all hourly amounts, cost of goods and reimbursable expenses charged to the City. Such records will be subject to audit at any time during the term of this Contract and for a period not to exceed two (2) years after any amount is billed. Within thirty (30) days of receiving a request, the Contractor will furnish to the City original invoices to support all charges and complete payroll records to support such hourly labor charges. The City reserves the right to audit any other supporting evidence necessary to substantiate charges related to this Contract, both direct and indirect costs, including overhead allocations if they apply to hourly costs associated with this Contract. If requested by the City, the Contractor will provide supporting records electronically in addition to a hard copy.

If the audit reveals overcharge, the Contractor will reimburse the City upon demand for the amount of such overcharges plus interest thereon from the date paid by the City through the date of reimbursement. If the overcharges exceed 5% of Contractor's compensation, then Contractor shall also reimburse the City for the cost of the audit.

The Contractor shall include a similar provision in all of its agreements with subcontractor providing goods and/or services under this Contract to ensure the City, its authorized representative, and/or the appropriate federal agency, has access to the subcontractor records to verify the accuracy of any similar amounts charged to the City.

7.7 **ADVERTISING:** Contractor and all subcontractors shall not advertise or publish new releases concerning this Contract, goods or services provided to the City without prior written consent of the City Attorney.

7.8 **CITY MARKS:** The Contractor and all subcontractors shall not use any trade name, trademark, service mark, or logo of the City (or any name, mark or logo confusingly similar thereto) in any advertising, promotions, or otherwise, without the City's express prior written consent.

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- 7.9 **LICENSES AND PERMITS:** Contractor and all subcontractors shall keep current federal, state, and local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this contract.
- 7.10 **E-VERIFY:** Contractor and all subcontractors warrant compliance with the e-verify statute, A.R.S. § 23-214(A). A breach of this warranty shall be deemed a material breach of this contract, and shall subject this contract to penalties up to and including termination of the contract. The City retains the right to inspect the papers and records of any of Contractor's employees or any subcontractor employees working on the contract to ensure compliance with this requirement. For this section, Contractor shall have the meaning of Contractor as found in A.R.S. § 41-4401, and subcontractor has the same meaning as found in A.R.S. § 41-4401.
- 7.11 **NON-DISCRIMINATION:** Contractor and all subcontractors will not discriminate against any person on the basis of race, color, religion, age, gender, or national origin in the performance of this Contract, and shall comply with the terms and intent of Title VI of the Civil Rights Act of 1964, P.L. 88-354.
- 7.12 **COMPLIANCE:** The Contractor and all subcontractors understand and agree to comply with the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989 as amended. The Contractor agrees to comply with these laws and Arizona Executive Order 2009-09 in performing this Contract and to permit the City to verify such compliance.
- 7.13 **CONTINUATION DURING DISPUTES:** Contractor agrees that notwithstanding the existence of any dispute between the parties, insofar as is possible, under the terms of the contract, the Contractor shall continue to perform the obligations required of the Contractor during the continuation of any such dispute unless enjoined or prohibited by the City or an Arizona Court of competent jurisdiction.
- 7.14 **COOPERATIVE STATEMENT:** This contract shall be for the use of the City of Goodyear. In addition, eligible political subdivisions and nonprofit educational or public health institutions may also participate at their discretion. Any eligible agency may elect to participate (piggyback) on this contract if the Contractor agrees to do so.
- 7.15 **CAPTIONS:** The captions used herein are for convenience only and are not a part of this Contract and do not in any way limit or amplify the terms and provisions hereof.
- 7.16 **BANKRUPTCY:** This Agreement, at the option of the City, shall be terminable in the case of bankruptcy, voluntary or involuntary, or insolvency of the Contractor.
- 7.17 **CONTINUATION OF SERVICES – ISRAEL:** Contractor certifies that it is not currently engaged in, and agrees for the duration of this Contract that it will not engage in a boycott of Israel, as that term is defines in A.R.S. § 35-393.
- 7.18 **RIGHT OF OFFSET.** The City shall be entitled to offset against any sums due the Contractor, any expenses or costs incurred by the City, or damages assessed by the City concerning the Contractor's non-conforming performance or failure to perform the Contract, including expenses, costs and damages described in the Standard Terms and Conditions.



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SECTION 8. CONTRACT CHANGES

- 8.1 MODIFICATION: No supplement, modification, or amendment of any term of this Contract will be deemed binding or effective unless in writing and signed by the Parties with authority to do so. This section does not prohibit the City from unilaterally extending the contract term.
- 8.2 SUCCESSORS AND ASSIGNS: This Contract is binding on the parties' respective partners, successors, assigns, and legal representatives. Contractor will not assign, sublet, or transfer its right or interest in this Contract nor monies due, in whole or in part, or delegation any duty of Contractor without the prior written consent of the City. Any assignment or delegation made in violation of this section shall be void. In no event does this Contract create any contractual relationship between the City and any third party.
- 8.3 THIRD PARTY BENEFICIARY: Nothing under this Contract shall be construed to give any rights or benefits in the Contract to anyone other than the City and the Contractor, and all duties and responsibilities undertaken pursuant to this Contract will be for the sole and exclusive benefit of City and the Contractor, and not for the benefit of any other Party.
- 8.4 AUTHORIZED CHANGES: The City reserves the right at any time to make changes in any one or more of the following: (i) specifications; (ii) methods of shipment or packing; (iii) place of delivery; (iv) time of delivery; and/or (v) quantities. If the change causes an increase or decrease in the cost of or the time required for performance, an equitable adjustment may be made in the price or deliver schedule, or both. Any claim for adjustment shall be deemed waived unless asserted in writing within thirty (30) days from the receipt of the change. Prior increases or extensions of delivery time shall not be binding on the City unless evidenced in writing and approved by the City.
- 8.5 SUBCONTRACTS: No subcontract shall be entered into by the Contractor with any other party to furnish any of the goods, Service or Work specified herein without the advance written approval of the City.
- 8.6 CONTINGENT FEES: Contractor warrants that no person has been employed or retained to solicit or secure this Contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, and that no member of the City Council, or any employee of the City of Goodyear has any interest, financially, or otherwise, in the Contractor's business/firm. For breach or violation of this warranty, the City of Goodyear shall have the right to annul this Contract without liability, or at its discretion to deduct from the Contract price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.
- 8.7 LIENS: Contractor shall hold the City harmless from claimants supplying labor or materials to the Contractor or subcontractors in the performance of the work required under this Contract.

SECTION 9. WARRANTY

- 9.1 GUARANTEE: Unless otherwise specified, all items shall be guaranteed for a minimum period of two (2) year from the date of acceptance by the City against defects in material and workmanship. At any time during that period, if a defect should occur in any item that item shall be replaced or repaired by the Contractor at no obligation to the City except where it is shown that the defect was caused solely by misuse of the City.
- 9.2 QUALITY: Contractor expressly warrants that all goods and services furnished under this Contract shall conform to the specifications, appropriate standards, and will be new and free from defects in material or



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workmanship. Contractor warrants that all such goods or services will conform to any statements made on the containers or labels or advertisements for such goods or services, and that any goods will be adequately contained, packaged, marked and labeled. Contractor warrants that all goods and services furnished hereunder will be merchantable, and will be safe and appropriate for the purpose which goods or services of that kind are normally used. If Contractor knows or has reason to know the particular purpose for which City intends to use the goods or services, Contractor warrants that goods and services furnished will conform in all respect to samples. Inspection, test, acceptance of use of the goods or services furnished hereunder shall not affect the Contractor's obligation under this warranty, and such warranties shall survive inspection, test, acceptance and use. Contractor's warranty shall run to City, its successors and assigns.

- 9.3 **RESPONSIBILITY FOR CORRECTION:** Any defects of design, workmanship, or materials that would result in non-compliance with the contract specification shall be fully corrected by the Contractor (including parts, labor, shipping or freight) without cost to the City. This includes any necessary labor to remove, repair, install, or to ship or transport any item to a point of repair and return. It is agreed that the Contractor shall be fully responsible for making any correction, replacement, or modification necessary for specification or legal compliance. Contractor agrees that if the product or service offered does not comply with the foregoing, the City has the right to cancel the purchase at any time with full refund within 30 calendar days after notice of non-compliance and Contractor further agrees to be fully responsible for any consequential damages suffered by the City.
- 9.4 **INVESTIGATION OF CONDITIONS:** The Contractor warrants and agrees familiarity of the work that is required, is satisfied as to the conditions under which it is to perform and enters into this Contract based upon the Contractor's own investigation.
- 9.5 **WORKMANSHIP:** Where not more specifically described in any of the various sections of the specifications, workmanship shall conform to all of the methods and operations of best standards and accepted practices of the trade or trades involved and shall include all items of fabrication, construction or installation regularly furnished or required for completion of the services or goods. All goods and services shall be provided and executed by personnel skilled in their respective lines of work. Contractor warrants that all goods and services delivered under this contract shall conform to the specifications of this contract. Additional warranty requirements may be set forth in the Solicitation.
- 9.6 **RIGHT TO INSPECT PLANT:** The City may, at reasonable times, inspect the part of the plant or place of business of a Contractor or subcontractor which is related to the performance of any contract as awarded or to be awarded.
- 9.7 **PREPARATION OF SPECIFICATIONS BY PERSONS OTHER THAN CITY PERSONNEL:** All specifications shall seek to promote overall economy for the purposes intended and encourage competition and not be unduly restrictive in satisfying the City's needs. No person preparing specifications shall receive any direct or indirect benefit from the utilization of specifications, other than fees paid for the preparation of specifications.
- 9.8 **SURVIVAL:** Sections 6, 7, 8, 9, 10 and 11 will survive the completion, termination and/or abandonment of this Contract.



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- 9.9 **COMPLIANCE WITH APPLICABLE LAW:** Contractor shall comply with all applicable federal, state and local laws, codes and regulations; including all applicable building regulations, license and permits requirements.

SECTION 10. CITY CONTRACTUAL RIGHTS

- 10.1 **RIGHT OF ASSURANCE:** Whenever the City in good faith has a reason to question the Contractor's intent or ability to perform, the City may demand that the Contractor give written assurance of the intent and ability to perform. In the event that a demand is made and no written assurance is given within five (5) work days, the City may treat this failure as an anticipatory repudiation of this contract.
- 10.2 **NON-EXCLUSIVE REMEDIES:** The rights and remedies of the City under this Contract are non-exclusive.
- 10.3 **DEFAULT IN ONE INSTALLMENT TO CONSTITUTE BREACH:** Each installment or lot of this Contract is dependent on every other installment or lot and a delivery of non-conforming goods or services or a default of any nature under one installment or lot will impair the value of the whole Contract and constitutes a breach of the Contract as a whole.
- 10.4 **TIME IS OF THE ESSENCE:** Time of each of the terms, covenants, and conditions of this Contract is hereby expressly made of the essence. The City is providing services which involve health, safety and welfare of the general public, delivery time is of the essence. Delivery must be made in accordance with the delivery schedule promised by the Contractor.
- 10.5 **NON-EXCLUSIVE CONTRACT:** The City reserves the right to purchase goods or services from another source only when necessary and determined appropriate by the City's Procurement Manager.
- 10.6 **STRICT PERFORMANCE:** Failure of either Party to insist upon the strict performance of any item or condition of the Contract or to exercise or delay the exercise of any right or remedy provided in the Contract, or by law, or the acceptance of materials or services, obligations imposed by this Contract or by law shall not be deemed a waiver of any right of either Party to insist upon the strict performance of the Contract.
- 10.7 **CONFLICT OF INTEREST:** This Contract is subject to the provisions of A.R.S. § 38-511 and may be canceled by the City, without penalty or further obligation, if any person significantly involved in initiating, negotiating, securing, drafting, or creating the Contract on behalf of the City is, or becomes, an employee, consultant, or agent of Contractor in any capacity with respect to the subject matter of the Contract while the Contract or any extension or amendment thereof, is in effect.
- 10.8 **DEFAULT:** In the case of default by the Contractor, the City may, by written notice, cancel this contract and repurchase from another source and may recover the excess costs by (i) deduction from an unpaid balance due; (ii) collection against the bid and/or performance bond, or (iii) a combination of the aforementioned remedies or other remedies as provided by law.
- 10.9 **NOTICES:** Unless otherwise provided herein, demands under this Contract will be in writing and will be deemed to have been duly given and received either (a) on the date of service if personally delivered to the Party to whom notice is to be given, or (b) on the third day after the date of the postmark of deposit by first class United States mail, registered or certified postage prepaid and properly addressed as follows:

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To City:
Todd Carpenter, Wastewater Superintendent
City of Goodyear, Public Works
190 N Litchfield Road
Goodyear, AZ 85338

To Contractor:

Copy to:

Roric Massey
City of Goodyear, City Attorney
190 N. Litchfield Road
Goodyear, AZ 85338

- 10.10 This Contract shall be in full force and effect only when it has executed by duly authorized City officials and the duly authorized agent of the Contractor.

SECTION 11. CERTIFICATION

- 11.1 By signing on the offer and acceptance page, the individual certifies that they are authorized to sign on behalf of Contractor and further certifies that (a) No collusion or other anti-competitive practices were engaged in to arrive at the terms of this Contract, and that this Contract is subject to the provisions of A.R.S. Section 38-511; (b) The Contractor has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip favor, or service to a public servant in connection with this Contract. Failure to sign the offer, or signing it with a false statement, shall void the submitted offer or any resultant contract, and the Contractor may be debarred.

SECTION 12. LICENSING, DEBARMENT AND SUSPENSION

- 12.1 Licensing/Permits: Contractor warrants and certifies that Contractor and its Subcontractors will maintain valid licenses, registrations, permits, and other approvals necessary to perform the Services required under this Contract ("Approvals"). Contractor shall immediately advise the City in writing of any change in information provided by Contractor or its subcontractors as it relates to any Approvals. Noncompliance with this provision is a material breach of Contract.
- 12.2 Debarment/Suspension: Contractor warrants and certifies neither Contractor nor any of its subcontractor:
- Are presently debarred, suspended, proposed for debarment, declared ineligible or otherwise legally excluded from contracting with any federal, state or local government entity; and
 - Have not been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (federal, state or local) transaction or contract; violation of federal or state anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property within a three (3) year period preceding this Contract;
 - Are not, or have not been, indicted of or otherwise criminally charged by a governmental entity with the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or



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performing any public transaction or contract under a public transaction; violation of federal or state anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property, and

d. Have not had one or more public transaction (federal, state or local) terminated for cause or default.

12.3 City has no affirmative duty or obligation to confirm or deny the existence or issuance of any Approvals or Debarments, or to examine Contractor's contracting ability.

SECTION 13. BRIBES AND KICK-BACKS The Contractor shall not by any means:

13.1 Induce any person or entity employed in the construction of the Project to give up any part of the compensation to which that person or entity is entitled;

13.2 Confer on any governmental, public or quasi-public official having any authority or influence over the Project, any payment, loan subscription, advance, deposit of money, services or anything of value, present or promised;

13.3 Offer nor accept any bribes or kick-backs in connection with the Project from or to any individual or entity, including any of its trade Contractors, subcontractors, consultants, suppliers or manufacturers of Project goods and materials; or,

13.4 Without the express written permission of the City, call for or by exclusion require or recommend the use of any subcontractor, consultant, product, material, equipment, system, process or procedure in which the General Contractor has a direct or indirect proprietary or other pecuniary interest.

SECTION 14. CONTRACT APPLICABILITY

14.1 The Contractor shall substantially conform to the terms, conditions, specifications and other requirements found within the text of this Solicitation. All previous agreements, contracts, or other documents, which have been executed between the Contractor and the City are not applicable to this Solicitation or any resultant contract.

SECTION 15. SUBCONTRACTOR / SUPPLIER CONTRACTS

15.1 The Contractor shall enter into written contracts with its subcontractor(s) and supplier(s), if any, and those written contracts shall be consistent with this Contract for Construction. It is the intent of the City and the Contractor that the obligations of the Contractor's subcontractor(s) and supplier(s), if any, inure to the benefit of the City and the Contractor, and that the City be a third-party beneficiary of the Contractor's agreements with its subcontractor(s) and supplier(s).

- a. The Contractor shall make available to each subcontractor and supplier, if any, prior to the execution of written contracts with any of them, a copy of the pertinent portions of this Contract for Construction, including those portions of the Construction documents to which the subcontractor or supplier will be bound, and shall require that each subcontractor and supplier shall similarly make copies of applicable parts of such documents available to its respective subcontractor(s) and supplier(s).
- b. The Contractor shall engage each of its subcontractor(s) and supplier(s) with written contracts which preserve and protect the rights of the City and include the acknowledgment and agreement of each subcontractor or supplier that the City is a third-party beneficiary of the contract. The Contractor's agreements with its subcontractor(s) and supplier(s) shall require that in the event of default under, or

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termination of, this Contract for Construction, and upon request of the City, the Contractor's subcontractor(s) and supplier(s) will perform services for the City.

- c. The Contractor shall include in its agreements with its subcontractor(s) and supplier(s) a provision which contains the acknowledgment and agreement of the subcontractor or supplier that it has received and reviewed the applicable terms, conditions and requirements of this Contract for Construction that are included by reference in its written contract with the Contractor, and that it will abide by those terms, conditions and requirements.

SECTION 16. OVERCHARGES BY ANTITRUST VIOLATIONS

- 16.1 The City maintains that, in practice, overcharges resulting from antitrust violations are borne by the purchaser. Therefore, to the extent permitted by law, the Contractor hereby assigns to the City any and all claims for such overcharges as to the goods and services used to fulfill the Contract.

SECTION 17. PROHIBITED LOBBYING ACTIVITIES

- 17.1 The Contractor, his/her agent or representative shall not contact, orally or in any written form any City elected official or any City employee other than the, the procuring department, City Manager, Deputy City Manager or City Attorney's office (for legal issues only) regarding the contents of this solicitation or the solicitation process commencing from receipt of a copy of this Invitation for Bid and ending upon submission of a staff report for placement on a City Council agenda. The Procurement Manager shall disqualify a Contractor's bid for violation of this provision. This provision shall not prohibit a Contractor from petitioning an elected official after submission of a staff report for placement on a City Council agenda or engaging in any other protected first amendment activity after submission of a staff report for placement on a City Council agenda.

SECTION 18. PROHIBITED POLITICAL CONTRIBUTIONS

- 18.1 Contractor during the term of this Agreement shall not make a contribution reportable under Title 16, Chapter 6, Article 1, Arizona Revised Statutes to a candidate or candidate committee for any city elective office during the term of this Agreement. The City reserves the right to terminate the Agreement without penalty for any violation of this provision.

SECTION 19. REFERENCE STANDARDS

- 19.1 The "Uniform Standard Specifications for Public Works Construction" and the "Uniform Standard Details for Public Works Construction" which are sponsored and distributed by the Maricopa Association of Governments (MAG), and which are hereinafter referred to as the "*MAG Specifications*," are hereby adopted as part of these contract documents.
- 19.2 September 8, 1980 by Section 7-1-3 of Ordinance 125, the City adopted the "Uniform Standard Details for Public Works Construction from the Maricopa County Association of Governments by reference with certain exceptions.
- 19.3 A copy of these documents is kept on file at the Office of the City Clerk at the City.
- 19.4 If any contradiction exists between "MAG Specifications" and this solicitation document, the solicitation language shall prevail.
- 19.5 The "[Directory of Regulatory Documents](#)", as published by the City of Goodyear Engineering Department is the central hub for Codes, Plans & Policies, Manuals, Guidelines & Technical Details, Applications,

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Forms, & Misc. Documents. This is the main body of adopted laws/ordinances of the City, including the Subdivision Regulations, and is available on the web at the [Code Publishing Inc.](#), website. The Code adopts nationally recognized building codes that are specific to the city of Goodyear.

SECTION 20. LAWS AND REGULATIONS

- 20.1 This contract shall be governed by and constructed in accordance with the laws of the State of Arizona and all applicable regulations related to federally assisted projects. The Contractor shall keep fully informed, observe and comply with all existing and future Federal, State, City and County laws, ordinances, rules, regulations and Occupational Safety and Health Standards (OSHA) in any manner affecting the Work herein specified.

SECTION 21. RIGHTS OF WAY:

- 21.1 The City will provide Rights-of-Way and easements for all work specified in this Contract, and the Contractor shall not enter or occupy with men, tools, equipment or materials any private ground outside the property of the City, without the consent of the City.
- 21.2 The Contractor, at his own expense, is responsible for the acquisition of any additional easements or rights-of-way that he may desire to complete the work of this Contract.

SECTION 22. FEDERAL FUNDING:

- 22.1 It is the responsibility of the Contractor to determine on any project if federal wage rates apply. It is also the responsibility of the Contractor to incorporate any necessary amounts in the bid to accommodate for required federal record keeping and necessary pay structures. The Contractor should contact the City any applicable Davis Bacon wage rates.

SECTION 23. PAYMENTS TO CONTRACTOR

- 23.1 The measurements of quantities and the payments to the Contractor shall be in accordance with MAG Uniform Standard Specifications for Public Works Construction, Part 100 - General Conditions, Section 109 - Measurements and Payments.
- 23.2 Payments will be made on the basis of itemized, monthly statements prepared and signed by the Contractor. The Contractor shall submit an itemized, duly certified and approved estimate for work completed through the last day of the preceding month in accordance with MAG Specifications, as amended by these Supplemental General Conditions. Upon approval of the pay estimate, the City will make payment directly to the Contractor in the manner agreed to by the parties.
- 23.3 The pay estimate shall be accompanied by an updated progress schedule as required by these Supplemental General Conditions and a cash flow report when required by the special provisions. Approval of progress payments shall be conditional upon submittal of progress schedules and cash flow reports, when required, which are acceptable to the City Representative.
- 23.4 Upon 100% completion and acceptance of the project, and with the request for final payment, the Contractor shall complete and submit the "Contractor's Affidavit Regarding Settlement of Claims" form which is included in these specifications. Before final payment and release of retention, Contractor must arrange for its surety to provide the City with a fully executed AIA Consent of Surety form. To avoid delays in the final payment, the Surety may send the Consent of Surety directly to the City via fax at (623) 882-7588,

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and mail the original to the City of Goodyear Engineering Department, 14455 W Van Buren, Bldg D, Goodyear Arizona 85338.

SECTION 24. LOSSES AND DAMAGES

- 24.1 All loss or damage arising out of the nature of the work to be done or from the action of the elements or from any unforeseen circumstances in the prosecution of the same, or from any unusual obstructions or difficulties which may be encountered in and/or during the prosecution of the work, or from any casualty whatsoever of every description, shall be sustained and borne by the Contractor at his own cost and expense.

SECTION 25. CHARACTER AND STATUS OF WORKMEN

- 25.1 Only skilled foremen and workmen shall be employed on work requiring special qualifications. When required by the Engineer, the Contractor shall discharge any person who is, in the opinion of the City Representative, disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable. The Contractor shall hold the City harmless from damages or claims for compensation that may occur in the enforcement of this section of the specifications.

SECTION 26. WORK METHODS

- 26.1 The methods, equipment and appliances used on the work shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the time limit specified.
- 26.2 Except as is otherwise specified, the Contractor's procedure and methods of construction may, in general, be of his own choosing, provided they follow best general practice and are calculated to secure results which will satisfy the requirements of the specifications and the supervision of the work.
- 26.3 The work covered by this Contract shall be carefully laid out in advance and performed in a manner to minimize interference with normal operation and utilization of the roads. The Contractor shall exercise caution during the course of this construction work to avoid damage to all known existing or possible unknown existing underground utilities. He shall conduct his construction operations in such a manner as to avoid injury to his personnel and to avoid damage to all utilities. Any damage done will be repaired without delay and at the expense of the Contractor.

SECTION 27. PRE-CONSTRUCTION CONFERENCE

- 27.1 After completion of the Contract Documents, to include bonds, insurance and signatures, and prior to the commencement of the Work on the Project, the City Project Manager will schedule a Pre-Construction Conference. The time and place will be determined and confirmed via phone call and a letter via U.S. mail.
- 27.2 The purpose of the Pre-Construction Conference is to establish a working relationship between the Contractor, utility companies, City Project Manager or authorized representative, and to assure all parties are familiar with the applicable requirements for federally assisted projects. The agenda will include critical elements of the construction schedule, procedures for handling Shop Drawings and other submittals, cost breakdown of major lump sum items, payment application and processing, coordination with the involved utility companies, emergency telephone numbers for all representatives involved in the course of construction, and establishment of the Notice to Proceed date.

SECTION 28. NOTICE TO PROCEED

- 28.1 Within 45 days of the issuance of the Notice of Award the City may issue a written Notice to Proceed. The Notice to Proceed shall stipulate the actual contract start date, the contract duration and the contract



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completion date. The time required for the Contractor to obtain permits, licenses and easements shall be included in the contract duration and shall not be justification for a delay claim by the Contractor. The time required for the Contractor to prepare, transmit and obtain approval of applicable submittals shall be included in the contract duration and shall not be justification for a delay claim by the Contractor.

- 28.2 No work shall be started until after all required permits, licenses, and easements have been obtained.
- 28.3 No work shall be started until all applicable submittals have been submitted and returned approved by the Owner's Representative.
- 28.4 The Contractor shall notify the City Project Manager or authorized representative engineer at least seventy-two (72) hours before the following events:
- 28.4.1 The start of construction in order to arrange for inspection.
 - 28.4.2 Shutdown of City water, sewer, drainage, irrigation and traffic control facility.
 - 28.4.3 Shutdown of existing water wells and booster pumps. Shutdown shall not exceed seventy-two (72) hours for any installation. Only one installation may be shutdown at any time.
 - 28.4.4 Coordination of all draining and filling of water lines and irrigation laterals and all operations of existing valves or gages with the project manager.
 - 28.4.5 Start-up or testing of any water well or booster pump to be connected to any part of the existing City water system. This includes operation of existing valves necessary to accommodate the water.

SECTION 29. TRAFFIC REGULATIONS

- 29.1 The Contractor shall keep fully informed, observe and comply with all existing and future Federal, State, City and County laws, ordinance, rules, regulations associated with Traffic Regulations. The Contractor must follow MCDOT Traffic Control Manual: Work Zone Permit Requirements and where applicable the City of Phoenix "Traffic Barricade Manual," the Uniform Standard Details and Specifications published by the Maricopa Association of Governments.

SECTION 30 OUTDOOR CONSTRUCTION RESTRICTIONS

Goodyear Ordinance No. 2000-693 restricts outdoor construction as listed in the following table:

	Construction Type	April 15 – October 15	October 16 – April 14
A	Concrete Work	5:00 a.m. to 7:00 p.m.	6:00 a.m. to 7:00 p.m.
B	Other Construction (within 500 feet of residential area)	6:00 a.m. to 7:00 p.m.	7:00 a.m. to 7:00 p.m.

SECTION 31. SURVEY CONTROL POINTS AND MONUMENTS

- 31.1 Existing survey monuments indicated on the plans or found during construction shall be protected by the Contractor, and in the event removal is necessary, removal and replacement shall be performed by permission of the City Representative, under direct supervision of the City Representative. The replacement of existing survey monuments shall be constructed to conform to the requirements of MAG Specifications, Section 405, and Standard Details.



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SECTION 32. PROTECTION OF FINISHED OR PARTIALLY FINISHED WORK

- 32.1 The Contractor shall properly guard and protect all finished or partially finished Work, and shall be responsible for the same until the entire Contract is completed and accepted, in writing, by the City. The Contractor shall turn over the entire Work in full accordance with the specifications and Contract Documents before final settlement shall be made.

SECTION 33. PERMITS

- 33.1 The Contractor shall, at Contractor's own expense, obtain all required permits, which have not been furnished by the City.

SECTION 34. STOCKPILE OF MATERIALS

- 34.1 The Contractor may place or stockpile materials in the public right-of-way, with the prior written consent of the City Representative, provided they do not prevent access to adjacent properties or prevent compliance with traffic regulations. Traffic shall not be required to travel over stockpiled materials, and proper dust control shall be maintained. The City and Contractor will discuss during the Pre-construction meeting specifics regarding stockpile of materials.

SECTION 35. EXCESS MATERIALS

- 35.1 Excess material shall be removed from the Work site and wasted at a location approved by the City Representative. Any excess dirt needs to be hauled off and disposed of by the Contractor at their expense. Broken concrete and asphalt are to be delivered to a sanitary landfill at Contractor's expense. The prevailing regulations and fee schedule will not be waived for Work under this Project. All materials, to be disposed of at the landfill, shall be weighed and disposed of at the prevailing rate at the Contractors expense.

SECTION 36. DUST PREVENTION AND WATER

- 36.1 **DUST PREVENTION:** The Contractor shall take whatever steps, procedures or means required to prevent abnormal dust conditions due to their construction operations in connection with this Contract. The dust control measures shall be maintained at all times during construction of the Project, to the satisfaction of the City Representative, in accordance with the requirements of the Maricopa County Department of Public Health, Air Quality Department Air Pollution Control regulations which have been adopted pursuant to the authority granted by Title 49, Article 3, Arizona Revised Statutes. The Contractor shall be required to obtain all necessary permits from the Maricopa County Air Quality Department, including the Dust Prevention and Earth Moving permits from the Maricopa County Air Quality Department, Dust Compliance Division.

The Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act of 1970 (42 U.S.C. 1857, etc. seq.) and the Federal Water Pollution Control Act (33 U.S.C. 1251 et. seq.) as amended on contracts in excess of \$100,000. Violations shall be reported to the Department of Housing and Urban Development and the Regional Office of the Environmental Protection Agency.

- 36.2 **WATER:** Watering shall conform to the provisions of Section 225 of the MAG Standard Specifications. The cost of watering will be included in the price bid for the construction operation to which such watering is incidental or appurtenant.

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SECTION 37. TEMPORARY SANITARY FACILITIES

- 37.1 The Contractor shall provide ample toilet facilities with proper enclosures for the use of workmen employed on the work site. Toilet facilities shall be installed and maintained in conformity with all applicable state and local laws, codes, regulations and ordinances. They shall be properly lit and ventilated, and kept clean at all times.
- 37.2 Adequate and satisfactory drinking water shall be provided at all times and under no circumstances and under no conditions will the use of common cups be permitted. The Contractor must supply sanitary drinking cups for the benefit of all employees.

SECTION 38. ELECTRIC POWER, WATER AND TELEPHONE

- 38.1 The Contractor shall be responsible for making all arrangements for electric power and water sufficient to meet their needs, include providing the meter(s). Subject to the convenience of the City, the Contractor may be permitted to connect to existing facilities where available, but shall meter and bear responsibility for all actual and related costs of such power and/or water. Installation and removal of meters should be scheduled at least forty-eight (48) hours in advance through the Public Works & Water Resources Department. Application and installation fee(s) are required for each meter. The cost of the water is at the prevailing rate.

SECTION 39. ENERGIZED AERIAL ELECTRICAL POWER LINES

- 39.1 The utility company may maintain energized The utility company maintains energized aerial electrical power lines in the immediate vicinity of this project. Do not consider these lines to be insulated. Construction personnel working in proximity to these lines are exposed to an extreme hazard from electrical shock. Contractor shall be responsible for identifying and notifying all utility companies that may be impacted by the construction. The Contractor shall be responsible for ensuring that the utility companies review the construction site and provide specifications for appropriate safety clearance for all applicable lines as well as identify other safety measures. The Contractor shall be responsible for complying with all safety clearances and other safety measures specified by the applicable utility companies. The Contractor shall ensure that their employees and all other construction personnel working on this project are receiving adequate warning and safety instructions regarding the danger. (See: OSHA Standard 1926.550(a) (15).) As an additional safety precaution, Contractors should also be instructed to call the utility company to arrange, if possible, to have these lines de-energized or relocated when the work reaches their immediate vicinity. The cost of such temporary arrangements would be borne by the Contractor.

SECTION 40. CLEAN-UP

- 40.1 After all Work under this contract is completed, the Contractor shall remove all loose concrete, lumber, wire, reinforcing, debris, and other materials not incorporated in the Work, from the site of the Work. Clean-up shall include the removal of all excess pointing mortar materials within pipes and removal of over sized rocks and boulders left after finish grading. The Contractor shall provide for the legal disposal of all waste products, debris, etc., and shall make necessary arrangements for such disposal.

SECTION 41. INTERPRETATION OF PLANS, SPECIFICATIONS AND DRAWINGS

- 41.1 If any person contemplating a bid for proposed contract is in doubt as to the true meaning of any part of the plans, specifications, or other proposed contract documents, or finds discrepancies in or omissions from the plans and specifications may request written clarification per the city's Instructions to Bidders.



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SECTION 42. CONDITIONS OF WORK

- 42.1 Each Contractor must fully be informed of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve the Contractor of his obligation to furnish all material and labor necessary to carry out the provisions of this Contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.

SECTION 43. TIME OF COMPLETION

- 43.1 The Contractor shall commence Work under this Project on or before the tenth (10) day following receipt of the Notice to Proceed for that Project from the City of Goodyear and shall fully complete all Work under the Project within 300-consecutive calendar days from and including the date of receipt of such Notice to Proceed. Time is of the essence in the completion of all Work required under this contract. The Contractor shall, at all times, during the continuance of the contract, prosecute the Work with such force and equipment as is sufficient to complete all Work within the time specified.

SECTION 44. APPROVAL OF SUBSTITUTIONS

- 44.1 The materials, products and equipment described in the Documents and Addenda establish a standard or required function, dimension, appearance and quality to be met by any proposed substitution. No substitute will be considered, before bid opening, unless written request for approval has been received per the city's Instructions to Bidders. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including any drawings, cuts, performance and test data and any other information necessary for evaluation of the substitute. Contractor shall not be entitled to approval of a substitute and not substitutions will be accepted unless prior approval is obtained as set forth herein. If a substitute is approved, the approval shall be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

SECTION 45. USE OF EQUALS

- 45.1 When the specifications for materials, articles, products and equipment state "or equal," Contractor may bid upon, and use materials, articles, products and equipment which will perform equally the duties imposed by the general design. The City Engineering Department will have the final approval of all materials, articles, products and equipment proposed to be used as an "Equal." It shall not be purchased or installed without the prior written approval from the City Engineering Department.
- 45.2 Approvals for "Equals", may be requested in writing per the city's Instructions to Bidders. The request shall state the name of the material, article, product or equipment for which the item is sought to be considered an equal and a complete description of the proposed equal including any drawings, cuts, performance and test data and any other information necessary for approval of the equal. All approvals will be issued in the form of an Addendum.

SECTION 46. IMMIGRATION ACT

- 46.1 Contractor understands and acknowledges the applicability to Contractor of the Immigration Reform and Control Act of 1986 (IRCA). Contractor agrees to comply with the IRCA in performing under this contract and to permit City inspection of personnel records to verify such compliance.

END OF STANDARD TERMS AND CONDITIONS

	City of Goodyear	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	Special Terms and Conditions	

SECTION 1. TERM OF CONTRACT

- 1.1 The initial term of this contract shall be from the date of award, with the option to renew for four (4) additional one-year periods, upon mutual written consent of the parties to the contract, not to exceed five (5) years. The City has no obligation to extend or renew this contract, and any decision to do so is at the sole discretion of the City.

SECTION 2. INSURANCE

- 2.1 Minimum Scope and Limits of Insurance. Contractors shall obtain and maintain in full force and effect during the life of this Contract, and any warranty period, all of the following minimum scope of insurance coverages with an insurance company duly licensed by the State of Arizona with a current A.M. Best Company, Inc rating of not less than A- or above and a category rating of not less than "VIII" with policies and forms satisfactory to the City. Use of alternative insurers requires prior written approval from City.
- 2.2 Commercial General Liability. Commercial General Liability insurance with a limit of not less than \$1,000,000, per occurrence and \$2,000,000 in the aggregate. The policy shall include coverage for premises-operations, products-completed operations, contractual liability, bodily injury, and property damage, but shall not be limited to the liability assumed under the indemnification provisions of this Contract. Coverage shall be at least as broad as Insurance Service Office policy form CG 00 01 07 98 or any replacement thereof, and shall be an occurrence-based policy. The Certificate of Insurance for the Commercial General Liability insurance policy shall expressly cover the indemnification obligations required by this Contract. These limits may be met through a combination of primary and excess liability coverage.
- 2.3 Automobile Liability. Commercial and Business Automobile Liability insurance for owned vehicles, hired, and non-owned vehicles, with a policy limit of not less than \$1,000,000, combined single limits, per occurrence for bodily injury and property damage. Coverage shall be at least as broad as coverage Code 1 "any auto" under Insurance Service Office policy form CA 00 01 10 01 or any replacement thereof.
- 2.4 Workers' Compensation. Workers' Compensation as required by State and federal law statutes having jurisdiction over its employees engaged in the performance of any Services herein. Contractor agrees to waive, and to obtain endorsements from its workers' compensation insurer waiving subrogation rights under its workers' compensation insurance policy against the City, its officers, agents, employees, and volunteers arising from work performed by Contractor for the City and to require each of its subcontractors, if any, to do likewise under their workers' compensation insurance policies.
- 2.5 Professional Liability ("E &O"). E&O liability insurance with policy limits of not less than \$1,000,000 each claim and \$2,000,000 annual aggregate limit. Contractor shall obtain and maintain, such E&O liability insurance during the life of this Contract and for three years after completion of the work hereunder.
- 2.6 Umbrella/Excess Liability. Contractor and Subcontractor shall maintain Umbrella and Excess Liability insurance with an limit of not less than \$2,000,000 per occurrence combined limit Bodily Injury and Property Damage, that "follows form" and applies in excess of the Commercial General Liability, Automobile Liability, and Employer's Liability, as required above. Primary per occurrence coverage may be used to fulfill this requirement.
- 2.7 Claim Reporting. Any failure to comply with the claim reporting provisions of the policies or any breach of a policy warranty shall not affect coverage afforded under the policy to protect the City.

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- 2.8 Notice of Cancellation. Each certificate for each insurance policy required by the insurance provisions of this Contract shall provide the required coverage and shall not be suspended, voided, canceled, or reduced in coverage by endorsement to limits lower than those required by this Contract, except after prior written consent from the City. Notice will be sent as required herein.
- 2.9 Additional Insureds. The Commercial General Liability and Business Automobile Liability policies shall contain or be endorsed to contain the following provision: "The City of Goodyear and its elected and appointed boards, officers, officials, agents, employees, and volunteers are additional insureds with respect to liability arising out of, or related to, activities performed by or on behalf of the Contractor pursuant to its contract with the City; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; automobiles owned, leased, hired, or borrowed by the Contractor."
- 2.10 Primacy of Coverage. Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respects to the limits of insurer's liability. Contractor's policy shall be primary and non-contributory.
- 2.11 Certificates of Insurance/Endorsements. Contractor shall provide City with Certificates of Insurance and proper additional insured endorsements as required by this Contract and as described above, in a form and content approved by City, prior to performing any services under this Contract. The Certificates of Insurance shall be attached hereto and incorporated by reference.
- 2.12 No Representation of Coverage Adequacy. The insurance requirements herein are *minimum requirements*. The City in no way warrants that the minimum requirements are sufficient to protect Contractor from liabilities that might arise out of the performance of the Work under this Contract by Contractor, and the Contractor is free to purchase additional insurance. Any insurance coverage carried by the City or its employees is excess coverage and not contributory coverage to that provided by the Contractor. The amount and type of insurance coverage requirements set forth herein shall in no way be construed as limiting the scope of the indemnification obligations under this Contract.
- 2.13 Non-Waiver. The City reserves the right to review any and all insurance policies and/or an endorsement required by this Contract, but has no obligation to do so. Failure to identify any insurance deficiency shall not relieve the Contractor from, nor be construed or deemed a waiver of its obligation to maintain the required insurance at all times during the performance of this Contract. Any failure of Contractor to comply with the reporting provisions of the policies shall not affect coverage provided to the City, its officers, officials, agents, employees and volunteers.
- 2.14 Notice of Cancellation. Each certificate for each insurance policy required by this Section shall provide the required coverage and shall not be suspended, voided, canceled, reduced in coverage by endorsement to limits lower than those required by this Contract except after prior written consent from the City.
- 2.15 Claim Reporting. Any failure to comply with the claim reporting provisions of the policies or any breach of a policy warranty shall not affect coverage afforded under the policy to protect the City.
- 2.16 Other Contractors or Vendors. Contractor shall ensure its subcontractors and any vendors that may be contracted with in connection with the Project procure and maintain insurance coverage as is appropriate for their particular contract and properly endorse the City as required by this Section.

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SECTION 3. BONDS

- 3.1 An original bid bond for ten (10%) of the bid price is required to be submitted with the bid.
- 3.1.1 The Contractor is required to submit with Bid a certified or cashiers' check, upon a solvent bank, or a surety bond in an amount equal to ten percent (10%) of the base bid price made payable to the City of Goodyear. The bid security shall be given as a guarantee that the Contractor will enter into the Contract if awarded to him; and shall be declared forfeited as liquidated damages if he refuses to enter into the contract upon request to do so by the City. The Bid security other than bid bonds will be returned to the unsuccessful bidders and to the successful bidder upon his execution of a satisfactory payment and performance bond, and contract. Failure by the Contractor to submit bid bond shall result in rejection of the Bid as non-responsive.
- 3.2 A performance bond for one hundred (100%) of the Contract price is required at the time of execution of the Contract and shall meet the requirements of A.R.S., Title 34, as amended, if applicable.
- 3.3 A payment bond for one hundred (100%) of the Contract price is required at the time of execution of this Contract and shall meet the requirements of A.R.S., Title 34, as amended, if applicable.
- 3.3.1 Performance and Payment Bonds. The Contractor is required to provide and pay for performance and payment bonds. Bonds shall cover the faithful performance (100%) of the Contract, and the payment of all obligations (100%) arising thereunder, in such form as the City may prescribe and with such surety or sureties as are approved. The Contractor shall deliver the required bonds to the City not later than the date of execution of the Contract. The Contractor shall require the attorney in fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his power-of-attorney indicating the monetary limit of such power. The surety bonds shall be executed solely by a company or companies holding a certificate of authority to transact surety business in the State of Arizona issued by the Director of the Department of Insurance pursuant to Arizona Revised Statutes, Title 20, Chapter 2, Article 1. The bond amounts shall be for one hundred percent (100%) of the Contract amount plus any authorized Change Orders added to the Contract, of which notice to the surety shall be waived. The bonds shall not be executed by an individual surety or sureties.

SECTION 4. LIQUIDATED DAMAGES

- 4.1 Liquidated Damages shall be assessed for each calendar day of delay. Liquidated damages shall be in per MAG Specs., Section 108.9.
- 4.1.1 If the contract is not terminated, the contractor shall continue performance and be liable to the City for the liquidated damages until the products are delivered or services performed.
- 4.1.2 In the event the City exercises its right of termination, the contractor shall be liable to the City for any excess costs, and in addition, for liquidated damages until such time the City may reasonably obtain delivery or performance of similar supplies or services.

SECTION 5. REGISTRAR OF CONTRACTORS

- 5.1 At a minimum, Contractors must be licensed with the Arizona Registrar of Contractors at the time of bid submittal. License must be active and in good standing. Contractor agrees to provide copies of all license(s) at time of bid submittal and at any time during the Contract Term.

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SECTION 6. CONTRACT TIME

6.1 Time of Contract.

- 6.1.1 All work shall be substantially complete 240 consecutive calendar days from Notice to Proceed.
- 6.1.2 The commissioning of the Adaman Well No. 3 Transmission Main shall be completed within 60 calendar days for a final completion of 300 consecutive calendar days.
- 6.1.3 Contract time shall start with the commencement date established in the Notice to Proceed and ends two (2) years after final acceptance by the City.
- 6.1.4 Contractor agrees that it will commence performance of the work and achieve the contract time.
- 6.1.5 All of the times set forth in this section may be subject to adjustment through an approved change order, as set forth in the contract documents.
- 6.1.6 Contractor shall not commence work until Contractor receives a purchase order signed by the City Procurement Manager or designee.

6.2 Substantial Completion.

- 6.2.1 Substantial Completion shall be for the entire project unless a partial substantial completion is identified in this provision, Time of Contract and or the approved progress schedule. Substantial completion shall be in accordance with its definition in Standard Terms and Conditions and with the criteria set forth in the Notice to Proceed.
- 6.2.2 Contractor shall notify City when it believes the work, or to the extent permitted in the contract documents, a portion of the work, is substantially complete.
- 6.2.3 Prior to notifying the City as required by Paragraph 6.2.2, the Contractor shall inspect the work and prepare and submit to the City a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all work in accordance with the contract documents.
- 6.2.4 Within five (5) days of City's receipt of Contractor's Notice of Substantial Completion, City's Representative, Engineer and Contractor will inspect such work to verify that it is substantially complete in accordance with the requirements of the contract documents.
- 6.2.5 If such Work is substantially complete, City shall prepare and issue a Certificate of Substantial Completion that will set forth: (a) the date of Substantial Completion of the Work or portion thereof; (b) the remaining items of work that have to be completed within thirty (30) calendar days before Final Acceptance; (c) provisions (to the extent not already provided in the contract documents) establishing City's and Contractor's responsibility for the project's security, maintenance, utilities and insurance pending final acceptance; and (d) an acknowledgment that warranties commence to run on the date of substantial completion, except as may otherwise be noted in the Certificate of Substantial Completion. The Contractor shall warranty all Work for a period of two (2) calendar years from the date of final acceptance of all work performed pursuant to this Contract.
- 6.2.6 City, at its option, may use a portion of the work which has been determined to be substantially complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of work addressing the items set forth in Paragraph 6.2.5 above, (ii) Contractor and City have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the project, and (iii) City and Contractor agree that City's use or occupancy will not interfere with Contractor's completion of the remaining work.

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6.3 Final Acceptance.

- 6.3.1 Upon receipt of written notice that the Work or identified portions of the work is ready for final inspection and acceptance, City, City Representative, Engineer and Contractor will jointly inspect to verify that the remaining items of work have been completed as set forth in Paragraph 6.2. After the inspection and acceptance occurs, the City will issue a final acceptance letter and payment to Contractor.

END OF SPECIAL TERMS AND CONDITIONS

	City of Goodyear	Office of Procurement 190 N. Litchfield Road P.O. Box 5100 Goodyear, AZ 85338 Phone: 623-882-7845
	Scope of Work	

PURPOSE: Pursuant to provisions of this solicitation and the City Procurement Code, the City of Goodyear ("City"), intends to establish a contract for Adaman Well No. 3 Transmission Main.

AUTHORITY: This Solicitation as well as any resultant contract is issued under the authority of the City. No alteration of any resultant contract may be made without the express written approval of the City Procurement Manager in the form of an official contract amendment. Any attempt to alter any contract without such approval is a violation of the contract and the City Procurement Code. Any such action is subject to the legal and contractual remedies available to the City inclusive of, but not limited to, contract cancellation, suspension and/or debarment of the Contractor.

EVALUATION: In accordance with the City of Goodyear Procurement Code, awards shall be made to the lowest responsible and responsive bidder whose bid conforms in all material respects to the Invitation for Bid.

PROJECT OVERVIEW

Adaman Well No. 3 is located at the southeast corner of the Loop 303 and Bethany Home Road. The well is drilled, and the City of Goodyear plans to have the site equipped by summer 2019. In order for the well to enter into the raw water transmission system to deliver water to Site 21, a new section of transmission main must be constructed. This new transmission main will begin at the northeast corner of Adaman Well No. 3, continue east on Bethany Home Road to Sarival Boulevard (Blvd), turn south on Sarival Blvd and terminate at the connection to the existing 30-inch transmission main on Sarival Blvd at the Missouri Avenue alignment.

The City is seeking an Arizona Licensed Contractor to perform the Construction Services in order to construct the new transmission main per the approved specifications and plan set.

The City will work concurrently with Brown and Caldwell to provide design and engineering services during construction for the new transmission main.

PROJECT DESCRIPTION

Complete construction services for the following project elements:

1. Construction of the transmission main will conform to the approved plans and specifications for Adaman Well No.3 Transmission Main Project NO. CON 17-3838, Brown and Caldwell September 2017, refer to Attachments G and H.
2. The City will work concurrently with Brown and Caldwell to provide Construction Phase Engineering Services during this phase of the project including submittal and RFI review, change order review, construction observation services, quality assurance material testing, record drawings for the transmission main, MCESD Approval of Construction.
3. Complete construction and commissioning of the facilities in accordance with plans and specifications;
4. Coordinate with various City departments, other agencies, utility companies, etc.;
5. Procurement of materials and equipment;
6. Schedule and manage site operations;

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	Scope of Work	

7. Provide quality controls and quality acceptance testing;
8. Bond and insure the construction;
9. Address all federal, state and local permitting requirements;
10. Address Owner concerns and issues;
11. Maintain a safe work site for all project participants.

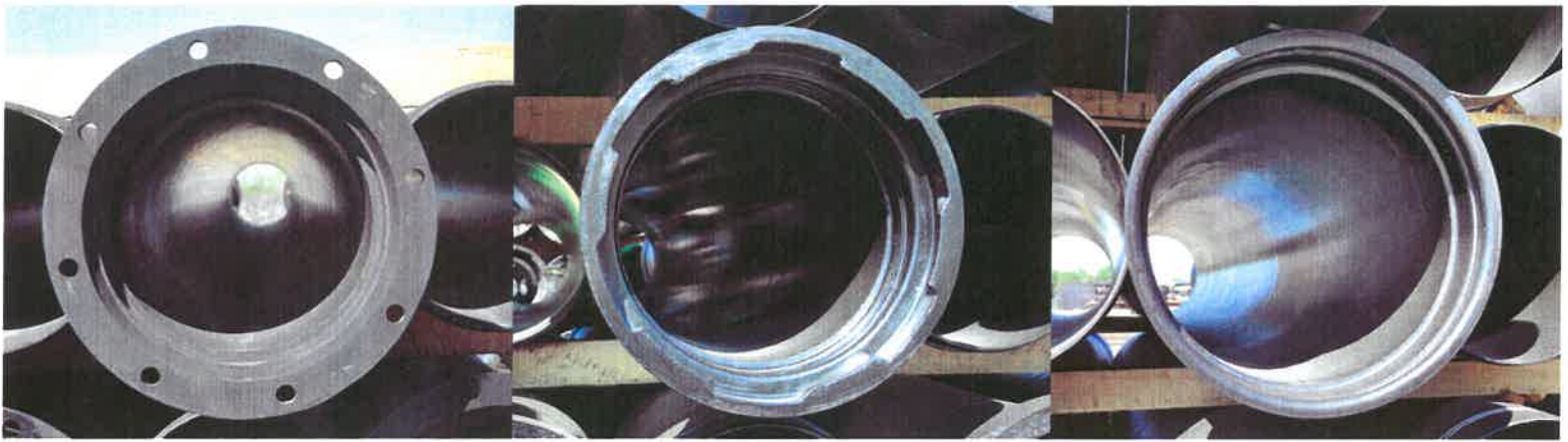
SCHEDULE

Contractor Construction Services Award
Construction Services Contract City Council Approval
Construction Phase NTP for Adaman Transmission Main
Construction Phase for Adaman Transmission Main Complete
Project Completion

AUGUST 2018
SEPTEMBER 2018
OCTOBER 2018
APRIL 2019
MAY 2019

END OF SCOPE OF WORK

MCWANE DUCTILE IRON PIPE



Boltless restrained joint systems • Multiple design options available from 3"–36" •
Fast and easy installation • 350 psi pressure rating • Independently tested



IRON STRONG

mcwaneductile.com

SURE STOP® GASKET FOR TYTON® JOINT

Size In.	Rating psi	Deflection Degrees
3	350	5
4	350	5
6	350	5
8	350	5
10	350	5
12	350	5
14	350	4
16	350	4
18	350	4
20	350	2.5
24	350	2.5

SURE STOP 350® GASKETS are available in sizes 3 in. – 24 in., and with a rating of 350 psi they will meet or exceed the capabilities of ductile iron pipe, valves, and fittings.

SURE STOP 350® GASKETS are NSF 61 approved, UL listed, and FM approved.

FM Rating: 4 in. – 6 in. = 250 psi
18 in. – 24 in. = 200 psi

APPLICATION NOTES

- For ductile iron applications utilizing TYTON® pipe, vales, and fittings made to AWWA specifications.
- In cold weather assembly maintain the temperature of the gasket above 40° F.
- The socket of the joint should be clean and free of debris or significant corrosion.
- Gasket should be properly seated in the bell socket.
- Keep the pipe and joint in alignment during assembly. If installed out of alignment, the gasket can be pushed out of position, creating the potential for leaks or failure.
- If deflection is wanted in the joint, deflect before fully inserting the joint.
- Some extension of the joint will occur when pressurized. To avoid this, the joint should be pulled out after assembly to "set" the stainless steel teeth in the inserted pipe.
- Once assembled, the joint can be disassembled using steel shims.
- When cut pipe is used, the following steps are required:
 - Ensure that the spigot end is properly beveled
 - Mark the joint depth on the spigot so it is clear when the joint is fully inserted.
 - Ensure that the pipe meets the required dimensional tolerances.
- Do not reuse SURE STOP 350® GASKETS, as they may have been damaged during any previous installation or during removal.
- Do not use SURE STOP 350® GASKETS to conduct electricity through the pipe joint, as they could be damaged and fail.
- Do not use SURE STOP 350® GASKETS in above ground applications.
- Do not use SURE STOP 350® GASKETS with thick coating on the pipe exterior.
- If SURE STOP 350® GASKETS are used in straight casings, you must pull the pipe through the casing. Do not push the pipe.

FIELD CUT PIPE

When pipe is cut in the field, the cut end may be readily conditioned so that it can be used to make up the next joint. The outside of the cut end should be beveled about 1/4-inch at an angle of about 30 degrees (Figure 1). This can be quite easily done with a coarse file or a portable grinder. The operation removes any sharp, rough edges which otherwise might damage the gasket.

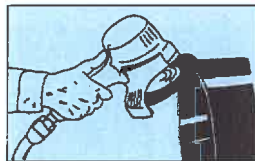
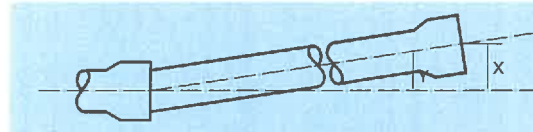


Figure 1

When ductile iron pipe 14 in. and larger is to be cut in the field, the material should be ordered as "GAUGED FULL LENGTH". Pipe that is "gauged full length" is specially marked to avoid confusion. The ANSI/AWWA standard for ductile iron pipe requires factory gauging of the spigot end. Accordingly, pipe selected for field cutting should also be field gauged in the location of the cut and found to be within the tolerances shown in Table 1. In the field, a mechanical joint gland can be used as a gauging device.

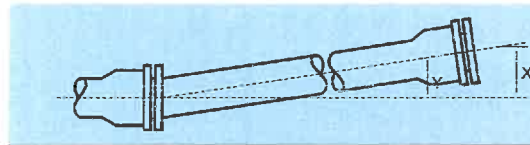
JOINT DEFLECTION CHART



PUSH-ON JOINT PIPE
Maximum Allowable Joint Deflection

Pipe Size In.	Y-Maximum Joint Deflection in Degrees	X Deflection in Inches 18 ft. Length	Approximate Radius in ft. of Curve Produced by Succession of Joints 18 ft. Length
3	5°	19	205
4	5°	19	205
6	5°	19	205
8	5°	19	205
10	5°	19	205
12	5°	19	205
14	5°	19	205
16	5°	19	205
18	5°	19	205
20	5°	19	205
24	5°	19	205
30	5°	19	205
36	4°	15	260

MAXIMUM DEFLECTION FOR FULL LENGTH PIPE



MECHANICAL JOINT PIPE
Maximum Allowable Joint Deflection

Pipe Size In.	Y-Maximum Joint Deflection in Degrees	X Deflection in Inches 18 ft. Length	Approximate Radius in ft. of Curve Produced by Succession of Joints 18 ft. Length
6	7°-7'	27	145
8	5°-21'	20	195
10	5°-21'	20	195
12	5°-21'	20	195
14	3°-35'	13.5	285
16	3°-35'	13.5	285
18	3°-0'	11	340
20	3°-0'	11	340
24	2°-23'	9	450

TABLE 1: SUITABLE PIPE DIAMETERS FOR FIELD CUTS AND RESTRAINED JOINT FIELD FABRICATION

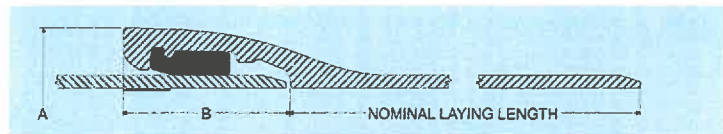
Pipe Size In.	Min. Pipe Diameter In.	Max. Pipe Diameter In.	Min. Pipe Circumference In.	Max. Pipe Circumference In.
3	3.9	4.02	12-1/4	12-5/8
4	4.74	4.86	14-29/32	15-9/32
6	6.84	6.96	21-1/2	21-7/8
8	8.99	9.11	28-1/4	28-5/8
10	11.04	11.16	34-11/16	35-1/16
12	13.14	13.26	41-9/32	41-21/32
14	15.22	15.35	47-13/16	48-7/32
16	17.32	17.45	54-13/32	54-13/16
18	19.42	19.55	61	61-13/32
20	21.52	21.65	67-19/32	68
24	25.72	25.85	80-13/16	81-7/32
30	31.94	32.08	100-11/32	100-25/32
36	38.24	38.38	120-1/8	120-9/16

Above Table Based on ANSI/AWWA C151/A21.51 Guidelines for Push-On Joints.

THE BACKHOE METHOD OF ASSEMBLY

A backhoe may be used to assemble pipe of intermediate and larger sizes. The plain end of the pipe should be carefully guided by hand into the bell of the previously assembled pipe. The bucket of the backhoe may then be used to push the pipe until fully seated. A timber header should be used between the pipe and backhoe bucket to avoid damage to the pipe.

TYTON® JOINT PIPE

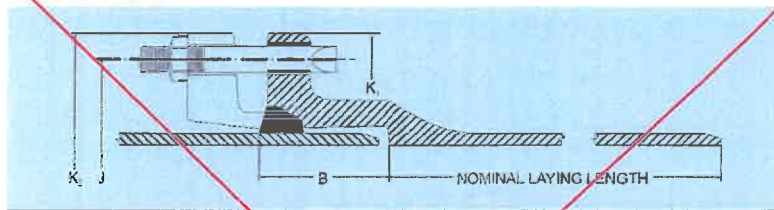


Tyton® Joint

Pipe Size In.	Pipe Thickness In.		Outside Diameter In.	*Dimensions In.	
	From	To		A	B
3	.25	.40	3.96	5.80	3.00
4	.25	.41	4.80	7.10	3.15
6	.25	.43	6.90	8.63	3.38
8	.25	.45	9.05	10.94	3.69
10	.26	.47	11.10	13.32	3.75
12	.28	.49	13.20	15.06	3.75
14	.28	.51	15.30	17.80	5.00
16	.30	.52	17.40	19.98	5.00
18	.31	.53	19.50	22.00	5.00
20	.33	.54	21.60	24.12	5.25
24	.33	.56	25.80	28.43	5.50
30	.34	.63	32.00	35.40	6.55
36	.38	.73	38.30	41.84	7.00

*Nominal laying length is 18 ft.

MECHANICAL JOINT PIPE

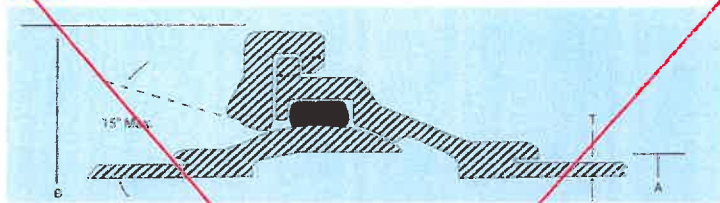


Pipe Size In.	Pipe Thickness In.		Outside Diameter In.	*Dimensions In.					Bolts		Bell Weight Lb.	Gland** Bolts Gasket Weight Lb.
	From	To		B	J	K1	K2	No.	Size In.	Length In.		
3	.25	.40	3.96	2.50	6.19	7.62	7.69	4	5/8	3	11	7
4	.26	.41	4.80	2.50	7.50	9.06	9.12	4	3/4	3-1/2	16	10
6	.25	.43	6.90	2.50	9.50	11.06	11.12	6	3/4	3-1/2	18	16
8	.27	.45	9.05	2.50	11.75	13.31	13.37	6	3/4	4	24	25
10	.29	.47	11.10	2.50	14.00	15.62	15.62	8	3/4	4	31	30
12	.31	.49	13.20	2.50	16.25	17.88	17.88	8	3/4	4	37	40
14	.33	.51	15.30	3.50	18.75	20.25	20.25	10	3/4	4-1/2	61	45
16	.34	.52	17.40	3.50	21.00	22.50	22.50	12	3/4	4-1/2	74	55
18	.35	.53	19.50	3.50	23.25	24.75	24.75	12	3/4	4-1/2	85	65
20	.36	.54	21.60	3.50	25.50	27.00	27.00	14	3/4	4-1/2	98	85
24	.38	.56	25.80	3.50	30.00	31.50	31.50	16	3/4	5	123	105

* Nominal laying length is 18 ft.

** Weight shown for regular grey cast iron follower gland, corton bolts and rubber gasket.

BALL AND SOCKET JOINT PIPE



Pipe Size In.	Thickness		A	B	Full Length Weight - Lb.**			Safe End Pull Lb.
	Class (A21.51)	T			Pipe O.D.	Retainer O.D.	As Shipped	
			Full of Air	Full of Water				
6	55	.40	6.90	13.88	545	240	465	50,000
8	55	.42	9.05	16.63	770	240	655	70,000
10	55	.44	11.10	19.13	1095	220	860	95,000
12	55	.46	13.20	22.00	1270	155	1080	120,000
14	56	.51	15.30	24.50	1655	160	1410	145,000
16	56	.52	17.40	27.00	1990	45	1685	165,000
18	56	.53	19.50	30.00	2375	-70	2015	195,000
	58*	.59			2560	110	2170	
20	56	.54	21.60	32.75	2810	-200	2375	210,000
	59*	.63			3110	100	2635	
24	56	.56	25.80	38.25	3700	-620	3110	260,000
	62*	.74			4415	95	3715	
30	58	.71	32.00	46.25	5855	-900	4920	335,000
	61*	.83			6435	-180	5360	
36	57	.78	38.30	54.25	8145	-1300	6880	400,000
	59*	.88			8725	-725	7330	

* Thickness required to overcome buoyancy.

** Weights listed are for 18'-0" laying lengths. Nominal full lengths vary by size. Pipe, Bell, Ball and Retainer are ductile iron.

Dimensions and weights are subject to manufacturing tolerances.

6 in. - 24 in. pressure rating: 350 psi

30 in. - 36 in. pressure rating: 250 psi

STANDARD DIMENSIONS AND WEIGHTS OF 3" THROUGH 36" PUSH-ON JOINT DUCTILE IRON PIPE

Pipe Size In.	Pressure Class psi	Nominal Thickness In.	OD* In.	Wt. of Barrel Per Ft. † Lb.	Tyton® Joint		
					Wt. of Bell Lb.	Wt. Per Lgth.† Lb.	Avg. Wt. Per Ft.† Lb.
3	350	0.25	3.96	8.90	7.00	185	9.20
4	350	0.25	4.80	10.90	9.00	225	11.30
6	350	0.25	6.90	16.00	11.00	300	16.60
8	350	0.25	9.05	21.10	17.00	395	22.00
10	350	0.26	11.10	27.10	24.00	510	28.40
12	350	0.28	13.20	34.80	29.00	655	36.40
14	250	0.28	15.30	40.40	45.00	770	42.90
	300	0.30	15.30	43.30	45.00	825	45.80
	350	0.31	15.30	44.70	45.00	850	47.20
16	250	0.30	17.40	49.30	54.00	940	52.30
	300	0.32	17.40	52.50	54.00	1000	55.50
	350	0.34	17.40	55.80	54.00	1060	58.80
18	250	0.31	19.50	57.20	59.00	1090	60.50
	300	0.34	19.50	62.60	59.00	1185	65.90
	350	0.36	19.50	66.20	59.00	1250	69.50
20	250	0.33	21.60	67.50	74.00	1290	71.60
	300	0.36	21.60	73.50	74.00	1395	77.60
	350	0.38	21.60	77.50	74.00	1470	81.60
24	200	0.33	25.80	80.80	95.00	1550	86.10
	250	0.37	25.80	90.50	95.00	1725	95.80
	300	0.40	25.80	97.70	95.00	1855	103.00
30	350	0.43	25.80	104.90	95.00	1985	110.20
	150	0.34	32.00	103.50	139.00	2000	111.20
	200	0.38	32.00	115.50	139.00	2220	123.20
30**	250	0.42	32.00	127.50	139.00	2435	135.20
	300	0.45	32.00	136.50	139.00	2595	144.20
	350	0.49	32.00	148.40	139.00	2810	156.10
36**	150	0.38	38.30	138.50	184.00	2675	148.70
	200	0.42	38.30	152.90	184.00	2935	163.10
	250	0.47	38.30	170.90	184.00	3260	181.10
	300	0.51	38.30	185.30	184.00	3520	195.50
	350	0.56	38.30	203.20	184.00	3840	213.40

† Including bell; calculated weight of pipe rounded off to the nearest 5 lb.

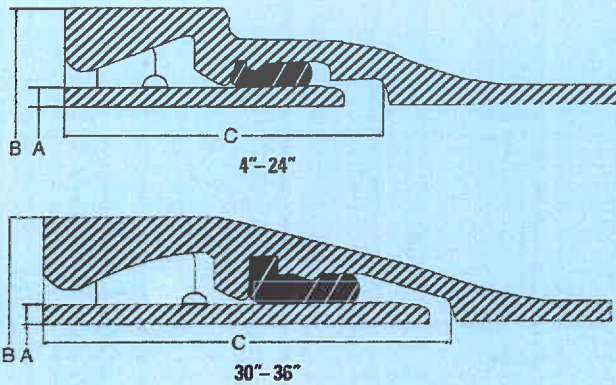
‡ Including bell; average weight per foot, based on calculated weight of pipe before rounding.

* Tolerances of OD of spigot end: 3-12 in. = +0.06 in. & -0.06 in.; 14-24 in. = +0.05 in. & -0.08 in.;

30-36 in. = +0.08 in. & -0.06 in.

** Fastite® Joint

TR FLEX® RESTRAINED JOINT PIPE



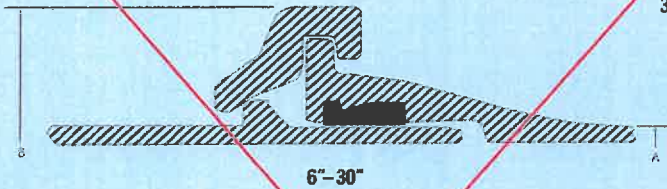
Pipe Size In.	*Pressure Rating psi	A In.	B PIPE In.	C In.	# of D.I. Locking Segments	# of Rubber Segments Retainers	Max Deflection Degrees	Pullout
4	350	4.80	7.25	4.84	2	1	5	0.03
6	350	6.90	9.52	5.27	2	1	5	0.04
8	350	9.05	11.93	5.82	2	1	5	0.04
10	350	11.10	14.37	6.03	2	1	5	0.05
12	350	13.20	16.68	6.30	4	2	5	0.06
14	350	15.30	19.16	7.75	4	2	3-1/4	0.05
16	350	17.40	21.46	7.95	4	2	3-1/4	0.05
18	350	19.50	23.76	8.19	4	2	3	0.05
20	350	21.60	26.04	8.40	4	2	2-1/2	0.05
24	350	25.80	30.61	8.86	8	4	2-1/4	0.05
30	250	32.00	36.88	10.28	8	4	1-3/4	0.05
36	250	38.30	43.85	10.87	8	4	1-1/2	0.05

*The TR FLEX® Restrained Joint has a working pressure rating equivalent to the working pressure rating of the parent pipe with a maximum working pressure rating of 350 psi for 4 in. through 24 in. and 250 psi for 30 in. through 36 in.

NOTE: These deflections are based on joints with nominal dimensions.

SUPER-LOCK® RESTRAINED JOINT PIPE

TYTON® JOINT PIPE
Sizes 6"–24"
FASTITE® JOINT PIPE
30" Size

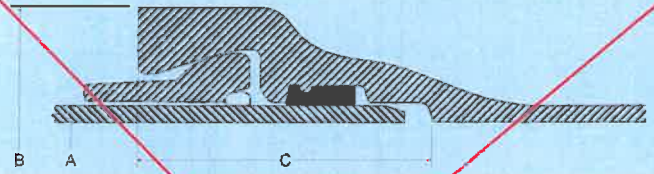


Pipe Size In.	*Pressure Rating psi	Deflection		A Pipe O.D.	B Retainer O.D.
		Degrees	Inches in 18ft		
6	350	4	15	6.90	11.75
8	350	4	15	9.05	14.38
10	350	4	15	11.10	16.75
12	350	4	15	13.20	19.13
14	350	3	11	15.30	21.75
16	250	3	11	17.40	24.00
18	350	3	11	19.50	26.38
20	350	3	11	21.60	28.63
24	350	3	11	25.80	33.75
30	250	3	11	32.00	40.13

* In the 14 in. and larger sizes, pressure rating is limited to the rating of the pipe barrel thickness selected.

Dimensions subject to manufacturing tolerances.

THRUST-LOCK™ BOLTLESS RESTRAINED JOINT PIPE



Thrust-Lock™ Boltless Restrained Joint

Pipe Size in.	*Pressure Rating psi	Deflection		A	B	C
		Degrees	Inches in 18ft	Pipe O.D.	Bell O.D.	Spigot Socket
6	350	4	15	6.90	10.187	5.01
8	350	4	15	9.05	13.187	5.57
10	350	4	15	11.10	15.187	5.88
12	350	4	15	13.20	17.250	6.13
14	350	4	15	15.30	20.625	7.63
16	350	4	15	17.40	22.375	7.88
18	350	4	15	19.50	25.125	8.13
20	350	4	15	21.60	27.250	8.38
24	350	4	15	25.80	31.562	8.63
30	250	2	7	32.00	39.06	10.53

*The THRUST-LOCK™ Restrained Joint has a working pressure rating equivalent to the working pressure rating of the parent pipe with a maximum working pressure rating of 350 psi for 6 in. through 24 in. and 250 psi for 30 in.

NOTE: These deflections are based on joints with nominal dimensions.

RATED WORKING PRESSURE AND MAXIMUM DEPTH OF COVER

Pipe Size In.	*Pressure Rating psi	Nominal Thickness In.	Laying Conditions				
			Type 1 Trench	Type 2 Trench	Type 3 Trench	Type 4 Trench	Type 5 Trench
			Maximum depth of cover ‡-ft				
3	350	0.25	78	88	99	100§	100§
4	350	0.25	53	61	69	85	100§
6	350	0.25	26	31	37	47	65
8	350	0.25	16	20	25	34	50
10	350	0.26	11**	15	19	28	45
12	350	0.28	10**	15	19	28	44
14	250	0.28	††	11**	15	23	36
	300	0.30	††	13	17	26	42
	350	0.31	††	14	19	27	44
16	250	0.30	††	11**	15	24	34
	300	0.32	††	13	17	26	39
	350	0.34	††	15	20	28	44
18	250	0.31	††	10**	14	22	31
	300	0.34	††	13	17	26	36
	350	0.36	††	15	19	28	41
20	250	0.33	††	10	14	22	30
	300	0.36	††	13	17	26	35
	350	0.38	††	15	19	28	38
24	200	0.33	††	8**	12	17	25
	250	0.37	††	11	15	20	29
	300	0.40	††	13	17	24	32
	350	0.43	††	15	19	28	37
30	150	0.34	††	--	9	14	22
	200	0.38	††	8**	12	16	24
	250	0.42	††	11	15	19	27
	300	0.45	††	12	16	21	29
36	350	0.49	††	15	19	25	33
	150	0.38	††	--	9	14	21
	200	0.42	††	8**	12	15	23
	250	0.47	††	10	14	18	25
	300	0.51	††	12	16	20	28
	350	0.56	††	15	19	24	32

‡ An allowance for a single H-20 truck with 1.5 impact factor is included for all depths of cover.

§ Calculated maximum depth of cover exceeds 100 ft. (30.5 m).

** Minimum allowable depth of cover is 3 ft. (0.9 m).

†† For pipe 14 in. (350 mm) and larger, consideration should be given to the use of laying conditions other than Type 1.

TYTON® AND FASTITE® PUSH-ON JOINTS

ASSEMBLY INSTRUCTIONS

- Step 1.** Thoroughly clean out the bell with special attention to the gasket recess. Remove any foreign material or excess paint. Clean the spigot or beveled plain end and remove any sharp edges with a standard file.
- Step 2.** After making sure that the correct gasket is being used, insert it into the recess in the bell with the small end of the gasket facing the bell face.
- Step 3.** Apply lubricant to the inside surface of the gasket, making sure that the entire surface is coated. Apply a generous coating of lubricant to the beveled portion of the plain end.
- Step 4.** Guide the plain end into the bell and, while maintaining straight alignment, push the plain end into the bell socket. Once the joint is assembled, necessary deflection can be accomplished. When assembly is complete, the bell face should be aligned between the two white depth rings, for Tyton® Joints. Fastite® Joints have only 1 assembly stripe.

MECHANICAL JOINT

ASSEMBLY INSTRUCTIONS

- Step 1.** Clean the bell socket and spigot or plain end. Lubricate both the gasket and plain end by brushing an approved pipe lubricant.
- Step 2.** Place the gland on the plain end with the lip extension toward the plain end. Place the gasket on the plain end with the narrow edge facing the plain end.
- Step 3.** Insert the plain end into the bell and press the gasket into the bell recess. Push the gland toward the socket and center it around the pipe with the gland lip against the gasket.
- Step 4.** Insert and tighten the bolts. It is important to maintain the same distance between the gland and the bell face at all times. This is best done by alternating side to side and top to bottom, while tightening the bolts.

Note: Achieving the recommended bolt torque, particularly with large diameter pipe, may require repeating the process up to 5 times or more. Recommended bolt torque ranges are as follows:

Pipe Size In.	Bolt Diameter In.	Nut Across Flats In.	Wrench Length In.	Torque Range Foot Lbs.
3	5/8	1-1/16	8	45 to 60
4-24	3/4	1-1/4	10	75 to 90

NOMINAL THICKNESS FOR STANDARD PRESSURE CLASSES OF DUCTILE IRON PIPE

Size In.	Outside Diameter In.	Pressure Class*				
		150	200	250	300	350
		Normal Thickness — in.				
3	3.96	—	—	—	—	0.25**
4	4.80	—	—	—	—	0.25**
6	6.90	—	—	—	—	0.25**
8	9.05	—	—	—	—	0.25**
10	11.10	—	—	—	—	0.26
12	13.20	—	—	—	—	0.28
14	15.30	—	—	0.28	0.30	0.31
16	17.40	—	—	0.30	0.32	0.34
18	19.5	—	—	0.31	0.34	0.36
20	21.60	—	—	0.33	0.36	0.38
24	25.80	—	0.33	0.37	0.40	0.43
30	32.00	0.34	0.38	0.42	0.45	0.49
36	38.30	0.38	0.42	0.47	0.51	0.56

*Pressure Classes are defined as the rated water pressure of the pipe in psi. The thicknesses shown are adequate for the rated water working pressure plus a surge allowance of 100 psi. Calculations are based on a minimum yield strength of 42,000 and a 2.0 safety factor times the sum of the working pressure and 100 psi surge allowance.

**Calculated thicknesses for these sizes and pressure ratings are less than those shown above. Presently, these are the lowest nominal thicknesses available in these sizes.

NOTE: Per ANSI/AWWA C150/A21.50 the thicknesses above include the 0.08 in. service allowance and the casting tolerance listed below by size ranges:

SIZE (Inches)	CASTING TOLERANCES (Inches)
3-8	-0.05
10-12	-0.06
14-36	-0.07

TR FLEX® RESTRAINED JOINT

ASSEMBLY INSTRUCTIONS

- Step 1.** (4"–10") Lay pipe such that one of the bell slots is accessible.
(12"–20") Lay pipe such that both of the bell slots are accessible, in the horizontal position if possible.
(24"–36") Lay pipe such that all four of the bell slots are accessible, in the diagonal position if possible.
- Step 2.** Clean the bell socket and insert gasket.
- Step 3.** Clean the spigot end to the assembly stripes.
- Step 4.** Lubricate the exposed surface of the gasket and pipe spigot end back to the weld bead.
- Step 5.** Make a normal push-on joint assembly, completely homing the pipe until the first assembly strip is in the bell socket. Keeping the joint in straight alignment during the assembly process.
- Step 6.** (4"–10") Insert the right-hand locking segment into a bell slot and slide the segment clockwise around the pipe.
(12"–36") Insert lower locking segment into a bell slot and slide the segment around the pipe.
- Step 7.** (4"–10") Insert left-hand locking segment into the bell slot and slide the segment counter-clockwise around the pipe.
(12"–36") Insert upper locking segment into the same bell slot and rotate around the pipe.
- Step 8.** (4"–10") Hold the segments apart and wedge the rubber retainer into the slot between the two locking segments.
(12"–36") Hold the upper segment in place and wedge the rubber retainer into the slot between the two locking segments.
- Step 9.** (4"–10") None.
(12"–20") Repeat steps 6–8 for other slot. Make sure that all 4 locking segments and 2 rubber retainers are securely in place.
(24"–36") Repeat steps 6–8 for other slot. Make sure that all 8 locking segments and 4 rubber retainers are securely in place.
- Step 10.** Extend the joint to remove the slack in the locking segment cavity. Joint extension is necessary to attain the marked laying length on the pipe and to minimize growth or extension of the line as it is pressurized.
- Step 11.** Set the joint deflection as required.

THRUST-LOCK™ RESTRAINED JOINT

ASSEMBLY INSTRUCTIONS

- Step 1.** Ring Installation. Put lock ring on the spigot end of the pipe. Pry the lock ring over the weldment. Use the hammer to tap the cover. Lock ring installation is complete.
- Step 2.** Clean the Bell and Spigot. Thoroughly clean out the bell with special attention to the gasket recess. Remove any foreign material or excess paint. Clean the spigot end and remove any sharp edges.
- Step 3.** Insert the gasket into the recess in the bell with the small end of the gasket facing the bell face.
- Step 4.** Lubricate the Bell and Spigot. Apply lubricant to the inside surface of the gasket. Apply a generous coating of lubricant to the spigot end.
- Step 5.** Insert Pipe. Guide the spigot end into the bell and, while maintaining straight alignment, push the pipe into the bell socket.
- Step 6.** Insert Lock Ring. Push lock ring into the bell.
- Step 7.** Rotate the lock ring until the lugs align. Use a hammer to tap the ring if required. Install the anti-rotation wedges at 3 and 9 o'clock if the pipe is being used inside of a casing. Deflect the joint if desired.

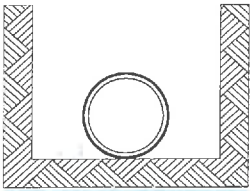
SUPER-LOCK®

ASSEMBLY INSTRUCTIONS

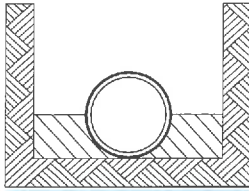
- Step 1.** Remove hook bolts securing retainer to plain end. Clean plain end of pipe. Clean out any dirt behind retainer lugs. Lubricant should be applied to the beveled nose.
- Step 2.** Assemble the joint in accordance with Clow Assembly Instructions (See Table A on page 13). Make certain that the bell is clean prior to gasket insertion. Be sure that the correct gasket is used.
- Step 3.** Guide plain end into Super-Lock® bell and provide reasonably straight alignment. "Make" joint by pushing the plain end into the bell. A jack or come-a-long may also be used to pull the plain end into the bell. Position retainer so that the recesses line up with the lugs on the bell. Slide retainer over bell and rotate until the lugs on the bell and the retainer line up.
- Step 4.** At drilled hole on retainer O.D., insert retainer lock in recess formed by lugs on bell and retainer. Insert roll pin in drilled hole and drive flush with retainer O.D.
- Step 5.** Take any necessary deflection after joint is completely assembled.

Caution: do not over deflect the joint beyond the maximum deflection column specified on page 2 or subject the joint to bending stress to obtain additional deflection.

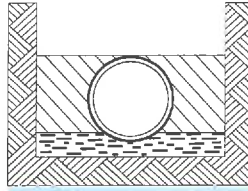
LAYING CONDITIONS



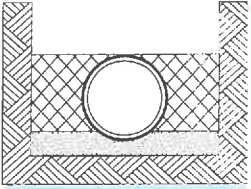
Type 1*
Flat-bottom trench † Loose backfill.



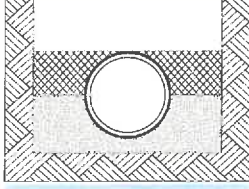
Type 2
Flat-bottom trench † Backfill lightly consolidated to centerline of pipe.



Type 3
Pipe bedded in 4 in. (100 mm) minimum of loose soil †† Backfill lightly consolidated to top of pipe.



Type 4
Pipe bedded in sand, gravel, or crushed stone to depth of 1/8 pipe diameter, 4 in. (100 mm) minimum. Backfill compacted to top of pipe. (Approximately 80 percent Standard Proctor, AASHTO T-99.)



Type 5
Pipe bedded in compacted granular material to centerline of pipe. Compacted granular or select material †† to top of pipe. (Approximately 90 percent Standard Proctor, AASHTO T-99.)

* For 14 in. (355-mm) and larger pipe, consideration should be given to the use of laying conditions other than Type 1.

† "Flat-bottom" is defined as undisturbed earth.

†† "Loose soil" or "select material" is defined as native soil excavated from the trench, free of rocks, foreign materials, and frozen earth.

Notes:

Consideration of the pipe-zone embedment conditions included in this figure may be influenced by factors other than pipe strength. For additional information on pipe bedding and backfill, see ANSI/AWWA C600.

American Association of State Highway and Transportation Officials, 444 N. Capitol St. N.W., Suite 225, Washington, DC 20001.

STANDARDS APPLICABLE TO DUCTILE IRON PIPE AND FITTINGS

THICKNESS DESIGN OF DUCTILE IRON PIPE DUCTILE IRON PIPE FOR WATER AND OTHER LIQUIDS

ANSI/AWWA C150/A21.50
ANSI/AWWA C151/A21.51
FEDERAL WWP421D, Grade C
ANSI/ASTM A746

DUCTILE IRON PIPE FOR GRAVITY FLOW SERVICE DUCTILE IRON FITTINGS FOR WATER AND OTHER LIQUIDS

3 in. through 36 in.

ANSI/AWWA C110/A21.10

DUCTILE IRON COMPACT FITTINGS

3 in. through 24 in.

ANSI/AWWA C153/A21.53

FLANGED FITTINGS

ANSI/AWWA C110/A21.10

ANSI B16.1

DUCTILE IRON PIPE WITH THREADED FLANGES

ANSI/AWWA C115/A21.15

COATINGS AND LININGS

Asphaltic

ANSI/AWWA C151/A21.51

ANSI/AWWA C110/A21.10

ANSI/AWWA C153/A21.53

Cement Lining

ANSI/AWWA C104/A21.4

Various Epoxy Linings and Coatings

MANUFACTURER'S STANDARD

Exterior Polyethylene Encasement

ANSI/AWWA C105/A21.5

JOINTS - PIPE AND FITTINGS

Push-On and Mechanical Rubber-Gasket Joints

ANSI/AWWA C111/A21.11

FEDERAL WWP421D

Flanged

ANSI/AWWA C115/A21.15

ANSI B16.1

Grooved and Shouldered

ANSI/AWWA C606

PIPE THREADS

ANSI B2.1

INSTALLATION

ANSI/AWWA C600

DIMENSIONS AND WEIGHTS FOR SPECIAL CLASSES OF PUSH-ON DUCTILE IRON PIPE

Pipe Size In.	Thickness Class	Nominal Thickness In.	OD* In.	Wt. of Barrel Per Ft. † Lb.	Tyton® Joint		
					Wt. of Bell Lb.	Wt. Per Lgth.† Lb.	Avg. Wt. Per Ft.† Lb.
3	52	0.28	3.96	9.9	7	185	10.3
3	54	0.34	3.96	11.8	7	220	12.2
3	56	0.40	3.96	13.7	7	255	14.1
4	51	0.26	4.80	11.3	9	210	11.8
4	52	0.29	4.80	12.6	9	235	13.1
4	53	0.32	4.80	13.8	9	255	14.3
4	54	0.35	4.80	15	9	280	15.5
4	56	0.41	4.80	17.3	9	320	17.8
6	50	0.25	6.90	16	11	300	16.6
6	51	0.28	6.90	17.8	11	330	18.4
6	52	0.31	6.90	19.6	11	365	20.2
6	53	0.34	6.90	21.4	11	395	22.0
6	54	0.37	6.90	23.2	11	430	23.8
6	55	0.40	6.90	25	11	460	25.6
6	56	0.43	6.90	26.7	11	490	27.3
8	50	0.27	9.05	22.8	17	425	23.7
8	51	0.30	9.05	25.2	17	470	26.1
8	52	0.33	9.05	27.7	17	515	28.6
8	53	0.36	9.05	30.1	17	560	31.0
8	54	0.39	9.05	32.5	17	600	33.4
8	55	0.42	9.05	34.8	17	645	35.7
8	56	0.45	9.05	37.2	17	685	38.1
10	50	0.29	11.10	30.1	24	565	31.4
10	51	0.32	11.10	33.2	24	620	34.5
10	52	0.35	11.10	36.2	24	675	37.5
10	53	0.38	11.10	39.2	24	730	40.5
10	54	0.41	11.10	42.1	24	780	43.4
10	55	0.44	11.10	45.1	24	835	46.4
10	56	0.47	11.10	48	24	890	49.3
12	50	0.31	13.20	38.4	29	720	40.0
12	51	0.34	13.20	42	29	785	43.6
12	52	0.37	13.20	45.6	29	850	47.2
12	53	0.40	13.20	49.2	29	915	50.8
12	54	0.43	13.20	52.8	29	980	54.4
12	55	0.46	13.20	56.3	29	1040	57.9
12	56	0.49	13.20	59.9	29	1105	61.5
14	50	0.33	15.30	47.5	45	900	50.0
14	51	0.36	15.30	51.7	45	975	54.2
14	52	0.39	15.30	55.9	45	1050	58.4
14	53	0.42	15.30	60.1	45	1125	62.6
14	54	0.45	15.30	64.2	45	1200	66.7
14	55	0.48	15.30	68.4	45	1275	70.9
14	56	0.51	15.30	72.5	45	1350	75.0
16	50	0.34	17.40	55.8	54	1060	58.8
16	51	0.37	17.40	60.6	54	1145	63.6
16	52	0.40	17.40	65.4	54	1230	68.4
16	53	0.43	17.40	70.1	54	1315	73.1
16	54	0.46	17.40	74.9	54	1400	77.9
16	55	0.49	17.40	79.7	54	1490	82.7
16	56	0.52	17.40	84.4	54	1575	87.4
18	50	0.35	19.50	64.4	59	1220	67.7
18	51	0.38	19.50	69.8	59	1315	73.1
18	52	0.41	19.50	75.2	59	1415	78.5
18	53	0.44	19.50	80.6	59	1510	83.9
18	54	0.47	19.50	86	59	1605	89.3
18	55	0.50	19.50	91.3	59	1700	94.6
18	56	0.53	19.50	96.7	59	1800	100.0
20	50	0.36	21.60	73.5	74	1395	77.6
20	51	0.39	21.60	79.5	74	1505	83.6
20	52	0.42	21.60	85.5	74	1615	89.6
20	53	0.45	21.60	91.5	74	1720	95.6
20	54	0.48	21.60	97.5	74	1830	101.6
20	55	0.51	21.60	103.4	74	1935	107.5
20	56	0.54	21.60	109.3	74	2040	113.4
24	50	0.38	25.80	92.9	95	1765	98.2
24	51	0.41	25.80	100.1	95	1895	105.4
24	52	0.44	25.80	107.3	95	2025	112.6
24	53	0.47	25.80	114.4	95	2155	119.7
24	54	0.50	25.80	121.6	95	2285	126.9
24	55	0.53	25.80	128.8	95	2415	134.1
24	56	0.56	25.80	135.9	95	2540	141.2
30	50	0.39	32.00	118.5	139	2270	126.2
30	51	0.43	32.00	130.5	139	2490	138.2
30	52	0.47	32.00	142.5	139	2705	150.2
30	53	0.51	32.00	154.4	139	2920	162.1
30	54	0.55	32.00	166.3	139	3130	174.0
30	55	0.59	32.00	178.2	139	3345	185.9
30	56	0.63	32.00	190.0	139	3560	197.7
36	50	0.43	38.30	156.5	184	3000	166.7
36	51	0.48	38.30	174.5	184	3325	184.7
36	52	0.53	38.30	192.4	184	3645	202.6
36	53	0.58	38.30	210.3	184	3970	220.5
36	54	0.63	38.30	228.1	184	4290	238.3
36	55	0.68	38.30	245.9	184	4610	256.1
36	56	0.73	38.30	263.7	184	4930	273.9

† Including bell; calculated weight of pipe rounded off to the nearest 5 lb.

† Including bell; average weight per foot, based on calculated weight of pipe before rounding.

*Tolerances of OD of spigot end; 3–12 in. ±0.06 in., 14–24 in. ±0.05 in., 30–36 in. ±0.06 in., 42–60 in. ±0.06 in.



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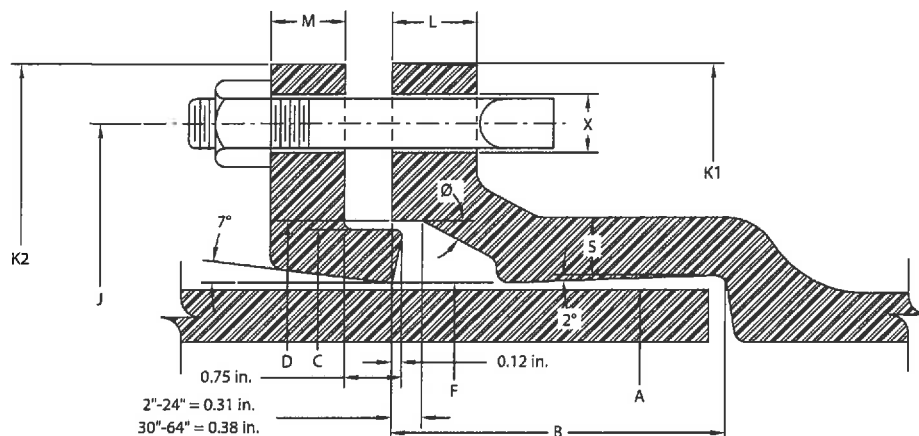
Compact MJ Fittings

ANSI/AWWA C153/A21.53

2" - 64" DUCTILE IRON MECHANICAL JOINT COMPACT FITTINGS

GENERAL SPECIFICATIONS

MATERIAL:	Ductile Iron per ASTM A536
PRESSURE:	350 PSI rating for 3" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 60" sizes
TESTING:	In accordance with ANSI/AWWA C153/A21.53 and UL requirements
LAYING LENGTH:	In accordance with ANSI/AWWA C153/A21.53 (fittings not listed in ANSI/AWWA have dimensions per Star design as noted in the catalog)
WEIGHTS:	Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
FLANGES:	Flanged ends on fittings match ANSI/AWW C115/A21.15 and ANSI B16.1 class 125 flanges
CEMENT LINING:	In accordance with ANSI/AWWA C104/A21.4 -- size 2" - 3" single thickness and sizes 4" - 64" double thickness
COATING:	Asphaltic seal coat inside and out in accordance with ANSI/AWWA C104/A21.4
GASKETS:	SBR in accordance with ANSI/AWWA C111/A21.11 (see pg. 17)
T-BOLTS/NUTS:	Low alloy steel in accordance with ANSI/AWWA C111/A21.11 (see pg. 16)
APPROVALS:	4" - 12" Underwriters Laboratories Listed 3" and greater are UL/NSF-61
DIMENSIONS:	All dimensions are in inches unless noted otherwise



MECHANICAL JOINT DIMENSIONS

NOM. SIZE	A DIA.	B	C DIA.	D DIA.	F DIA.	J DIA.	K1 DIA.	K2 DIA.	L	M	S	Ø	X DIA.	BOLTS	
														SIZE	NO.
★ 2	2.50	2.50	3.39	3.50	2.61	4.75	6.19	6.25	0.58	0.62	0.36	28°	3/4	5/8 x 3	2
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	0.58	0.62	0.39	28°	3/4	5/8 x 3	4
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	0.60	0.75	0.39	28°	7/8	3/4 x 3 1/2	4
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	0.63	0.88	0.43	28°	7/8	3/4 x 3 1/2	6
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	0.66	1.00	0.45	28°	7/8	3/4 x 3 1/2	6
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	0.70	1.00	0.47	28°	7/8	3/4 x 4	8
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	0.73	1.00	0.49	28°	7/8	3/4 x 4	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.25	20.25	0.79	1.25	0.55	28°	7/8	3/4 x 4 1/2	10
16	17.40	3.50	18.50	18.64	17.54	21.00	22.50	22.50	0.85	1.31	0.58	28°	7/8	3/4 x 4 1/2	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.75	24.83	1.00	1.38	0.68	28°	7/8	3/4 x 4 1/2	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.00	27.08	1.02	1.44	0.69	28°	7/8	3/4 x 4 1/2	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.50	31.58	1.02	1.56	0.75	28°	7/8	3/4 x 5	16
30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	0.82	20°	1 1/8	1 x 6	20
36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	20°	1 1/8	1 x 6	24
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.25	20°	1 3/8	1 1/4 x 6 1/2	28
48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.35	20°	1 3/8	1 1/4 x 6 1/2	32
★ 54	{ Dimensions Available On Request }														
★ 60															
★ 64															



★Not Included in AWWA C153

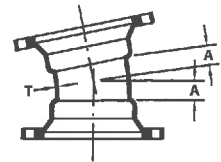
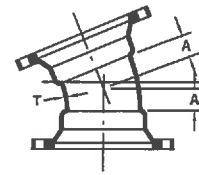
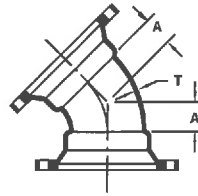
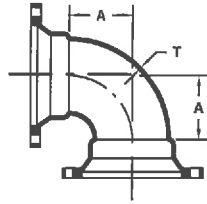
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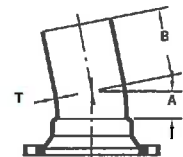
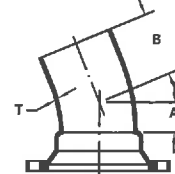
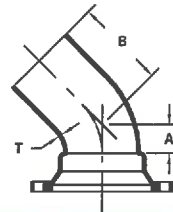
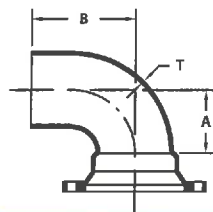


Compact MJ Fittings

ANSI/AWWA C153/A21.53



MJ x MJ BENDS		90° MJ x MJ BENDS (1/4)		45° MJ x MJ BENDS (1/8)		22 1/2° MJ x MJ BENDS (1/16)		11 1/4° MJ x MJ BENDS (1/32)	
NOM. SIZE	T	A	WT (LBS.)	A	WT (LBS.)	A	WT (LBS.)	A	WT (LBS.)
★ 2	0.30	3.25	14	1.80	13	1.00	9	1.00	8
3	0.33	3.50	23	1.50	21	1.00	16	1.00	14
4	0.34	4.00	27	2.00	23	1.50	18	1.25	16
6	0.36	5.00	39	3.00	32	2.00	32	1.50	30
8	0.38	6.50	57	3.50	46	2.50	46	1.75	42
10	0.40	7.50	89	4.50	70	3.00	64	2.00	58
12	0.42	9.00	108	5.50	86	3.50	84	2.25	74
14	0.47	11.50	180	5.00	145	3.75	140	2.50	128
16	0.50	12.50	264	5.50	202	3.75	178	2.50	148
18	0.54	14.00	335	6.00	250	4.50	255	3.00	205
20	0.57	15.00	400	7.00	305	4.50	262	3.00	245
24	0.61	17.00	565	7.50	405	4.50	412	3.00	315
30	0.66	21.50	1005	11.50	798	6.75	665	4.75	606
36	0.74	24.50	1562	11.50	1164	7.75	960	5.00	840
42	0.82	29.25	2506	14.00	1792	9.00	1350	6.00	1319
48	0.90	33.25	3045	15.00	2390	10.00	1886	6.50	1700
★ 54	{ Dimensions Available On Request }								
★ 60									
★ 64									

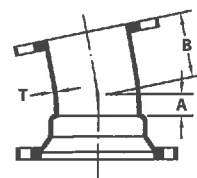
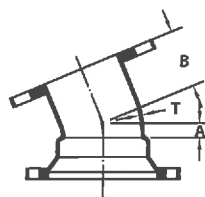
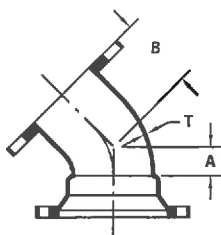
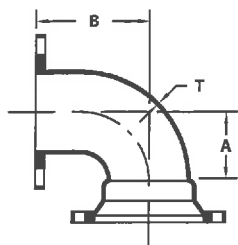


MJ x PE BENDS		90° MJ x PE BENDS (1/4)			45° MJ x PE BENDS (1/8)			22 1/2° MJ x PE BENDS (1/16)			11 1/4° MJ x PE BENDS (1/32)		
NOM. SIZE	T	A	B	WT (LBS.)	A	B	WT (LBS.)	A	B	WT (LBS.)	A	B	WT (LBS.)
3	0.33	3.50	8.50	16	1.50	7.00	13	1.00	6.50	12	1.00	6.50	12
4	0.34	4.00	9.50	22	2.00	7.50	19	1.50	7.00	18	1.25	6.25	17
6	0.36	5.00	12.00	40	3.00	8.50	31	2.00	7.50	29	1.50	7.00	27
8	0.38	6.50	12.50	61	3.50	9.00	46	2.50	8.00	43	1.75	7.25	39
10	0.40	7.50	13.00	83	4.50	10.00	68	3.00	8.50	61	2.00	7.50	52
12	0.42	9.00	14.50	114	5.50	11.00	95	3.50	9.00	81	2.25	7.75	70
14	0.47	11.50	19.50	197	5.00	13.00	148	3.75	11.25	133	2.50	10.50	122
16	0.50	12.50	20.50	248	5.50	13.50	184	3.75	11.75	166	2.50	10.50	148
18	0.54	14.00	21.00	325	6.00	13.00	235	6.00	13.00	235	6.00	13.00	235
20	0.57	15.00	22.50	390	7.00	14.00	300	7.00	14.00	300	7.00	14.00	300
24	0.61	17.00	25.00	575	7.50	14.50	390	7.50	14.50	395	7.50	14.50	400
30	0.66	22.75	31.75	865	10.50	19.50	715	6.75	15.75	600	4.75	13.75	535
36	0.74	24.50	33.50	1355	12.00	21.00	1040	7.75	16.75	865	5.00	14.00	725
42	0.82	29.25	38.25	2055	14.00	23.00	1460	9.00	18.00	1200	6.00	15.00	1030
48	0.90	33.25	42.25	2805	15.00	24.00	1905	10.00	19.00	1575	6.50	15.50	1290

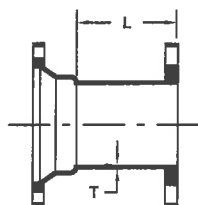


Compact MJ Fittings

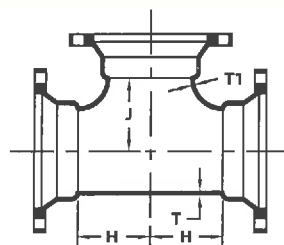
ANSI/AWWA C153/A21.53



MJ x FE BENDS		90° MJ x FE BENDS (1/4)			45° MJ x FE BENDS (1/8)			22 1/2° MJ x FE BENDS (1/16)			11 1/4° MJ x FE BENDS (1/32)		
NOM. SIZE	T	A	B	WT (LBS.)	A	B	WT (LBS.)	A	B	WT (LBS.)	A	B	WT (LBS.)
3	0.33	3.50	5.50	20	1.50	3.00	17	1.00	3.00	17	1.00	3.00	15
4	0.34	4.00	6.50	26	2.00	4.00	24	1.50	4.00	26	1.25	4.00	19
6	0.36	5.00	8.00	47	3.50	5.00	40	2.00	5.00	36	1.50	5.00	30
8	0.38	6.50	9.00	68	3.50	5.50	57	2.50	5.50	53	1.75	5.50	50
10	0.40	7.50	11.00	102	4.50	6.50	83	3.00	6.50	102	2.00	6.50	75
12	0.42	9.00	12.00	134	5.50	7.50	110	3.50	7.50	134	2.25	7.50	88
14	0.47	11.50	14.00	227	5.00	7.50	207	---	---	---	---	---	---
16	0.50	12.50	15.00	306	5.50	8.00	239	---	---	---	---	---	---
30	0.66	21.50	25.00	1070	10.50	15.00	858	---	---	---	---	---	---



MJ x FLANGE ADAPTER			
NOM. SIZE	T	L	WT (LBS.)
3	0.33	3.50	13
4	0.34	3.50	22
6	0.36	3.50	32
8	0.38	3.50	46
10	0.40	3.50	63
12	0.42	3.50	100
14	0.47	5.00	141
16	0.50	5.00	170
18	0.54	5.00	221
20	0.57	5.00	252
24	0.61	5.00	324
30	0.66	7.00	557
36	0.74	8.50	798
42	0.82	12.00	1214
48	0.90	12.00	1600



MJ x MJ TEES					
NOM. SIZE	T	T1	H	J	WT (LBS.)
2 x 2	0.39	0.39	3.25	3.25	22
3 x 2	0.48	0.39	3.50	3.50	43
3 x 3	0.33	0.33	3.00	3.00	28
4 x 3	0.34	0.33	3.50	4.00	30
4 x 4	0.34	0.34	4.00	4.00	32
6 x 3	0.36	0.33	3.50	5.00	42
6 x 4	0.36	0.34	4.00	5.00	46
6 x 4 x 6	0.36	0.36	5.00	5.00	45
6 x 6	0.36	0.36	5.00	5.00	56
6 x 6 x 8	0.36	0.38	6.50	6.50	62
8 x 3	0.38	0.33	4.00	6.50	52
8 x 4	0.38	0.34	4.00	6.50	60
8 x 6	0.38	0.36	5.00	6.50	72
8 x 6 x 6	0.38	0.38	5.00	6.50	62
8 x 6 x 8	0.38	0.38	6.00	6.50	85
8 x 8	0.38	0.38	6.50	6.50	86
10 x 3	0.40	0.33	4.00	7.50	75
10 x 4	0.40	0.34	4.00	7.50	78
10 x 6	0.40	0.36	5.00	7.50	90
10 x 8	0.40	0.38	6.50	7.50	105
10 x 10	0.40	0.40	7.50	7.50	120
12 x 3	0.42	0.33	4.00	8.75	90
12 x 4	0.42	0.34	4.00	8.75	94

(Con't) ▶



★Not Included in AWWA C153

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Compact MJ Fittings

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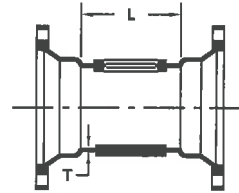
MJ x MJ TEES (Con't)

NOM. SIZE	T	T1	H	J	WT (LBS.)
12 x 6	0.42	0.36	5.00	8.75	110
12 x 8	0.42	0.38	6.50	8.75	125
12 x 10	0.42	0.40	7.50	8.75	140
12 x 12	0.42	0.42	8.75	8.75	160
14 x 6	0.47	0.36	6.50	10.50	182
14 x 8	0.47	0.38	7.50	10.50	190
14 x 10	0.47	0.40	8.50	10.50	206
14 x 12	0.47	0.42	9.50	10.50	221
14 x 14	0.47	0.47	10.50	10.50	251
16 x 6	0.50	0.36	6.50	11.50	218
16 x 8	0.50	0.38	7.50	11.50	223
16 x 10	0.50	0.40	8.50	11.50	264
16 x 12	0.50	0.42	9.50	11.50	280
16 x 14	0.50	0.47	10.50	11.50	316
16 x 16	0.50	0.50	11.50	11.50	322
18 x 6	0.54	0.36	6.50	12.50	275
18 x 8	0.54	0.38	7.50	12.50	295
18 x 10	0.54	0.40	8.50	12.50	315
18 x 12	0.54	0.42	9.50	12.50	335
18 x 14	0.54	0.47	10.50	12.50	380
18 x 16	0.54	0.50	11.50	12.50	405
18 x 18	0.54	0.54	12.50	12.50	435
20 x 6	0.57	0.36	6.50	14.00	315
20 x 8	0.57	0.38	8.00	14.00	345
20 x 10	0.57	0.40	9.00	14.00	370
20 x 12	0.57	0.42	10.00	14.00	395
20 x 14	0.57	0.47	11.00	14.00	440
20 x 16	0.57	0.50	12.00	14.00	465
20 x 18	0.57	0.54	13.00	14.00	505
20 x 20	0.57	0.57	14.00	14.00	535
24 x 6	0.61	0.36	7.00	16.00	415
24 x 8	0.61	0.38	8.00	16.00	445
24 x 10	0.61	0.40	9.00	16.00	470
24 x 12	0.61	0.42	10.00	16.00	500
24 x 14	0.61	0.47	11.00	16.00	550
24 x 16	0.61	0.50	12.00	16.00	580
24 x 18	0.61	0.54	13.00	16.00	625
24 x 20	0.61	0.57	14.00	16.00	660
24 x 24	0.61	0.61	16.00	16.00	720
★ 30 x 6	0.66	0.36	8.00	20.00	686
★ 30 x 8	0.66	0.38	8.50	20.00	739
★ 30 x 12	0.66	0.42	10.00	20.00	830
★ 30 x 14	0.66	0.47	11.00	20.00	880
★ 30 x 16	0.66	0.50	12.50	20.00	959
★ 30 x 18	0.66	0.54	14.00	20.00	1085
★ 30 x 20	0.66	0.57	15.00	20.00	1000
★ 30 x 24	0.66	0.61	21.00	22.00	1389
★ 30 x 30	0.66	0.66	20.00	20.00	1323
★ 36 x 6	0.74	0.36	8.00	23.50	1100
★ 36 x 8	0.74	0.38	9.00	23.50	1287
★ 36 x 12	0.74	0.42	10.00	23.50	1150
★ 36 x 16	0.74	0.50	12.50	23.50	1165
★ 36 x 18	0.74	0.54	13.00	23.50	1410

(Con't) ➔

MJ x MJ TEES (Con't)

NOM. SIZE	T	T1	H	J	WT (LBS.)
★ 36 x 20	0.74	0.57	15.00	23.50	1650
36 x 24	0.74	0.61	16.00	23.50	1550
36 x 30	0.74	0.66	26.00	26.00	2381
36 x 36	0.74	0.74	23.50	23.50	2072
★ 42 x 6	0.82	0.36	9.00	27.50	1600
★ 42 x 12	0.82	0.42	14.00	27.50	1950
★ 42 x 16	0.82	0.50	13.00	27.50	2040
★ 42 x 18	0.82	0.54	16.00	27.50	2195
42 x 24	0.82	0.61	20.00	27.50	2270
42 x 30	0.82	0.66	22.00	29.50	2608
42 x 36	0.82	0.74	30.00	30.00	3000
42 x 42	0.82	0.82	30.00	30.00	3175
★ 48 x 6	0.90	0.36	10.00	32.00	2155
★ 48 x 12	0.90	0.42	14.00	32.00	2500
★ 48 x 16	0.90	0.50	13.00	32.00	2405
48 x 24	0.90	0.61	23.00	32.00	2870
48 x 30	0.90	0.66	23.00	32.00	3050
48 x 36	0.90	0.74	33.50	32.25	3900
48 x 42	0.90	0.82	33.50	33.50	4100
48 x 48	0.90	0.90	33.50	33.50	4250
★ 54 x 20	{ Dimensions Available On Request }				
★ 64 x 64					



★ MJ x MJ TAPPED TEES (2" TAP)

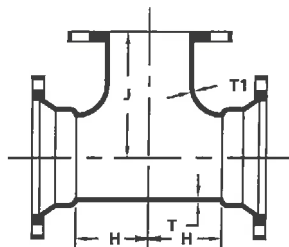
NOM. SIZE	T	L	MAX TAP	WT (LBS.)
3	0.33	6.00	2 1/2	18
4	0.34	6.00	3	25
6	0.36	6.00	3	35
8	0.38	6.00	3	55
10	0.40	6.00	3	70
12	0.42	6.00	3	85
16	0.50	6.00	3	164

Threads in Accordance with ANSI/ASME B1.20.1



Compact MJ Fittings

ANSI/AWWA C153/A21.53



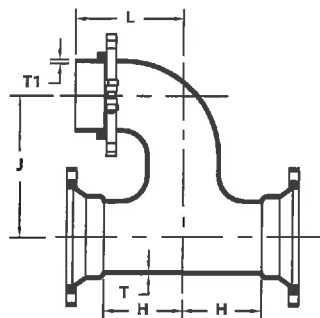
★ MJ x FE TEES

NOM. SIZE	T	T1	H	J	WT (LBS.)
3 x 3	0.33	0.33	3.00	5.50	30
4 x 2	0.52	0.39	4.80	4.80	53
4 x 3	0.34	0.33	3.50	6.50	34
4 x 4	0.34	0.34	4.00	6.50	40
6 x 3	0.36	0.33	3.50	8.00	50
6 x 4	0.36	0.34	4.00	8.00	65
6 x 6	0.36	0.36	5.00	8.00	62
8 x 4	0.38	0.34	4.50	9.00	75
8 x 6	0.38	0.36	5.50	9.00	78
8 x 8	0.38	0.38	6.50	9.00	88
10 x 4	0.40	0.34	4.00	11.00	90
10 x 6	0.40	0.36	5.00	11.00	106
10 x 8	0.40	0.38	6.50	11.00	114
10 x 10	0.40	0.40	7.50	11.00	126
12 x 4	0.42	0.34	4.50	12.00	118
12 x 6	0.42	0.36	5.50	12.00	133
12 x 8	0.42	0.38	6.50	12.00	134
12 x 10	0.42	0.40	7.50	12.00	145
12 x 12	0.42	0.42	8.75	12.00	170
14 x 6	0.47	0.36	6.50	14.00	185
14 x 10	0.47	0.40	8.50	14.00	244
14 x 12	0.47	0.42	9.50	14.00	284
14 x 14	0.47	0.47	10.50	14.00	305
16 x 6	0.50	0.36	6.50	15.00	207
16 x 8	0.50	0.38	7.50	15.00	260
16 x 10	0.50	0.40	8.50	15.00	287
16 x 12	0.50	0.42	9.50	15.00	312
16 x 14	0.50	0.47	10.50	15.00	348
16 x 16	0.50	0.50	11.50	15.00	374
18 x 6	0.54	0.36	6.50	15.50	325
18 x 8	0.54	0.38	7.50	15.50	351
18 x 12	0.54	0.42	9.50	15.50	358
18 x 18	0.54	0.54	12.50	16.50	445
20 x 6	0.57	0.36	6.50	17.00	360
20 x 8	0.57	0.38	8.00	17.00	339
24 x 6	0.61	0.36	7.00	19.00	406
24 x 8	0.61	0.38	8.00	19.00	472
24 x 12	0.61	0.42	10.00	19.00	580
24 x 16	0.61	0.50	12.00	19.00	744
24 x 24	0.61	0.61	16.00	22.00	950
30 x 6	0.66	0.36	8.00	23.00	675
30 x 8	0.66	0.38	8.50	23.00	695
30 x 12	0.66	0.42	10.00	23.00	715
30 x 16	0.66	0.50	12.50	23.00	1125

(Con't)★

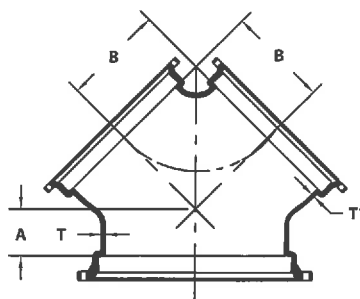
★ MJ x FE TEES (Con't)

NOM. SIZE	T	T1	H	J	WT (LBS.)
30 x 24	0.66	0.61	16.00	25.00	1290
36 x 6	0.74	0.36	8.00	26.00	1175
36 x 16	0.74	0.50	12.50	26.00	1475



★ MJ x SWIVEL PARALLEL TEE

NOM. SIZE	T	T1	H	J	L	WT (LBS.)
6 x 6	0.36	0.36	8.00	12.50	10.00	83
8 x 6	0.38	0.36	9.00	13.50	11.00	105
10 x 6	0.40	0.38	11.00	14.00	13.00	125



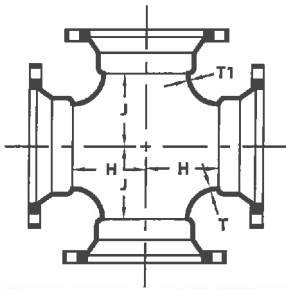
★ MJ x MJ TRUE WYES

NOM. SIZE	T	T1	A	B	WT (LBS.)
24 x 14	0.61	0.47	9.00	11.50	395
30 x 24	0.66	0.61	8.00	17.00	815



Compact MJ Fittings

ANSI/AWWA C153/A21.53



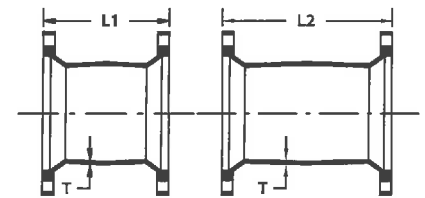
MJ CROSSES

	NOM. SIZE	T	T1	H	J	WT (LBS.)
★	3 x 3	0.33	0.33	3.00	3.00	35
★	4 x 3	0.34	0.33	3.50	4.00	38
★	4 x 4	0.34	0.34	4.00	4.00	40
★	6 x 4	0.36	0.34	4.00	5.00	68
★	6 x 6	0.36	0.36	5.00	5.00	80
★	8 x 4	0.38	0.34	4.00	6.00	99
★	8 x 6	0.38	0.36	5.00	6.00	100
★	8 x 8	0.38	0.38	6.00	6.00	106
★	10 x 4	0.40	0.34	4.00	7.00	120
★	10 x 6	0.40	0.36	5.00	7.00	125
★	10 x 8	0.40	0.38	6.50	7.00	130
★	10 x 10	0.40	0.40	7.00	7.00	145
★	12 x 4	0.42	0.34	4.00	8.50	123
★	12 x 6	0.42	0.36	5.00	8.50	142
★	12 x 8	0.42	0.38	6.00	8.50	157
★	12 x 10	0.42	0.40	7.50	8.50	189
★	12 x 12	0.42	0.42	8.50	8.50	200
★	14 x 6	0.47	0.36	6.50	10.50	210
★	14 x 8	0.47	0.38	7.50	10.50	231
★	14 x 10	0.47	0.40	8.50	10.50	255
★	14 x 12	0.47	0.42	9.50	10.50	269
★	14 x 14	0.47	0.47	10.50	10.50	335
★	16 x 6	0.50	0.36	6.50	11.50	250
★	16 x 8	0.50	0.38	7.50	11.50	264
★	16 x 10	0.50	0.40	8.50	11.50	286
★	16 x 12	0.50	0.42	9.50	11.50	310
★	16 x 16	0.50	0.50	11.50	11.50	385
★	18 x 12	0.54	0.42	9.50	12.50	348
★	18 x 18	0.54	0.54	12.50	12.50	478
★	20 x 8	0.57	0.38	8.00	14.00	379
★	20 x 12	0.57	0.42	10.00	14.00	413
★	20 x 18	0.57	0.54	13.00	14.00	554
★	20 x 20	0.57	0.57	14.00	14.00	590
★	24 x 6	0.61	0.36	7.00	16.00	481
★	24 x 8	0.61	0.38	8.00	16.00	500
★	24 x 12	0.61	0.42	10.00	16.00	529
★	24 x 16	0.61	0.50	12.00	16.00	576
★	24 x 18	0.61	0.54	13.00	16.00	868
★	24 x 20	0.61	0.57	14.00	16.00	1015
★	24 x 24	0.61	0.61	16.00	16.00	881
★	30 x 12	0.66	0.42	10.00	20.00	870
★	30 x 24	0.66	0.61	16.00	20.00	1333
★	30 x 30	0.66	0.66	22.00	22.00	1691
★	36 x 24	0.74	0.61	16.00	23.50	1840

(Con't) ★

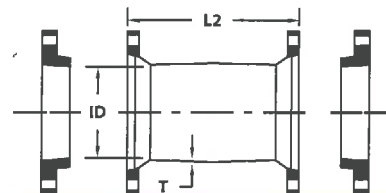
MJ CROSSES (Con't)

	NOM. SIZE	T	T1	H	J	WT (LBS.)
★	36 x 36	0.74	0.74	26.00	26.00	2811
★	42 x 24	0.82	0.61	20.00	27.50	2480
★	42 x 36	0.82	0.74	30.00	30.00	3900
★	48 x 24	0.90	0.61	23.00	32.00	3670
★	48 x 30	0.90	0.66	23.00	32.00	4505
★	48 x 36	0.90	0.74	33.50	32.25	4700



MJ SLEEVES

	NOM. SIZE	T	SHORT SLEEVES		LONG SLEEVES	
			L1	WT (LBS.)	L2	WT (LBS.)
★	2	0.30	7.50	8	12.00	13
★	3	0.33	7.50	13	12.00	18
★	4	0.34	7.50	17	12.00	20
★	6	0.36	7.50	28	12.00	36
★	8	0.38	7.50	38	12.00	46
★	10	0.40	7.50	49	12.00	62
★	12	0.42	7.50	56	12.00	76
★	14	0.47	9.50	93	15.00	125
★	16	0.50	9.50	108	15.00	172
★	18	0.54	9.00	160	15.00	225
★	20	0.57	9.00	195	15.00	255
★	24	0.61	9.00	255	15.00	335
★	30	0.66	15.00	500	24.00	670
★	36	0.74	15.00	725	24.00	1091
★	42	0.82	15.00	877	24.00	1390
★	48	0.90	15.00	1406	24.00	1740



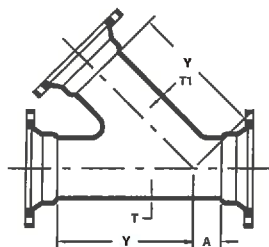
★ MJ DUAL PURPOSE SLEEVES W/ OVERSIZE GLANDS

	NOM. SIZE	PIPE SIZE	T	L	(I.D.)	WT (LBS.)
★	4	4.80 - 5.00	0.34	12.00	5.10	20
★	6	6.90 - 7.10	0.36	12.00	7.20	36
★	8	9.05 - 9.30	0.38	12.00	9.40	46
★	10	11.10 - 11.40	0.40	12.00	11.50	62
★	12	13.20 - 13.50	0.42	12.00	13.60	76
★	16	17.40 - 17.80	0.50	15.00	17.94	172



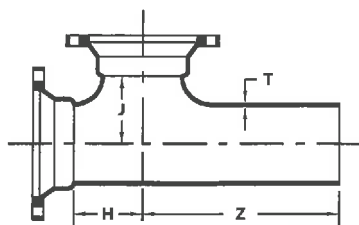
Compact MJ Fittings

ANSI/AWWA C153/A21.53



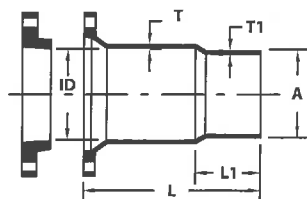
★ 45° MJ LATERALS

NOM. SIZE	T	T1	A	Y	WT (LBS.)
3 x 3	0.33	0.33	2.50	8.50	36
4 x 3	0.34	0.33	2.50	8.50	40
4 x 4	0.34	0.34	2.50	8.50	41
6 x 4	0.36	0.34	1.50	11.00	53
6 x 6	0.36	0.36	3.00	12.50	85
8 x 4	0.38	0.34	0.50	13.00	73
8 x 6	0.38	0.36	2.00	14.50	90
8 x 8	0.38	0.38	3.50	16.00	102
10 x 4	0.40	0.34	0.00	15.00	150
10 x 6	0.40	0.36	1.00	16.00	158
10 x 8	0.40	0.38	2.50	17.00	172
10 x 10	0.40	0.40	3.50	19.00	210
12 x 4	0.42	0.34	0.00	16.50	184
12 x 6	0.42	0.36	1.50	18.50	186
12 x 8	0.42	0.38	1.50	18.50	188
12 x 10	0.42	0.40	3.00	20.00	250
12 x 12	0.42	0.42	4.50	22.50	272
14 x 14	0.47	0.47	6.00	25.00	474
16 x 6	0.50	0.36	0.00	21.00	300
16 x 8	0.50	0.38	0.50	22.50	349
16 x 12	0.50	0.42	3.50	25.00	453
16 x 16	0.50	0.50	6.50	28.00	575



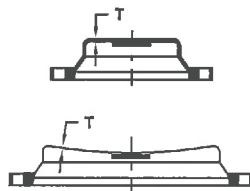
★ MJ x PE x MJ TEES

NOM. SIZE	T	H	J	Z	WT (LBS.)
6 x 6	0.36	5.00	5.00	12.00	57
8 x 6	0.38	5.50	6.50	11.50	69
8 x 8	0.38	6.50	6.50	12.50	77
10 x 10	0.40	7.50	7.50	13.00	120

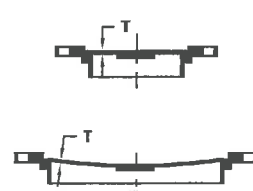


★ MJ x PE CUTTING IN SLEEVE W/ OVER SIZE GLAND

NOM. SIZE	ID	T	T1	A	L	L1	WT (LBS.)
4	5.10	0.36	0.34	4.80	20.00	9.00	50
6	7.20	0.38	0.36	6.90	20.00	9.00	62
8	9.40	0.40	0.38	9.05	20.00	9.00	90
10	11.50	0.42	0.40	11.10	20.00	9.00	105
12	13.60	0.47	0.42	13.20	20.00	9.00	128
16	17.90	0.54	0.50	17.40	20.00	9.00	275



30"-48"
CAPS



30"-48"
PLUGS

MJ CAPS & PLUGS (SOLID OR TAPPED)

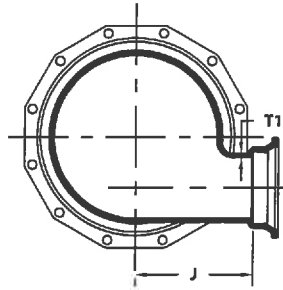
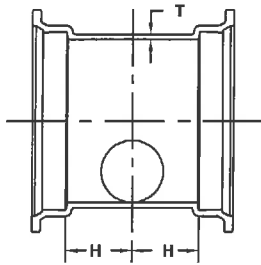
NOM. SIZE	T	MAX. TAP	WT (LBS.)	
			PLUGS	CAPS
3	0.48	2	9	8
4	0.34	2	12	9
6	0.42	2	21	15
8	0.44	2	32	22
10	0.46	2	40	32
12	0.48	2	54	42
14	0.55	2 ½	77	86
16	0.56	2 ½	101	94
18	0.60	3	126	116
20	0.66	3	139	129
24	0.68	3	181	171
30	0.82	4	434	395
36	1.00	4	688	628
42	1.00	4	1200	893
48	1.00	4	1550	1076

Threads in Accordance with ANSI/ASME B1.20.1



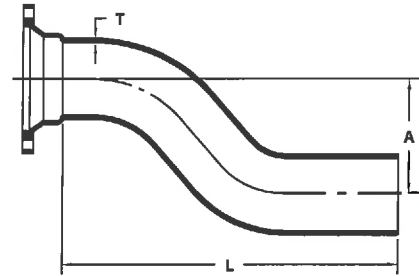
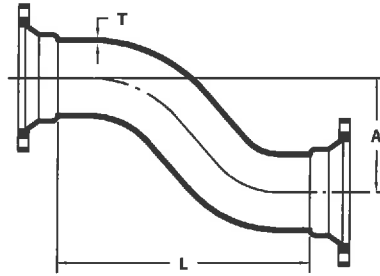
Compact MJ Fittings

ANSI/AWWA C153/A21.53



★ MJ x MJ TANGENTIAL TEES

NOM. SIZE	T	T1	H	J	WT (LBS.)
16 X 6	0.50	0.38	6.50	11.50	225
16 X 12	0.50	0.42	9.50	11.50	300
18 X 6	0.54	0.36	6.50	12.50	285
24 X 6	0.61	0.36	7.00	16.00	455
24 X 12	0.61	0.42	10.00	16.00	540

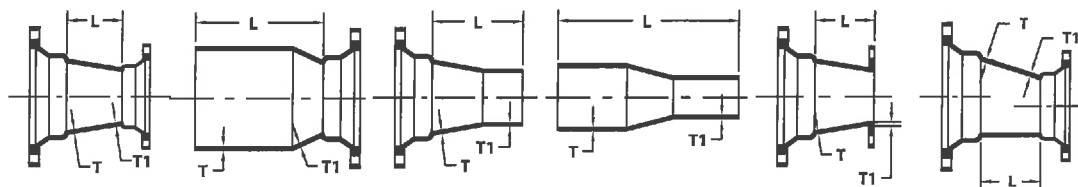


★ MJ OFFSETS			MJ x MJ		MJ x PE	
NOM. SIZE	T	A	L	WT (LBS.)	L	WT (LBS.)
3 X 6	0.33	6.00	9.00	20	---	---
4 X 6	0.34	6.00	10.00	25	15.50	25
4 X 12	0.34	12.00	18.00	55	23.50	46
4 X 18	0.34	18.00	22.00	65	27.50	59
4 X 24	0.34	24.00	28.00	75	33.50	65
6 X 6	0.36	6.00	12.00	29	17.50	51
6 X 12	0.36	12.00	18.00	69	23.50	68
6 X 18	0.36	18.00	24.00	87	29.50	96
6 X 24	0.36	24.00	30.00	107	35.50	117
8 X 6	0.38	6.00	13.00	80	18.50	78
8 X 12	0.38	12.00	19.00	105	24.50	110
8 X 18	0.38	18.00	25.00	135	30.50	124
8 X 24	0.38	24.00	30.00	141	35.50	189
10 X 6	0.40	6.00	15.00	110	20.50	130
10 X 12	0.40	12.00	21.00	135	26.50	172
10 X 18	0.40	18.00	27.00	183	32.50	189
10 X 24	0.40	24.00	33.00	175	38.50	237
12 X 6	0.42	6.00	17.00	118	22.50	115
12 X 12	0.42	12.00	23.00	203	28.50	198
12 X 18	0.42	18.00	27.00	190	32.50	270
12 X 24	0.42	24.00	35.00	277	40.50	334
16 X 12	0.50	12.00	26.00	206	---	---
16 X 18	0.50	18.00	36.00	250	---	---



Compact MJ Fittings

ANSI/AWWA C153/A21.53



REDUCERS			MJ x MJ		SEB		LEB		PE x PE		MJ x FE		★ ECCENTRIC	
NOM. SIZE	T	T1	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)
4 x 3	0.34	0.33	3.00	18	8.50	17	8.50	18	14.00	14	5.00	19.00	---	---
6 x 3	0.36	0.33	5.00	22	10.62	24	10.50	19	16.00	19	---	---	---	---
6 x 4	0.36	0.34	4.00	24	9.50	23	9.50	23	15.00	22	5.00	30.00	---	---
8 x 4	0.38	0.34	5.00	32	10.50	30	10.50	34	16.00	30	---	---	---	---
8 x 6	0.38	0.36	4.00	36	9.50	35	9.50	32	15.00	33	6.00	41.00	---	---
10 x 4	0.40	0.34	7.00	46	12.50	44	12.50	43	---	---	---	---	---	---
10 x 6	0.40	0.36	5.00	47	10.50	46	10.50	46	16.00	46	---	---	---	---
10 x 8	0.40	0.38	4.00	50	9.50	49	9.50	50	15.00	47	---	---	---	---
12 x 4	0.42	0.34	9.00	58	14.50	60	14.50	57	20.00	58	---	---	---	---
12 x 6	0.42	0.36	7.00	60	12.50	53	12.50	57	18.00	57	---	---	---	---
12 x 8	0.42	0.38	5.00	60	10.50	61	10.50	59	16.00	54	7.00	82	---	---
12 x 10	0.42	0.40	4.00	64	9.50	53	9.50	58	15.00	54	---	---	---	---
14 x 6	0.47	0.36	9.00	110	16.90	100	14.50	105	---	---	---	---	---	---
14 x 8	0.47	0.38	7.00	122	14.90	99	12.40	98	---	---	---	---	---	---
14 x 10	0.47	0.40	5.00	120	12.90	96	10.40	92	---	---	---	---	---	---
14 x 12	0.47	0.42	4.00	132	11.90	90	9.40	92	17.30	88	---	---	---	---
16 x 6	0.50	0.36	11.00	148	21.00	125	16.50	144	24.30	93	---	---	---	---
16 x 8	0.50	0.38	9.00	155	18.00	124	14.50	136	22.30	119	---	---	---	---
16 x 10	0.50	0.40	7.00	160	15.00	124	12.50	125	20.50	119	---	---	---	---
16 x 12	0.50	0.42	5.00	161	12.90	122	10.50	116	18.30	99	---	---	---	---
16 x 14	0.50	0.47	4.00	173	12.00	133	12.00	135	19.70	129	---	---	---	---
18 x 8	0.54	0.38	13.00	201	20.00	170	19.50	195	---	---	16.00	190	---	---
18 x 10	0.54	0.40	10.00	196	18.00	165	17.40	185	25.50	160	---	---	---	---
18 x 12	0.54	0.42	7.00	180	15.50	150	14.00	150	19.50	150	12.00	198	---	---
18 x 14	0.54	0.47	6.00	200	15.00	175	15.00	200	---	---	---	---	---	---
18 x 16	0.54	0.50	5.00	196	12.50	170	12.50	192	---	---	---	---	---	---
★ 20 x 8	0.57	0.38	16.00	227	---	---	---	---	---	---	---	---	---	---
20 x 10	0.57	0.40	16.00	220	22.12	200	19.00	210	---	---	---	---	---	---
20 x 12	0.57	0.42	12.00	227	17.50	170	16.00	205	---	---	---	---	---	---
20 x 14	0.57	0.47	10.00	200	18.00	190	17.90	205	---	---	---	---	---	---
20 x 16	0.57	0.50	7.00	231	13.50	185	13.50	200	---	---	---	---	---	---
20 x 18	0.57	0.54	4.00	225	12.00	200	12.00	215	---	---	---	---	8.00	235
★ 24 x 8	0.61	0.38	20.00	263	---	---	---	---	---	---	---	---	---	---
24 x 12	0.61	0.42	16.00	263	21.50	275	21.00	290	---	---	18.00	318	---	---
24 x 14	0.61	0.47	14.00	310	22.00	310	21.90	315	---	---	---	---	---	---
24 x 16	0.61	0.50	13.00	279	21.00	285	17.50	285	---	---	---	---	---	---
24 x 18	0.61	0.54	10.00	284	18.00	300	18.00	310	---	---	---	---	---	---
24 x 20	0.61	0.57	7.00	328	15.00	276	13.50	275	---	---	---	---	---	---
★ 30 x 12	0.66	0.42	30.00	763	---	---	---	---	---	---	---	---	---	---
30 x 16	0.66	0.50	30.00	633	39.00	565	39.00	623	48.00	690	---	---	---	---
30 x 18	0.66	0.54	28.00	658	37.00	654	37.00	635	---	---	---	---	---	---
30 x 20	0.66	0.57	24.00	628	33.00	590	33.00	603	---	---	---	---	---	---
30 x 24	0.66	0.61	10.00	478	24.50	536	24.50	526	---	---	---	---	---	---
★ 36 x 12	0.74	0.42	36.00	1135	---	---	---	---	---	---	---	---	---	---

(Con't)★



★Not Included in AWWA C153

REV.07
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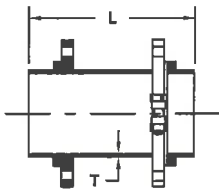
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Compact MJ Fittings

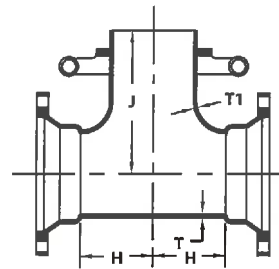
ANSI/AWWA C153/A21.53

REDUCERS* (Con't)			MJ x MJ		SEB		LEB		PE x PE		MJ x FE		★ ECCENTRIC	
NOM. SIZE	T	T1	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)
★ 36 x 16	0.74	0.50	40.00	1078	27.00	700	---	---	---	---	---	---	---	---
★ 36 x 18	0.74	0.54	38.00	1329	37.00	800	---	---	---	---	---	---	---	---
★ 36 x 20	0.74	0.57	36.00	1165	45.00	850	45.00	950	---	---	---	---	---	---
36 x 24	0.74	0.61	19.00	822	33.12	746	33.00	810	---	---	---	---	19.00	820
36 x 30	0.74	0.66	15.50	650	24.62	788	24.50	758	---	---	---	---	15.50	650
42 x 24	0.82	0.61	40.00	1356	49.00	1204	49.00	1320	---	---	---	---	---	---
42 x 30	0.82	0.66	20.00	1083	29.12	1150	29.00	1015	---	---	---	---	---	---
42 x 36	0.82	0.74	15.50	1114	24.62	962	24.50	1013	---	---	---	---	15.50	1114
★ 48 x 24	0.90	0.61	40.00	1700	---	---	---	---	---	---	---	---	---	---
48 x 30	0.90	0.66	40.00	1779	49.00	1594	49.00	1711	---	---	---	---	40.00	1960
48 x 36	0.90	0.74	28.00	1641	37.00	1456	37.00	1540	---	---	---	---	---	---
48 x 42	0.90	0.82	15.50	1426	24.50	1241	24.50	1275	---	---	---	---	---	---
★ 54 X 36 60 X 48	{ Dimensions Available On Request }													



★ SWIVEL x SOLID HYDRANT ADAPTERS W/ SWIVEL GLAND

NOM. SIZE	T	L	WT (LBS.)
4 x 13	0.34	13.00	29
6 x 13	0.36	11.50	47
6 x 18	0.36	18.00	56
6 x 24	0.36	24.00	60
6 x 36	0.36	36.00	75
6 x 48	0.36	48.00	94
8 x 13	0.38	13.00	54
8 x 18	0.38	18.00	67
8 x 24	0.38	24.00	82
8 x 48	0.38	48.00	143
12 x 13	0.42	13.00	120



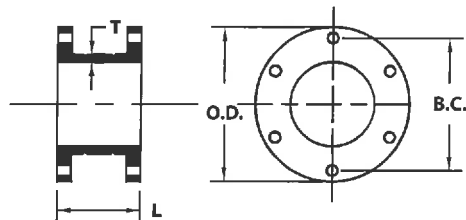
★ MJ x SWIVEL HYDRANT TEES W/ SWIVEL GLAND

NOM. SIZE	T	T1	H	J	WT (LBS.)
6 x 6	0.36	0.36	5.00	10.25	65
8 x 6	0.38	0.36	5.00	11.25	85
8 x 8	0.38	0.38	6.50	11.50	100
10 x 6	0.40	0.36	5.00	12.75	105
10 x 8	0.40	0.38	6.50	12.75	118
12 x 6	0.42	0.36	5.00	13.75	126
12 x 8	0.42	0.38	6.50	13.75	128
14 x 6	0.47	0.36	6.50	15.00	211
16 x 6	0.50	0.36	6.50	16.00	279
18 x 6	0.54	0.36	6.50	18.00	278
20 x 6	0.57	0.36	6.50	18.50	358
24 x 6	0.61	0.36	7.00	19.00	460



Compact MJ Fittings

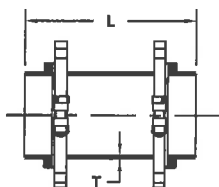
ANSI/AWWA C153/A21.53



Material: Cast Grey Iron per ASTM A 48
Extensions include two (2) break-away grooves

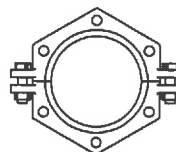
★ HYDRANT EXTENSIONS (STANDARD 6 HOLE)

NOM. SIZE	T	DIMENSIONS			FLANGE HOLE DIA.	WT (LBS.)
		L	B.C.	O.D.		
6 x 6	0.56	6.00	9.50	11.12	0.75	50
6 x 12	0.56	12.00	9.50	11.12	0.75	73



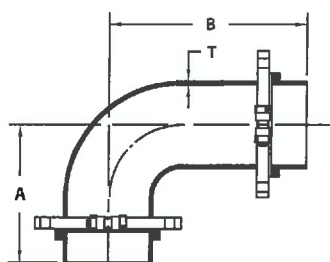
★ SWIVEL x SWIVEL HYDRANT ADAPTERS W/ 2 SWIVEL GLANDS

NOM. SIZE	T	L	WT (LBS.)
6 x 12	0.36	12.00	28
6 x 18	0.36	18.00	49
6 x 24	0.36	24.00	52



★ SWIVEL GLANDS

NOM. SIZE	WT (LBS.)
4	8
6	12
8	10
12	24



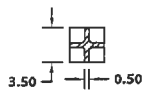
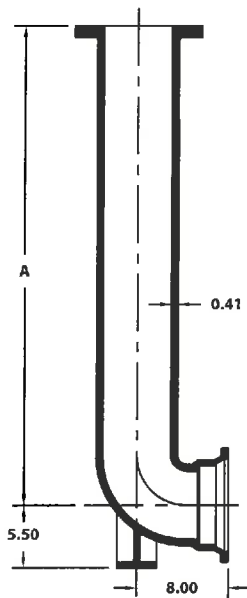
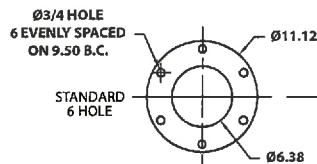
★ SWIVEL x SWIVEL HYDRANT ELL W/ 2 SWIVEL GLANDS

NOM. SIZE	T	A	B	WT (LBS.)
6	0.36	10.50	16.00	50

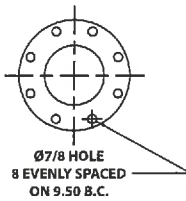


Compact MJ Fittings

ANSI/AWWA C153/A21.53



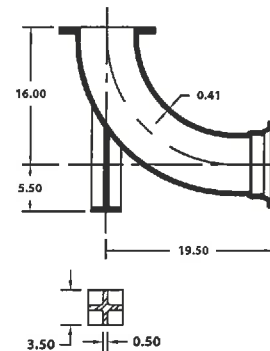
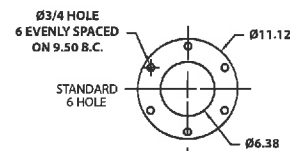
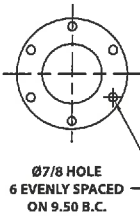
NO. 1
STANDARD
8 HOLE



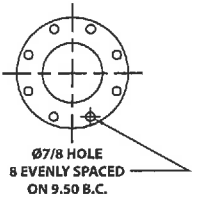
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SPECIAL



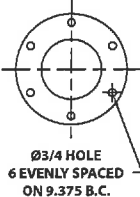
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SPECIAL



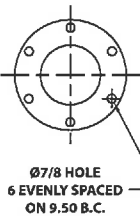
NO. 1
STANDARD
8 HOLE



NO. 2
SPECIAL



NO. 3
SPECIAL



★ MJ HYDRANT BURY

NOM. SIZE	A	WT (LBS.)
6 x 22	22.00	85
6 x 24	24.00	90
6 x 30	30.00	103
6 x 36	36.00	117
6 x 42	42.00	130
6 x 48	48.00	146
6 x 54	54.00	160

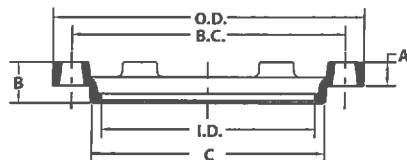
★ MJ LONG RADIUS HYDRANT BURY

NOM. SIZE	RADIUS	WT (LBS.)
6	15.00	84

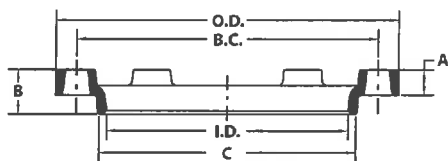


Compact MJ Fittings

ANSI/AWWA C153/A21.53



★ MJ GLANDS									
NOM. SIZE	O.D.	A	B	C	I.D.	B.C.	BOLT HOLE	BOLT QTY	WT (LBS.)
2	6.12	0.62	1.12	3.40	2.61	4.75	Ø0.75	2	1
3	7.69	0.62	1.37	4.84	4.06	6.19	Ø0.75	4	2
4	9.12	0.75	1.50	5.92	4.90	7.50	Ø0.88	4	3
6	11.12	0.88	1.63	8.02	7.00	9.50	Ø0.88	6	5
8	13.37	1.00	1.75	10.17	9.15	11.75	Ø0.88	6	6
10	15.62	1.00	1.75	12.22	11.20	14.00	Ø0.88	8	8
12	17.88	1.00	1.75	14.32	13.30	16.25	Ø0.88	8	9
14	20.25	1.25	2.00	16.40	15.44	18.75	Ø0.88	10	13
16	22.50	1.31	2.06	18.50	17.54	21.00	Ø0.88	12	17
18	24.83	1.38	2.13	20.60	19.64	23.25	Ø0.88	12	30
20	27.08	1.44	2.19	22.70	21.74	25.50	Ø0.88	14	35
24	31.58	1.56	2.31	26.90	25.94	30.00	Ø0.88	16	50
30	39.12	2.00	2.75	33.29	32.17	36.88	Ø1.13	20	85
36	46.00	2.00	2.75	39.59	38.47	43.75	Ø1.13	24	115
42	53.12	2.00	2.75	45.79	44.67	50.62	Ø1.38	28	143
48	60.00	2.00	2.75	52.09	50.97	57.50	Ø1.38	32	237
54 60 64	{ Dimensions Available On Request }								

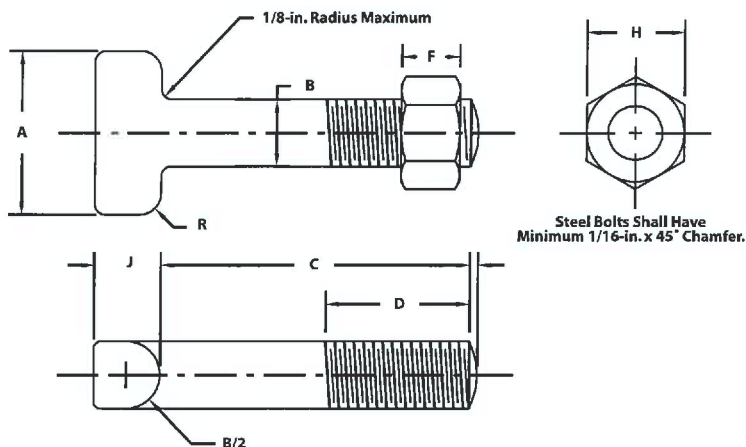


★ MJ OVERSIZE GLANDS									
NOM. SIZE	O.D.	A	B	C	I.D.	B.C.	BOLT HOLE	BOLT QTY	WT (LBS.)
4	9.12	0.75	1.50	5.92	5.10	7.50	Ø0.88	4	3
6	11.12	0.88	1.63	8.02	7.20	9.50	Ø0.88	6	5
8	13.37	1.00	1.75	10.17	9.40	11.75	Ø0.88	6	6
10	15.62	1.00	1.75	12.22	11.50	14.00	Ø0.88	8	8
12	17.88	1.00	1.75	14.32	13.60	16.25	Ø0.88	8	9
16	22.50	1.31	2.06	18.50	17.90	21.00	Ø0.88	12	17



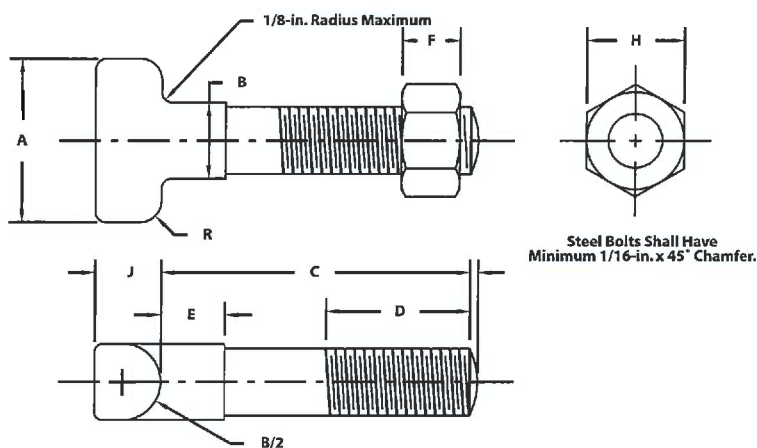
Compact MJ Fittings

ANSI/AWWA C153/A21.53



★ T-HEAD (LOW ALLOY STEEL) BOLT & NUTS

NOM. SIZE	A	B	C	D	THREADS PER IN.	F	H	J	R
5/8 x 3	1.50	0.625	3.00	2.00	11	0.625	1.062	0.625	0.312
5/8 x 3 1/2	1.50	0.625	3.50	2.70	11	0.625	1.062	0.625	0.312
3/4 x 3 1/2	1.75	0.750	3.50	2.50	10	0.750	1.250	0.750	0.375
3/4 x 4	1.75	0.750	4.00	3.00	10	0.750	1.250	0.750	0.375
3/4 x 4 1/2	1.75	0.750	4.50	3.00	10	0.750	1.250	0.750	0.375
3/4 x 5	1.75	0.750	5.00	3.00	10	0.750	1.250	0.750	0.375
3/4 x 5 1/2	1.75	0.750	5.50	3.70	10	0.750	1.250	0.750	0.375
1 x 6	2.25	1.000	6.00	3.00	8	1.000	1.625	1.000	0.500
1 1/4 x 6 1/2	2.50	1.250	6.50	3.50	7	1.250	2.000	1.250	0.625



★ ANTI-ROTATION T-HEAD (LOW ALLOY STEEL) BOLT & NUTS

NOM. SIZE	A	B	C	D	E	THREADS PER IN.	F	H	J	R
5/8 x 3	1.50	0.625	3.00	2.00	0.63	11	0.625	1.062	0.625	0.312
3/4 x 3 1/2	1.75	0.750	3.50	2.50	0.63	10	0.750	1.250	0.750	0.375
3/4 x 4	1.75	0.750	4.00	3.00	0.63	10	0.750	1.250	0.750	0.375
3/4 x 4 1/2	1.75	0.750	4.50	3.00	0.63	10	0.750	1.250	0.750	0.375
3/4 x 5	1.75	0.750	5.00	3.00	0.63	10	0.750	1.250	0.750	0.375

REV.07

® REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

★Not Included in AWWA C153

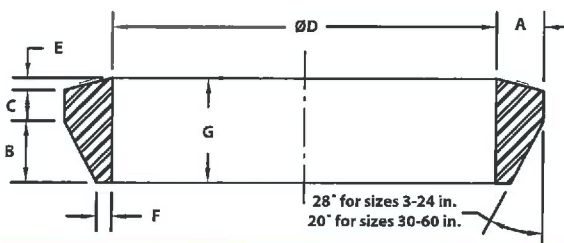
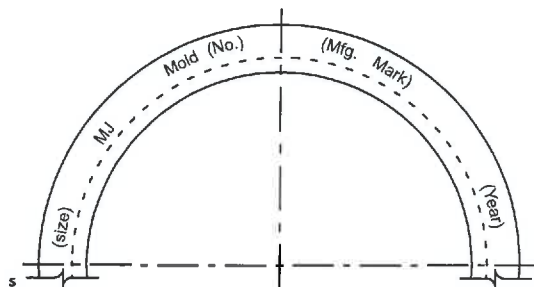
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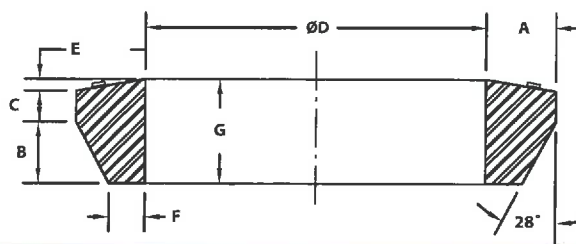
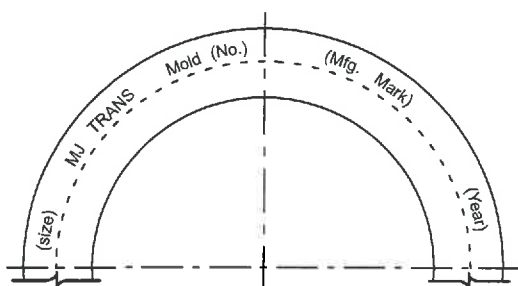
Compact MJ Fittings

ANSI/AWWA C153/A21.53



MECHANICAL-JOINT GASKET

NOM. SIZE	PIPE O.D.	A	B	C	ØD ±1 %	E	F	G
2	2.50	0.48	0.62	0.31	2.48	0.12	0.15	1.05
3	3.96	0.48	0.62	0.31	3.86	0.12	0.15	1.05
4	4.80	0.62	0.75	0.31	4.68	0.16	0.22	1.22
6	6.90	0.62	0.75	0.31	6.73	0.16	0.22	1.22
8	9.05	0.62	0.75	0.31	8.85	0.16	0.22	1.22
10	11.10	0.62	0.75	0.31	10.87	0.16	0.22	1.22
12	13.20	0.62	0.75	0.31	12.95	0.16	0.22	1.22
14	15.30	0.62	0.75	0.31	14.99	0.16	0.22	1.22
16	17.40	0.62	0.75	0.31	17.07	0.16	0.22	1.22
18	19.50	0.62	0.75	0.31	19.13	0.16	0.22	1.22
20	21.60	0.62	0.75	0.31	21.20	0.16	0.22	1.22
24	25.80	0.62	0.75	0.31	25.34	0.16	0.22	1.22
30	32.00	0.73	1.00	0.38	31.47	0.16	0.37	1.54
36	38.30	0.73	1.00	0.38	37.67	0.16	0.37	1.54
42	44.50	0.73	1.00	0.38	43.78	0.16	0.37	1.54
48	50.80	0.73	1.00	0.38	49.98	0.16	0.37	1.54
54 60 64	{ Dimensions Available On Request }							



★ TRANSITION MECHANICAL-JOINT GASKET

NOM. SIZE	PIPE O.D.	A	B	C (REF.)	ØD ±1 %	E	F	G
2	2.375	0.56	0.66	0.31	2.32	0.12	0.21	1.10
3	3.500	0.72	0.64	0.34	3.43	0.12	0.38	1.10
4	4.500	0.76	0.73	0.33	4.43	0.20	0.37	1.26
6	6.625	0.75	0.73	0.32	6.53	0.20	0.36	1.25
8	8.625	0.82	0.73	0.34	8.50	0.20	0.43	1.27
10	10.750	0.79	0.75	0.31	10.59	0.20	0.39	1.26
12	12.750	0.84	0.75	0.33	12.56	0.20	0.44	1.28



★Not Included in AWWA C153

REV.07
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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**Stargrip® series 3000**

Mechanical Joint Wedge Action Restraint
for Ductile Iron Pipe
Patent #5,772,252



Stargrip® series 3000 for Ductile Iron Pipe

INFORMATION

The Stargrip® Mechanical Joint Restraint System is a unique product with a proven design that provides an exceptional restraining system for mechanical joint fittings (AWWA C153 or C110), valves, fire hydrants and all classes of ductile iron pipe.

More Adaptable for Field Use**FEATURES & ADVANTAGES**

- Gland is made from high strength Ductile Iron per ASTM A536, Grade 65-45-12 and is compatible with all Mechanical Joints conforming to ANSI/AWWA C111/A21.11.
- The Wedge Assembly is designed with a Break-Off Torque Control Nut that will only break off in one direction, ensuring proper installation.
- The Stargrip® offers a full 5° deflection through 12" size, 3° on 14"-24", 2° on 30"-36" and 1° on 42"-48".
- Minimum safety factor of 2:1.
- Stargrip® sizes 3"-36" are listed with Underwriters Laboratories Inc. and sizes 3"-12" are approved by Factory Mutual Research.
- The Wedges are heat treated to a minimum of 370 BHN.
- The Wedge Assembly is designed to fit specific pipe sizes and is field repairable.
- No special tools are required for installation of the Stargrip®.
- Stargrip® eliminates tie rods and thrust blocks.
- Standard gland color is Graphite Black (RAL 9011).

SAMPLE SPECIFICATIONS

Restrainer mechanism shall be integrated into the design of the follower gland. As the mechanism is activated, multiple wedging action shall be imparted against the pipe increasing its resistance as internal pressure increases. After burial of the restraining mechanism, joint flexibility shall be maintained.

The actuating bolt shall be threaded into the restraining wedge and have a 1-1/4" hex operating nut. The operating nut shall be threaded onto the actuating bolt, not swaged or riveted. The restraining twist off nut bolt system shall have a torque-limiting feature designed to break off at preset torque levels, thus insuring proper action of restraining device. Glands shall be manufactured of high strength ductile iron in accordance with ASTM A536 Grade 65-45-12 requirements. The wedge shall be manufactured of high strength ductile iron and be heat treated to a minimum hardness of 370 BHN. Applicable dimensions shall conform to ANSI/AWWA C111/A21.11 and shall be incorporated into the mechanical joint restraint so that the device facilitates use with standard mechanical joint bells.

The mechanical joint restraint mechanism shall have a maximum water working pressure of 350 PSI for sizes 3"-16" and 250 PSI for sizes 18" and above. All sizes shall have a minimum safety factor of 2:1 (i.e. twice the maximum pressure rating of the restraint). The mechanical joint restraint mechanism shall be Underwriters Laboratories listed on size 3" through 36" and Factory Mutual Research Approved on size 3"-12". The restraint mechanism shall be Star® Pipe Products Stargrip® series 3000 or an approved equal.

REV.07



® REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

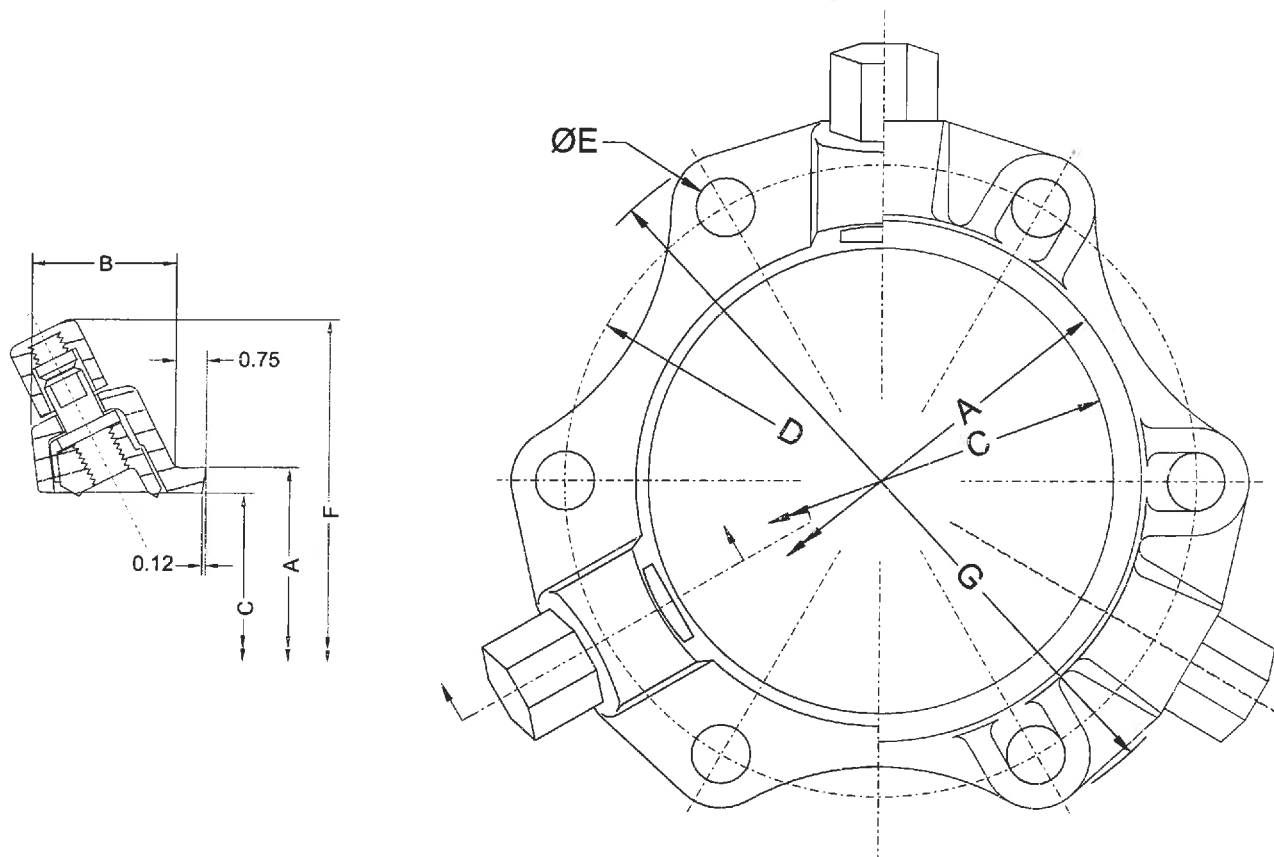
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Stargrip® series 3000

Mechanical Joint Wedge Action Restraint
for Ductile Iron Pipe
Patent #5,772,252

TECHNICAL INFORMATION



STARGRIP® 3000 SPECIFICATIONS*

NOM. SIZE	MAX PRESSURE RATING (PSI)	A	B	C	D	E	F	F W/NUTS TWISTED OFF	G	NO. OF WEDGES	NO. OF T-BOLTS	APPROX WT. (LBS)
3	350	4.84	2.40	4.06	6.19	3/4	9.85	8.45	7.69	2	4	6
4	350	5.92	2.40	4.90	7.50	7/8	11.06	9.28	9.15	2	4	8
6	350	8.02	2.40	7.00	9.50	7/8	13.06	11.38	11.15	3	6	12
8	350	10.17	2.51	9.15	11.75	7/8	15.25	13.53	13.40	4	6	17
10	350	12.22	2.51	11.20	14.00	7/8	17.25	15.58	15.92	6	8	24
12	350	14.32	2.51	13.30	16.25	7/8	19.50	17.68	17.90	8	8	34
14	350	16.40	2.91	15.44	18.75	7/8	21.25	19.82	20.25	10	10	49
16	350	18.50	2.91	17.54	21.00	7/8	23.34	21.92	24.83	12	12	56
18	250	20.60	2.91	19.64	23.25	7/8	26.40	24.84	25.25	12	12	59
20	250	22.70	2.67	21.74	25.50	7/8	28.56	27.00	27.50	14	14	75
24	250	26.90	3.50	25.94	30.00	7/8	33.86	32.30	31.54	16	16	139
30	250	33.29	3.49	32.17	36.88	1-1/8	40.12	38.56	39.12	20	20	199
36	250	39.59	3.49	38.47	43.75	1-1/8	46.42	44.86	46.00	24	24	232
42	250	45.79	5.15	44.75	50.62	1-3/8	54.86	53.32	53.12	28	28	400
48	250	52.09	5.15	51.05	57.50	1-3/8	61.16	59.62	59.42	32	32	488

*All dimensions in inches except where indicated.



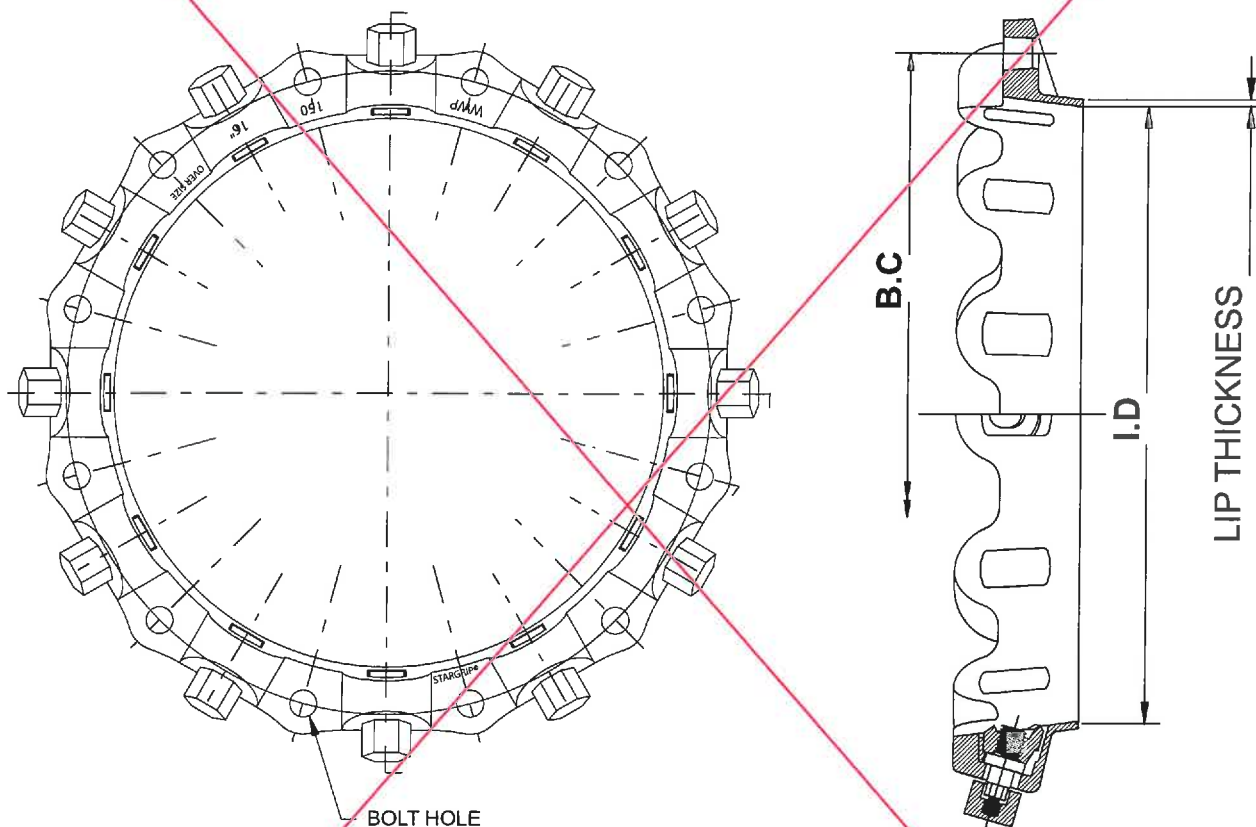
Pipe Restrainers® series 3000OS

Oversized Mechanical Joint Wedge Action Restraint
for Ductile Iron Pipe
Patent #5,772,252

INFORMATION

The oversized Stargrip® series 3000OS has the same features as the series 3000 except the bore (ID) has been increased to accommodate Class A, B, C, & D pit cast pipe.

TECHNICAL INFORMATION



STARGRIP® 3000OS SPECIFICATIONS*

NOM. SIZE	MAX PRESSURE RATING (PSI)	B.C. DIAMETER	BOLT HOLES	NOMINAL GLAND I.D.	LIP THICKNESS	APPROX WT. (LBS)
4	250	7.50	4 x 7/8	5.10	0.32	8
6	250	9.50	6 x 7/8	7.20	0.32	12
8	250	11.75	6 x 7/8	9.40	0.29	16
10	250	14.00	8 x 7/8	11.50	0.27	24
12	250	16.25	8 x 7/8	13.60	0.27	34
14	150	18.75	10 x 7/8	15.75	0.23	49
16	150	21.00	12 x 7/8	17.90	0.21	56

*All dimensions in inches except where indicated.

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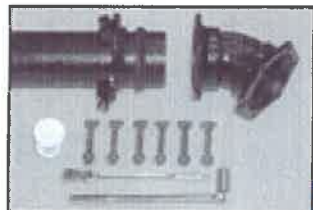
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Stargrip® series 3000 & 3000OS

Mechanical Joint Wedge Action Restraint
for Ductile Iron Pipe
Patent #5,772,252

INSTALLATION INSTRUCTIONS - SIZES 3"- 48"



STEP 1

To ensure the rubber gasket will seal more effectively, clean and remove all loose materials and rust from the mating surfaces. Lubricate the gasket and plain end by brushing either soapy water or pipe lubricant. Slide the Stargrip® on the plain end, followed by the MJ gasket.



STEP 2

After insertion of the pipe into the bell of the fitting, firmly press the gasket into the gasket recess. During this process the joint should be kept straight.



STEP 3

Slide the Stargrip® toward the MJ bell with the gland lip against the gasket. Insert T-bolts and hand tighten nuts.

IMPORTANT: Make deflection after joint is assembled but before tightening T-bolts.



STEP 4

When tightening bolts, it is essential that the gland be brought up toward the bell flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket. All T-bolts should be tightened until they are in within the torque range per ANSI/ AWWA C600 (See Table A). T-Bolts should be tightened alternately on the opposite sides (Star Pattern).



STEP 5

Tighten the torque limiting twist off nuts in a clockwise direction until all wedges are in firm contact with the pipe surface.



STEP 6

Continue tightening in an alternative manner going on the opposite sides [Star Pattern], until all of nuts have been twisted off. Never turn a single nut over 180 degrees without alternating to another nut.

If removal is necessary, utilize the 5/8" hex head provided. [If reassembly is required, assemble the joint in the same manner as above and tighten the wedge bolt to 90 lbs. ft. on sizes 3"-20", 120 lbs. ft. on sizes 24"-36" & 130 lbs. ft. on sizes 42"-48"].

Note: If effective sealing is not attained at the maximum torque indicated, then the joint should be disassembled, thoroughly cleaned, and reassembled. **Overstressing the bolts to compensate for poor installation practice is not acceptable.**

Note: Not to be used on plain end fittings or PVC, HDPE or steel pipe.

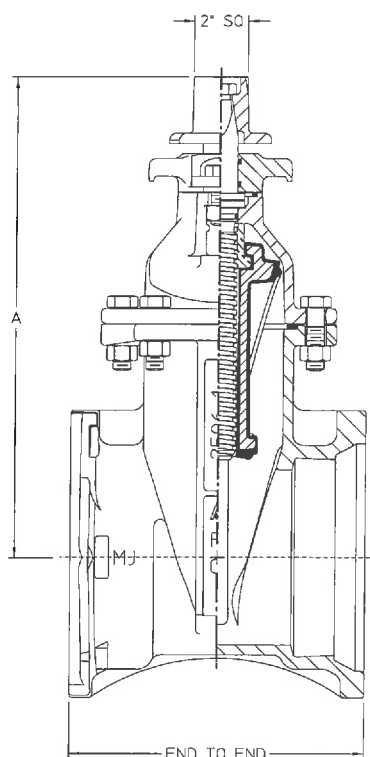
(TABLE A) T-HEAD BOLT & NUT DETAILS

PIPE SIZE (IN)	BOLT SIZE (IN)	RANGE ¹ OF TORQUE (FT/LBS)
3	5/8	45-60
4-24	3/4	75-90
30-36	1	100-120
42-48	1 1/4	120-150

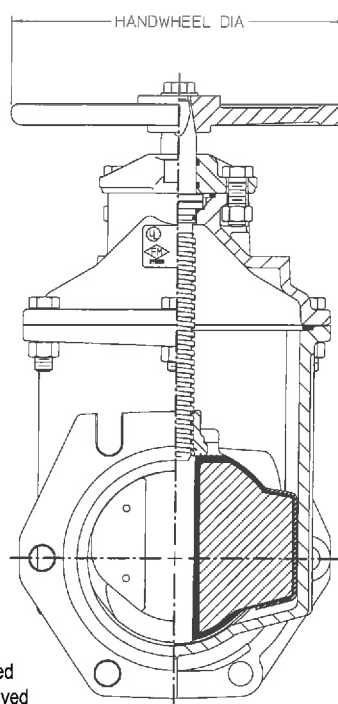
¹These torque ranges are requirements of AWWA C600

AMERICAN Flow Control Submittal Information

4" - 12" SERIES 2500-1 RESILIENT WEDGE GATE VALVE, NRS



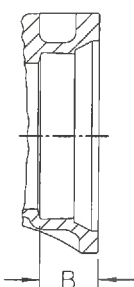
SHOWN WITH 2" OPERATING NUT



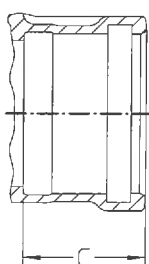
UL Listed
FM Approved
AWWA

SK20041101-1

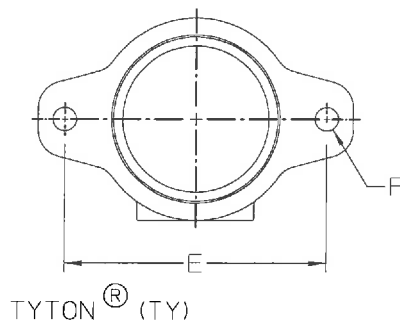
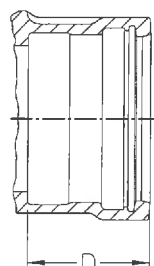
SHOWN WITH OPTIONAL HANDWHEEL



MECHANICAL JOINT (MJ)



PVC
(NOT AVAILABLE FOR UL/FM)



TYTON[®] (TY)

OPTIONAL END CONNECTIONS

DIMENSION	VALVE SIZE				
	4"	6"	8"	10"	12"
End to End - MJ/MJ	10.00	10.50	11.50	12.50	13.50
End to End - FL/FL	9.00	10.50	11.50	13.00	14.00
End to End - TY/TY	13.00	15.88	17.50	18.75	19.75
End to End - FL/MJ	9.50	10.50	12.38	13.62	14.38
End to End - FL/TY	11.00	13.19	14.50	15.88	16.88
End to End - PVC/ PVC	13.00	15.88	17.50	-	-
A	13.91	17.12	20.47	24.06	27.59
B	2.50	2.50	2.50	2.50	2.50
C	4.00	5.22	5.50	-	-
D	4.00	5.22	5.50	5.62	5.62
E	9.00	11.19	13.50	15.88	18.00
F DIA	1.00	1.00	1.00	1.31	1.31
Handwheel Diameter	10.00	12.00	14.00	15.50	15.50
No. of Turns to Open	14	20	26	32	38



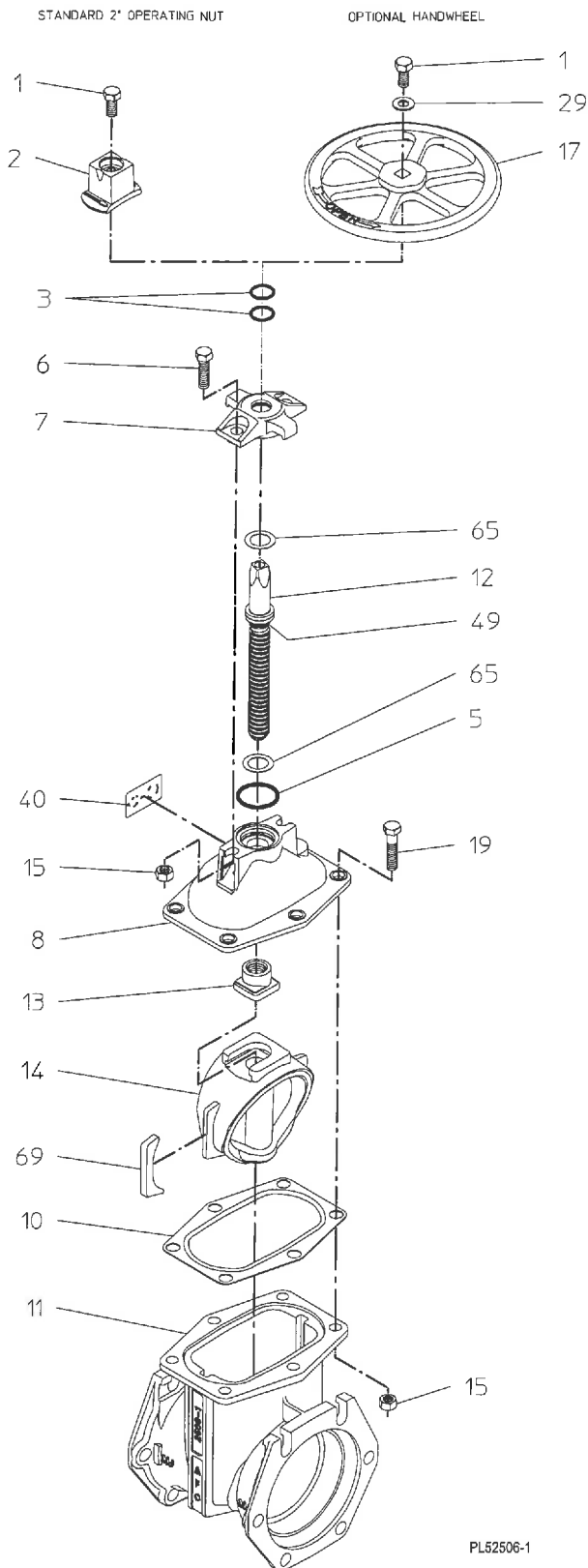
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Construction shown is typical of the 6-inch size with mechanical joint end connections and is illustrative only. Construction of other sizes and end connection types vary slightly. See elsewhere on this submittal for specific details.

REF NO.	DESCRIPTION	MATERIAL
1	Hex Head Bolt, 5/8-11 x 1"	304 Stainless Steel
2	Operating Nut, 2" Square	Ductile Iron, ASTM A536
3	O-Ring	Rubber
5	Stuffing Box Gasket	Rubber O-ring
6	Hex Head Bolt, 5/8-11 x 1-3/4"	304 Stainless Steel
7	Stuffing Box	Ductile Iron, ASTM A536
8	Bonnet	Ductile Iron, ASTM A536
10	Bonnet Gasket	Rubber
11	Body	Ductile Iron, ASTM A536
12	Stem	Manganese Bronze, ASTM B763, UNS C86700
13	Wedge Nut	Manganese Bronze, ASTM B763, UNS C86700
14	Resilient Wedge	EPDM Rubber Encapsulated Ductile Iron ASTM A536
15	Hex Nut, 5/8-11	304 Stainless Steel
17	Handwheel	Ductile Iron, ASTM A536
19	Hex Head Bolt, 5/8-11 x 2-1/4"	304 Stainless Steel
29	Flat Washer, 5/8	304 Stainless Steel
40	UL/FM Label	Pressure Sensitive Acrylic Film
49	O-Ring	Rubber
65	Thrust Washer	304 Stainless Steel
69	Wedge Cover	Acetal Polymer

OPTIONAL MATERIALS ARE AS FOLLOWS

BOLTS and NUTS: 316 Stainless Steel

STEM: Cast NDZ-S Bronze, ASTM B763, UNS C99500

STEM: Stainless Steel

WEDGE NUT: Silicon Bronze, ASTM B584, UNS C87600

Open Direction: ☐ Left (C.C.W.) ☐ Right (C.W.)

NOTES:

1. Available in configurations that are UL Listed and FM Approved with 250 psig rated working pressure.
2. Meets requirements of ANSI/AWWA C515 with 250 psig rated working pressure.
3. Fusion-bonded epoxy-coated in accordance with ANSI/AWWA C550.
4. Certified to ANSI/NSF Standard 61.



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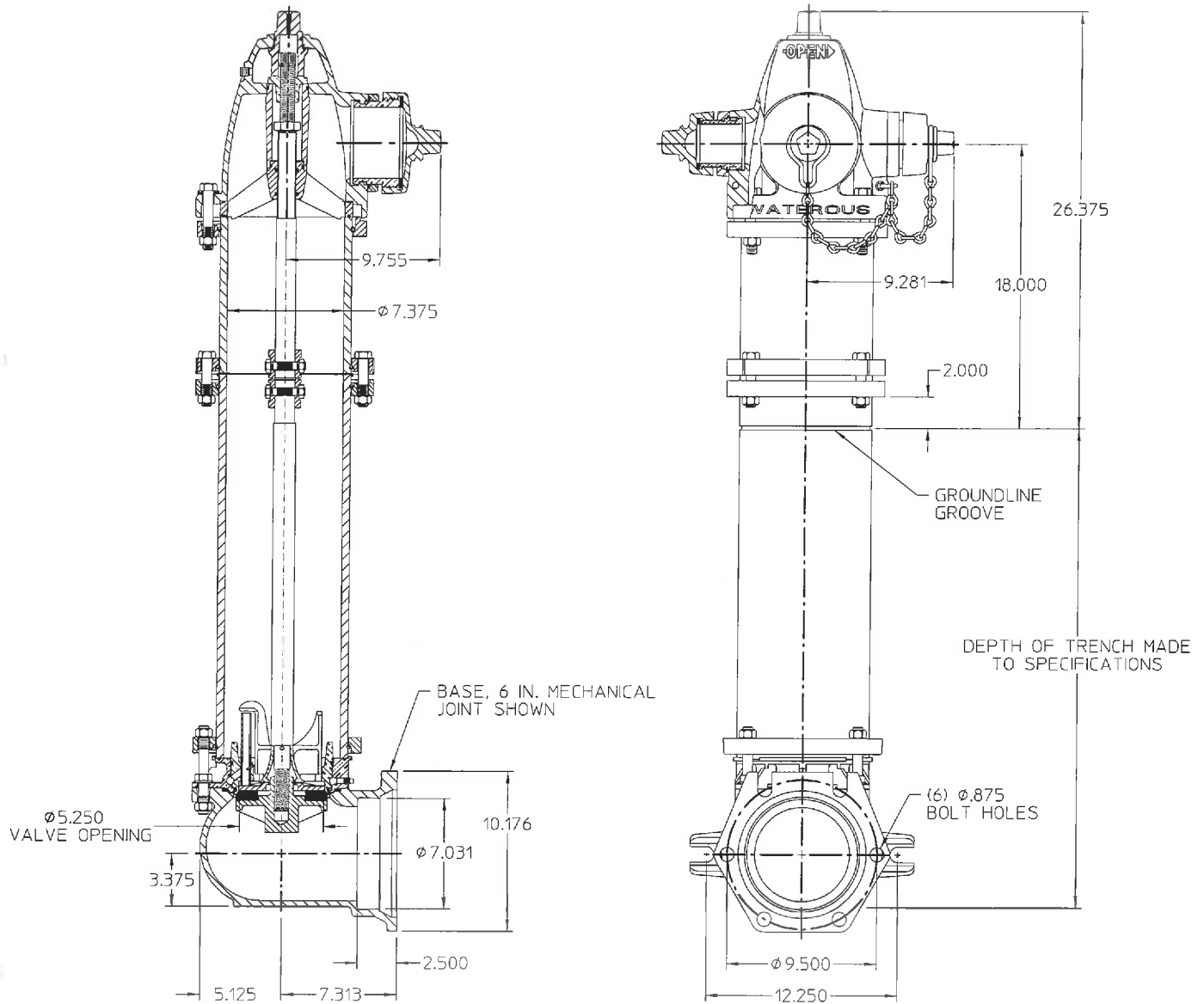
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AMERICAN Flow Control Submittal Information

5-1/4 WATEROUS PACER TRAFFIC MODEL WB67-250 FIRE HYDRANT



IL3576

NOTES:

1. 250 psig rated working pressure.
2. This hydrant meets or exceeds all requirements of AWWA C502.
3. 10 in. upper standpipe (traffic section) is standard. 16 in., 22 in., 28 in. and 34 in. upper standpipes are available by special order. Nozzle elevation will vary accordingly.
4. 5-1/4" valve opening.
5. Hydrants are available with counterclockwise opening direction (open-left) or clockwise opening direction (open-right).
6. Operating nut and nozzle cap wrench nuts are available in various shapes and sizes.



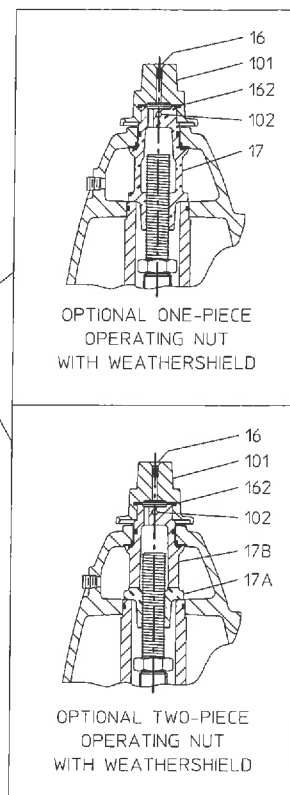
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REF NO.	DESCRIPTION	MATERIAL
3	O-ring (Lower Valve Seat)	Buna-N
6A	Hex Head Bolt, 5/8-11 x 3-3/4"	Zinc Plated Steel, ASTM A307
6B	Hex Head Bolt, 5/8-11 x 3"	Zinc Plated Steel, ASTM A307
6C	Hex Nut, 5/8-11 (Above Ground)	Zinc Plated Steel, ASTM A307
6C	Hex Nut, 5/8-11 (Below Ground)	Stainless Steel, Type 304, ASTM F594
7	Drain Plunger	Red Brass, ASTM B135, UNS C23000
9A,9B	Nozzle Cap Chain, Single or Double	Zinc Plated Steel
10	Nozzle Cap, Hose or Pumper	Ductile Iron, ASTM A536 Grade 65-45-12
11	Cap Gasket, Hose or Pumper	Neoprene
12	Nozzle, Hose	Brass, ASTM B505, UNS C83600
12	Nozzle, Pumper	Bronze, ASTM B584, UNS C87600
16	Flat Head Screw, 1/4-20 x 1/2"	Stainless Steel, Type 304
17	Operating Nut (One-Piece)	Bronze, ASTM B763, UNS C86500 or UNS C86700
17A	Lower Operating Nut	Bronze
17B	Upper Operating Nut	Ductile Iron, ASTM A536 Grade 65-45-12*
25	Rod Bushing	Red Brass, ASTM B135, UNS C23000
29	Lower Standpipe	Centrifugally Cast Ductile Iron Pipe, ANSI A21.51 (AWWA C151)
30	Crossarm	Bronze, ASTM B763, UNS C99500
31	Valve Seat	Bronze, ASTM B584, UNS C87600
34	Upper Valve Washer	Ductile Iron, ASTM A536 Grade 65-45-12
35	Main Valve Rubber	Urethane
36	Lower Valve Washer	Ductile Iron, ASTM A536 Grade 65-45-12 / Epoxy Coated, AWWA C550
37	Hydrant Bottom	Ductile Iron, ASTM A536 Grade 65-45-12 / Epoxy Coated, AWWA C550
40	Upper Standpipe	Centrifugally Cast Ductile Iron Pipe, ANSI A21.51 (AWWA C151)
56	Support Wheel	Ductile Iron, ASTM A536 Grade 65-45-12
57	O-ring (Operating Nut)	Buna-N
59	O-ring (Support Wheel)	Buna-N
60	Nozzle Section	Ductile Iron, ASTM A536 Grade 65-45-12
61	Bury Depth Plate	Aluminum
61	Bury Depth Plate Washer	Zinc Plated Steel
62B	Upper Standpipe Flange	Ductile Iron, ASTM A536 Grade 65-45-12
63	Standpipe Flange	Ductile Iron, ASTM A536 Grade 65-45-12
64	Flange Lock Ring	Stainless Steel, Type 430
67	Coupling Sleeve (two-halves)	Gray Iron, ASTM A48 Class 30B
71	Upper Rod	Steel Rod, ASTM A575
72	Lower Rod	Steel Rod, ASTM A575
77	O-ring (Upper Valve Seat)	Buna-N
81	Groove Pin, 3/32 x 7/16"	Beryllium Copper
82	O-ring (Upper Tube Seal)	Buna-N
83	O-ring (Lower Tube Seal)	Buna-N

REF NO.	DESCRIPTION	MATERIAL
84	Support Wheel / Lower Standpipe Gasket	Buna-N
85	Support Tube	Ductile Iron, ASTM A536 Grade 65-45-12
86	Stop Nut, 1"-8	Zinc Plated Steel
87	Coupling Nut, 1/2-20	Brass
88	Coupling Stud, 1/2-20 x 2-9/16"	Stainless Steel, Type 430
89	Nozzle Section Bushing	Brass
90	Thrust Ring	Polymer Bearing
92	Upper Standpipe Gasket	Neoprene
99	Pipe Plug, 1/4 NPT	Brass
101	Weathershield Nut	Ductile Iron, ASTM A536 Grade 65-45-12
102	Heavy Spirol Pin, 1/4 x 2-1/4"	Stainless Steel, Type 302
113	Breakable Flange	Ductile Iron, ASTM A536 Grade 65-45-12
116	O-ring (Pumper Nozzle)	Buna-N
117	Pumper Nozzle Retainer	Ductile Iron, ASTM A536 Grade 65-45-12
118	O-ring (Hose Nozzle)	Buna-N
119	Hose Nozzle Retainer	Ductile Iron, ASTM A536 Grade 65-45-12
162	Weathershield Nut Gasket	Nitrile
163	Nozzle, Pumper, Storz (with cap and gasket)	Bronze and Aluminum
164	Nozzle Cap, Pumper, Storz	Aluminum
165	Cap Gasket, Pumper, Storz	Buna-N
173	Valve Seat Insert	Bronze, ASTM B584, UNS C87600
174	Valve Seat Insert Gasket	Nitrile
176	Stud, 5/8-11 x 5.650"	Stainless Steel, Type 304, ASTM F593
179	Clevis Pin, 1/4 x 1-11/16"	Stainless Steel, Type 18-8
180	Kickout Ring	Stainless Steel, Type 18-8

*Bronze material optional for some nut sizes.

Open Direction: ☐ Left (C.C.W.) ☐ Right (C.W.)



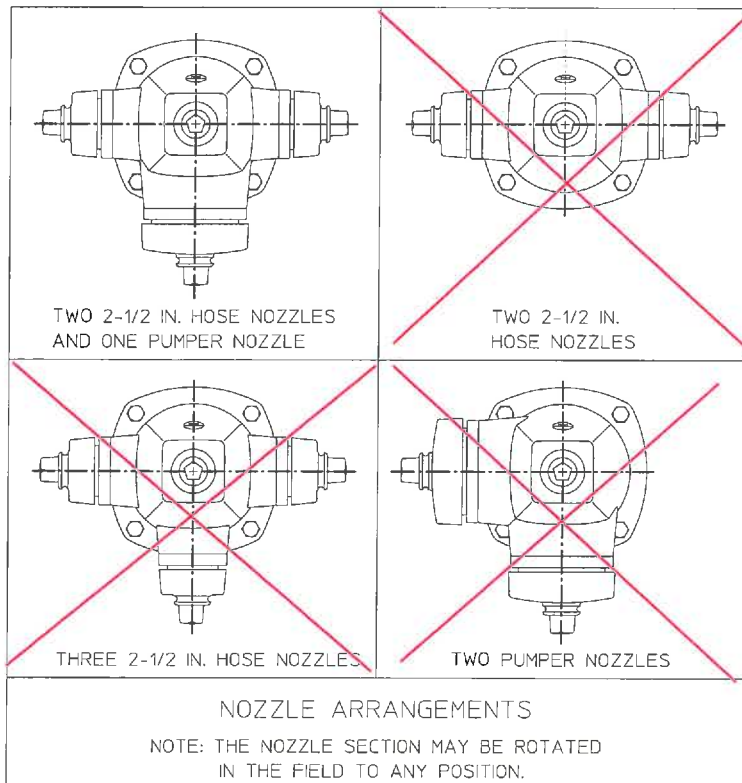
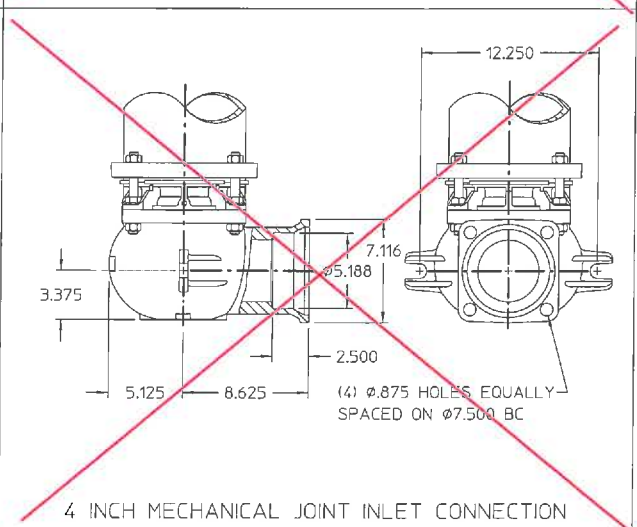
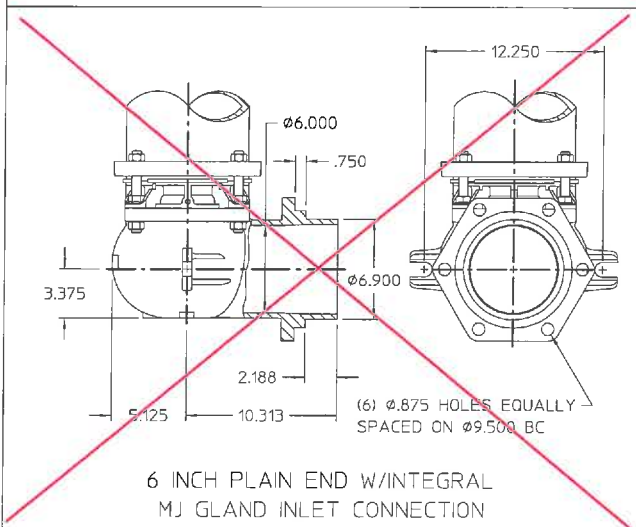
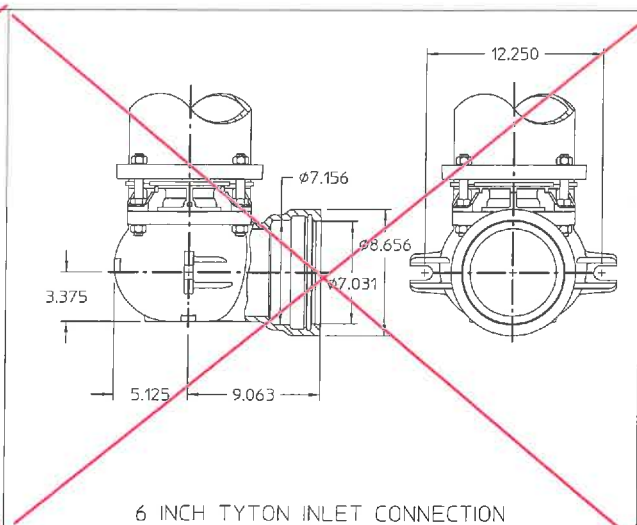
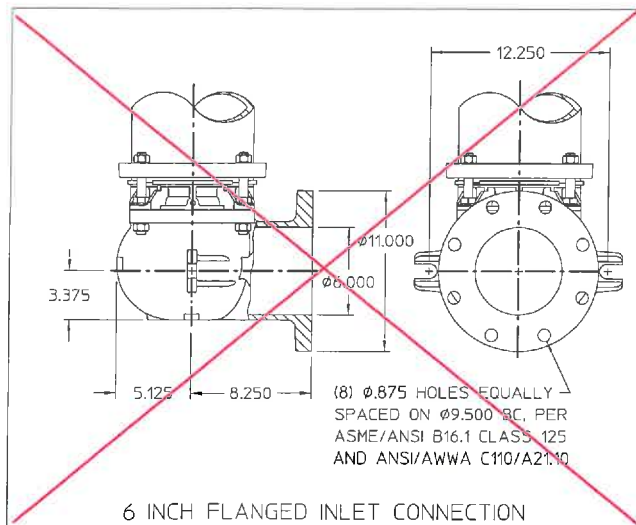
AMERICAN
FLOW CONTROL

THE RIGHT WAY

AMERICAN Flow Control
P.O. Box 2727
Birmingham, AL 35202-2727
Phone: 1-800-326-8051
Fax: 1-800-610-3569
E-mail: afcsales@american-usa.com

Waterous Company
125 Hardman Avenue South
South St. Paul, Mn. 55075-1191
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D-040 250 psi

~~D-040-C~~ 250 psi



Combination Air Valve

Description

The D-040 series Combination Air Valve has the features of both an air release valve and an air & vacuum valve.

The air release component is designed to automatically release small pockets of air to the atmosphere as they accumulate along a pipeline or piping system when it is full and operating under pressure.

The air & vacuum component is designed to automatically discharge or admit large volumes of air during the filling or draining of a pipeline or piping system. This valve will open to relieve negative pressures whenever water column separation occurs.

Applications

- Pump stations: after the pump and after the check valve.
- Downstream (after) and upstream (before) of shut-off valves.
- After deep-well pumps.
- On long constant-sloped pipeline segments.
- At peaks along the pipeline and at peaks relative to hydraulic gradient.
- At end lines.
- Before water meters.
- On strainers and filters.

D-040-C - additional applications

- Water pipelines vulnerable to vandalism and/or water theft.
- Water systems found in remote areas.

Operation

The air & vacuum component, with the large orifice, discharges air at high flow rates during the filling of the system and admits air into the system at high flow rates during its drainage and at water column separation.

High velocity air will not blow the float shut. Water will lift the float, which seals the valve.

At any time during system operation, should internal pressure of the system fall below atmospheric pressure, air will enter the system.

The smooth discharge of air reduces pressure surges and other destructive phenomena.

The intake of air in response to negative pressure protects the system from destructive vacuum conditions and prevents damage caused by water column separation. Air entry is essential to efficiently drain the system. The air release component releases entrapped air in pressurized systems.

Without air valves, pockets of accumulated air may cause the following hydraulic disturbances:

- Restriction of effective flow due to a reduction of the flow area. In extreme cases this will cause complete flow stoppage.
- Obstruction of efficient hydraulic transmission due to air flow disturbances.
- Acceleration of cavitation damages.
- Increase in pressure transients and surges.
- Internal corrosion of pipes, fittings and accessories.
- Dangerous high-energy bursts of compressed air.
- Inaccuracies in flow metering.

As the system fills and is pressurized, the combination air valve functions in the following stages:

1. Air in the pipeline is discharged by the air valve.
2. Liquid enters the air valve, lifting the float which pushes the sealing mechanism to its sealing position.
3. Entrapped air, which accumulates at peaks and along the system, rises to the top of the air valve, which in turn displaces the liquid in the air valve body.
4. The float drops down, unsealing the rolling seal. The air release orifice opens and the accumulated air is released.
5. Liquid enters the air release valve, the float rises pushing the rolling seal to its sealing position.

When internal pressure falls below atmospheric pressure (negative pressure):

1. The float will drop down, immediately opening the air & vacuum and air release orifices.
2. Air will enter into the system

Main Features

- Working pressure range: 3 - 250 psi.
- Testing pressure: 360 psi.
- Maximum working temperature: 140° F.
- Maximum intermittent temperature: 194° F.
- Reliable operation reduces water hammer incidents.
- Dynamic design allows for high capacity air discharge while preventing premature closure.
- Lightweight, small dimensions, simple and reliable structure.
- The discharge outlet enables the connection of a vent/drain pipe.
- The large size of the automatic air release orifice relative to the air valve body:

- Discharges air at high flow rates.
- Lessens the danger of its obstruction by debris.
- Enables the usage of the rolling seal mechanism, making it less sensitive to pressure differential than a direct float seal.
- The body is made of high-strength composite materials and all operating parts are made of specially selected, corrosion-resistant materials.
- Due to its light weight, the valve may be installed on plastic piping systems, as well as other lightweight piping systems.
- D-040-C the body is protected in a metal shell for anti-vandalism/ theft applications.

Valve Selection

- Size range: 1/2", 3/4", 1", 2" threaded male connections, NPT
- Special Order: Optional BSPT connection
- Addition of ball valve tap; NPT male connection.

Options

- The D-040 air valve is available in the following options:
- D-040 1/2", 3/4", 1" & 2" - reinforced nylon body and base.
- D-040 C 3/4", 1" - ductile iron shell and stainless steel base
2" - ductile iron shell and base .
- D-040P SSB 3/4", 1" & 2" - reinforced nylon body and stainless steel base.
- D-040 SS 3/4", 1" & 2" - stainless steel body and stainless steel base.
- D-040 LP 3/4", 1" & 2" - designed for very low pressure systems with a working pressure of 0.725 - 87 psi.
- D-040 L 1/2", 3/4", 1", 2" - designed for systems with small suspended solids requiring a low sealing pressure, reinforced nylon/ PVDF body and base. The working pressure 0.725 - 150 psi

Note

For best suitability, it is recommended to send the fluid chemical properties along with the valve request.
Upon ordering, please specify: model, size, working pressure, thread and flange standard and type of liquid.

ACCESSORIES

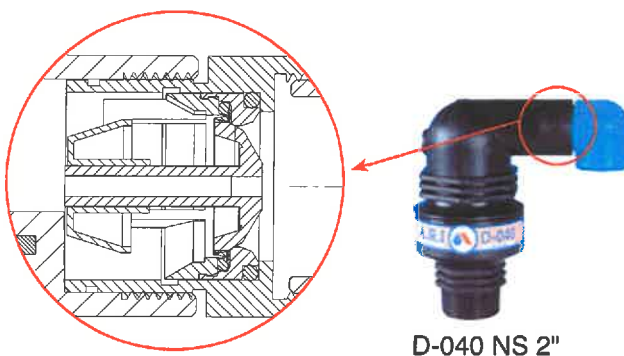
One-way models

D-040 series air valve is available as:

D-040-V -With a one-way, out-only attachment, allows air discharge only, prevents air intake (all models).

D-040-I -With a vacuum breaker, in-only attachment, allows air intake only, not allowing air discharge (D-040 2" only).

D-040-NS -With a non-slam, discharge-throttling attachment, allows full air intake, throttles air discharge (D-040 2" only).



D-040 NS 2"

Screen

Prevents penetration of debris and insects and can be assembled on the valve before or after the Discharge Outlet.

Each strainer has 2 threaded connections 1.5" NPSM/ 2" NPSM.



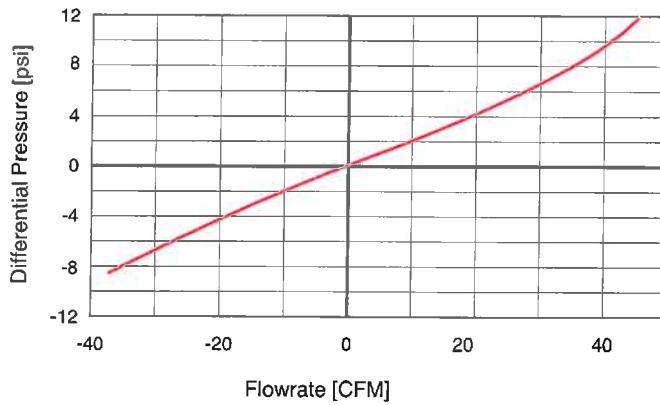
Air Valve Enclosure

A.R.I. air valve enclosure is used to protect air valve, for above surface air valve installations.

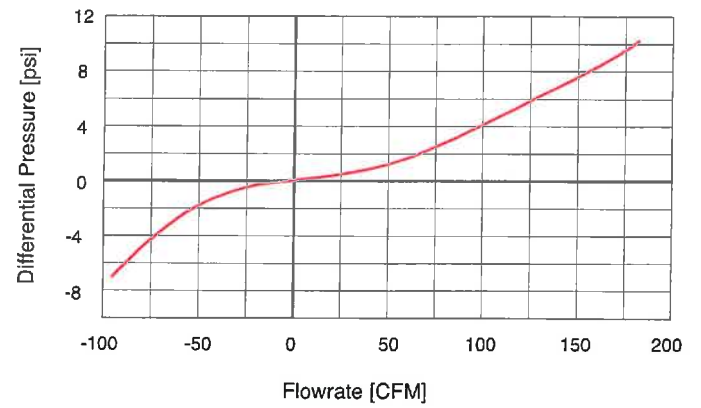
The special enclosure protects and hides the air valves from vandalism and damages.



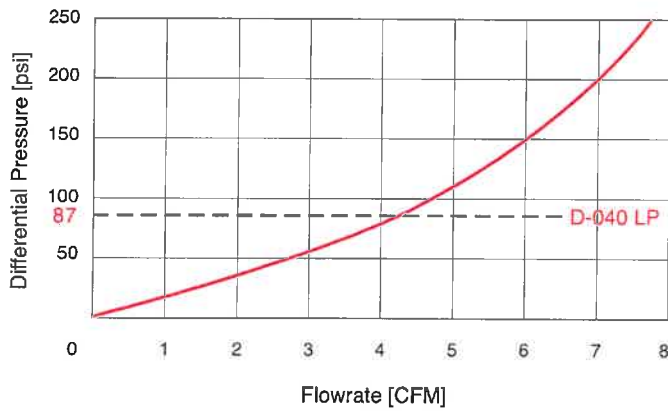
D-040 1/2" 3/4" 1"
AIR & VACUUM FLOWRATE



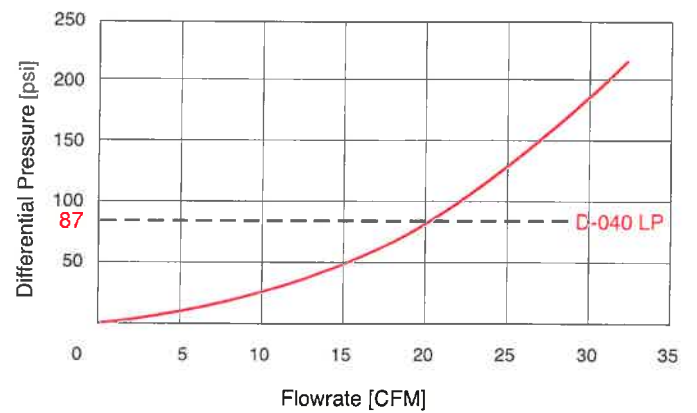
D-040 2"
AIR & VACUUM FLOWRATE



D-040 1/2" 3/4" 1"
AIR RELEASE FLOWRATE



D-040 2"
AIR RELEASE FLOWRATE





D-040 2"



D-040 NT 2"



D-040 ST 2"



D-040 3/4" 1"



D-040 LP 2"



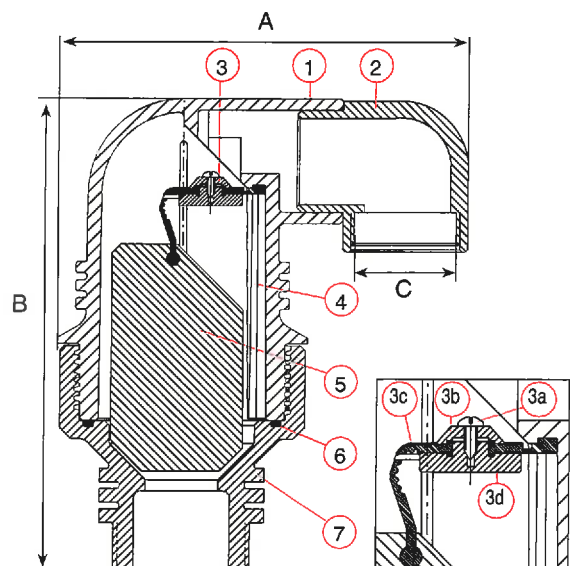
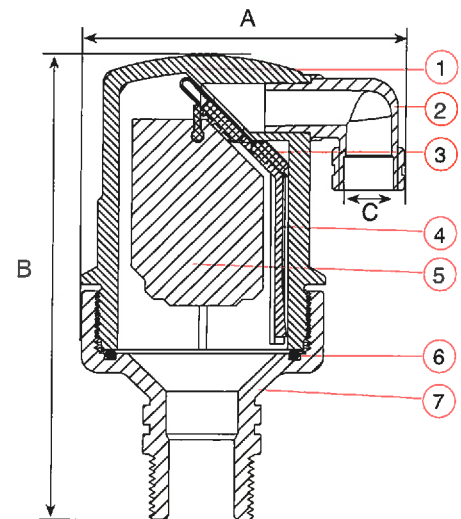
D-040 LP 3/4" 1"

DIMENSIONS AND WEIGHT

Nominal Size	Dimensions inch					Weight Lbs.	Orifice Area Sq.in	
	A	B	internal	C	external		A / V	Air Release
D-040 3/4" 1"	3.9	5.5	3/8 NPT	0.86	0.86	0.73	0.155	0.012
D-040 2"	7	8.2	1 1/2 NPT	2.16	2.16	2.35	1.246	0.018
D-040 NT 2"	5	8.2	1 1/2 NPT	2.16	2.16	2.2	1.246	0.018

PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Body	NSF 61 Certified Reinforced Nylon
2.	Discharge Outlet	NSF 61 Certified Polypropylene
3.	3/4" 1" Rolling Seal	250 psi NSF 61 Certified E.P.D.M
		87 psi Silicon
	2" Rolling Seal Assembly:	
3a.	Screws	Stainless Steel
3b.	Plug Cover	NSF 61 Certified Reinforced Nylon
3c.	Rolling Seal	250 psi NSF 61 Certified E.P.D.M
		87 psi Silicon
3d.	Plug	NSF 61 Certified Reinforced Nylon
4.	Clamping Stem	NSF 61 Certified Reinforced Nylon
5.	Float	NSF 61 Certified Foamed Polypropylene
6.	O - Ring	NSF 61 Certified NBR 70
7.	Base	NSF 61 Certified Reinforced Nylon / Stainless Steel ASTM A744 CF84





D-040-C 2"



D-040-C F 2"



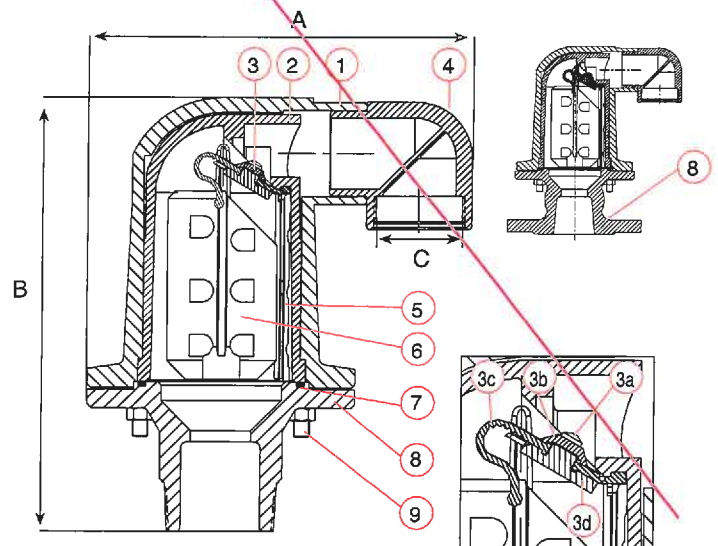
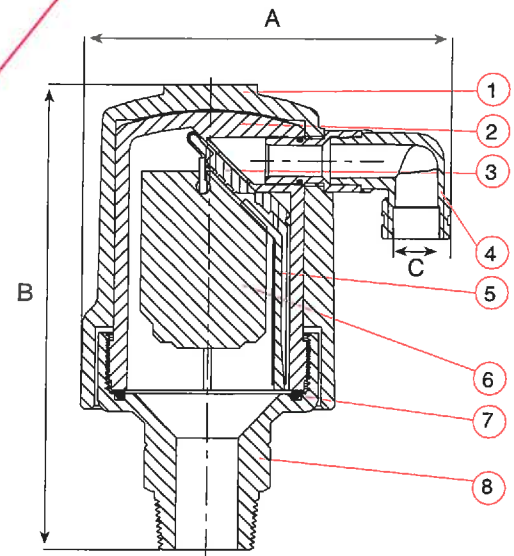
D-040-C 3/4" 1"

DIMENSIONS AND WEIGHT

Nominal Size	Dimensions inch				Weight Lbs.	Orifice Area Sq.in	
	A	B	internal	external		A / V	Air Release
D-040-C 1"	4.7	5.9	3/8 NPT	0.86	3.75	0.127	0.0077
D-040-C 2"	8	9	1 1/2 NPT	2.16	11.9	1.246	0.0186
D-040-C F 2"	8.4	9.2	1 1/2 NPT	2.16	16	1.246	0.0186
D-040-C F 3"	9.3	9.2	1 1/2 NPT	2.16	16.5	1.246	0.0186

PARTS LIST AND SPECIFICATION

No. Part	Material
1. Shell	Ductile Iron ASTM A-536 60-40-18 / Resicoat RT R4
2. Body	NSF 61 Certified Reinforced Nylon
3. 3/4" 1" Rolling Seal	NSF 61 Certified E.P.D.M.
2" Rolling Seal Assembly:	
3a. Screws	Stainless Steel
3b. Plug Cover	NSF 61 Certified Reinforced Nylon
3c. Rolling Seal	NSF 61 Certified E.P.D.M.
3d. Plug	NSF 61 Certified Reinforced Nylon
4. Discharge Outlet	NSF 61 Certified Polypropylene
5. Clamping Stem	NSF 61 Certified Reinforced Nylon
6. Float	NSF 61 Certified Foamed Polypropylene
7. O - Ring	NSF 61 Certified NBR 70
8. Base 3/4" 1"	Stainless Steel ASTM A744 CF8M
2"	Ductile Iron ASTM A-536 60-40-18 / Resicoat RT R4
9. Bolts & Nuts	Stainless Steel ASTM A744 CF8M



D-040 STST



DIMENSIONS AND WEIGHTS

Nominal Size	Dimensions inch		Connection C	Weight Lbs.	Orifice Area Sq.in	
	A	B			A / V	Air Release
1/2" 3/4" 1"	3.7	5.5	3/8" NPT Female	1.00	0.155	0.012
2"	7.2	8.5	1 1/2" NPT Female	3.10	1.246	0.018



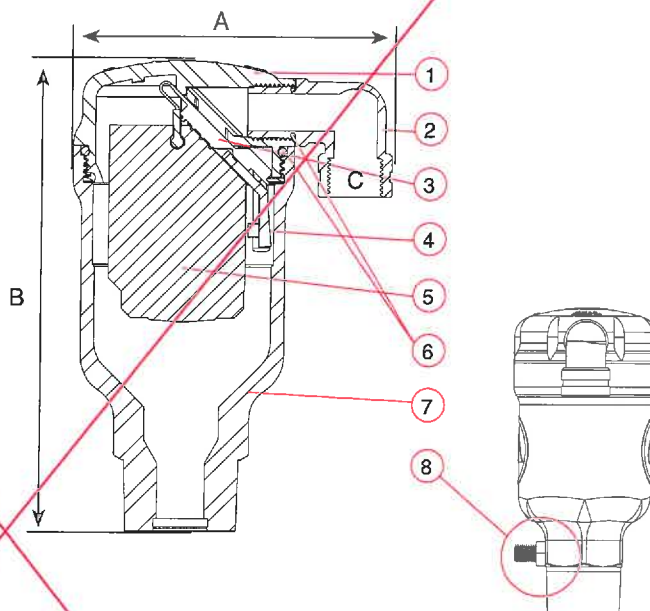
D-040 STST 2"



D-040 STST 3/4" 1"

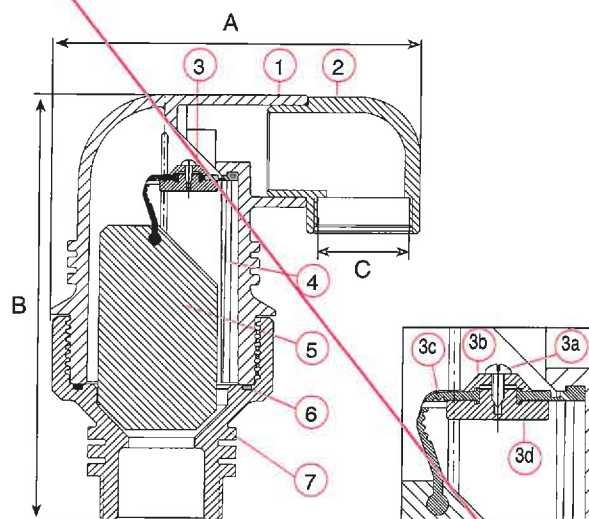
PARTS LIST AND SPECIFICATION 1/2" 3/4" 1"

No.	Part	Material
1.	Cover	Stainless Steel ASTM A744 CF8M / Duplex 5A
2.	Discharge Outlet	Polypropylene
3.	Rolling Seal	Viton / BUNA-N / E.P.D.M.
4.	Clamping Stem	Polypropylene / R.N.
5.	Float	Foamed Polypropylene
6.	O-Ring	BUNA-N
7.	Body	Stainless Steel ASTM A744 CF8M / Duplex 5A
8.	Shrader valve	



PARTS LIST AND SPECIFICATION 2"

No.	Part	Material
1.	Body	Stainless Steel ASTM A744 CF8M / Duplex 5A
2.	Discharge Outlet	Polypropylene / Duplex 5A
3.	Rolling Seal Assembly:	
3a.	Screws	Stainless Steel
3b.	Plug Cover	Polypropylene / R.N.
3c.	Rolling Seal	Viton / BUNA-N / E.P.D.M.
3d.	Plug	Polypropylene / R.N.
4.	Clamping Stem	Polypropylene / R.N.
5.	Float	Foamed Polypropylene
6.	O-Ring	BUNA-N
7.	Base	Stainless Steel ASTM A744 CF8M / Duplex 5A





CITY OF GOODYEAR
ADAMAN WELL NO. 3
TRANSMISSION MAIN

PROJECT NO. CON-17-3838

TECHNICAL SPECIFICATIONS



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Phoenix, AZ 85004
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**CITY OF GOODYEAR
ADAMAN WELL NO. 3
TRANSMISSION MAIN**

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EXPIRES 12/31/2020

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ATTACHMENTS

GEOTECHNICAL ENGINEERING REPORT

SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

- A. The work covered under this contract will be performed will be performed in existing right-of-way along Bethany Home Road and Sarival Avenue, in unincorporated Maricopa County.

1.02 DESCRIPTION OF OWNER'S PROJECT

- A. The overall project will consist of construction of a water transmission pipeline connecting the Adaman Well Number 3 near to an existing pipeline in Sarival Avenue.

1.03 NOT USED

1.04 WORK OF THIS CONTRACT

- A. The work to be performed under this Contract includes furnishing and installing the pipeline, valves, fittings and appurtenances, site work and restoration, corrosion control, coordination with Owner facilities and systems, and pipeline testing for acceptance by the Owner.

END OF SECTION

SECTION 01 12 16
WORK SEQUENCE

PART 1 GENERAL

1.01 CONTINUITY OF OPERATIONS

- A. The existing water transmission system is currently and continuously in operation, and those functions shall not be interrupted except as specified herein. The Contractor shall coordinate the work to avoid any interference with normal operation and the supply of water.

1.02 NOT USED

1.03 SUBMITTAL

- A. In accordance with Section 01 33 00, the Contractor shall submit a detailed outage plan and time schedule for operations which will make it necessary to remove a pipeline, channel, equipment, or structure from service. The schedule shall be coordinated with the construction schedule specified in the General Conditions of the Contract Documents and shall meet the restrictions and conditions specified in this section. The detailed plan shall describe the Contractor's method for removing service, the length of time required to complete said operation, the necessary equipment and sequence which the Contractor shall incorporate in order to limit the disruption of service.
- B. The Contractor shall observe the following restrictions:
 - 1. The Construction Manager shall be notified in writing at least one week in advance of the planned operation.

1.04 SEQUENCE AND SCHEDULE OF CONSTRUCTION

- A. To limit the interruption of service, the construction schedule required in the General Conditions of the Contract Documents shall provide for the following specific conditions:
 - 1. Service interruptions will be permitted only between the hours of 9:00 a.m. to 4:00 p.m. No service interruptions will be permitted during other operating periods without prior approval from the Owner.

END OF SECTION

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SCOPE

- A. This section specifies reports and schedules for planning and monitoring the progress of the work.

1.02 DESCRIPTION

- A. The Contractor shall provide a graphic construction schedule indicating the various subdivisions of the work and the dates of commencing and finishing each. The schedule shall show the time allowed for testing and for other procedures which must be completed prior to the work being put into operation. The schedule will take into account the time of completion and the specific dates as specified in the Contract Documents and the work sequence described in Section 01 12 16.

1.03 SUBMITTAL PROCEDURES

- A. Within 14 calendar days after the date of the Notice to Proceed, the Contractor shall submit in accordance with Section 01 33 00, a construction schedule conforming to paragraph 1.02 Description. The submittal shall consist of a reproducible original and two copies.
- B. Within 7 calendar days after receipt of the submittal, the Construction Manager shall review the submitted schedule and return one copy of the marked-up original to the Contractor. If the Construction Manager finds that the submitted schedule does not comply with specified requirements, the corrective revisions will be noted on the submittal copy returned to the Contractor.

1.04 SCHEDULE REVISIONS

- A. Revisions to the accepted construction schedule may be made only with the written approval of the Contractor and Owner. A change affecting the Contract value of any activity, the completion time, and specific dates as specified in the Contract Documents and sequencing (Section 01 12 16) may be made only in accordance with applicable provisions of the General Conditions of the Contract Documents.

1.05 PROJECT STATUS UPDATE

- A. Project status review and update shall be provided each month as specified in the General Conditions of the Contract Documents.

END OF SECTION

SECTION 01 32 23
SURVEY AND LAYOUT DATA

PART 1 GENERAL

1.01 SURVEY AND LAYOUT

- A. The Owner has established reference benchmarks and baselines as shown on the Drawings.
- B. From the information provided, the Contractor shall develop and make such additional surveys as are needed for construction, such as control lines, slope stakes, batter boards, stakes for pipe locations and other working points, lines, and elevations.
- C. Survey work shall be performed under the supervision of a licensed land surveyor or registered civil engineer in the State of Arizona. Contractor shall reestablish reference benchmarks and survey control monuments destroyed by his operations at no cost to the Owner.

END OF SECTION

SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION

PART 1 GENERAL

1.01 PRECONSTRUCTION PHOTOGRAPHS

- A. The Contractor shall provide preconstruction photographs prior to commencement of work on the site. The photographs shall be electronic JPEG files. Before construction may start, an electronic JPEG file with an index print, shall be delivered to the Construction Manager. Preconstruction photographs shall be taken at locations to be designated by the Construction Manager. The photographer shall be equipped to photograph either interior or exterior exposures, with lenses ranging from wide-angle to 135-mm.

1.02 CONSTRUCTION PHOTOGRAPHS

- A. The Contractor shall provide construction photographs showing the progress of the work. The photographs shall be taken of such subjects as may be directed. Starting immediately as work begins and continuing as long as the work is in progress, daily photographs shall be taken.
- B. Upon acceptance of the work, photographs shall be made of the work where directed by the Construction Manager. The photographer shall be equipped to take either interior or exterior exposures, with lenses ranging from wide-angle to 135-mm.
- C. Electronic JPEG shall be delivered to the Construction Manager within 10 days following each set of exposures.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUBMITTALS

- A. Submittals covered by these requirements include manufacturers' information, shop drawings, test procedures, test results, samples, requests for substitutions, and miscellaneous work-related submittals. Submittals shall also include, but not be limited to, all mechanical, electrical and electronic equipment and systems, materials, reinforcing steel, fabricated items, and piping and conduit details. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's installation and other instructions as specifically required in the Contract Documents to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the Contract Documents.

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. General:
1. The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements. Submittal documents shall be clearly edited to indicate only those items, models, or series of equipment, which are being submitted for review. All extraneous materials shall be crossed out or otherwise obliterated. The Contractor shall ensure that there is no conflict with other submittals and notify the Construction Manager in each case where his submittal may affect the work of another contractor or the Owner. The Contractor shall coordinate submittals among his subcontractors and suppliers.
 2. The Contractor shall coordinate submittals with the work so that work will not be delayed. He shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. The Contractor shall not proceed with work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor stamped "No Exceptions Taken" or "Make Corrections Noted."
 3. The Contractor shall certify on each submittal document that he has reviewed the submittal, verified field conditions, and complied with the contract documents.
 4. The Contractor may authorize, in writing, a material or equipment supplier to deal directly with the Construction Manager or with the Owner with regard to a submittal. These dealings shall be limited to Contract interpretations to clarify and expedite the work.

1.03 CATEGORIES OF SUBMITTALS

A. General:

- a. Submittals fall into three general categories; Action Submittals – Action Submittals require review and response by the Engineer before the Contractor proceeds with incorporating the equipment, materials, or procedure addressed in a submittal into the work. Review comments for Action Submittals, and the subsequent actions of the Contractor based on the review comments, shall conform to REVIEW ACTION requirements specified in this section.
 - b. Informational Submittals – Informational Submittals are examined to verify that the information has been furnished as specified. If the information has not been furnished as specified, the submittal will be returned marked "MAKE CORRECTIONS NOTED" and any deficiencies will be noted. If the information has been furnished as specified, the submittal will be returned marked "RECEIPT ACKNOWLEDGED". CSI's informational submittals are similar to what BC formerly called PRODUCT DATA. Note: BC Testing Requirements can be either Action or Information Submittals.
 - c. Closeout Submittals – Closeout Submittals consist of documentation that is not available for review at the time Action Submittals are submitted for review or documentation that is typically generated or furnished following incorporation of the equipment, materials, or procedure into the work. Closeout submittals include spare parts inventory listing, spare parts, extra stock materials, special tools and other materials or components that are furnished separate from the installed and completed work. Closeout Submittals require review and response by the Engineer. Closeout Submittal requirements are not satisfied until they have been reviewed and returned marked "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED. " BC places Record Drawings and operation and maintenance (O&M) submittals and Spare Parts within the CLOSEOUT SUBMITTAL category. This is a change as BC used to include Spare Parts in Part 3.
2. At the beginning of work, the Construction Manager will furnish the Contractor lists of those submittals specified in the project manual. Two separate lists will be provided: submittals for review and comment and Product Data (submittals) for information only.

B. Submittals for Review and Comment:

1. All submittals except where specified to be submitted as Product Data for information only shall be submitted by the Contractor to the Construction Manager for review and comment.

C. Submittals (Product Data) for Information Only:

1. Where specified, the Contractor shall furnish submittals (Product Data) to the Construction Manager for Information only.

1.04 TRANSMITTAL PROCEDURE

A. General:

1. Unless otherwise specified, submittals regarding material and equipment shall be accompanied by Transmittal Form 01 33 00-A specified in Section 01 99 90. A separate form shall be used for each specific item, class of material, equipment, and

items specified in separate, discrete sections, for which the submittal is required. Submittal documents common to more than one piece of equipment shall be identified with all the appropriate equipment numbers. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

2. A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XXX;" where "XXX" is the sequential number assigned by the Contractor. Resubmittals shall have the following format: "XXX-Y;" where "XXX" is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 25B, for example, is the second resubmittal of submittal 25.

B. Deviation from Contract:

1. If the Contractor proposes to provide material, equipment, or method of work which deviates from the project manual, he shall indicate so under "deviations" on the transmittal form accompanying the submittal copies.

C. Submittal Completeness:

1. Submittals which do not have all the information required to be submitted, including deviations, are not acceptable and will be returned without review.

1.05 REVIEW PROCEDURE

A. General:

1. Submittals are specified for those features and characteristics of materials, equipment, and methods of operation which can be selected based on the Contractor's judgment of their conformance to the specified requirements. Other features and characteristics are specified in a manner which enables the Contractor to determine acceptable options without submittals. The review procedure is based on the Contractor's guarantee that all features and characteristics not requiring submittals conform as specified. Review shall not extend to means, methods, techniques, sequences or procedures of construction, or to verifying quantities, dimensions, weights or gages, or fabrication processes (except where specifically indicated or required by the project manual) or to safety precautions or programs incident thereto. Review of a separate item, as such, will not indicate approval of the assembly in which the item functions.
2. When the Contract Documents require a submittal, the Contractor shall submit the specified information as follows:
 - a. One hard copy of all submitted information plus one PDF copy of all information shall be transmitted with submittals for review and comment.
 - b. Unless otherwise specified, one hard copy plus one PDF copy of all submitted information shall be transmitted with submittals (Product Data) for information only.

B. Submittals for Review and Comment:

1. Unless otherwise specified, within fourteen (14) calendar days after receipt of a submittal for review and comment, the Construction Manager shall review the submittal. The hard copy will be retained by the Construction Manager. The returned submittal shall indicate one of the following actions:
 - a. If the review indicates that the material, equipment or work method complies with the project manual, submittal copies will be marked "NO EXCEPTIONS TAKEN." In this event, the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.
 - b. If the review indicates limited corrections are required, copies will be marked "MAKE CORRECTIONS NOTED." The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in O&M data, a corrected copy shall be provided.
 - c. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "AMEND AND RESUBMIT." Except at his own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."
 - d. If the review indicates that the material, equipment, or work method does not comply with the project manual, copies of the submittal will be marked "REJECTED - SEE REMARKS." Submittals with deviations which have not been identified clearly may be rejected. Except at his own risk, the Contractor shall not undertake the work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

C. Submittals (Product Data) for Information Only:

1. Such information is not subject to submittal review procedures and shall be provided as part of the work under this contract and its acceptability determined under normal inspection procedures.

1.06 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS:

A. General:

1. Review of Contract Drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Construction Manager or the Owner, or by any officer or employee thereof, and the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. A mark of "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED" shall mean that the Owner has no objection to the Contractor, upon his own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

END OF SECTION

SECTION 01 35 43
ENVIRONMENTAL PROCEDURES

PART 1 GENERAL

1.01 SITE MAINTENANCE

- A. The Contractor shall keep the work site clean and free from rubbish and debris. Materials and equipment shall be removed from the site when they are no longer necessary. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance.

1.02 TEMPORARY DAMS

- A. Except in time of emergency, earth dams are not acceptable at catch basin openings, local depressions, or elsewhere. Temporary dams of sand bags, asphaltic concrete, or other acceptable material will be permitted when necessary to protect the work, provided their use does not create a hazard or nuisance to the public. Such dams shall be removed from the site as soon as they are no longer necessary.

1.03 AIR POLLUTION CONTROL

- A. The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of any legally constituted authority. He shall also abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary. The use of water, in amounts which result in mud on public streets, is not acceptable as a substitute for sweeping or other methods.

1.04 NOISE CONTROL

- A. Between 7:00 p.m. and 7:00 a.m., noise from Contractor's operations shall not exceed limits established by applicable laws or regulations and in no event shall exceed 86 dBA at a distance of 50 feet from the noise source.

END OF SECTION

SECTION 01 42 19
REFERENCE STANDARDS

PART 1 GENERAL

1.01 ABBREVIATIONS

- A. Wherever used in the project manual, the following abbreviations will have the meanings listed:

Abbreviation	Meaning
AA	Aluminum Association Incorporated P.O. Box 753 Waldorf, MD 20604
AABC	Associated Air Balance Council 1518 K Street N.W. Washington, DC 20005
AAMA	American Architectural Manufacturers Association 1540 East Dundee Road, Suite 310 Palatine, IL 60067
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W., Suite 249 Washington, DC 20001
ABMA	American Bearing Manufacturers Association 1200 19th Street N.W., Suite 300 Washington, DC 20036
ACI	American Concrete Institute 22400 West Seven Mile Road P.O. Box 19150, Redford Station Detroit, MI 48219
AEIC	Association of Edison Illuminating Companies 600 North 18th Street P.O. Box 2641 Birmingham, AL 35291
AGA	American Gas Association ATTN: Records 1515 Wilson Boulevard Arlington, VA 22209
AGMA	American Gear Manufacturer's Association, Inc. 1500 King Street, Suite 201 Alexandria, VA 22314
AHA	American Hardboard Association 1210 West Northwest Highway Palatine, IL 60067
AISC	American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601

Abbreviation	Meaning
AISI	American Iron and Steel Institute 1101 Seventeenth Street, NW, Suite 1300 Washington, DC 20036
AITC	American Institute of Timber Construction 7012 South Revere Parkway, Suite 140 Englewood, CO 80112
ALSC	American Lumber Standard Committee P.O. Box 210 Germantown, MD 20875
AMCA	Air Movement and Control Association, Inc. 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute 11 West 42nd Street, 13th Floor New York, NY 10036
APA	American Plywood Association 7011 South 19th Street Tacoma, WA 98466
API	American Petroleum Institute 1220 "L" Street N.W. Washington, DC 20005
ARI	Air-Conditioning and Refrigeration Institute 4301 North Fairfax Drive, Suite 425 Arlington, VA 22203
ASCE	American Society of Civil Engineers United Engineering Center 345 East 47th Street New York, NY 10017
ASCII	American Standard Code for Information Interchange United States of America Standards Institute 10 East 40th Street New York, NY 10016
ASE Code	American Standard Safety Code for Elevators, Dumbwaiter and Escalators American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc. 1791 Tullie Circle, NE Atlanta, GA 30329
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017

Abbreviation	Meaning
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428
AWPA	American Wood-Preservers' Association 9549 Old Fredrick Road Ellicott City, MD 21042
	or P.O. Box 286 Woodstock, MD 21163-0286
AWS	American Welding Society 550 NW LeJeune Road P.O. Box 351040 Miami, FL 33135
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
BOCA	Building Officials and Code Administrators, International, Inc. 4051 West Flossmoor Road Country Club Hills, IL 60478
CALTEST	Materials Manual, State of California, Business and Transportation Agency Department of Public Works State of California, Department of Transportation 6002 Folsom Boulevard Sacramento, CA 95819
CALTRANS	Standard Specifications, State of California, Department of Transportation State of California, Business and Transportation Agency P.O. Box 1499 Sacramento, CA 95807
CBM	Certified Ballast Manufacturers 2120 Keith Building Cleveland, OH 44115
CMAA	Crane Manufacturers Association of America, Inc. (Formerly called: Overhead Electrical Crane Institute) (OECI) 8720 Red Oak Boulevard, Suite 201 Charlotte, NC 28217
CRSI	Concrete Reinforcing Steel Institute 933 N Plum Grove Road Schaumburg, IL 60173
CSA	Canadian Standards Association 178 Rexdale Boulevard Rexdale, Ontario, M9W 1R3, Canada
DEMA	Diesel Engine Manufacturer's Association 30200 Detroit Road Cleveland, OH 44145

Abbreviation	Meaning
DHI	Door and Hardware Institute 14170 Newbrook Drive Chantilly, VA 22021
DIS	Division of Industrial Safety California Department of Industrial Relations 2422 Arden Way Sacramento, CA 95825
EI	Edison Electric Institute 90 Park Avenue New York, NY 10016
EIA	Electronic Industries Association Order from: Global Engineering Documents 18201 McDermott West Irvine, CA 92714
EJMA	Expansion Joint Manufacturers Association 25 North Broadway Tarrytown, NY 10591
ESO	Electrical Safety Orders California Administrative Code, Title 8, Chap. 4, Subarticle 5 Office of Procurement, Publications Section P.O. Box 20191 8141 Elder Creek Road Sacramento, CA 95820
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch Washington Navy Yard, Bldg. 197 Washington, DC 20407
FEDSTDS (see FEDSPECS)	Federal Standards
FM	Factory Mutual Engineering and Research Corporation 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062
HEI	Heat Exchange Institute 1300 Sumner Avenue Cleveland, OH 44115
HI	Hydraulic Institute 9 Sylvan Way, Suite 180 Parsippany, NJ 07054

Abbreviation	Meaning
HPVA	Hardwood Plywood & Veneer Association 1825 Michael Faraday Drive P.O. Box 2789 Reston, VA 22090-2789
IAPMO	International Association of Plumbing and Mechanical Officials 20001 Walnut Drive S Walnut, CA 91789
ICBO	International Conference of Building Officials 5360 Workman Mill Road Whittier, CA 90601
ICEA	Insulated Cable Engineers Association P.O. Box 440 South Yarmouth, MA 02664
IEEE	Institute of Electrical and Electronics Engineers 445 Hoes Lane P.O. Box 1331 Piscataway, NJ 08855
IES	Illuminating Engineering Society of North America 120 Wall Street New York, NY 10017
ISA	Instrument Society of America 67 Alexander Drive P.O. Box 12277 Research Triangle Park, NC 27709
JIC	Joint Industrial Council 7901 West Park Drive McLean, VA 22101
MAG	Maricopa Association of Governments 302 N. 1 st Avenue Phoenix, AZ 85003
MFMA	Metal Framing Manufacturers Association 401 N. Michigan Avenue Chicago, IL 60611
MILSPEC	Military Specifications Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MSS	Manufacturers Standardization Society of the Valve & Fittings Industry, Inc. 127 Park Street, N.E. Vienna, VA 22180
NAAMM	National Association of Architectural Metal Manufacturers 11 South La Salle Street, Suite 1400 Chicago, IL 60603

Abbreviation	Meaning
NACE	National Association of Corrosion Engineers 1440 South Creek Drive Houston, TX 77084
NBC	National Building Code Published by BOCA
NEC	National Electric Code National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269
NELMA	Northeastern Lumber Manufacturers Association, Inc. P.O. Box 87A Cumberland Center, ME 04021
NEMA	National Electrical Manufacturer's Association 2101 L Street, NW, Suite 300 Washington, DC 20037
NESC	National Electric Safety Code American National Standards Institute 1430 Broadway New York, NY 10018
NFOR	National Forest Products Association (Formerly National Lumber Manufacturer's Association) 1111 19 Street NW, Suite 700 Washington, DC 20036
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269
NHLA	National Hardwood Lumber Association 6830 Raleigh LaGrange P.O. Box 34518 Memphis, TN 38184-0518
NSF	National Sanitation Foundation 3475 Plymouth Road P.O. Box 130140 Ann Arbor, MI 48113
OSHA	Occupational Safety and Health Act U.S. Department of Labor Occupational and Health Administration San Francisco Regional Office 450 Golden Gate Avenue, Box 36017 San Francisco, CA 94102
PCI	Precast/Prestressed Concrete Institute 175 West Jackson Blvd., Suite 1859 Chicago, IL 60604

Abbreviation	Meaning
PPIC	The Plumbing & Piping Industry Council, Inc. 510 Shatto Place, Suite 402 Los Angeles, CA 90020
RIS	Redwood Inspection Service California Redwood Association 405 Enfrente Dr., Suite 200 Novato, CA 94949
RMA	Rubber Manufacturers Association 1400 K Street NW, Suite 900 Washington, DC 20005
SAE	Society of Automotive Engineers, Inc. 400 Commonwealth Drive Warrendale, PA 15096
SAMA	Scientific Apparatus Makers Association One Thomas Circle Washington, DC 20005
SBC	Standard Building Code Published by SBCCI
SBCCI	Southern Building Code Congress International Inc. 900 Montclair Road Birmingham, AL 35213
SCMA	Southern Cypress Manufacturers Association 400 Penn Center Boulevard, Suite 530 Pittsburg, PA 15235
SDI	Steel Door Institute 30200 Detroit Road Cleveland, OH 44145
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. P.O. Box 221230 Chantilly, VA 22021
SPI	Society of the Plastics Industry, Inc. 1275 K Street NW, Suite 400 Washington, DC 20005
SPIB	Southern Pine Inspection Bureau 4709 Scenic Highway Pensacola, FL 32504
SSPC	Society for Protective Coatings 40 24th Street, 6th Floor Pittsburgh, PA 15222
SSPWC	Standard Specifications for Public Works Construction Building News, Inc. 3055 Overland Avenue Los Angeles, CA 90034

Abbreviation	Meaning
TEMA	Tubular Exchanger Manufacturer's Association 25 North Broadway Tarrytown, NY 10591
TPI	Truss Plate Institute 583 D'Onofrio Drive, Suite 200 Madison, WI 53719
UBC	Uniform Building Code Published by ICBO
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062
UMC	Uniform Mechanical Code Published by ICBO
UPC	Uniform Plumbing Code Published by IAPMO
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WCLIB	West Coast Lumber Inspection Bureau 6980 SW Varns St. P.O. Box 23145 Portland, OR 97223
WWPA	Western Wood Products Association (Formerly called: West Coast Lumbermen's Association (WCLA)) Yeon Building 522 SW 5th Avenue Portland, OR 97204

END OF SECTION

SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 GENERAL

1.01 NOT USED

1.02 POWER

- A. The Contractor shall provide power for construction. He shall make arrangements with the electrical utility for power takeoff points, voltage and phasing requirements, transformers and metering and shall pay the costs and fees arising therefrom. The Contractor shall provide the special connections required for his work.

1.03 TELEPHONE

- A. The Contractor shall provide telephone service at the construction site. Radio-telephone service is not acceptable as a substitute for telephone service. Full-time cellular is acceptable.

1.04 SANITARY FACILITIES

- A. The Contractor shall provide toilet and washup facilities for his workforce at the site of work. The facilities shall comply with applicable laws, ordinances, and regulations pertaining to the public health and sanitation of dwellings and camps.

1.05 WATER

- A. The Contractor shall provide water for construction at the site. Water flooding of trenches for backfill purposes using water is not allowed.

END OF SECTION

SECTION 01 66 00
PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 GENERAL

1.01 DAMAGE

- A. Equipment, products and materials shall be shipped, handled, stored, and installed in ways which will prevent damage to the items. Damaged items will not be permitted as part of the work except in cases of minor damage that have been satisfactorily repaired and are acceptable to the Construction Manager.

1.02 PIPE

- A. Pipe and appurtenances shall be handled, stored, and installed as recommended by the manufacturer. Pipes with paint, tape coatings, linings or the like shall be stored to protect the coating or lining from physical damage or other deterioration. Pipes shipped with interior bracing shall have the bracing removed only when recommended by the pipe manufacturer.

PART 2 EQUIPMENT

2.01 PACKAGE AND MARKING

- A. All equipment shall be protected against damage from moisture, dust, handling, or other cause during transport from manufacturer's premises to site. Each item or package shall be marked with the number unique to the specification reference covering the item.
- B. Stiffeners shall be used where necessary to maintain shapes and to give rigidity. Parts of equipment shall be delivered in assembled or subassembled units where possible.

2.02 IDENTIFICATION

- A. Each item of equipment and valve shall have permanently affixed to it a label or tag with its equipment or valve number designated in this Contract. Marker shall be of stainless steel. Location of label will be easily visible.

2.03 SHIPPING

- A. Bearing housings, vents and other types of openings shall be wrapped or otherwise sealed to prevent contamination by grit and dirt.
- B. Damage shall be corrected to conform to the requirements of the Contract before the assembly is incorporated into the work. The Contractor shall bear the costs arising out of dismantling, inspection, repair and reassembly.

2.04 NOT USED

2.05 STORAGE

- A. During the interval between the delivery of equipment to the site and installation, all equipment, unless otherwise specified, shall be stored in an enclosed space affording protection from weather, dust and mechanical damage and providing favorable temperature, humidity and ventilation conditions to ensure against equipment deterioration. Manufacturer's recommendations shall be adhered to in addition to these requirements.
- B. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Temporary power shall be provided to energize space heaters or other heat sources for control of moisture condensation. Space heaters or other heat sources shall be energized without disturbing the sealed enclosure.

2.06 PROTECTION OF EQUIPMENT AFTER INSTALLATION

- A. After installation, all equipment shall be protected from damage from, including but not limited to, dust, abrasive particles, debris and dirt generated by the placement, chipping, sandblasting, cutting, finishing and grinding of new or existing concrete, terrazzo and metal; and from the fumes, particulate matter, and splatter from welding, brazing and painting of new or existing piping and equipment. As a minimum, vacuum cleaning, blowers with filters, protective shieldings, and other dust-suppression methods will be required at all times to adequately protect all equipment. During concreting, including finishing, all equipment that may be affected by cement dust must be completely covered. During painting operations, all grease fittings and similar openings shall be covered to prevent the entry of paint. Electrical switchgear, unit substation, and motor load centers shall not be installed until after all concrete work and sandblasting in those areas have been completed and accepted and the ventilation systems installed.

END OF SECTION

SECTION 01 73 29
CUTTING AND PATCHING

PART 1 GENERAL

1.01 STRUCTURES

- A. The Contractor shall take all precautions necessary to protect the integrity and usefulness of all existing facilities. If necessary, the Contractor may, with the approval of the Owner, remove such existing structures, including curbs, gutters, pipelines and utility poles as may be necessary for the performance of the work, and shall rebuild the structures thus removed in as good a condition as found with the requirements specified. He shall also repair existing structures which may be damaged as a result of the work under this Contract.

1.02 ROADS AND STREETS

- A. Unless otherwise specified, roads and streets in which the surface is removed, broken, or damaged, or in which the ground has caved or settled during the work under this Contract, shall be resurfaced and brought to the original grade and section. Roadways used by the Contractor shall be cleaned and repaired. Before resurfacing material is placed, edges of pavements shall be trimmed back far enough to provide clean, solid, vertical faces, and shall be free of loose material. All paved surfaces shall be cut with a pavement saw. Rough cuts are not allowed. Repair work shall conform to the paving specifications.

1.03 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS

- A. Cultivated or planted areas and other surface improvements which are damaged by actions of the Contractor shall be restored as nearly as possible to their original condition. Restoration shall take place within 1 week or sooner as directed by the Construction Manager.
- B. Existing guard posts, barricades, and fences shall be protected and replaced if damaged.

1.04 PROTECTION OF EXISTING INSTALLATIONS

- A. The Contractor shall protect all existing operating facilities and structures from damages. However, if damage occurs, the Contractor shall immediately correct or replace existing equipment, controls, systems, structures, or facilities which are damaged in any way as a result of his operations.

END OF SECTION

SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 DRAWINGS

- A. Record drawings refer to those documents maintained and annotated by the Contractor during construction and are defined as
 - 1. A neatly and legibly marked set of Contract Drawings showing the final location of piping, equipment, electrical conduits, outlet boxes and cables;
 - 2. Additional documents such as schedules, lists, drawings, and electrical and instrumentation diagrams included in the Specifications; and
 - 3. Contractor layout and installation drawings.
- B. Unless otherwise specified, record drawings shall be full-size and maintained in a clean, dry, and legible condition. Record documents shall not be used for construction purposes and shall be available for review by the Construction Manager during normal working hours at the Contractor's field office. At the completion of the work, prior to final payment, all record drawings shall be submitted to the Construction Manager.
- C. Marking of the drawings shall be kept current and shall be done at the time the material and equipment are installed. Annotations to the record documents shall be made with an erasable colored pencil conforming to the following color code:
 - 1. Additions - Red
 - 2. Deletions - Green
 - 3. Comments - Blue
 - 4. Dimensions - Graphite*
- D. If the Contractor opts to use electronic record drawing files, the requirements of paragraph 1.01-C shall be met within the electronic documentation. This includes, but is not limited to, the requirement that the annotation color codes be maintained in the electronic file such that when printed in color, the annotation colors are legible and distinguishable.

**Legibly mark to record actual depths, horizontal and vertical location of underground raceways, cables, and appurtenances referenced to permanent surface improvements.*

END OF SECTION

SECTION 01 99 90
REFERENCE FORMS

PART 1 FORMS

1.01 DESCRIPTION

- A. The forms listed below and included in this section are referenced from other sections of the project manual:

Form No.	Title
01 33 00-A	Submittal Transmittal Form

01 33 00-A. SUBMITTAL TRANSMITTAL FORM

Submittal Transmittal

Submittal Description:	Submittal No: ¹	Spec Section:
------------------------	----------------------------	---------------

	Routing	Sent	Received
Owner:	Contractor/CM		
Project:	CM/Engineer		
	Engineer/CM		
Contractor:	CM/Contractor		

We are sending you:

- ☐ Attached
☐ Under separate cover via _____
☐ Submittals for review and comment
☐ Product data for information only

Remarks: _____

Item	Copies	Date	Section No.	Description	Review action ^a	Reviewer initials	Review comments attached

^aNote: NET = No exceptions taken; MCN = Make corrections noted; A&R = Amend and resubmit; R = Rejected
Attach additional sheets if necessary.

Contractor

Certify either a or b:

- a. ☐ We have verified that the material or equipment contained in this submittal meets all the requirements, including coordination with all related work, specified (no exceptions).
- b. ☐ We have verified that the material or equipment contained in this submittal meets all the requirements specified except for the attached deviations.

No.	Deviation

Certified by: _____
Contractor's Signature: _____

¹See Section 01 33 00-1.04. A, Transmittal Procedure.

SECTION 31 23 00
EXCAVATION AND FILL

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope:

1. This section specifies earthwork which consists of excavation, filling, grading, and disposal of excess material.

B. Definitions:

1. Compaction: The degree of compaction is specified as percent compaction. Maximum or relative densities refer to dry soil densities obtainable at optimum moisture content.
2. Excavation Slope: Excavation slope shall be defined as an inclined surface formed by removing material from below existing grade.

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, whether or not the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM C136	Standard Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D1556	Test Method for Density of Soil in Place by the Sand-Cone Method
ASTM D1557	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.5-kg) Rammer and 18-in. (457-mm) Drop
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3017	Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
MAG	Maricopa Association of Governments

3. The geotechnical engineering report included in the attachment to these Specifications is included for the Contractor's convenience only. It is not intended to imply that the character of materials shown in the logs is representative throughout the project. The soil borings are indicative of the soil characteristics only at the location and to the depth of each of the borings. Even if not specifically shown in the geotechnical information provided, the Contractor may encounter large cobbles, boulders, caliche, conglomerate, hard rock, perched groundwater, historic or prehistoric cultural resources, or other differing site conditions on this project.

B. Tests:

1. The Construction Manager will take samples and perform moisture content, gradation, compaction, and density tests during placement of backfill materials to check compliance with these Specifications. The Contractor shall remove surface material at locations designated by the Construction Manager and provide such assistance as necessary for sampling and testing. The Construction Manager may direct the Contractor to construct inspection trenches in compacted or consolidated backfill to determine that the Contractor has complied with these Specifications. Payment for inspection trenches shall be as specified in the General Conditions of the Contract Documents.
2. Tests will be made by the Construction Manager in accordance with the following:

Test	Standard Procedure
Moisture Content	ASTM D3017
Gradation	ASTM C136
Density in-Place	ASTM D1556
Moisture-Density Relationships	ASTM D1557

1.03 SUBMITTALS

- A. Gradations of fill materials to be used shall be submitted 2 weeks in advance of use.

PART 2 PRODUCTS

2.01 BEDDING AND BACKFILL

- A. Bedding and backfill shall meet the requirements of MAG Section 610.

2.02 CRUSHED ROCK

- A. Crushed rock shall meet the requirements of MAG Section 701.

2.03 AGGREGATE BASE

- A. Aggregate base material shall meet the requirements of MAG Section 702.

PART 3 EXECUTION

3.01 GENERAL

A. Control of Water:

1. The Contractor shall keep excavations reasonably free from water during construction. The static water level shall be drawn down a minimum of 1-foot below the bottom of excavations to maintain the undisturbed state of natural soils and allow the placement of any fill to the specified density. Disposal of water shall not damage property or create a public nuisance. The Contractor shall have on hand pumping equipment and machinery in good working condition for emergencies and shall have workmen available for its operation. Dewatering systems shall operate continuously until backfill has been completed to 1-foot above the normal static groundwater level.
2. Groundwater shall be controlled to prevent softening of the bottom of excavations, or formation of "quick" conditions. Dewatering systems shall not remove natural soils. The Contractor shall control surface runoff to prevent entry or collection of water in excavations.
3. Release of groundwater to its static level shall be controlled to prevent disturbance of the natural foundation soils or compacted fill and to prevent flotation or movement of structures or pipelines.

B. Not Used

C. Surplus Material:

1. Unless otherwise specified, surplus excavated material shall be disposed of off site in accordance with applicable ordinances and environmental requirements.

D. Hauling:

1. When hauling is done over highways or city streets, the loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading. The loads shall be watered after trimming to eliminate dust.

E. Finish Grading:

1. Finished surfaces shall be smooth, compacted and free from irregularities. The degree of finish shall be that normally obtainable with a blade-grader.
2. Finished grade shall be as specified by the contours plus or minus 0.10-foot except where a local change in elevation is required to match sidewalks, curbs, manholes and catch basins, or to ensure proper drainage. Allowance for topsoil and grass cover, and subbase and pavement thickness shall be made so that the specified thickness of topsoil can be applied to attain the finished grade.
3. When the work is an intermediate stage of completion, the lines and grades shall be as specified plus or minus 1/2 foot to provide adequate drainage.
4. If the soil is to be cultivated or straw is to be incorporated into the surface, rocks larger than 2-1/2 inches in maximum dimension, roots and other debris on the surface of the slope shall be removed and disposed of prior to cultivation or placement of straw.

F. Control of Erosion:

1. The Contractor shall maintain earthwork surfaces true and smooth and protected from erosion. Where erosion occurs, the Contractor shall provide fill or shall excavate as necessary to return earthwork surfaces to the grade and finish specified.

3.02 NOT USED

3.03 NOT USED

3.04 EARTHWORK FOR PIPELINES AND CONDUITS

A. General:

1. Earthwork for pipelines and conduits is specified in MAG Section 601; in the standard details; and in the following paragraphs.

B. Pipeline Excavation:

1. The bottom of the trench shall be carried to the specified lines and grades with proper allowance for pipe thickness and for bedding as specified in MAG Section 601.

C. Pipeline Backfill:

1. Bedding: The Contractor shall not proceed with backfill placement in excavated areas until the subgrade has been inspected by the Construction Manager. All pipe shall have a minimum thickness of bedding material below the barrel of the pipe as specified in MAG Section 601. Bedding material shall be placed in the bottom of the trench, leveled and compacted. Bell holes shall be excavated at each pipe joint to permit proper inspection and uniform bearing of pipe on bedding material.
 - a. After the pipe has been laid to alignment and grade, unless otherwise specified, additional bedding material shall be placed in layers the full width of the trench and compacted up to the specified level. Bedding shall be placed simultaneously on both sides of the pipe, keeping the level of backfill the same on each side. The material shall be carefully placed and compacted around the pipe to ensure that the pipe barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe. Contractor shall use particular care in placing material on the underside of the pipe to prevent lateral movement during backfilling.
2. Initial Backfill: After pipe has been properly bedded, Contractor shall place and compact initial backfill as specified. Initial backfill, where specified below the springline of the pipe, shall be placed and compacted in accordance with paragraph 3.04 Bedding for additional bedding material.
3. Subsequent Backfill:
 - a. General: Backfill material, placement and compaction above the pipe zone shall be as specified. Backfill above the pipe zone shall not commence until pipe zone backfill has been inspected and accepted by the Construction Manager.
 - b. Improved Areas: Unless otherwise specified, select granular backfill per MAG Section 702, Type A, shall be used under all paved and unpaved roadways and paved and unpaved roadway shoulders, roadway embankments, and in all public rights-of-way and easements. The trench shall be backfilled to an elevation which will permit the placement of the specified surface or paving. Paving shall be as specified in Section 32 12 16 and as shown on the Drawings. Other surfaces

shall be restored, including compaction, to the condition existing prior to construction including restoration of yard areas.

- c. Unimproved Areas: Unclassified material free from peat, wood, roots, bark, debris, garbage, rubbish or extraneous material with a maximum stone size of 6 inches shall be used as backfill for all trenches in pastureland, cultivated land, undeveloped land, and for other unimproved areas where specified. Unclassified material backfill shall not be used in any public right-of-way. Trench operation which meets the requirements of unclassified material may be used. The Contractor shall maximize the use of fine-grained materials (e.g., sand, silty sand, sandy silt) as unclassified material backfill.
 - 1) For unclassified material backfill, the trench above the pipe zone shall be backfilled to within 12 inches of original ground surface. The top 12 inches of soil shall be removed and stored in such a manner that it will not become mixed with unsatisfactory soils. After the trench has been backfilled, the stored topsoil shall be replaced at a uniform depth in its original area compacted to its original condition. The Contractor shall leave the backfilled trench neatly mounded not more than 6-inches above existing grade for the full width of the unclassified material backfill area.
 - 2) The maximum uncompressed layer shall be 8-inches in depth and the minimum relative compaction shall be 90-95 percent.

3.05 SUBGRADE FOR PAVEMENT

- A. The prepared subgrade shall be scarified to a depth of at least 12 inches and recompact to at least 95 percent of the maximum density.

END OF SECTION

SECTION 32 12 16

ASPHALT PAVING

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section specifies paving consisting of aggregate base, asphaltic concrete, and associated materials.

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM D1557	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.5-kg) Rammer and 18-in (457-mm) Drop
MAG	Maricopa Association of Governments

B. Testing:

1. Testing will be conducted by the Construction Manager to determine compliance with the specified degree of compaction and moisture content.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate Base:

1. Aggregate base shall be crushed aggregate per MAG Section 702 and 710.

B. Not Used

- C. Asphalt Concrete:
 - 1. Asphaltic concrete shall be per MAG Section 710. Surface course shall be Type 12.5-mm. Base course shall be 25.0-mm.
- D. Traffic Line Paint:
 - 1. Traffic line paint shall be a white latex traffic paint 21209 by Glidden, Vin-L-Stripe acrylic epoxy traffic paint W-801 by Dunn-Edwards, or equal.

PART 3 EXECUTION

3.01 GENERAL

- A. Construction shall conform to the details, dimensions and grades specified. Maximum variations in finished grade of paving shall be plus or minus 0.05 feet.

3.02 AGGREGATE BASE PLACEMENT

- A. Subgrade:
 - 1. Areas to be paved shall be graded and compacted in accordance with Section 31 23 00-3.05 and MAG Section 301.
- B. Aggregate Base:
 - 1. Placing of aggregate base shall comply with MAG Section 310. Relative compaction shall be a minimum of 95 percent as determined using methods set forth in ASTM D1557.
- C. Not Used

3.03 ASPHALT CONCRETE PAVEMENT

- A. Asphalt Concrete:
 - 1. Placement of asphalt concrete pavement shall comply with MAG Section 321. Berms shall be shaped and compacted with an extrusion machine.
- B. Tack Coat:
 - 1. Tack coat shall be applied to all vertical surfaces of existing pavement; to curbs, gutters, and construction joints against which asphalt concrete will be placed; to pavements to be surfaced; and where specified at the approximate rate of 0.05 gallons per square yard. Application shall comply with MAG Section 329. Immediately prior to placing asphalt concrete, additional tack coat shall be applied to areas where the tack coat has been damaged.
 - 2. Immediately prior to construction of asphalt concrete berms, a continuous tack coat shall be applied to the pavement surface. Application of the tack coat shall not cause a slip or weakened plane between the two joined surfaces.
- C. Traffic Line Painting:
 - 1. Traffic lines shall be painted on pavement surfaces where specified. Surfaces are to be free of contaminants that may interfere with adhesion. Thinning and coverage shall be as recommended by the manufacturer, but coverage shall not exceed

400 square feet per gallon. Traffic lines shall be of uniform width with the edges straight and even. Traffic shall be restricted from the area until the paint has dried.

3.04 PAVEMENT REMOVAL AND REPLACEMENT

- A. Removal of the existing pavement, curb and/or gutter shall be per MAG Section 336.
- B. Existing asphalt pavement, curb and/or gutter to be removed shall be saw-cut, making a neat, straight and smooth edge.
- C. Pavement replacement shall be "T"-top per MAG Standard Detail 200.
- D. New pavement thickness shall match the existing pavement thickness.

END OF SECTION

SECTION 33 05 31
DUCTILE-IRON PIPE

PART 1 GENERAL

1.01 DESCRIPTION

- A. Scope:
1. This section specifies ductile iron pipe, ductile fittings and gaskets.
- B. Definition:
1. Where cast-iron pipe is specified, the term and symbol shall mean ductile-iron pipe.

1.02 REFERENCES

- A. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
- B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI B16.1	Cast Iron Pipe Flanges and Flanged Fittings Class 25, 125, 250, and 800
ANSI B16.5	Pipe Flanges and Flanged Fittings
ASTM C150	Portland Cement
AWWA C104 (ANSI A21.4)	Cement-Mortar Lining for Ductile- Iron and Gray-Iron Pipe and Fittings for Water
AWWA C105 (ANSI A21.5)	Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids
AWWA C110 (ANSI A21.10)	Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In., for Water and Other Liquids
AWWA C111 (ANSI A21.11)	Rubber-Gasket Joints for Ductile- Iron and Gray-Iron Pressure Pipe and Fittings
AWWA C115 (ANSI A21.15)	Flanged Ductile-Iron and Gray-Iron Pipe with Threaded Flanges
AWWA C150 (ANSI A21.50)	Thickness Design of Ductile-Iron Pipe
AWWA C151 (ANSI A21.51)	Ductile-Iron Pipe, Centrifugally Cast, in Metal Molds or Sand-Lined Molds, for Water or Other Liquids

Reference	Title
AWWA C153 (ANSI A21.53)	Ductile-Iron Compact Fittings for Water Service
AWWA C600	Installation of Ductile-Iron Water Mains and Their Appurtenances
MAG	Maricopa Association of Government
NSF	National Sanitation Foundation

1.03 SUBMITTALS

- A. The following information shall be provided in accordance with Section 01 33 00:
1. Shop drawings.
 2. Alignment drawings.
 3. Certifications specified in the following documents:
 - a. ANSI A21.14, paragraph 14-4.2.
 - b. ANSI A21.52, paragraph 52-4.2.
 - c. ASTM A716, paragraph 4.2.
 - d. AWWA C110, paragraph 10-5.3.
 - e. AWWA C111, paragraph 11-7.1.
 - f. AWWA C115, paragraph 15-4.2.
 - g. AWWA C151, paragraph 51-5.2.
 - h. AWWA C153, paragraph 53-6.3.
 - i. AWWA C606, paragraph 4.1.1.1.

PART 2 PRODUCTS

2.01 GENERAL

- A. Pipe design, materials and manufacture shall comply with the following documents:

Item	Document
Thickness design	AWWA C150
Manufacturing requirements	
• Water or other liquid	AWWA C151
Joints	
• Rubber gasket	AWWA C111
• Threaded flange	AWWA C115
Fittings	
• Water or other liquid	AWWA C110/AWWA C153
• Gas	ANSI A21.14
Cement mortar lining	AWWA C104
Polyethylene Encasement	AWWA C105

- B. All pipe, fittings, and any other material that comes in contact with potable drinking water shall comply with NSF Standards 60 and 61.

2.02 PIPE

- A. Unless otherwise specified, ductile-iron pipe shall be Pressure Class 350 for buried installations and Thickness Class 53 for above ground and have nominal laying lengths of 18 or 20 feet. For flanged-end pipe, wall thickness shall be minimum Class 53 except where the specified pressure requires heavier pipe.

2.03 GASKETS

- A. Unless otherwise specified, gasket stock shall plain rubber, styrene-butadiene (SBR) gaskets for water services with temperatures less than 150 degrees F. Gaskets shall, in addition, comply with AWWA C111 for push-on and mechanical joints.

2.04 FITTINGS

- A. Unless otherwise specified, fittings shall conform to AWWA C110. Ends shall be flanged, restrained mechanical joint, restrained push-on, or grooved to suit the conditions specified. The AWWA C153 compact ductile-iron fittings are an acceptable substitute for standard fittings unless otherwise specified. Long-radius elbows shall be provided where specified.

2.05 JOINTS

- A. Unrestrained Joints:
 - 1. Push-On Joints: Unrestrained joints, where specified, shall be the rubber ring compression, push-on type joint suitable for buried service. Unrestrained joints shall be the Fastite Joint as manufactured by American Cast Iron Pipe Company, the Tyton Joint as manufactured by U.S. Pipe, or equal. This joint is not permitted on fittings or specials, unless otherwise specified. Unless otherwise specified, joints shall have an allowable deflection up to 5 degrees at specified pressures. Joint assembly and field cut joints shall be made in strict conformance with AWWA C600 and manufacturer's recommendations.
 - 2. Mechanical Joints: Where specified, mechanical joints for above or below ground service shall meet the requirements of ANSI/AWWA A21.10/C110 and ANSI/AWWA A21.11/C111. Gaskets and bolts and nuts shall comply with paragraphs 2.03 and 2.05D Bolts and Nuts, respectively.
- B. Restrained Joints:
 - 1. General: Unless otherwise specified, restrained joints are required for all exposed and buried piping. Unless otherwise specified, restrained joints shall be flanged for exposed service and restrained push-on for buried service.
 - 2. Push-On Joints: Restrained push-on joints shall be as specified in paragraph 2.05 Push-On Joints, modified for restraint. Joints shall be the Flex-Ring or Lok-Ring Joint as manufactured by American Cast Iron Pipe Company, TR Flex Joint as manufactured by US Pipe, or equal. Restrained joints shall be capable of being deflected after full assembly. Joint assembly shall be in strict conformance with AWWA C600 and manufacturer's recommendations. No field cuts of restrained pipe are permitted without prior approval of the Construction Manager.
 - 3. Flange Assemblies: Unless otherwise specified, flanges shall be ductile iron and shall be threaded-on flanges conforming to ANSI/AWWA A21.15/C115 or cast-on flanges

conforming to ANSI/AWWA A21.10/C110. Flanges shall be adequate for 250-psi working pressure. Bolt circle and bolt holes shall match those of ANSI B16.1, Class 125 flanges and ANSI B16.5, Class 150 flanges. Where specified, flanges shall be threaded-on or cast-on flanges conforming to ANSI B16.1, Class 250.

4. Mechanical Joints: Where specified, restrained mechanical joints shall be the positive-restraint type. Mechanical joints with retainer glands are not acceptable.
 - a. Locked mechanical hydrant tees, bends and adapters are an acceptable substitute for anchoring fire hydrants and valves to the pipe main.

C. Not Used

D. Bolts and Nuts: Corrosion-resistant bolts and nuts for use with ductile iron joints shall be high-strength, low-alloy steel as specified in ANSI/AWWA C111/A21.11.

2.06 PIPE COATING

A. Asphaltic Coating:

1. Unless otherwise specified, pipe and fittings shall be coated with asphaltic material as specified in AWWA C151.

B. Polyethylene Encasement:

1. Pipe and fittings shall be wrapped with polyethylene film in tube form as specified in AWWA C105 and MAG Section 610.

2.07 PIPE LINING

A. Cement Mortar Lining: Interior surfaces of pipe and fittings shall be cement mortar lined in accordance with AWWA C104. Cement shall be ASTM C150, Type II or V, low alkali, containing less than 0.60 percent alkalis.

2.08 PIPING IDENTIFICATION

A. Plastic Tracer Tape:

1. Tracer tape shall be per MAG Section 616, blue in color, and made of inert plastic material suitable for direct burial. Tape shall be capable of stretching to twice its original length and shall be as manufactured by Allen Systems, W. H. Brady Co., Seton Name Plate Corporation, Marking Services Inc., or equal.
2. Two messages shall be printed on the tape. The first message shall read **"CAUTION CAUTION CAUTION RAW WATER PIPE BURIED BELOW"** with bold letters approximately 2-inches high. The second message shall read **"CALL 623-882-7887"** with letters approximately 3/4-inch high. Both messages shall be printed at maximum intervals of 2 feet. All buried lines shall have tracer tape.

PART 3 EXECUTION

3.01 INSTALLATION

A. General:

1. Piping runs specified on the drawings shall be followed as closely as possible. Proposed deviations shall be submitted in accordance with Section 01 33 00.

2. Pipe shall be installed in accordance with AWWA C600, MAG Section 610, and the detail on the Drawings.
 3. Connections to existing structures and manholes shall be made so that the finished work will conform as nearly as practicable to the requirements specified for the new manholes, including necessary concrete work, cutting and shaping. Concrete mortar shaping within any structure and manhole shall be as specified.
- B. Plastic Tracer Tape:
1. A single line of tape as specified in paragraph 2.08 Plastic Tracer Tape shall be provided 2-1/2-feet above the centerline of buried pipe. For pipelines buried 8-feet or greater below finished grade, contractor shall provide a second line of tape 12-inches below finished grade, above and parallel to each buried pipe. Tape shall be spread flat with message side up before backfilling.
- C. Anchorage:
1. Anchorage shall be provided as specified. Calculations and drawings for proposed alternative anchorage shall be submitted in accordance with Section 01 33 00.

3.02 ACCEPTANCE TESTING

- A. Hydrostatic pressure and leakage tests shall be conducted in accordance with Section 4 of AWWA C600 and MAG Part 600. Equipment which may be damaged by the specified test conditions shall be isolated. Testing shall be performed using calibrated test gages and calibrated volumetric measuring equipment to determine leakage rates. Each test gage shall be selected so that the specified test pressure falls within the upper half of the gage's range. Unless otherwise specified, the Contractor shall notify the Construction Manager 24 hours prior to each test.
- B. The Contractor shall conduct the tests in the presence of the Construction Manager.
- C. Unless otherwise specified, testing, as specified herein, shall include existing piping systems which connect with new pipe systems. Existing pipe shall be tested to the nearest existing valve. Any piping which fails the test shall be repaired. Repair of existing piping will be considered and paid for as extra work.

3.03 CLEANING AND FLUSHING

- A. General:
1. Pipe cleanliness and cleaning shall be per MAG Section 610.4.4. Piping systems shall be cleaned following completion of testing and prior to connection to operating, control, regulating or instrumentation equipment. The Contractor may, at his option, clean and test sections of buried or exposed piping systems. Use of this procedure, however, will not waive the requirement for a full pressure test of the completed system. Unless specified otherwise, piping 24 inches in diameter and smaller shall first be cleaned by pulling a tightly fitting cleaning ball or swab through the system. Piping larger than 24 inches in diameter may be cleaned manually or with a cleaning ball or swab.
- B. After completion of cleaning, potable water systems shall be flushed and disinfected in accordance with the City of Goodyear flushing and disinfection procedures, AWWA C651, and MAG Section 611, unless noted otherwise. The Contractor shall collect all samples

and send to an independent laboratory. Results of the tests shall be interpreted by the Contractor and reported to the Owner.

3.04 POLYETHYLENE TUBE

- A. Polyethylene encasement shall be used. Installation of polyethylene shall be as specified in AWWA C105, MAG 610, and these Specifications. Pipe, fittings, valves and couplings shall be wrapped. Fittings that require concrete backing shall be wrapped prior to placing the concrete.
- B. The polyethylene tube seams and overlaps shall be wrapped and held in place by means of a 2-inch wide plastic-backed adhesive tape. The tape shall be Polyken No. 900 (polyethylene), Scotchwrap No. 50 (polyvinyl), or equal. The tape shall be such that the adhesive shall bond securely to both metal surfaces and polyethylene film. Bedding and initial backfill for polyethylene-wrapped pipe shall be a well-graded granular material which will not cut or damage the polyethylene tube during placement and backfilling. Sharp angular material over 1/2-inch shall not be used with polyethylene encasement.

END OF SECTION

SECTION 40 05 61.16

GATE VALVES

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section specifies bronze and iron-body, solid-wedge gate valves. Iron-body valves shall be bronze-mounted.

1.02 QUALITY ASSURANCE

- A. References:
1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
 2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM A395	Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures
ASTM A536	Standard Specification for Ductile Iron Castings
AWWA C515	Reduced Wall, Resilient-Seated Gate Valves for Water Supply Service
AWWA C550	Protective Interior Coating for Valves and Slide Gates

- B. Design Criteria:
1. Gate valves 3 inches through 48 inches in size shall comply with AWWA C515, including applicable hydrostatic testing. Gate valves smaller than 3 inches shall be subject to hydrostatic tests at the test pressure.

1.03 SUBMITTALS

- A. Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures and shall include at a minimum the following:
1. A copy of this section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked (✓) to indicate Specification compliance or marked to indicate requested deviations from Specification requirements or those parts which are to be provided

by the Contractor or others shall be provided. Check marks shall denote full compliance with a paragraph as a whole.

If deviations from the Specifications are indicated, and therefore requested, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Engineer shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined shall signify compliance with the Specifications. Failure to include a copy of the marked-up Specification sections, along with justification(s) for any requested deviations to the requirements of the Specification shall be cause for rejection of the entire submittal and no further submittal material will be reviewed.

2. Equipment literature, cut sheets and data sheets for all equipment supplied under this section.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials of construction shall be as follows:

Component	Material
Body:	
Larger than 3 inches	Ductile iron, ASTM A395 or ASTM A536
Wedge:	
Larger than 3 inches	Fully encapsulated with nitrile rubber
Coating, Interior and Exterior:	Epoxy per AWWA C550
Fasteners	Stainless steel

- B. Materials specified are considered the minimum acceptable for the purposes of durability, strength, and resistance to erosion and corrosion. The Contractor may propose alternative materials for the purpose of providing greater strength or to meet required stress limitations. However, alternative materials must provide at least the same qualities as those specified for the purpose.

2.02 MANUFACTURE

- A. General:

1. Unless otherwise specified, bronze gate valves shall be provided with integral seats.
2. Iron body valves shall be provided with screwed-on seat rings. Exposed gate valves shall be rising-stem type. Buried or submerged gate valves shall be of the nonrising-stem type. Rising-stem valves and brass nonrising-stem valves shall be provided with a Teflon braid packing. Iron-body nonrising-stem valves shall be provided with O-ring stem seals.
3. Stem o-rings shall be replaceable, with the valve fully open at rated working pressure.

- B. End Connections:

1. Gate valve end connections shall be flanged, mechanical, push-on or threaded as specified for adjacent piping. Threaded ends shall not be provided on gate valves with end connections larger than 4 inches. End flanges shall be integral with the gate valve body and be faced and drilled in accordance with ANSI B16.1 for 125-pound

flanges. Mechanical joints shall meet the requirements of ANSI/AWWA A21.10/C110 and ANSI/AWWA A21.11/C111.

C. Manual Operators:

1. Unless specified otherwise, above-ground valves less than 12-inch size shall be provided with handwheels, and valves 12 inches and larger shall be provided with geared operators. All buried valves shall be provided with wrench nuts.
2. Direction of open shall be counterclockwise (left).

D. Acceptable Products:

1. Gate valves shall be as manufactured by the following, modified to meet the specified features and to meet the specified operating conditions:

Manufacturer	Model
Americal Flow Control	AFC 2500-1
Clow	Style 2638 or 2639
M&H	Style 7000
Kennedy	Style 7000
Mueller	Series 2361 or 2362
US Pipe	Model UPS1

2.03 PRODUCT DATA

- A. The following information shall be provided in accordance with Section 01 33 00:
1. Affidavits of compliance, as required by AWWA C509.
 2. Hydrostatic test results.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Gate valves shall be installed in the closed position.
- B. After installation and before pressurization of the valve, all pressure-containing bolting (bonnet, seal plate, packing-gland bypass and end connections) shall be inspected by the Contractor and witnessed by the Construction Manager for adequate tightness to prevent leakage. In addition, an inspection shall be made for the adequate tightness of all tapped and plugged openings to the valve interior.

END OF SECTION

SECTION 40 05 78.13
AIR/VACUUM VALVES FOR WATER SERVICE

PART 1 GENERAL

1.01 DESCRIPTION

- A. Scope:
1. This section specifies air-release valves, air-and-vacuum valves, and combination-air valves for clean water service, pumping, and storage applications.
- B. Types:
1. Air Release Valves: Air release valves (ARV) shall have a small venting orifice to vent the accumulation of air and other gases with the line or system under pressure. Size and capacity shall be as specified.
 2. Air-and-Vacuum Valves: Air and vacuum valves (AVV) shall have a large venting orifice to permit the release of air as the line is filling or relieve the vacuum as the line is draining or is under negative pressure. Size and capacity shall be as specified.
 3. Combination Air Valves: Combination air valves (CAV) shall have operating features of both the AVV and the ARV. They include both single- and dual-body construction. Size and capacity shall be as specified.

1.02 REFERENCES

- A. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
- B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM A126	Gray Iron Castings for Valves, Flanges, and Pipe Fittings
ASTM A240	Heat-Resisting Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels

1.03 SUBMITTALS

- A. Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures and shall include at a minimum the following:

1. A copy of this section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked (✓) to indicate Specification compliance or marked to indicate requested deviations from Specification requirements or those parts which are to be provided by the Contractor or others shall be provided. Check marks shall denote full compliance with a paragraph as a whole.

If deviations from the Specifications are indicated, and therefore requested, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Engineer shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined shall signify compliance with the Specifications. Failure to include a copy of the marked-up Specification sections, along with justification(s) for any requested deviations to the requirements of the Specification shall be cause for rejection of the entire submittal and no further submittal material will be reviewed.

2. Equipment literature, cut sheets and data sheets for all equipment supplied under this section.

1.04 SCHEDULE

Valve number	Valve size, inches	Type	System press, PSI	Capacity, CFFAM/SCFS
1	2	CAV		
2	2	CAV		
3	2	CAV		

PART 2 PRODUCTS

2.01 ACCEPTABLE PRODUCTS

- A. Air release and vacuum valves shall be ARI Valve Corporation, no equal, modified to provide the specified features and to meet the specified operating conditions.

2.02 MATERIALS

Component	Material
Body, cover	Cast iron, ASTM A126, Grade B
Float	Type 316 SS, ASTM A240
Seat	Buna-N or Type 316 SS
Trim	Type 316 SS, ASTM A240

- A. Materials specified are considered the minimum acceptable for the purposes of durability, strength, and resistance to erosion and corrosion. The Contractor may propose alternative materials for the purpose of providing greater strength or to meet required stress limitations. However, alternative materials must provide at least the same qualities as those specified for the purpose.

2.03 CONSTRUCTION

- A. ARVs shall be float-operated, compound-lever type, except ARVs less than 1-inch may be simple-lever type.
- B. AVVs shall be designed to protect the float from direct contact of the rushing air and water to prevent the float from closing prematurely in the valve. The seat shall be fastened into the valve cover, and shall be easily removed if necessary. The float shall be center or peripheral guided for positive shutoff into the seat.
- C. CAVs, unless otherwise specified, shall be single-body construction in sizes 1- through 6-inch and dual-body construction in sizes 8-inch and larger. Single-body construction shall be designed to provide all functions within one housing. The body inlet shall be baffled to protect the float and the large and small orifices shall be designed so that during large orifice closure, the small air-release orifice will open to allow small amounts of air to escape. Dual-body construction shall combine one AVV and one ARV with interconnecting piping and gate valve.
- D. Valves shall be suitable for pressures up to 150-psi.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Air release and vacuum valves shall be installed in accordance with the manufacturer's recommendations. Unless otherwise specified, isolation valves shall be provided below each air valve.

END OF SECTION

ATTACHMENT: GEOTECHNICAL ENGINEERING REPORT

**Geotechnical Engineering Report
Adaman Well 3 New Water Line
Bethany Home Road and Sarival Road
Maricopa County, Arizona
RAMM Project No. G23826**



Expires 9/30/2018

For:
Brown and Caldwell, Inc.
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By:
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RICKER • ATKINSON • McBEE • MORMAN & ASSOCIATES, INC.
Geotechnical Engineering • Construction Materials Testing

R·A·M·M

Brown and Caldwell, Inc.
201 East Washington, Suite #500
Phoenix, Arizona 85004

May 24, 2017

Attention: Tracy H. Moraca, P.E., PMP, Senior Associate

Subject: Geotechnical Engineering Report
Adaman Well 3 New Water Line
Bethany Home Road and Sarival Road
Maricopa County, Arizona

RAMM Project No. G23826

Attached to this letter is the Geotechnical Engineering Report for the proposed Adaman Well 3 New Water Line located in Maricopa County, Arizona.

The proposed project will consist of approximately 5,000 linear feet of 12-inch diameter water line and will likely be buried 6 to 8 feet below grade. The results of our field explorations; laboratory testing; and engineering analyses, evaluation and recommendations are presented in the report.

The attached report was prepared based on project and site data available at this time and was prepared in a manner and to the standards of the local geotechnical engineering practice. Our services did not include evaluations for the presence of hazardous materials; for concrete durability and corrosion potential with respect to site use water sources; or for geologic hazards other than for area subsidence resulting from groundwater withdrawal.

If you have any questions, please do not hesitate to call.

Respectfully submitted,

RICKER • ATKINSON • McBEE • MORMAN & ASSOCIATES, INC.



Expires – 9/30/2018

By: Kip E. Reese, P.E.



Expires – 3/31/2019

Reviewed By: Kenneth L. Ricker, P.E.

/dh

Copies to: Addressee (tmoraca@brwnncald.com)

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Expires 9/30/2018

REPORT



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INTRODUCTION

This report presents the results of our geotechnical engineering services for the proposed Adaman Well 3 New Water Line located in Maricopa County, Arizona. The scope of our services included performing a field exploration program, laboratory analysis and geotechnical engineering evaluation, analysis and recommendations. The geotechnical recommendations presented herein include those for anticipated excavation conditions, site development, and material use and requirements. We would be pleased to discuss with you any additional recommendations you may require. In addition, we are available to review project specifications and plans for conformance with our recommendations at no charge to you.

This firm should be notified for additional evaluation and recommendations if the project design parameters (location, type, size, pipeline alignment, etc.), site use, or conditions encountered during construction differ from those presented herein.

PROPOSED CONSTRUCTION

The proposed project will consist of approximately 5,000 linear feet of 12-inch diameter water line and will likely be buried 6 to 8 feet below grade.

SITE CONDITIONS

The proposed Adaman Well 3 New Water Line is located along Bethany Home Road and Sarival Road in Maricopa County, Arizona. The alignment extends eastward from the proposed Adaman Well 3 site at the southeast corner of Bethany Home Road and Loop 303 to Sarival Road and south approximately ½ mile along Sarival Road where it connects to an existing water line. The alignment is located within relatively flat, unpaved shoulders of the roadways.

GROUND SUBSIDENCE AND EARTH FISSURES:

Earth fissures typically occur initially along the edges of a zone of subsidence (often along the edges of mountain ranges or salt domes) resulting from significant groundwater withdrawal. The groundwater withdrawal has resulted in the weight of the soil that was once below the water table to about double where the soil was no longer submerged, causing subsidence in high withdrawal areas on the order of several feet to tens of feet.

Our review of the most recent information regarding earth fissures and ground subsidence published by the Arizona Geological Survey (AZGS) (Earth Fissure Map of the Luke Study Area:

Maricopa County, Arizona, January 2016) indicates that no known or unconfirmed earth fissures are located along or within a ½-mile radius of the waterline alignment. The nearest unconfirmed earth fissure is located approximately 1-¼ miles south-southeast of the alignment. The alignment is located within an area of known ground subsidence based on our review of the Arizona Department of Water Resources (ADWR) land subsidence rate map for the West Valley Land Subsidence Feature, May 8, 2010 to April 6, 2016. The map indicates that 0 to 0.4 inches of land subsidence has occurred in the area of the site.

FIELD EXPLORATIONS

Subsurface conditions at the site were explored by drilling seven test borings to a depth of 10 feet along the proposed alignment, as shown on the Site Plan in Appendix A. The test borings were drilled with a CME 55 drill rig using an eight-inch diameter, hollow-stem auger. The drilling equipment and crew were provided by Wildcat Drilling, Inc. The test boring locations were determined in the field by our field technician. During the field exploration representative undisturbed and disturbed samples were obtained, the field explorations logged and soils field-classified by our field technician, who also directed the drill crew. Relatively undisturbed samples of the subsoils were obtained by driving a 3-inch diameter, ring-lined, open-end sampler into the soil with a 140-pound hammer dropping 30 inches. The results of the field explorations are presented on the Test Boring Logs in Appendix A.

LABORATORY ANALYSIS

Representative samples obtained during the field explorations were subjected to the following tests in our laboratory.

<u>Type of Test</u>	<u>Type of Sample</u>	<u>Number of Samples Tested</u>
Direct Shear	Undisturbed	3
Percent Passing No. 200 Sieve & Atterberg Limits	Representative	3
Swell	Remolded	3
Moisture Content/Dry Density *	Undisturbed	21
pH/Minimum Resistivity	Representative	3
Soluble Sulfates & Chlorides **	Representative	3

* Reported in the test boring logs

** Test performed by Motzz Laboratory, Inc.

The results of the laboratory analysis are presented in Appendix B.

SUBSURFACE CONDITIONS

The results of the test borings are presented in Appendix A in the Test Boring Logs. In general, the near surface soils encountered in the test borings along the proposed alignment, and extending to the full depth of exploration (10 feet), consisted of sandy clay to clayey sand containing some gravel. These soils were firm to stiff, were loose to medium dense, had low to medium plasticity and had zones of sandy silty clay to clayey silty sand and silty sand. Fill soils consisting of sandy clay to clayey sand containing some gravel was encountered to depths of 2.0 to 3.0 feet in Test Borings 1, 2 and 3. The fill soils were firm to stiff, were loose to medium dense and had low to medium plasticity. Soil moisture contents were described as damp to moist throughout the depths explored. No groundwater was observed in the test borings during the field exploration.

SITE DEVELOPMENT RECOMMENDATIONS

Surface Drainage:

Most soils will undergo some degree of volume change as the result of wetting. The degree of volume change will depend on the type of soil, swell potential, natural soils structure or degree of compaction (if a fill). These volume changes could result in movements in overlying non-structure elements including sidewalks, planters, etc. Therefore, good site and surface drainage away from these elements is required. In addition, water should not be allowed to pond within 10 feet of elements which are sensitive to movements.

Excavatability:

The excavatability of site materials is difficult to evaluate based only on the exploration equipment used during this design report. Therefore, we recommend that the contractor evaluate the excavatability of site materials by performing test excavations with the size and type of equipment the contractor plans on using at the site. For design purposes the following paragraph presents our best analysis as to the excavatability of site soils.

The near surface soils to a depth of at least 10 feet can probably be removed with conventional excavating equipment. OSHA requires all excavations over five feet in depth, in which personnel are to enter, be either braced or sloped in accordance with OSHA regulations.

Construction Excavation and Temporary Construction Cut Slopes:

The proposed water line excavations will likely extend to depths of 6 to 8 feet below existing grades. The following criteria are presented to aid in development of excavation plans.

1. Dewatering should not be required.
2. Unbraced temporary slopes with depths of up to 10 feet in the site soils should be constructed no steeper than 0.75H:1V in the sandy clay to clayey sand and 1H:1V in the fill. As an alternative, shoring, trench boxes or other forms of slope stabilization may be used for this project.
3. Surface areas behind the crest of excavations should be graded so that surface waters do not pond within 10 feet of the crest or drain into the excavation.
4. Heavy material stockpiles should not be placed within 10 feet of the crest. Similarly, heavy construction equipment should not pass or be parked within 10 feet of the crest.
5. The sides and crest of excavations and slopes should be monitored daily for evidence of movement or potential problems.

The design of any bracing or shoring systems should be reviewed by a qualified geotechnical engineer. Also, observations should be made by the geotechnical engineer during excavating to evaluate site conditions and determine if modifications are necessary in excavation procedures. If unbraced slopes are utilized, some surface raveling, erosion, and spalling should be expected unless measures are taken to stabilize exposed cut surfaces.

Earthwork Factors:

Earthwork losses due to ground height losses and shrinkage were estimated based on the soil conditions, the results of ring density testing and laboratory results. The materials encountered at the site were generally firm to stiff and loose to medium dense, and were relatively uniform, based on the results of the maximum density and optimum moisture determinations. The estimated ground height losses due to subgrade compaction are as follows for previously graded areas:

Ground Height Loss at Given Percent Compaction*

<u>95%</u>	<u>100%</u>
1.5 ± 0.5"	2.5 ± 0.5"

* Based on laboratory maximum dry density (ASTM D698), dry densities obtained from ring samples of in-situ soils from the near surface zone, and achieving a 10-inch deep compacted zone without stripping surface zones.

The estimated shrinkage losses from cut to fill zones are as follows for disturbed soils.

Estimated Percent Shrinkage at Given Percent Compaction *

<u>Depth of Excavation</u>	<u>95%</u>	<u>100%</u>	<u>105%</u>
0 to 18 inches	20 ± 5%	25 ± 5%	30 ± 5%
18 inches +	15 ± 5%	20 ± 5%	25 ± 5%

* Based on laboratory maximum dry density (ASTM D698), dry densities obtained from ring samples of in-situ soils from the near surface zone and local experience.

These estimates do not include losses due to wind or waste, overexcavation, etc.

Workability:

Wetting site soils such that moisture contents are at or above optimum could result in some soil pumping under dynamic loadings such as heavy construction equipment driving over the area. However, in areas where severe pumping has damaged subgrade conditions, the area should be allowed to dry until soils are workable without pumping or the wetted areas removed and replaced with drier site soils.

Corrosion Potential:

As part of this investigation laboratory pH and Minimum Resistivity testing of site soils was conducted. The results of the laboratory testing are included in Appendix B. Based on these results and corrosion potential criteria presented in the Arizona Department of Transportation (ADOT) Preliminary Engineering and Design Manual, Figure 203.04-5 and National Association of Corrosion Engineers (NACE) International Corrosion Severity Ratings, there appears to be a moderate to high potential for corrosion to buried ferrous metal structures and pipelines. This potential is a function of soil type and moisture content, material type and/or composition, water chemistry and other factors. Accordingly, the results of the laboratory testing should be made available to material suppliers and corrosion experts for review.

Concrete Durability:

As part of this investigation, Soluble Sulfates and Chlorides testing of site soils were conducted. The results of the laboratory testing are included in Appendix B. Based on our laboratory test results and 2006, 2009 and 2012 IBC Concrete Durability Requirements, Section 1904, there appears to be a low potential for deterioration to concrete in contact with site soils. This potential is a function of soil type and moisture content, material type and/or composition, water chemistry and other factors. Accordingly, the results of the laboratory testing should be made available to material suppliers and corrosion experts for review.

MATERIALS SUITABILITY AND REQUIREMENTS

Site Soils:

Along the proposed alignment, the near surface soils exhibit low to medium plasticity. These soils may be used as fill in all areas. All materials should be free of organics, debris, rubble and material greater than 4 inches in size.

Imported Soils:

Fill required beyond that available from site sources and for use as trench backfills should be imported soils meeting the following requirements:

Maximum Particle Size -----4 inches

Maximum Swell Potential ----- 1.5%*

- * Based on a sample which is remolded to 95% of the ASTM D698 maximum dry density at a moisture content of 2 percent below optimum, placed under a surcharge load of 100 psf and wetted.

Pipe Bedding:

Materials used as pipe bedding should be granular soils which meet the requirements of Section 601 of the MAG Specifications. Based on the results of the laboratory testing, the site soils will not be suitable for use as bedding.

SITE PREPARATION AND GRADING PROCEDURES

Trench Excavation Areas:

Recommendations presented in the previous sections of this report are based upon the following site preparation and grading procedures. Therefore, all earthwork should be accomplished with observation and testing by a qualified technician under the direction of a registered geotechnical/materials engineer. The following apply to trench excavation areas and pavement replacement areas.

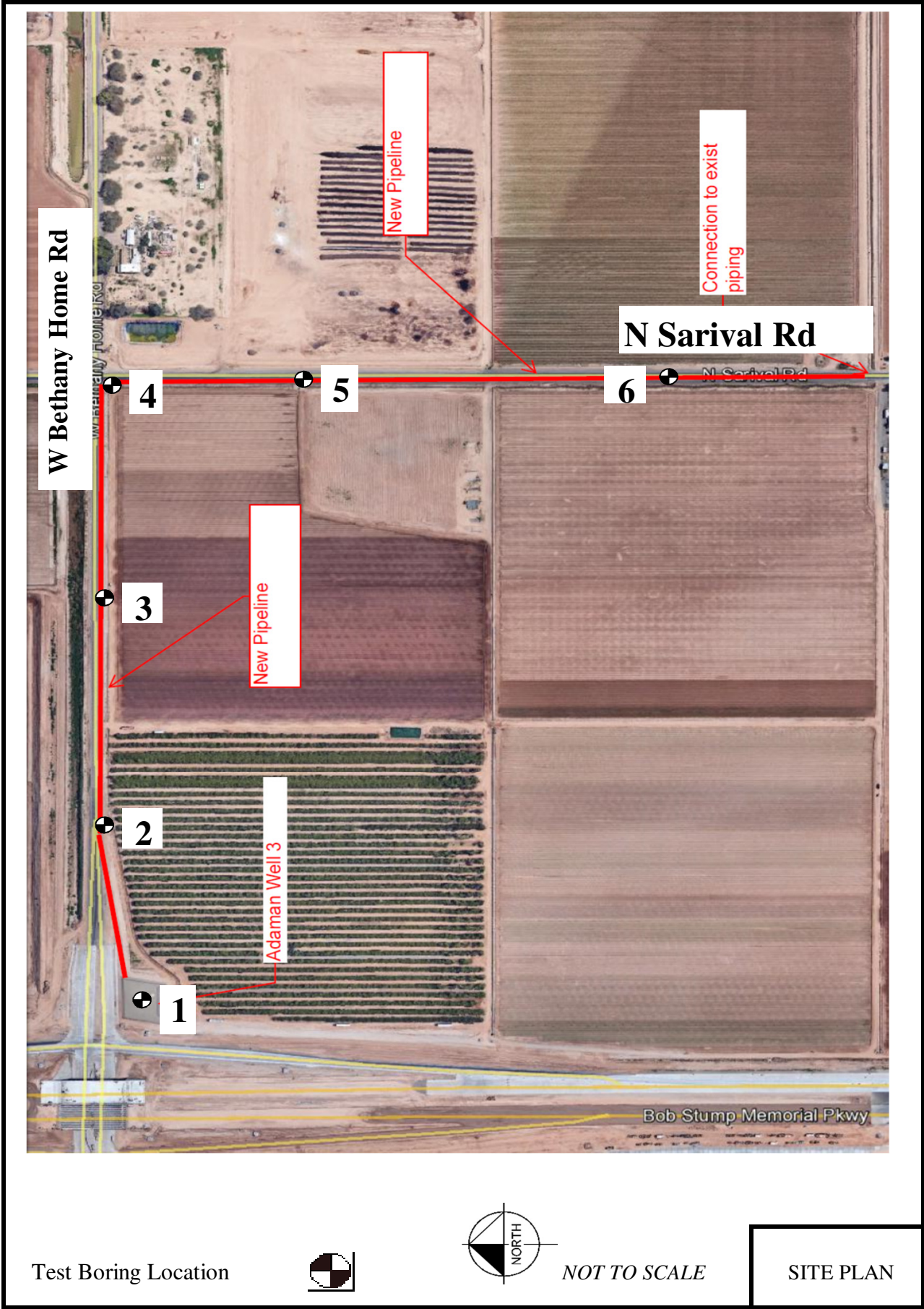
1. Clear and grub the site by removing and disposing of all vegetation, any trash and debris, and any rubble and remnants of former developments.
2. Moisture condition and place all fill and backfill materials required to achieve specified grades. Fill materials should be moisture conditioned, placed and compacted in horizontal lifts of thicknesses compatible with the compaction equipment being used.
3. Compact subgrade, fill or backfill, to the requirements presented in MAG Section 601 as modified by the Maricopa County.

APPENDIX A

FIELD EXPLORATIONS



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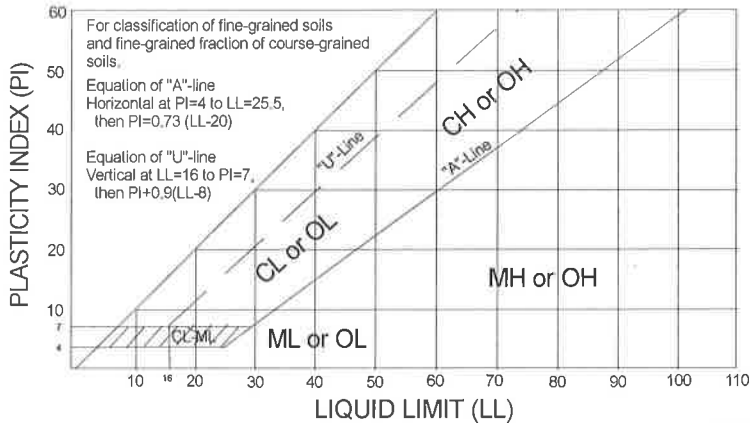
LEGEND

ASTM Designation: D2487-11

(Based on Unified Soil Classification System)

CLASSIFICATION OF SOILS

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				Soil Classification		
				Group Symbol	Name	
COARSE-GRAINED SOILS More than 50% retained on No. 200 Sieve	Gravels More than 50% coarse fraction retained on No. 4 Sieve	Clean Gravels Less than 5% fines	$Cu > 4$ and $1 < Cc < 3$	GW	Well graded gravel	
			$Cu < 4$ and/or $1 > Cc > 3$	GP	Poorly graded gravel	
		Gravels with Fines More than 12% fines	Fines classify as ML or MH	GM	Silty gravel	
			Fines classify as CL or CH	GC	Clayey gravel	
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	$Cu > 6$ and $1 < Cc < 3$	SW	Well-graded sand	
			$Cu < 6$ and/or $1 > Cc > 3$	SP	Poorly graded sand	
		Sands with Fines More than 12% fines	Fines classify as ML or MH	SM	Silty sand	
			Fines classify as CL or CH	SC	Clayey sand	
FINE-GRAINED SOILS 50% or more passes the No. 200 Sieve	Silt and Clays Liquid limit less than 50	Inorganic	$PI > 7$ and plots on or above "A" line	CL	Lean clay	
			$PI < 4$ or plots below "A" line	ML	Silt	
		Organic	<u>Liquid Limit - oven dried</u> Liquid limit - not dried	<0.75	OL	<u>Organic clay</u> Organic silt
	Silt and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay	
			PI plots below "A" line	MH	<u>Elastic silt</u> Organic clay	
		Organic	<u>Liquid limit - oven dried</u> Liquid limit - not dried	<0.75	OH	Organic silt
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor			PT	Peat	



TEST BORING LOG DEFINITIONS

Blows per foot using 140 pound hammer with 30 inch free-fall.

Depth, feet	Blows/Foot		Sample Type	Dry Density pcf	Water Content, %	Unified Classification	Description
	C	N/R					

C = Continuous Penetration Resistance (2 inch diameter rod)

N = Standard Penetration Resistance (ASTM D1586)

R = Penetration Resistance (3 inch diameter ring line sampler)

SILTS & CLAYS DISTINGUISHED ON BASIS OF PLASTICITY	GRAIN SIZES				CLEAR SQUARE SIEVE OPENINGS		
	200	40	10	4	3/4"	3"	12"
	SAND				GRAVEL		
	FINE	MEDIUM	COARSE		FINE	COARSE	
							COBBLES
							BOULDERS

MOISTURE CONDITION (INCREASING MOISTURE →)

DRY SLIGHTLY DAMP DAMP MOIST (Plastic Limit) VERY MOIST WET (SATURATED) (Liquid Limit)

CONSISTENCY CORRELATION		RELATIVE DENSITY CORRELATION	
CLAYS & SILTS	BLOWS/FOOT*	SANDS & GRAVELS	BLOWS/FOOT*
VERY SOFT	0-2	VERY LOOSE	0-4
SOFT	2-4	LOOSE	4-10
FIRM	4-8	MEDIUM DENSE	10-30
STIFF	8-16	DENSE	30-50
VERY STIFF	16-32	VERY DENSE	OVER 50
HARD	OVER 32		

*Number of blows of 140 lb hammer falling 30" to drive a 2" O.D. (1-3/8" I.D.) split-spoon sampler (ASTM D1586).

TEST BORING LOG

Project: Adaman Well 3 New Water Line – Maricopa County, Arizona Test Boring: 1
 Elevation: Not Determined Datum: --- Date: 4-20-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
		15	R	105	7	CL-SC	FILL: Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
5		9	R	106	7	CL-SC	Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
10		6	R	96	10		
							Stopped drilling at 10 feet. No groundwater observed.
15							
20							
25							
This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.							

TEST BORING LOG

Project: Adaman Well 3 New Water Line – Maricopa County, Arizona Test Boring: 2
 Elevation: Not Determined Datum: ---- Date: 4-20-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
		15	R	111	13	CL-SC	FILL: Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
5		5	R	101	7	CL-SC	Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
		5	R	100	9		
10							Stopped drilling at 10 feet. No groundwater observed.
15							
20							
25							
This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.							

TEST BORING LOG

Project: Adaman Well 3 New Water Line – Maricopa County, Arizona Test Boring: 3
 Elevation: Not Determined Datum: --- Date: 4-20-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
		21	R	106	12	CL-SC	FILL: Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
5		5	R	97	8	CL-SC	Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
		6	R	95	12		
10							Stopped drilling at 10 feet. No groundwater observed.
15							
20							
25							
This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.							

TEST BORING LOG

Project: Adaman Well 3 New Water Line – Maricopa County, Arizona Test Boring: 4
 Elevation: Not Determined Datum: --- Date: 4-20-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5		17	R	109	8	CL-SC	Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
5		19	R	104	8		
10		5	R	95	13		
10							Stopped drilling at 10 feet. No groundwater observed.
15							
20							
25							
							This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Adaman Well 3 New Water Line – Maricopa County, Arizona Test Boring: 5
 Elevation: Not Determined Datum: --- Date: 4-20-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5		14	R	102	3	CL-SC	Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
		6	R	100	13		
10		12	R	102	10		
15							Stopped drilling at 10 feet. No groundwater observed.
20							
25							
This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.							

TEST BORING LOG

Project: Adaman Well 3 New Water Line – Maricopa County, Arizona Test Boring: 6
 Elevation: Not Determined Datum: --- Date: 4-20-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5		11	R	108	7	CL-SC	Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
6		6	R	110	11		
10		10	R	101	11		
15							Stopped drilling at 10 feet. No groundwater observed.
20							
25							
This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.							

TEST BORING LOG

Project: Adaman Well 3 New Water Line – Maricopa County, Arizona Test Boring: 7
 Elevation: Not Determined Datum: --- Date: 4-20-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5		10	R	96	9	CL-SC	Sandy Clay to Clayey Sand, Some Gravel; brown, damp to moist, firm to stiff, loose to medium dense, low to medium plasticity.
9		9	R	97	9		
10		22	R	102	9		
15							Stopped drilling at 10 feet. No groundwater observed.
20							
25							
This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.							

APPENDIX B

LABORATORY ANALYSIS



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LABORATORY TEST RESULTS

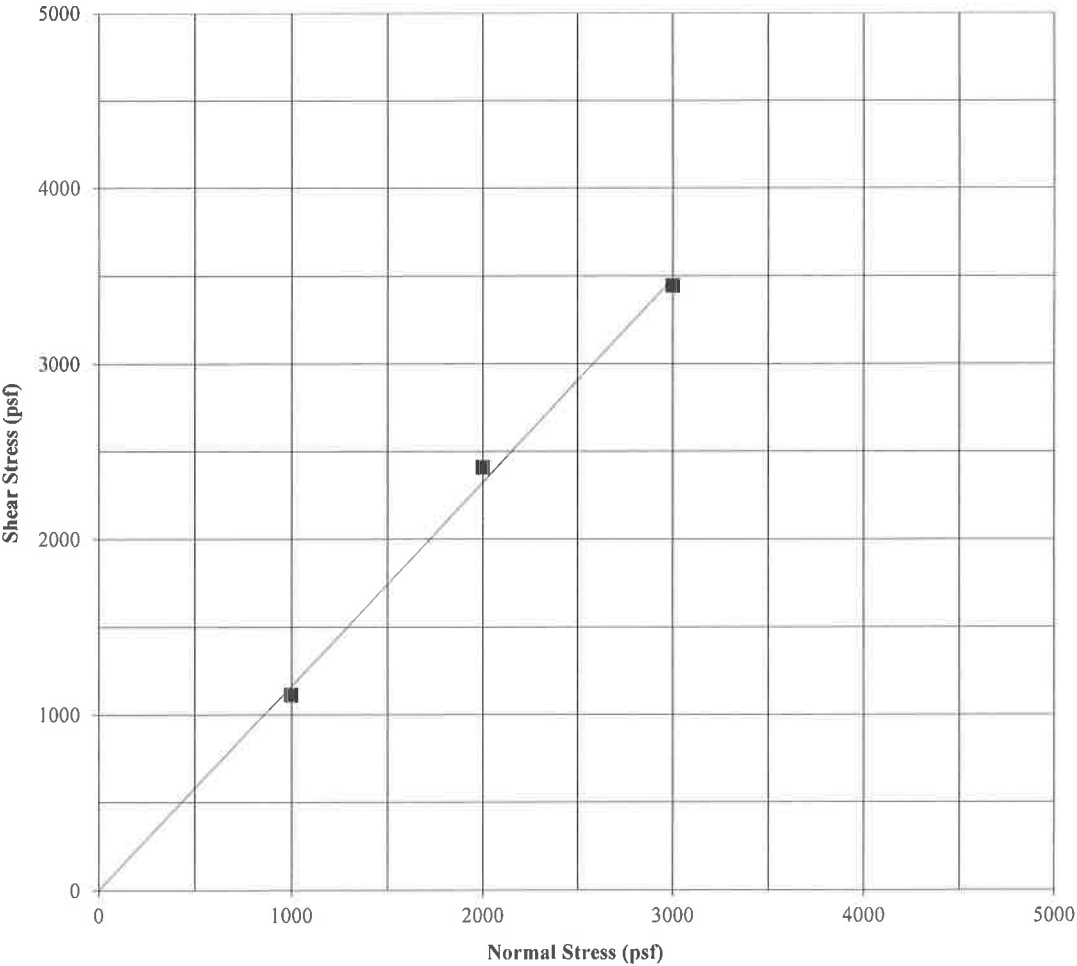
Date: 1-May-17

SAMPLE SOURCE: 1 @ 1.5'-2.5'

TESTING PERFORMED: Direct Shear (AASHTO T236) - Driven Ring Sample

SAMPLED BY: RAMM/Durot

RESULTS:
Dry Density (pcf): 105 Moisture Content (%): 7
Cohesion (psf): 0 Friction Angle (phi): 49



REMARKS: Samples not submerged prior to testing.

LABORATORY TEST RESULTS

Date: 1-May-17

SAMPLE SOURCE: 5 @ 5'-6'

TESTING PERFORMED: Direct Shear (AASHTO T236) - Driven Ring Sample

SAMPLED BY: RAMM/Durot

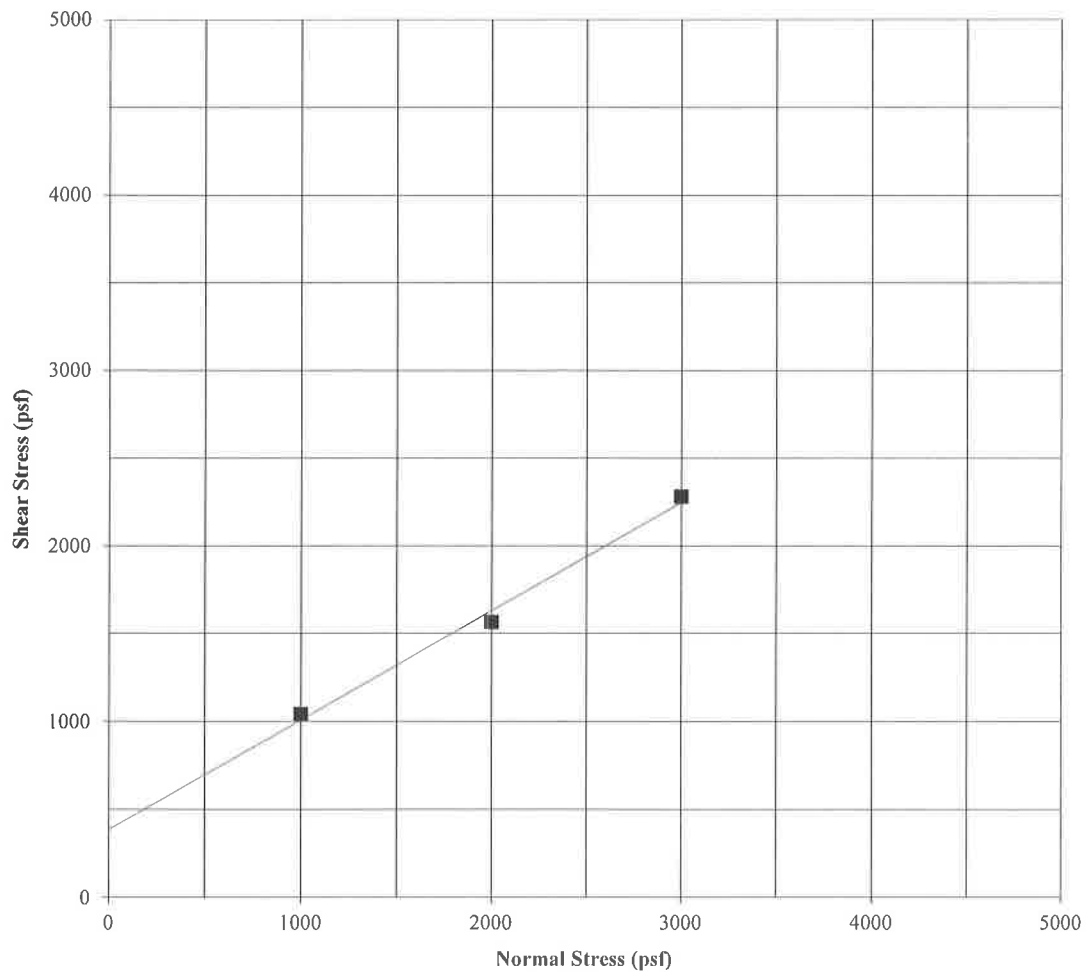
RESULTS:

Dry Density (pcf): 100

Moisture Content (%): 13

Cohesion (psf): 400

Friction Angle (phi): 32



REMARKS: Samples not submerged prior to testing.

LABORATORY TEST RESULTS

Date: 1-May-17

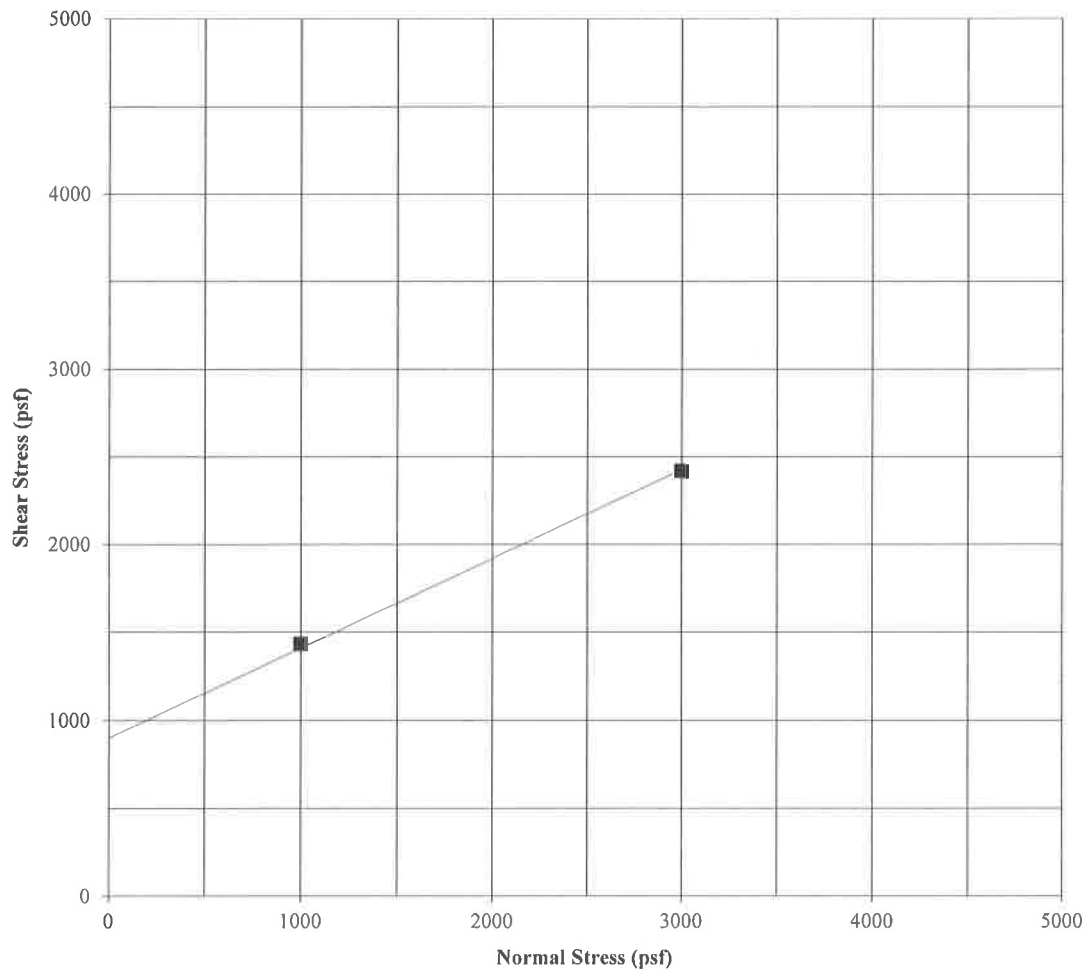
SAMPLE SOURCE: 7 @ 1.5'-2.5'

TESTING PERFORMED: Direct Shear (AASHTO T236) - Driven Ring Sample

SAMPLED BY: RAMM/Durot

RESULTS:

Dry Density (pcf):	96	Moisture Content (%):	9
Cohesion (psf):	900	Friction Angle (phi):	27



REMARKS: Samples not submerged prior to testing.

LABORATORY TEST RESULTS

Date: 1-May-17

SAMPLE SOURCE: As noted below

TESTING PERFORMED: Percent Passing No. 200 Sieve, Atterberg Limits, Percent Expansion
(ASTM D1140, D4318, D4546)

SAMPLED BY: RAMM/Durot

RESULTS:

<u>Sample Source</u>	<u>Percent Retained No. 4 Sieve</u>	<u>Percent Passing No. 200 Sieve</u>	<u>Liquid Limit</u>	<u>Plasticity Index</u>	<u>Percent Expansion*</u>	<u>Remolded Dry Density (pcf)</u>	<u>Remolded Moisture Content (%)</u>
2 @ 0'-5'	10	51	32	18	5.1	113	9
4 @ 5'-10'	0	66	24	6	1.2	116	10
6 @ 0'-5'	2	57	N/A	NP	0.7	116	9

* Based upon sample remolded to 95% of the estimated maximum dry density at 2% below the estimated optimum moisture content, with a surcharge pressure of 100 psf.

LABORATORY TEST RESULTS

Date: 1-May-17

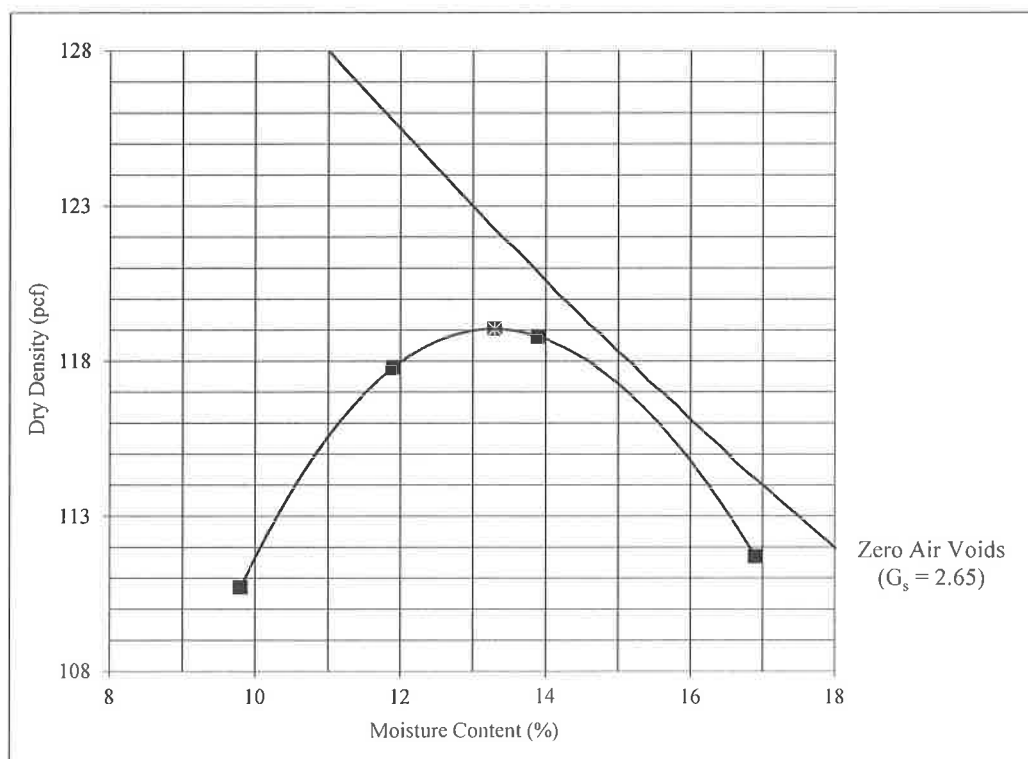
SAMPLE SOURCE: 2 @ 0'-5'

TESTING PERFORMED Maximum Density-Optimum Moisture Determination (ASTM D698 Method A)

SAMPLED BY: RAMM/Durot

RESULTS:

Maximum Density (pcf) = 119.1 Optimum Moisture (%) = 13.3



LABORATORY TEST RESULTS

Date: 25-May-17

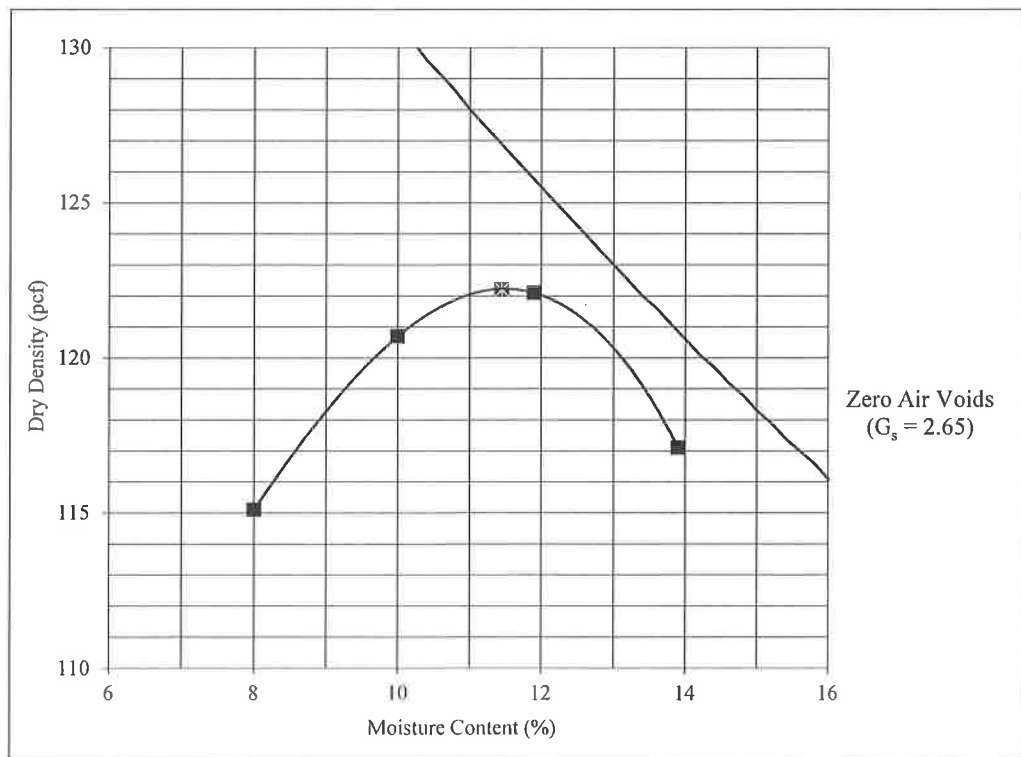
SAMPLE SOURCE: 4 @ 0'-5'

TESTING PERFORMED Maximum Density-Optimum Moisture Determination (ASTM D698 Method A)

SAMPLED BY: RAMM/Durot

RESULTS:

Maximum Density (pcf) = 122.2 Optimum Moisture (%) = 11.5



LABORATORY TEST RESULTS

Date:

1-May-17

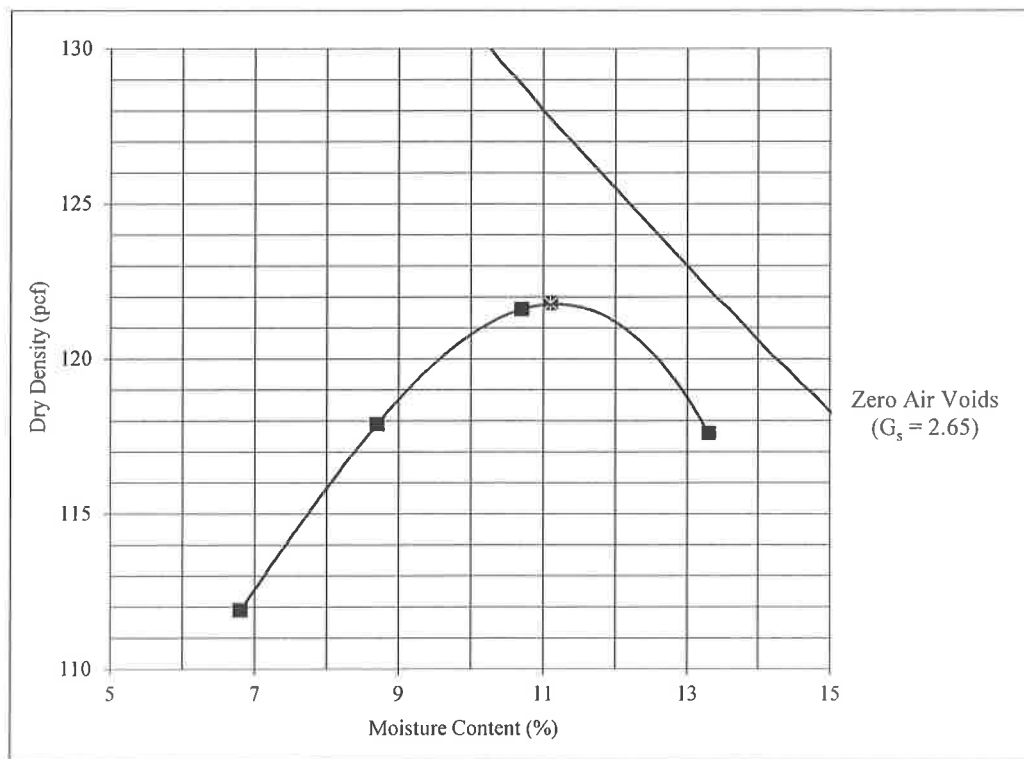
SAMPLE SOURCE: 6 @ 0'-5'

TESTING PERFORMED Maximum Density-Optimum Moisture Determination (ASTM D698 Method A)

SAMPLED BY: RAMM/Durot

RESULTS:

Maximum Density (pcf) = 121.8 Optimum Moisture (%) = 11.1



LABORATORY TEST RESULTS

Date: 1-May-17

SAMPLE SOURCE: As noted below

TESTING PERFORMED: pH, Minimum Resistivity (ADOT 236a)

SAMPLED BY: RAMM/Durot

RESULTS:

<u>Sample Source</u>	<u>pH</u>	<u>Minimum Resistivity (ohm-cm)</u>
2 @ 0'-5'	8.0	1622
4 @ 5'-10'	7.9	744
6 @ 0'-5'	7.9	1352



Soil Analysis Report

Ricker-Atkinson-McBee-Morman
Kip Reese
2105 South Hardy Dr.
Suite 13
Tempe , AZ 85282-1924

Project: G23826
Sampler:
Date Received: 4/25/2017
Date Reported: 4/26/2017
PO Number: G23826

Lab Number: 920875-01	2 (0-5")
------------------------------	-----------------

<i>Sulfate & Chloride</i>	Method	Result	Units	Levels
Sulfate, SO ₄	ARIZ 733	50	ppm	
Chloride, Cl	ARIZ 736	16	ppm	
Sulfate 0.005% ; Chloride 0.0016%				

Lab Number: 920875-02	4 (5-10")
------------------------------	------------------

<i>Sulfate & Chloride</i>	Method	Result	Units	Levels
Sulfate, SO ₄	ARIZ 733	179	ppm	
Chloride, Cl	ARIZ 736	53	ppm	
Sulfate 0.018% ; Chloride 0.0053%				

Lab Number: 920875-03	6 (0-5")
------------------------------	-----------------

<i>Sulfate & Chloride</i>	Method	Result	Units	Levels
Sulfate, SO ₄	ARIZ 733	69	ppm	
Chloride, Cl	ARIZ 736	42	ppm	
Sulfate 0.007% ; Chloride 0.0042%				

ADAMAN WELL NO. 3
TRANSMISSION MAIN

CITY MANAGER
BRIAN DALKE
PUBLIC WORKS DIRECTOR
JAVIER SETOVICH, PE
MAYOR
GEORGIA LORD
VICE MAYOR
SHERI LAURITANO
CITY COUNCIL
JOANNE OSBORNE
JOE PIZZILLO
WALLY CAMPBELL
BILL STIPP
SHAROLYN HOHMAN



CITY OF
GOODYEAR
ARIZONA

ADAMAN WELL NO. 3
TRANSMISSION MAIN
PROJECT NO. CON 17-3838

"I HEREBY CERTIFY THAT THIS DESIGN IS BASED ON
ACCURATE FIELD DATA WHICH HAS BEEN CHECKED IN
THE FIELD PRIOR TO SUBMISSION FOR CITY
APPROVAL."

BY: _____ DATE _____

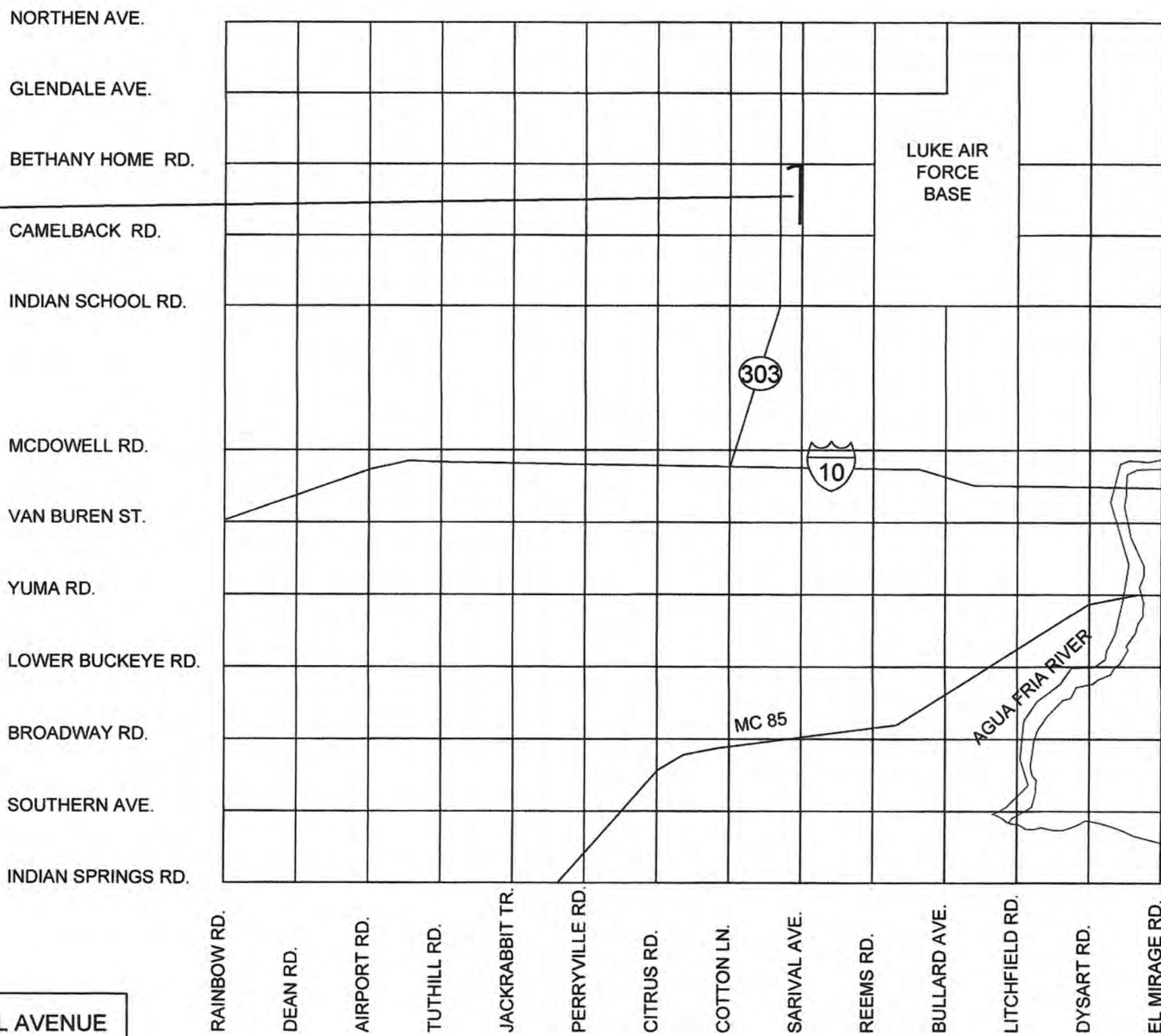
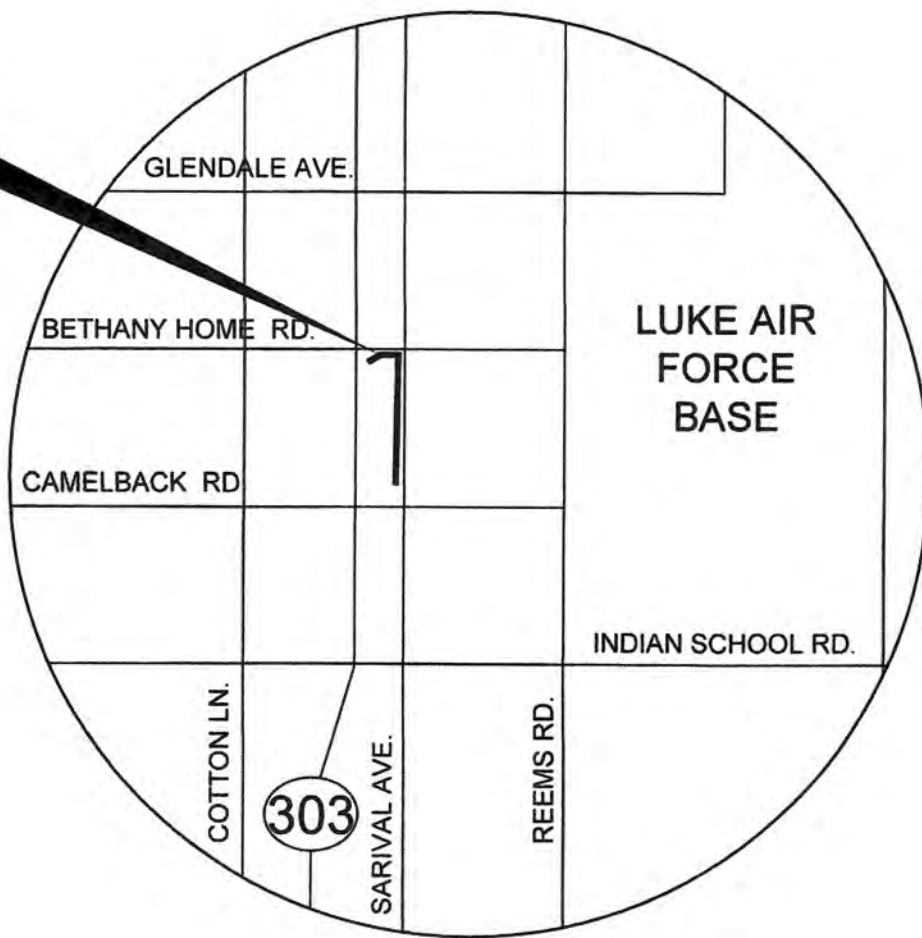
"AS-BUILT CERTIFICATION"

I CERTIFY THAT THE "AS-BUILT" INFORMATION SHOWN
HEREON WAS OBTAINED UNDER MY DIRECT
SUPERVISION AND IS CORRECT AND COMPLETE TO
THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME _____
REGISTRATION NO. _____ DATE _____
REVIEWED BY: _____
FIELD ENGINEERING

BY: *[Signature]* DWR-17-00374 10/2/2017
MARICOPA COUNTY
ENVIRONMENTAL SERVICES DEPT. DATE

ADAMAN WELL NO. 3 TRANSMISSION MAIN
BETHANY HOME ROAD AND SARIVAL AVENUE



ESTIMATED QUANTITIES		
DESCRIPTION	UNIT	QUANTITY
10" DIP	LF	2295'
12" DIP	LF	2573'
10" GATE VALVE	EA	5
12" GATE VALVE	EA	3
FLUSHING HYDRANT	EA	2
AIR RELEASE VALVE	EA	3

	BETHANY HOME ROAD	SARIVAL AVENUE
ROADWAY CLASSIFICATION	PRINCIPAL ARTERIAL	PRINCIPAL ARTERIAL
DESIGN SPEED	N/A	N/A
AVERAGE DAILY TRAFFIC	N/A	N/A
CLEAR ZONE DISTANCE	N/A	N/A

LOCATION FOR AS-BUILT INDEXING
SECTION 13, T2N, R2W

SEPTEMBER 2017

Brown and Caldwell

201 E WASHINGTON STREET, SUITE 500
PHOENIX, ARIZONA 85004
(602) 567-4000



UTILITY SYSTEM OWNERSHIP

WATER	ADAMAN WATER DISTRICT 1/ EPCOR WATER
SEWER	EPCOR WATER
ELECTRIC	APS
CABLE AND TELEVISION	COX COMMUNICATIONS
TELEPHONE	CENTURY LINK
FIBER OPTIC	COX COMMUNICATIONS, QWEST, SPRINT
GAS	SOUTHWEST GAS
IRRIGATION	MARICOPA WATER DISTRICT

CITY OF GOODYEAR

REVIEW AND RECOMMENDED APPROVAL BY:

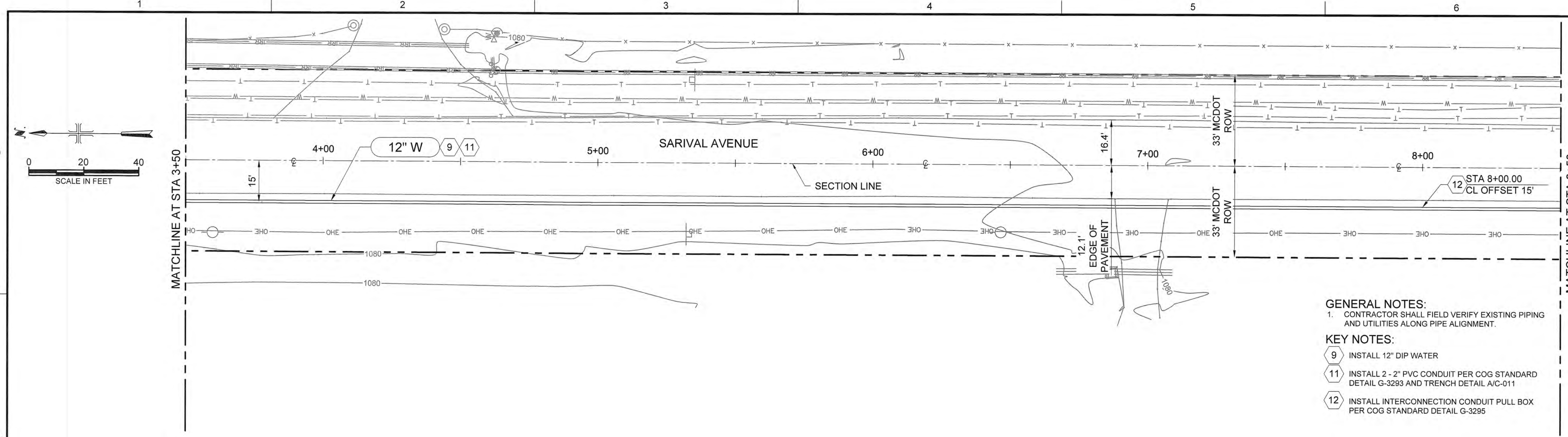
FIRE DEPARTMENT		POTABLE WATER	
ELECTRICAL		WATER	

APPROVED BY:

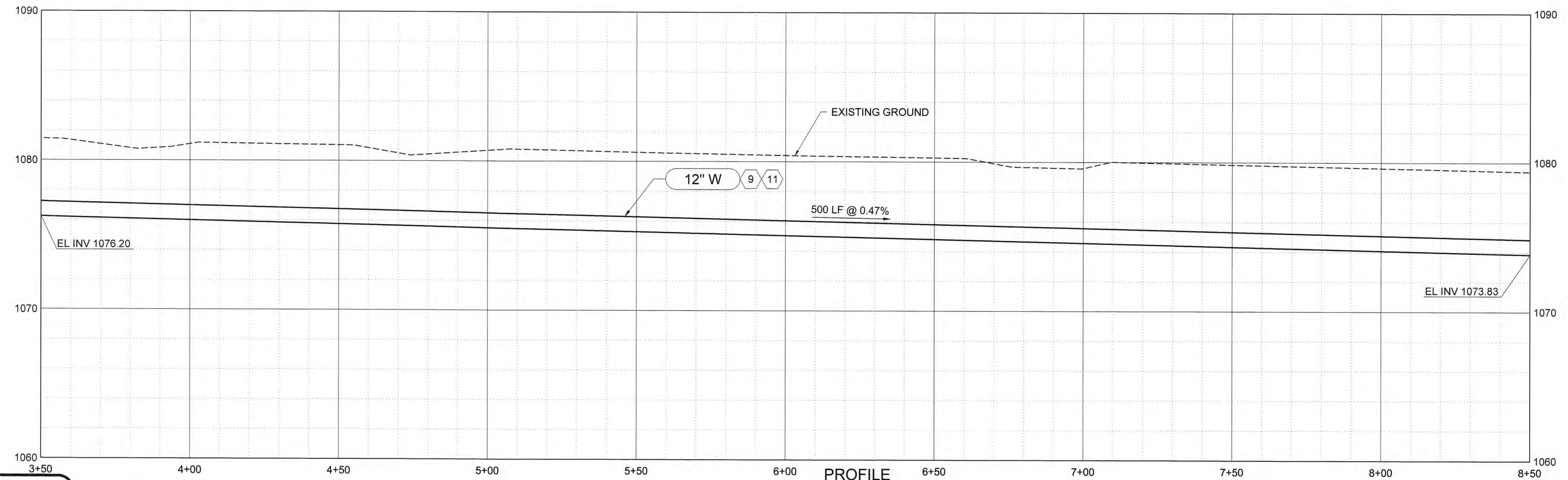
PROJECT REVIEW SR. ENGINEER _____ DATE _____

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GOODYEAR.png
CITY MAP.png

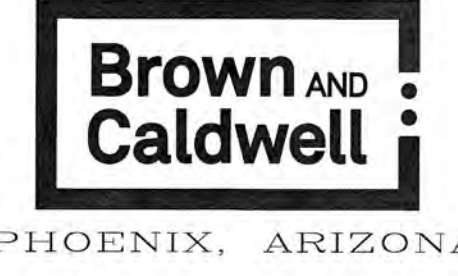


PLAN
SCALE: 1" = 20'



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

- GENERAL NOTES:**
1. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING AND UTILITIES ALONG PIPE ALIGNMENT.
- KEY NOTES:**
- 9 INSTALL 12" DIP WATER
 - 11 INSTALL 2 - 2" PVC CONDUIT PER COG STANDARD DETAIL G-3293 AND TRENCH DETAIL A/C-011
 - 12 INSTALL INTERCONNECTION CONDUIT PULL BOX PER COG STANDARD DETAIL G-3295



ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

REVISIONS		
REV	DATE	DESCRIPTION

DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
CHECKED:

APPROVED:
FILENAME
150285-C-007.DWG
BC PROJECT NUMBER
150285
CLIENT PROJECT NUMBER
CON-17-3838

CIVIL
PLAN AND PROFILE
STA 3+50 TO STA
8+50

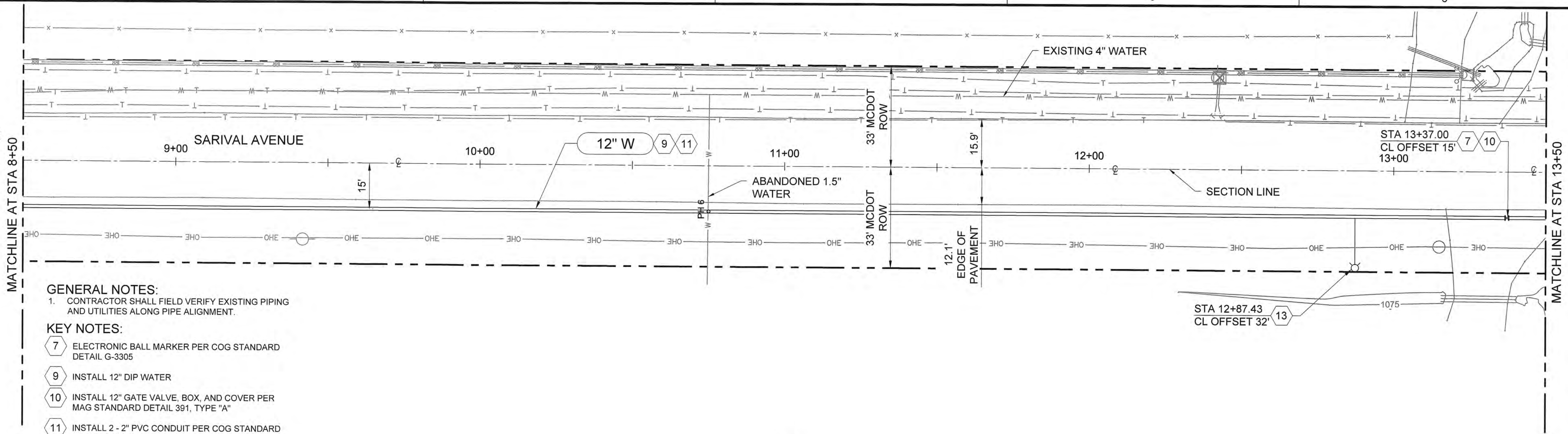
DRAWING NUMBER
C-007

SHEET NUMBER
9 OF 17

Contact Arizona 811 at least two full working days before you begin excavation

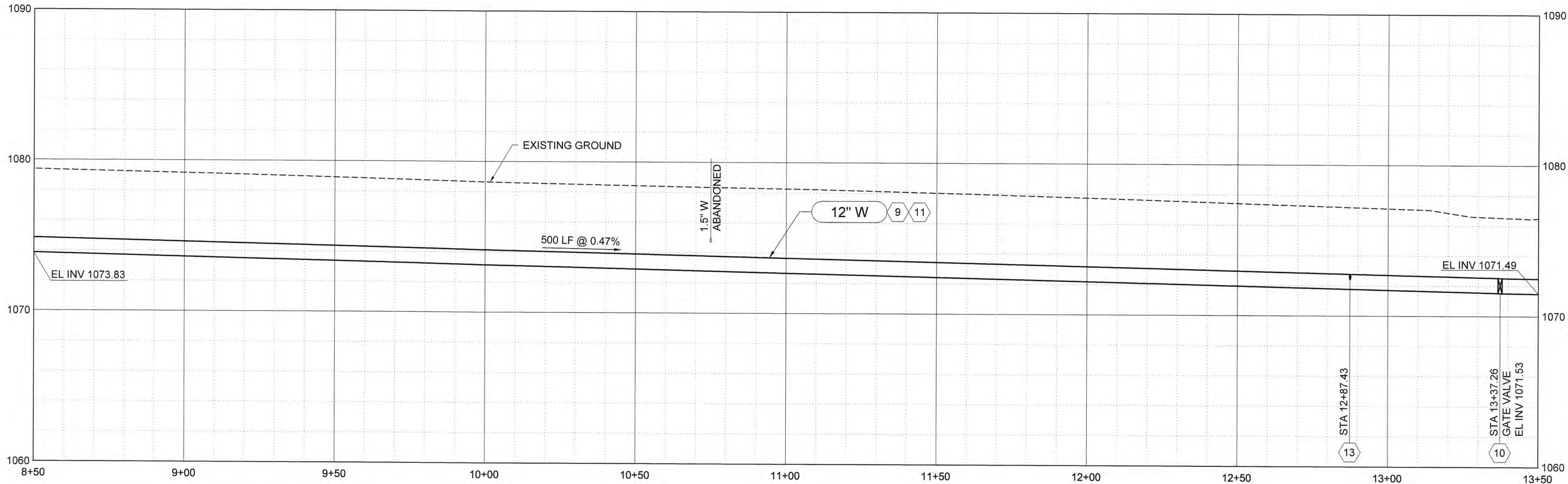
Call 811 or click Arizona811.com

Path: P:\GOODYEAR, CITY OF\150285 - ADAMAN WELL 3 TRANSMISSION MAINS\DRAWINGS\W2-SHEET\SC-CIVIL FILENAME: 150285-C-008.DWG PLOT DATE: 9/27/2017 1:34 PM CAD USER: JENNIFER JACOBSEN

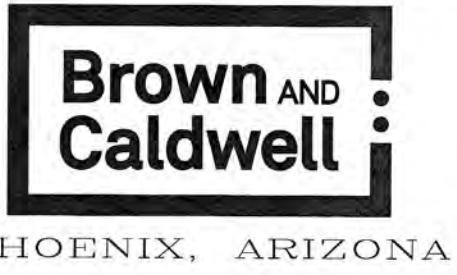


- GENERAL NOTES:**
- CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING AND UTILITIES ALONG PIPE ALIGNMENT.
- KEY NOTES:**
- 7 ELECTRONIC BALL MARKER PER COG STANDARD DETAIL G-3305
 - 9 INSTALL 12" DIP WATER
 - 10 INSTALL 12" GATE VALVE, BOX, AND COVER PER MAG STANDARD DETAIL 391, TYPE "A"
 - 11 INSTALL 2 - 2" PVC CONDUIT PER COG STANDARD DETAIL G-3293 AND TRENCH DETAIL A/C-011
 - 13 INSTALL FLUSHING HYDRANT PER COG STANDARD DETAIL G-3330. HYDRANT TO BE PAINTED GRAY

PLAN
SCALE: 1" = 20'



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'



ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
CHECKED:

APPROVED:
FILENAME
150285-C-008.DWG
BC PROJECT NUMBER
150285
CLIENT PROJECT NUMBER
CON-17-3838

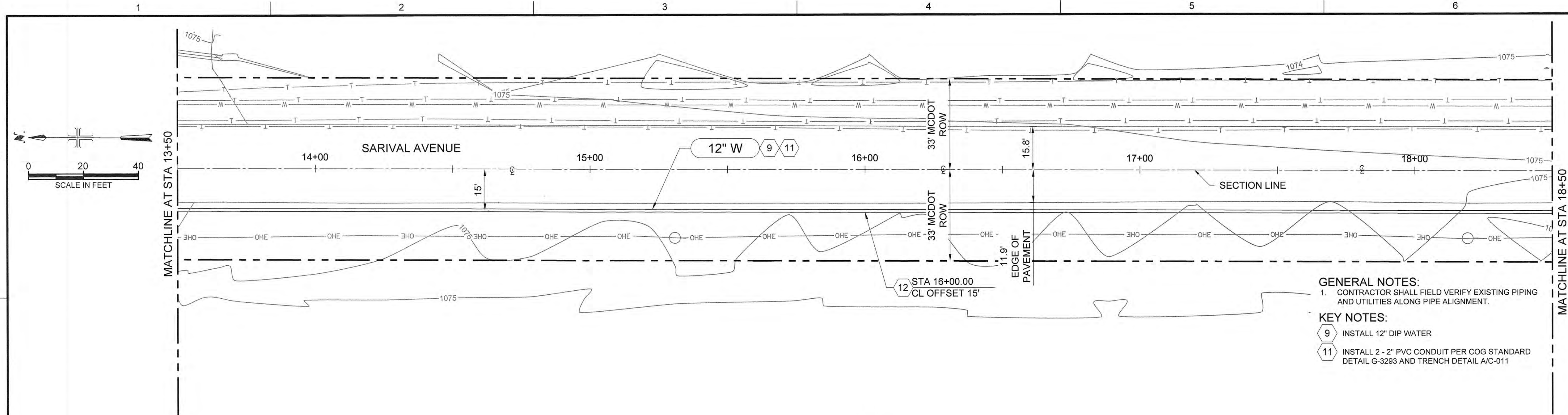
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PLAN AND PROFILE
STA 8+50 TO STA
13+50

DRAWING NUMBER
C-008

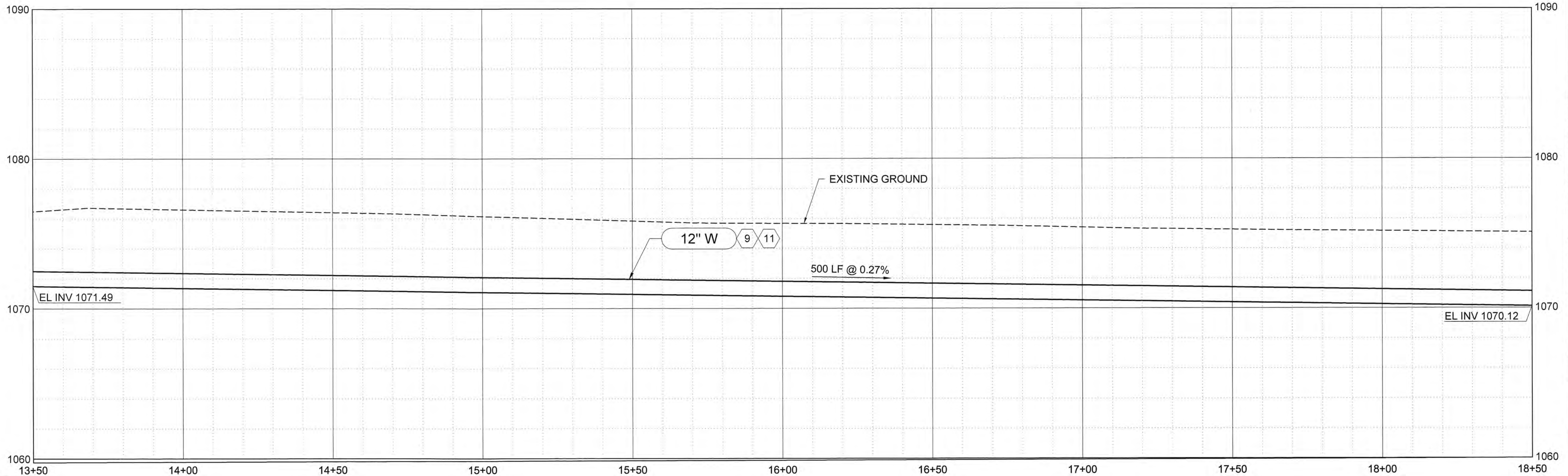
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10 OF 17

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GOODYEAR.png
VICINITY MAP.jpg



PLAN
SCALE: 1" = 20'



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

Contact Arizona 811 at least two full working days before you begin excavation

Call 811 or click Arizona811.com

PHOENIX, ARIZONA



ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

REVISIONS		
REV	DATE	DESCRIPTION

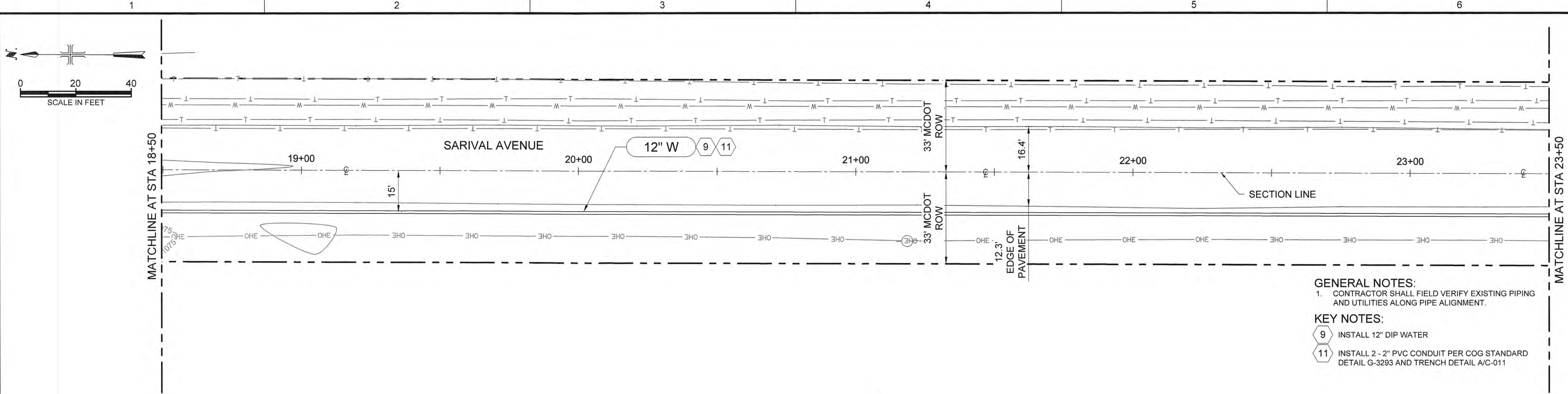
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DRAWN: J. JACOBSEN	
CHECKED: T. MORACA	
APPROVED:	
FILENAME: 150285-C-009.DWG	
BC PROJECT NUMBER: 150285	
CLIENT PROJECT NUMBER: CON-17-3838	

CIVIL
PLAN AND PROFILE
STA 13+50 TO STA
18+50

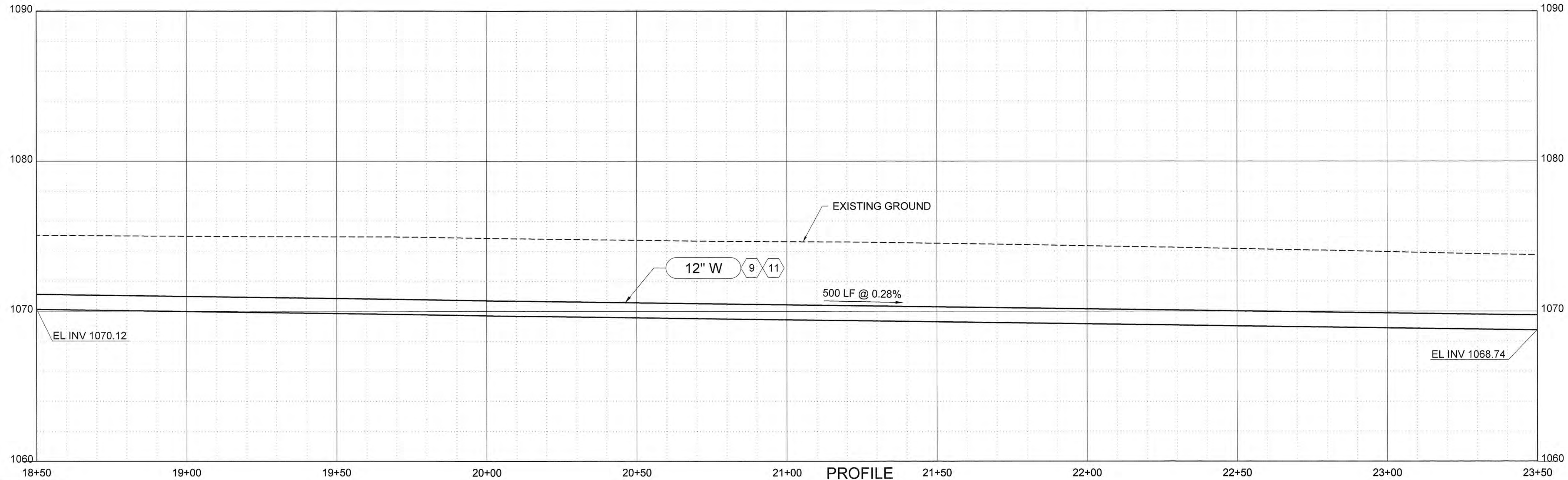
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C-009
SHEET NUMBER
11 OF 17

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GOODYEAR, CITY OF
VICINITY MAP.DWG



PLAN
SCALE: 1" = 20'



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

Contact Arizona 811 at least two full
working days before you begin excavation



Call 811 or click Arizona811.com

Brown AND Caldwell

PHOENIX, ARIZONA



ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

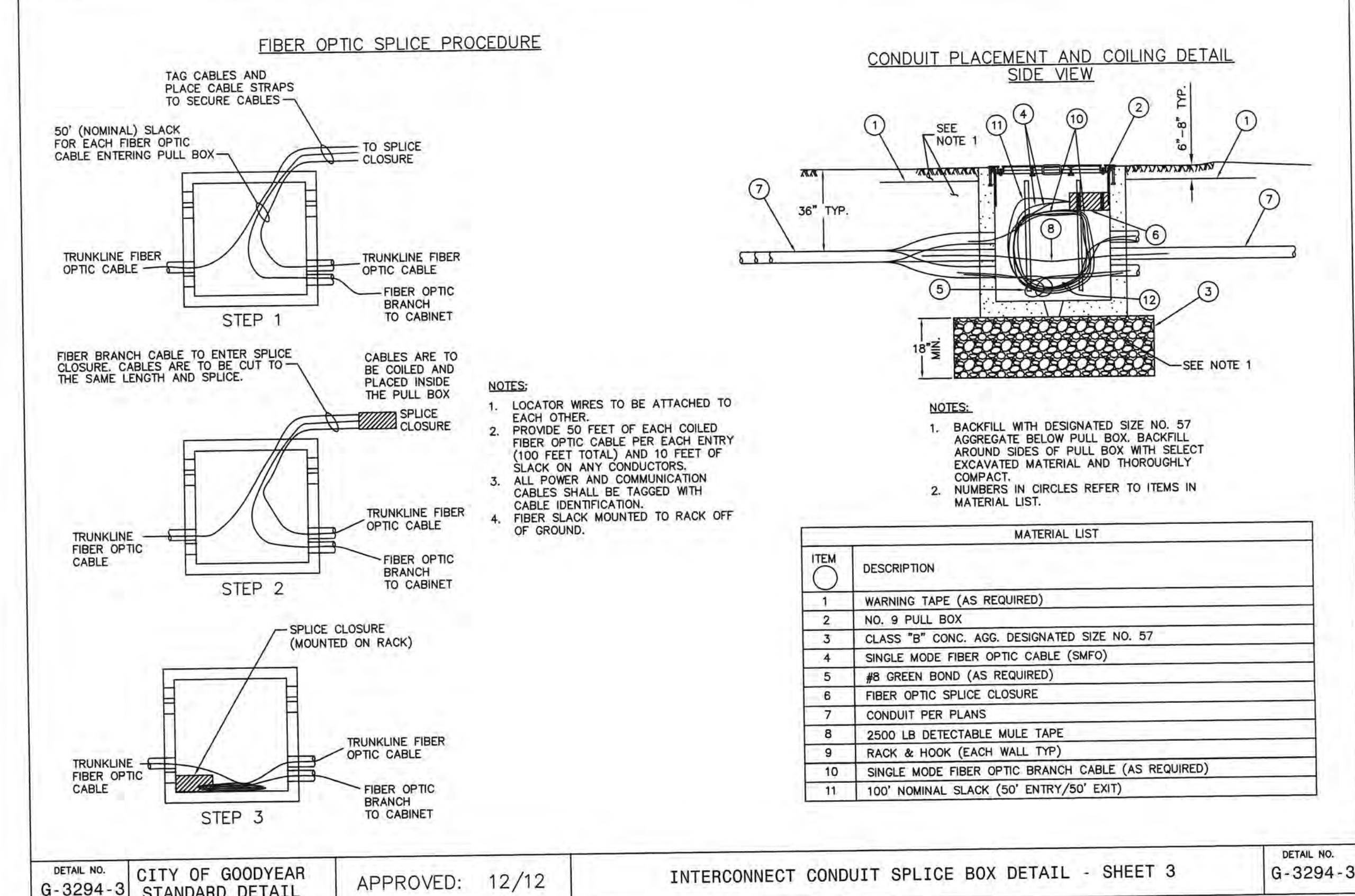
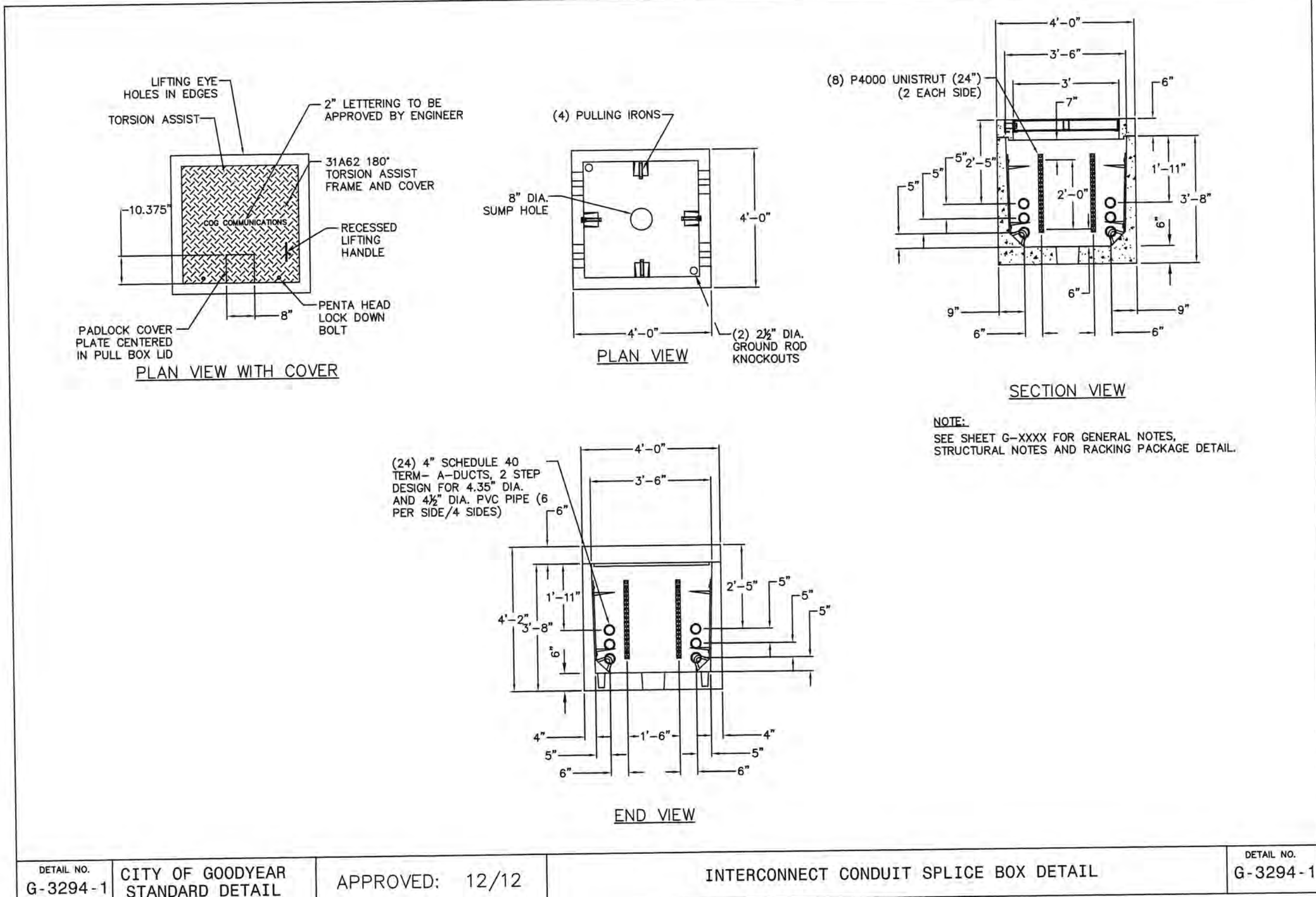
DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
APPROVED:

FILENAME
150285-C-010.DWG
BC PROJECT NUMBER
150285
CLIENT PROJECT NUMBER
CON-17-3838

CIVIL
PLAN AND PROFILE
STA 18+50 TO STA
23+50

DRAWING NUMBER
C-010

SHEET NUMBER
12 OF 17



Brown AND Caldwell
HOENIX, ARIZONA



ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

[illegible]

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T.MORACA
CHECKED: -
APPROVED: -

FILENAME	150285-M-001.DWG
BC PROJECT NUMBER	150285
CLIENT PROJECT NUMBER	CON-17-3838

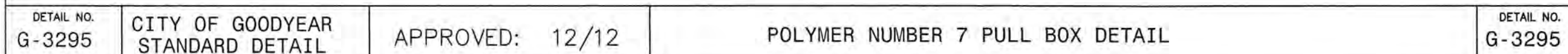
MECHANICAL

STANDARD DETAILS -1

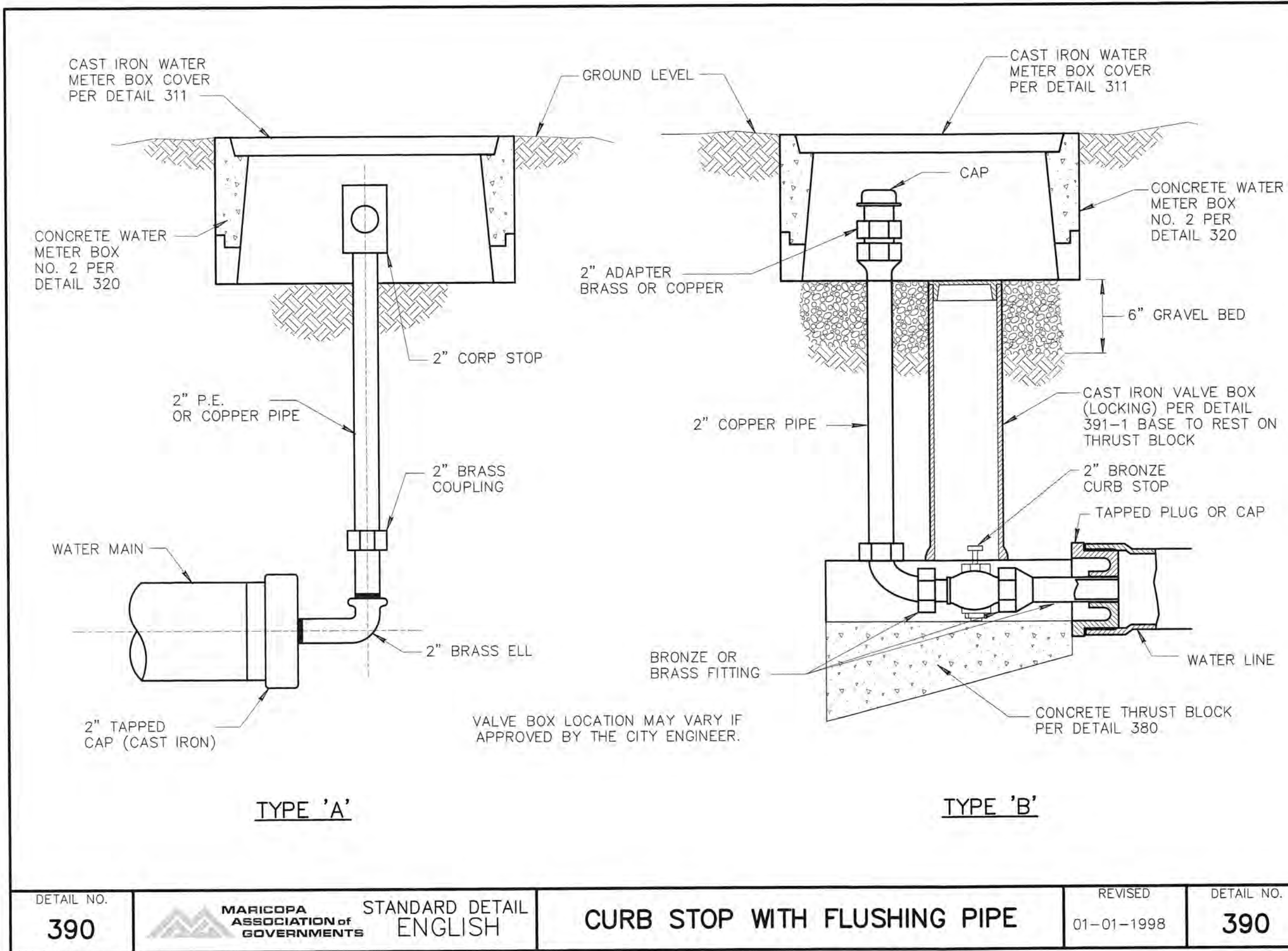
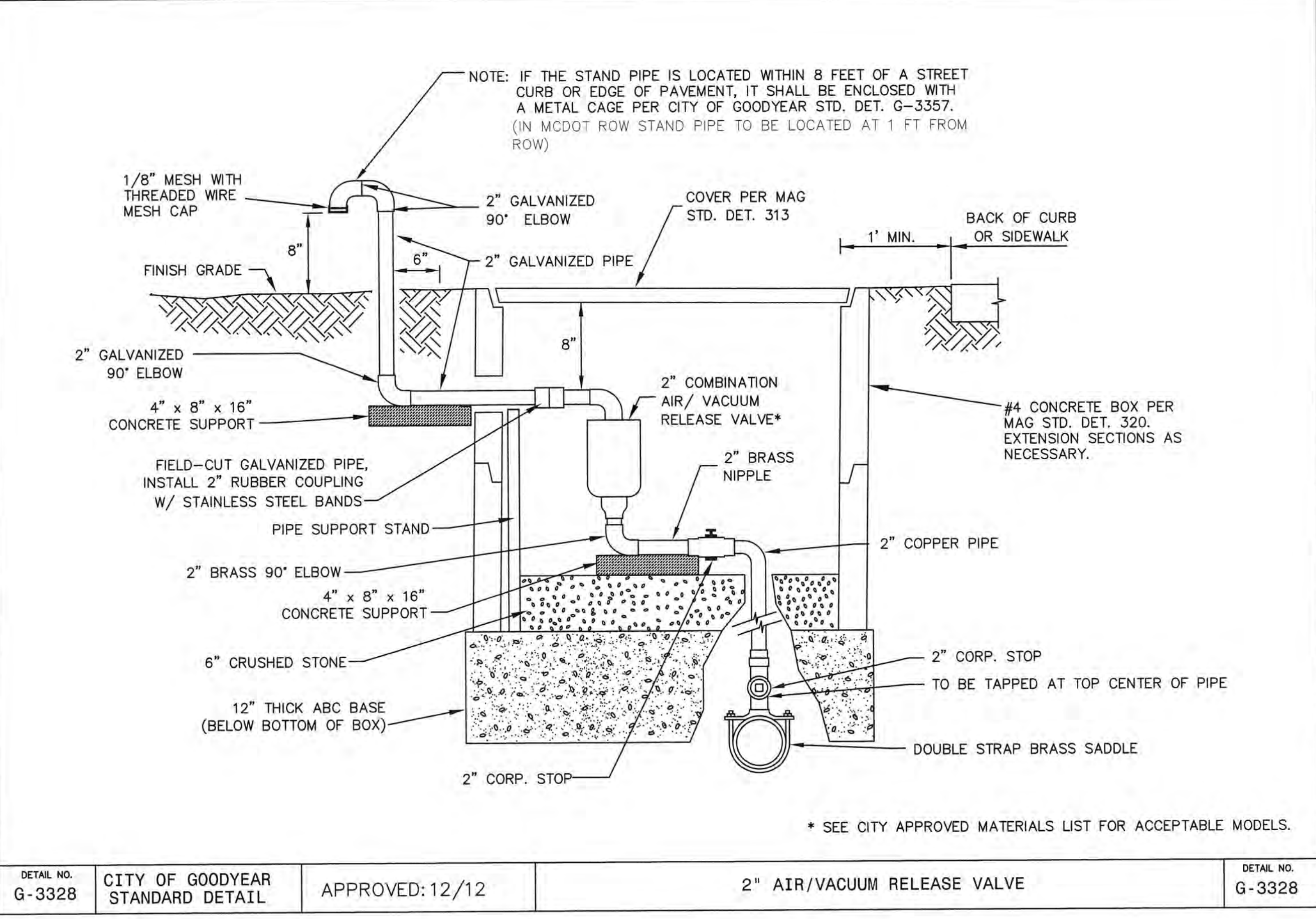
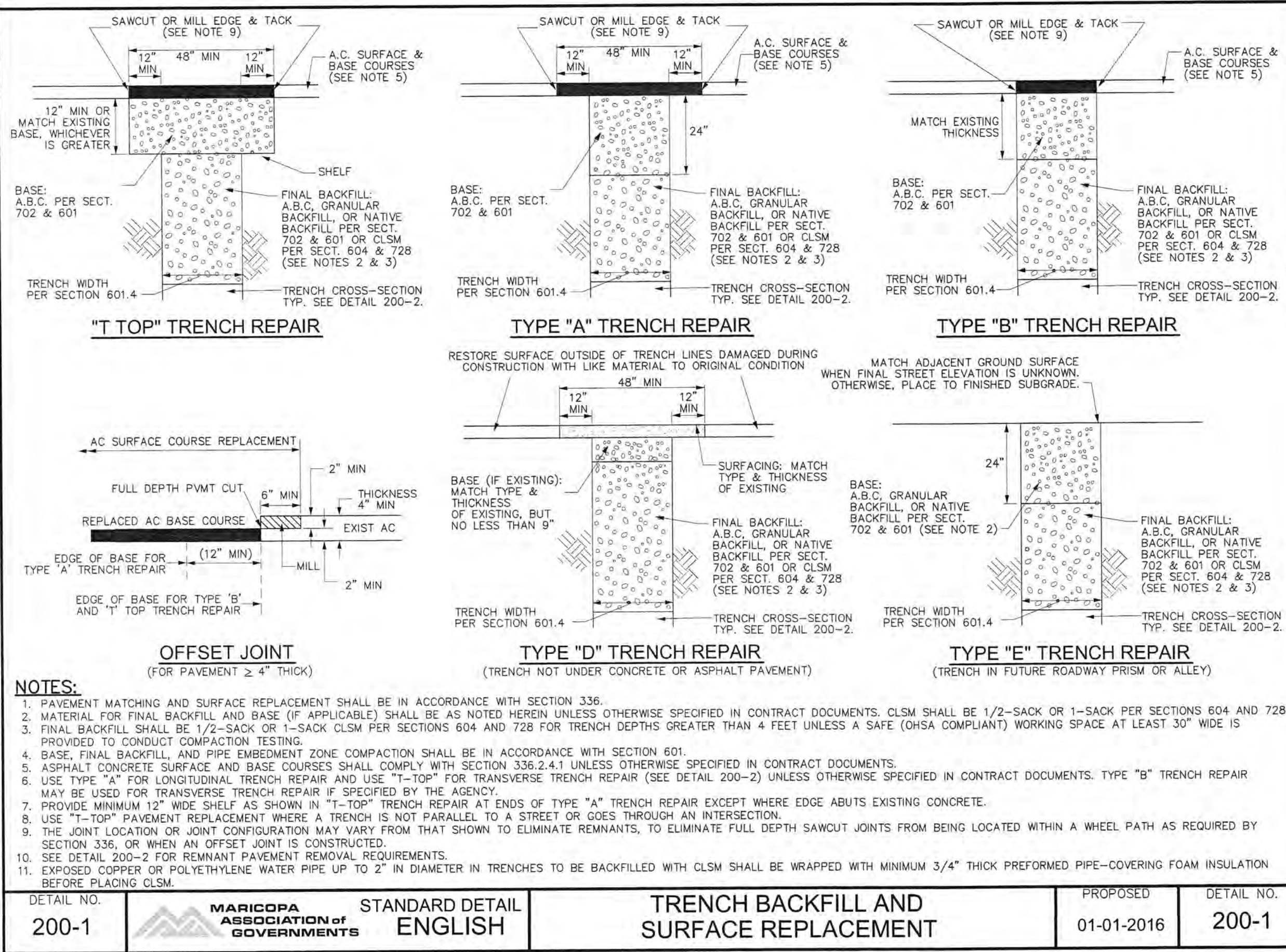
DRAWING NUMBER

M-001

SHEET NUMBER
14 OF 17



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DISCLAIMER: THESE STANDARD DETAILS HAVE BEEN FORMALLY ADOPTED BY CITY OF GOODYEAR AND/OR THE MARICOPA ASSOCIATION OF GOVERNMENTS AND HAS NOT BEEN PREPARED BY THE REGISTRANT

Brown AND Caldwell
PHOENIX, ARIZONA

CITY OF Goodyear

**ADAMAN WELL
NO. 3
TRANSMISSION
MAIN**

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T.MORACA
CHECKED: -
APPROVED: -

FILENAME
150285-M-003.DWG
BC PROJECT NUMBER
150285
CLIENT PROJECT NUMBER
CON-17-3838

MECHANICAL

**STANDARD
DETAILS -3**

DRAWING NUMBER
M-003

SHEET NUMBER
16 OF 17

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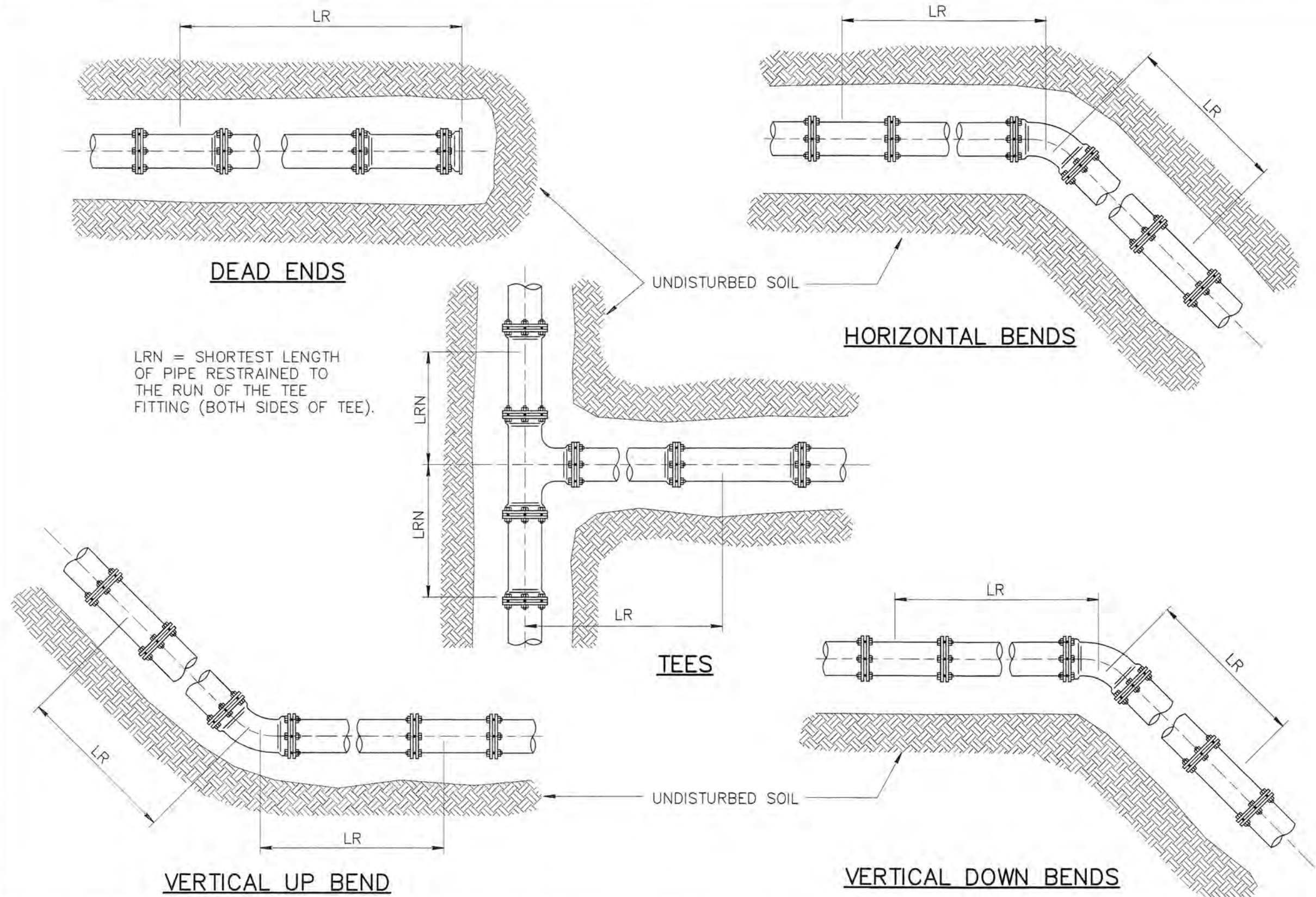
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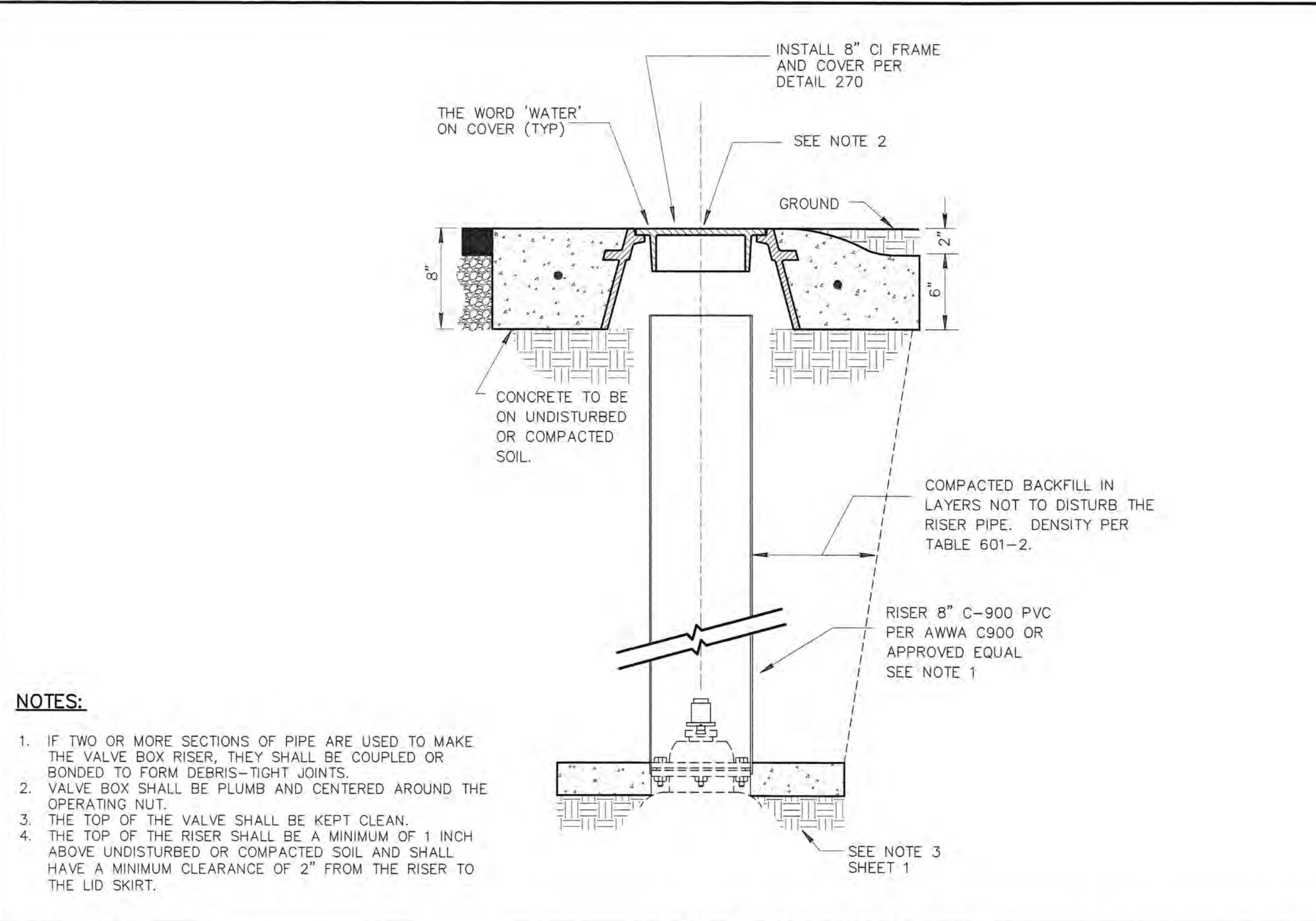
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5

6



DETAIL NO. 303-1 MARICOPA ASSOCIATION OF GOVERNMENTS STANDARD DETAIL ENGLISH JOINT RESTRAINT FOR DUCTILE IRON AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES REVISED 01-01-1998 DETAIL NO. 303-1



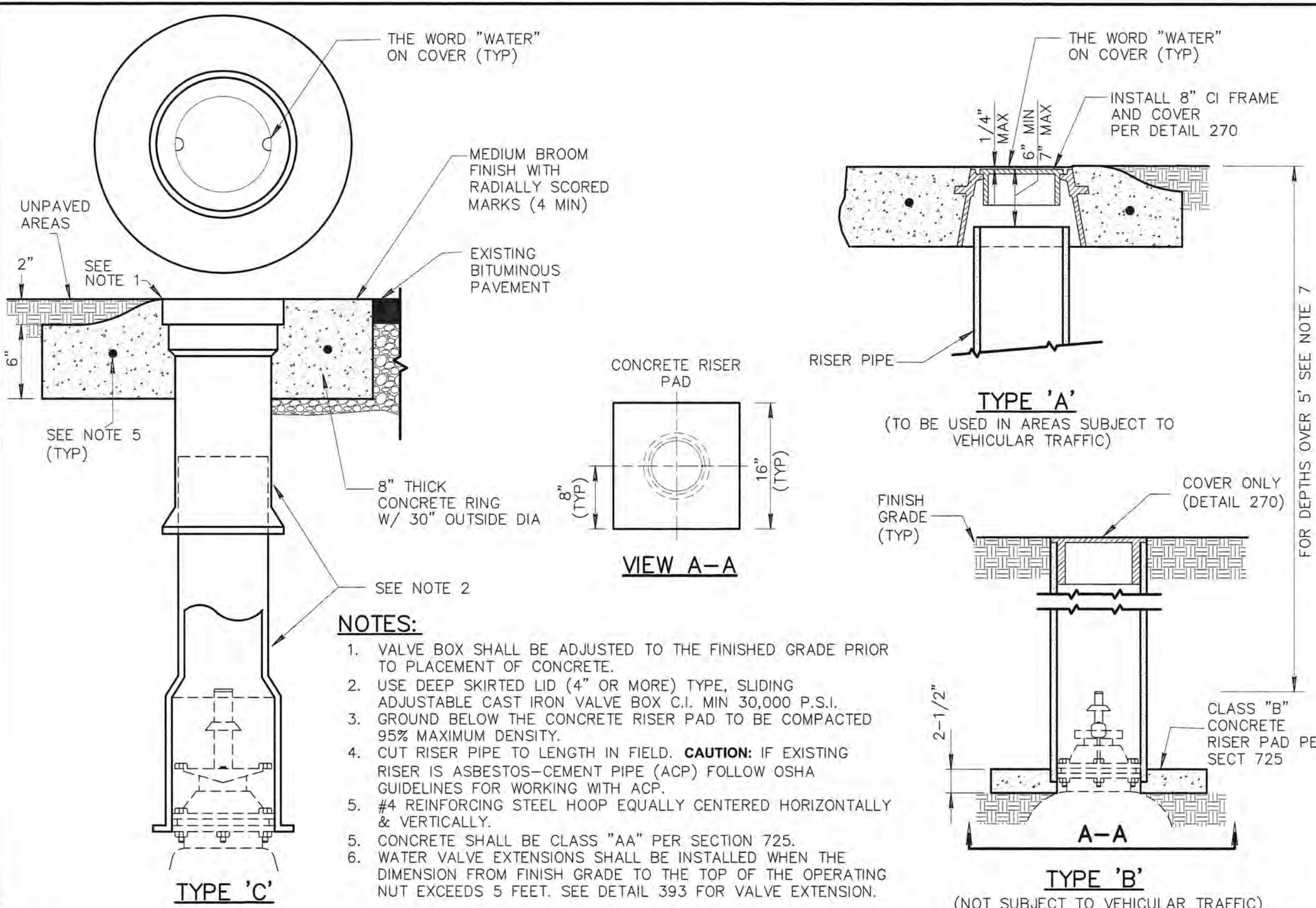
DRAFT 391-2 MARICOPA ASSOCIATION OF GOVERNMENTS STANDARD DETAIL ENGLISH VALVE BOX INSTALLATION AND GRADE ADJUSTMENT REVISED 01-01-2017 DETAIL NO. 391-2

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE												
NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS			TEES		VERTICAL OFFSETS						DEAD ENDS
						90° BEND FITTINGS		45° BEND FITTINGS		22-1/2° BEND FITTINGS		
	90°	45°	22-1/2°	LRN=0'	LRN=10'	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	18	7	4	30	8	31	18	13	7	6	3	31
6	25	10	5	43	20	44	25	18	10	9	5	44
8	32	13	6	56	34	58	32	24	13	11	6	58
10	38	16	8	68	45	69	38	29	16	14	8	69
12	45	19	9	80	57	81	45	34	19	16	9	81
14	51	21	10	91	68	92	51	38	21	18	10	92
16	57	24	11	103	79	104	57	43	24	21	11	104
18	62	26	12	113	90	115	62	48	26	23	12	115
20	68	28	14	125	100	126	68	52	28	25	14	126
24	79	33	16	145	121	147	79	61	33	29	16	147

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP												
NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS			TEES		VERTICAL OFFSETS						DEAD ENDS
						90° BEND FITTINGS		45° BEND FITTINGS		22-1/2° BEND FITTINGS		
	90°	45°	22-1/2°	LRN=0'	LRN=10'	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	26	11	5	69	18	72	26	30	11	14	5	72
6	36	15	7	99	47	102	36	42	15	20	7	102
8	47	19	9	130	78	133	47	55	19	26	9	133
10	56	23	11	157	103	159	56	66	23	32	11	159
12	65	27	13	185	131	187	65	77	27	37	13	187
14	74	31	15	211	156	214	74	89	31	42	15	214
16	82	34	16	238	183	241	82	100	34	48	16	241
18	90	37	18	263	207	266	90	110	38	53	18	266
20	98	41	20	289	233	292	98	121	41	58	20	292
24	113	47	22	337	280	340	113	141	47	68	22	340

- NOTES:
- ALL JOINTS WITHIN THE SPECIFIED LENGTH LR MUST BE RESTRAINED. ALL LENGTHS ARE GIVEN IN FEET.
 - THE MAXIMUM TEST PRESSURE SHALL NOT EXCEED 200 PSI
 - THE MINIMUM DEPTH OF BURY SHALL BE 3' TO TOP OF PIPE.
 - RESTRAINED LENGTHS MAY BE REDUCED WHEN SUPPORTED BY ENGINEERING CALCULATIONS.

DETAIL NO. 303-2 MARICOPA ASSOCIATION OF GOVERNMENTS STANDARD DETAIL ENGLISH JOINT RESTRAINT FOR DUCTILE IRON AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES REVISED 01-01-1998 DETAIL NO. 303-2



DETAIL NO. 391-1 MARICOPA ASSOCIATION OF GOVERNMENTS STANDARD DETAIL ENGLISH VALVE BOX INSTALLATION AND GRADE ADJUSTMENT REVISED 01-01-2017 DETAIL NO. 391-1

DISCLAIMER: THESE STANDARD DETAILS HAVE BEEN FORMALLY ADOPTED BY CITY OF GOODYEAR AND/OR THE MARICOPA ASSOCIATION OF GOVERNMENTS AND HAS NOT BEEN PREPARED BY THE REGISTRANT

Brown AND Caldwell

PHOENIX, ARIZONA



Expires 12/31/17



ADAMAN WELL NO. 3 TRANSMISSION MAIN

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
CHECKED: -
APPROVED: -

FILENAME: 150285-M-004.DWG
BC PROJECT NUMBER: 150285
CLIENT PROJECT NUMBER: CON-17-3838

MECHANICAL

STANDARD DETAILS -4

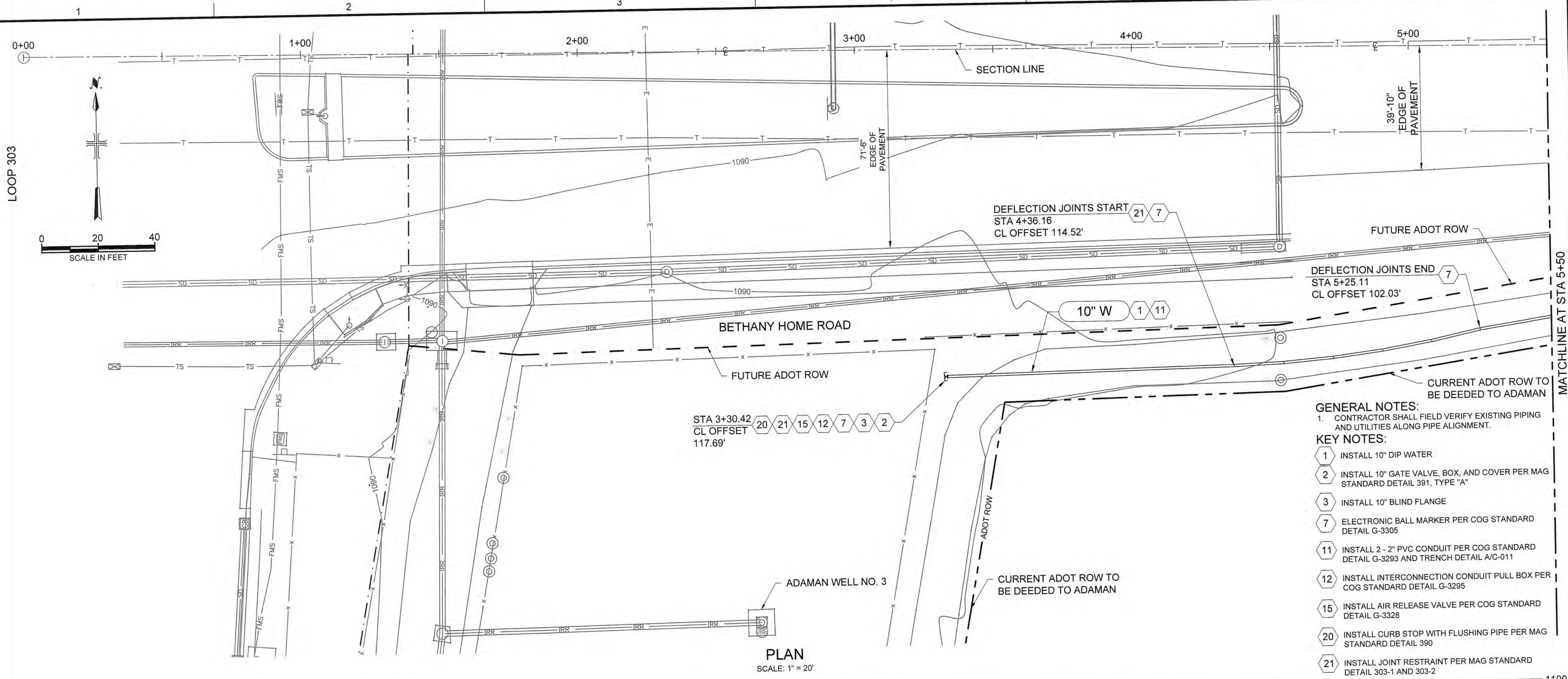
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M-004

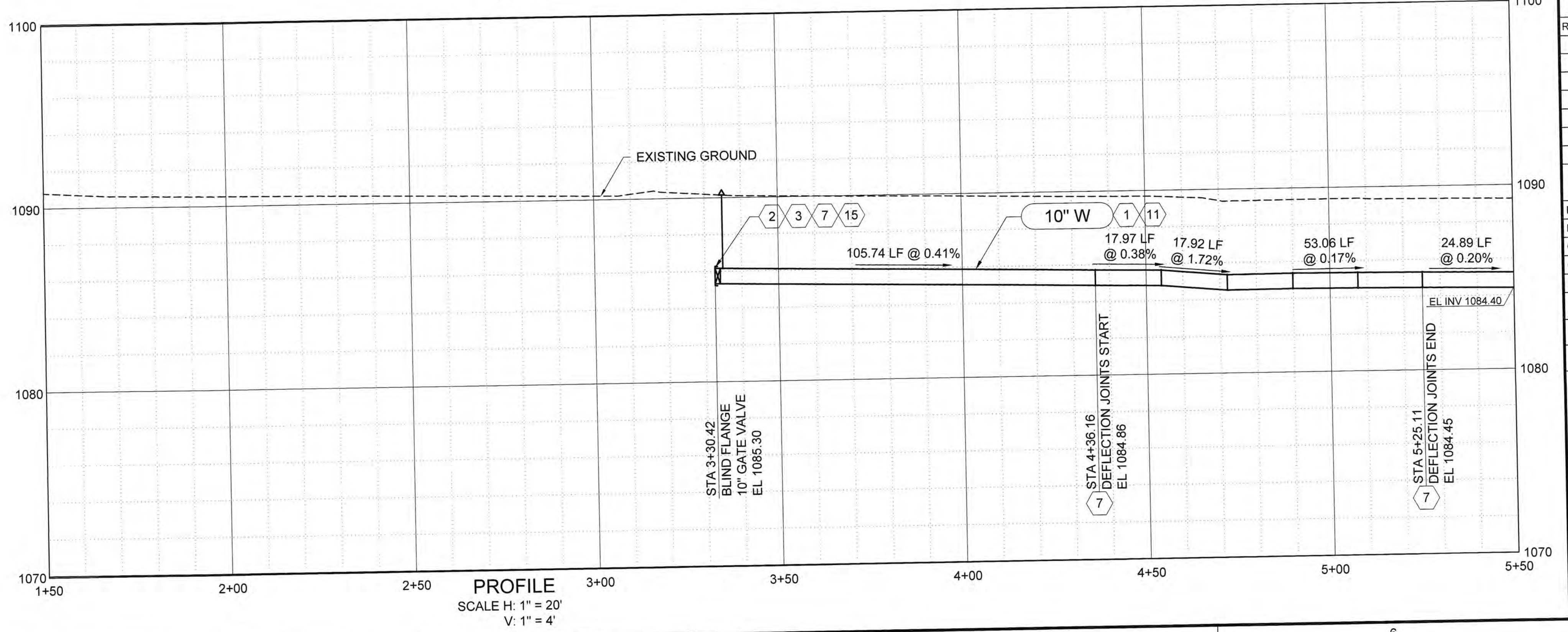
SHEET NUMBER 17 OF 17

1

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PLAN
SCALE: 1" = 20'



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

- GENERAL NOTES:**
1. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING AND UTILITIES ALONG PIPE ALIGNMENT.
- KEY NOTES:**
- 1 INSTALL 10" DIP WATER
 - 2 INSTALL 10" GATE VALVE, BOX, AND COVER PER MAG STANDARD DETAIL 391, TYPE "A"
 - 3 INSTALL 10" BLIND FLANGE
 - 7 ELECTRONIC BALL MARKER PER COG STANDARD DETAIL G-3305
 - 11 INSTALL 2 - 2" PVC CONDUIT PER COG STANDARD DETAIL G-3293 AND TRENCH DETAIL A/C-011
 - 12 INSTALL INTERCONNECTION CONDUIT PULL BOX PER COG STANDARD DETAIL G-3295
 - 15 INSTALL AIR RELEASE VALVE PER COG STANDARD DETAIL G-3328
 - 20 INSTALL CURB STOP WITH FLUSHING PIPE PER MAG STANDARD DETAIL 390
 - 21 INSTALL JOINT RESTRAINT PER MAG STANDARD DETAIL 303-1 AND 303-2

PHOENIX, ARIZONA

CITY OF
Goodyear

**ADAMAN WELL
NO. 3
TRANSMISSION
MAIN**

REVISIONS		
REV	DATE	DESCRIPTION

DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
APPROVED: _____

FILENAME
150285-C-001.DWG
BC PROJECT NUMBER
150285
CLIENT PROJECT NUMBER
CON-17-3838

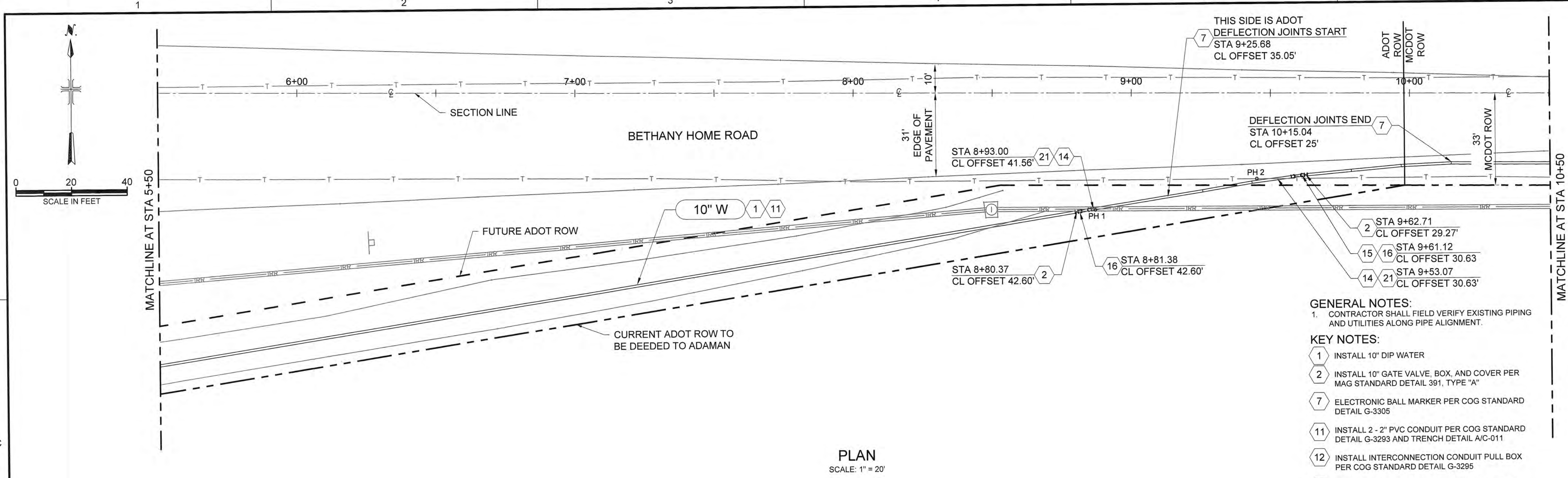
CIVIL
PLAN AND PROFILE
STA 0+00 TO STA
5+50

DRAWING NUMBER
C-001
SHEET NUMBER
3 OF 17

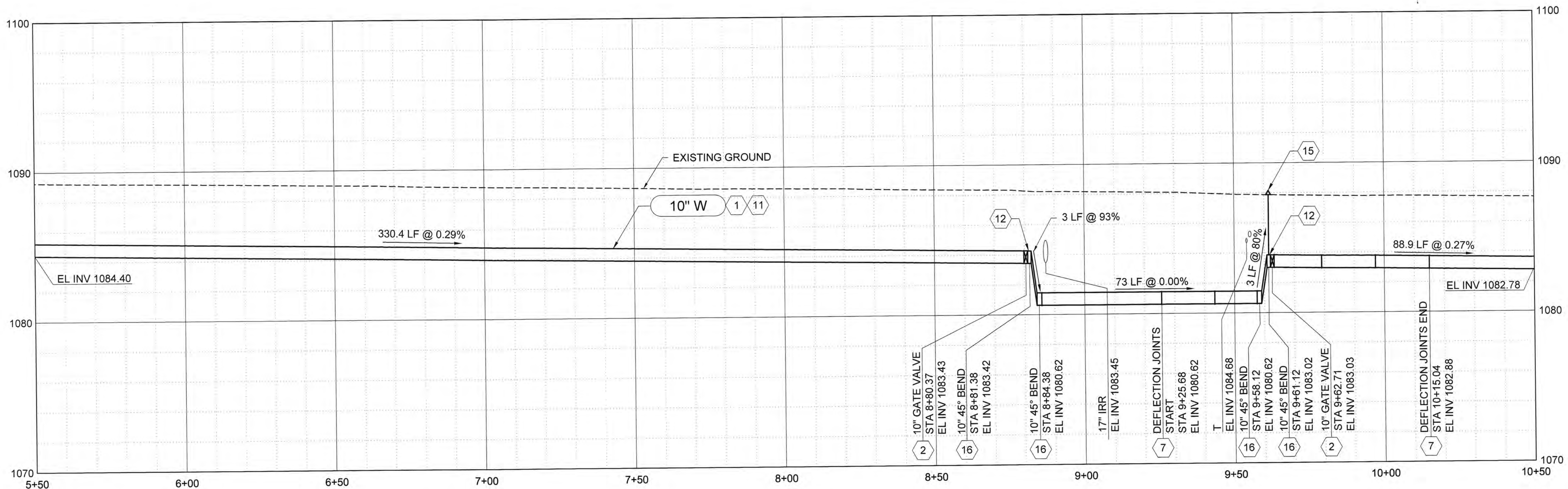
Contact Arizona 811 at least two full working days before you begin excavation

Call 811 or click Arizona811.com

Path: P:\GOODYEAR, CITY OF\150285 - ADAMAN WELL 3 TRANSMISSION MAINS\DRAWINGS\WW2-SHEETS\CIVIL
GOODYEAR.PWS
V:\CITY MAP\150285-C-002.DWG
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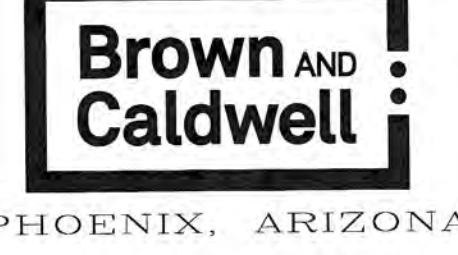


PLAN
SCALE: 1" = 20'



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

- GENERAL NOTES:**
1. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING AND UTILITIES ALONG PIPE ALIGNMENT.
- KEY NOTES:**
- 1 INSTALL 10" DIP WATER
 - 2 INSTALL 10" GATE VALVE, BOX, AND COVER PER MAG STANDARD DETAIL 391, TYPE "A"
 - 7 ELECTRONIC BALL MARKER PER COG STANDARD DETAIL G-3305
 - 11 INSTALL 2 - 2" PVC CONDUIT PER COG STANDARD DETAIL G-3293 AND TRENCH DETAIL A/C-011
 - 12 INSTALL INTERCONNECTION CONDUIT PULL BOX PER COG STANDARD DETAIL G-3295
 - 14 VERTICAL REALIGNMENT PER COG STANDARD DETAIL G-3301
 - 15 INSTALL AIR RELEASE VALVE PER COG STANDARD DETAIL G-3328
 - 16 INSTALL 10" 45° DIP BEND
 - 21 INSTALL JOINT RESTRAINT PER MAG STANDARD DETAIL 303-1 AND 303-2



PHOENIX, ARIZONA



ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

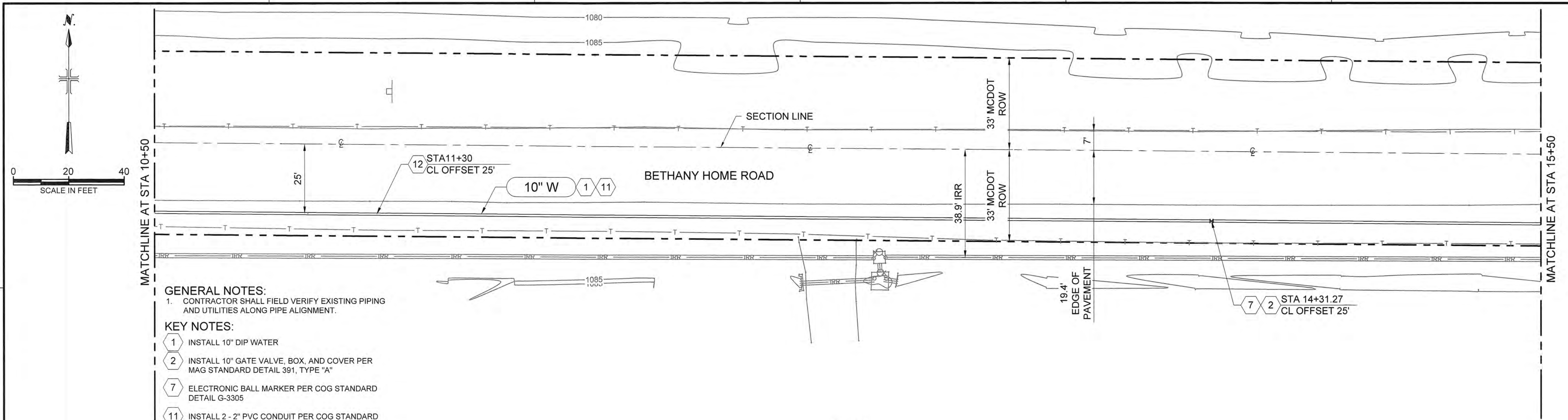
REVISIONS		
REV	DATE	DESCRIPTION
LINE IS 2 INCHES AT FULL SIZE		
DESIGNED: J. SANDERS		
DRAWN: J. JACOBSEN		
CHECKED: T. MORACA		
CHECKED:		
APPROVED:		
FILENAME 150285-C-002.DWG		
BC PROJECT NUMBER 150285		
CLIENT PROJECT NUMBER CON-17-3838		

CIVIL
PLAN AND PROFILE
STA 5+50 TO STA
10+50

DRAWING NUMBER
C-002
SHEET NUMBER
4 OF 17



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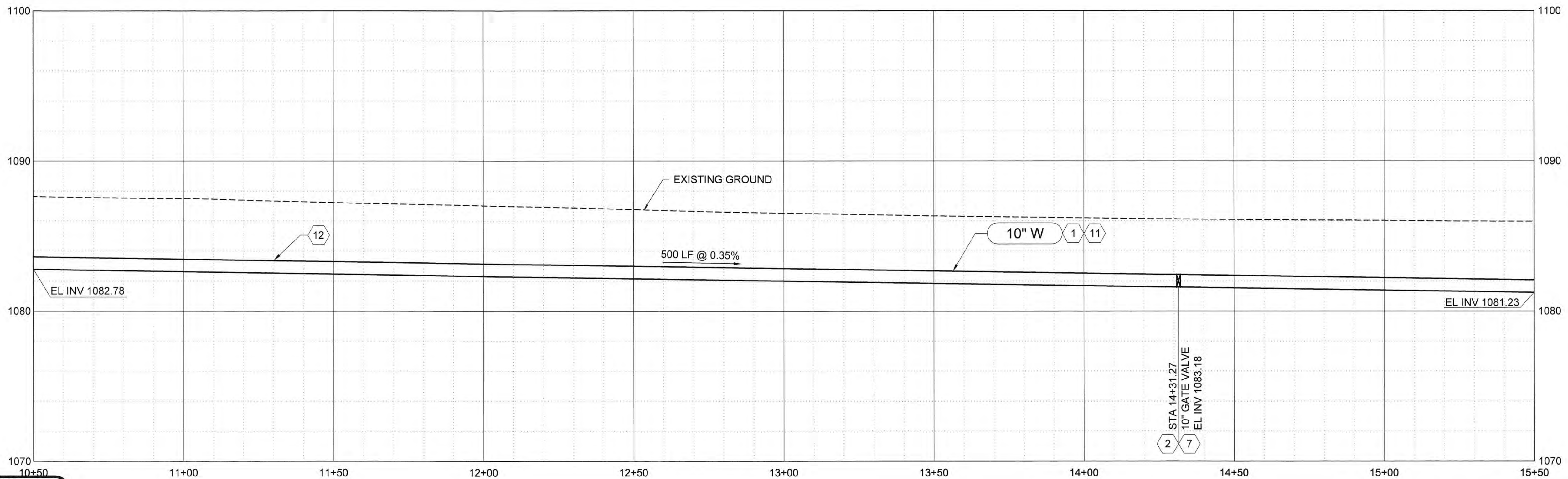


GENERAL NOTES:
1. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING AND UTILITIES ALONG PIPE ALIGNMENT.

KEY NOTES:

- 1 INSTALL 10" DIP WATER
- 2 INSTALL 10" GATE VALVE, BOX, AND COVER PER MAG STANDARD DETAIL 391, TYPE "A"
- 7 ELECTRONIC BALL MARKER PER COG STANDARD DETAIL G-3305
- 11 INSTALL 2 - 2" PVC CONDUIT PER COG STANDARD DETAIL G-3293 AND TRENCH DETAIL A/C-011
- 12 INSTALL INTERCONNECTION CONDUIT PULL BOX PER COG STANDARD DETAIL G-3295

PLAN
SCALE: 1" = 20'



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

Contact Arizona 811 at least two full working days before you begin excavation

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ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
CHECKED:
APPROVED:

FILENAME
150285-C-003.DWG
BC PROJECT NUMBER
150285
CLIENT PROJECT NUMBER
CON-17-3838

CIVIL
PLAN AND PROFILE
STA 10+50 TO STA
15+50

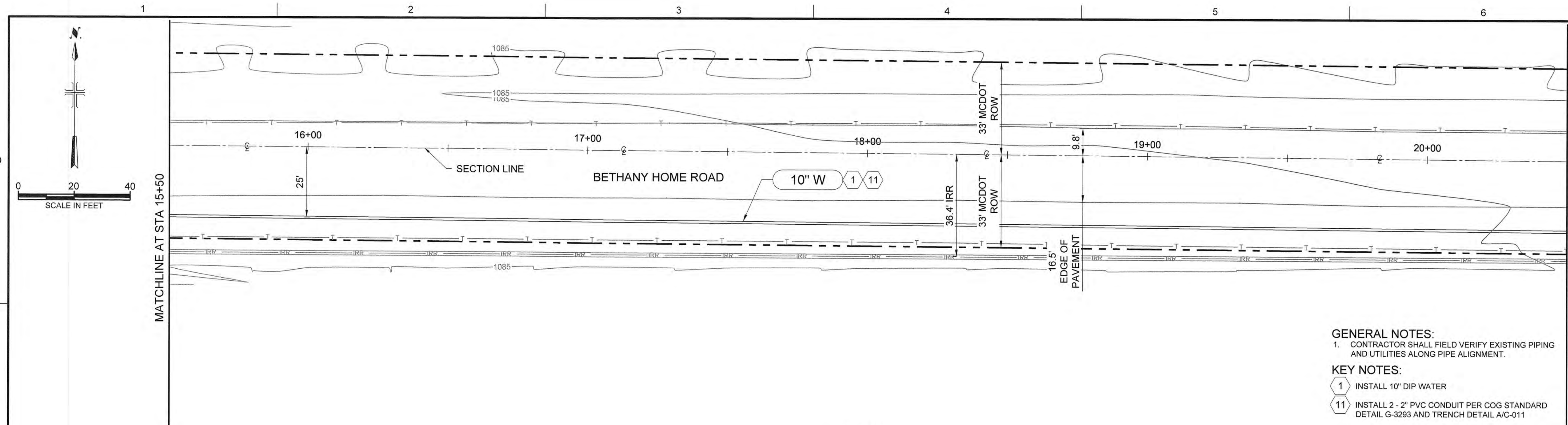
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C-003

SHEET NUMBER
5 OF 17

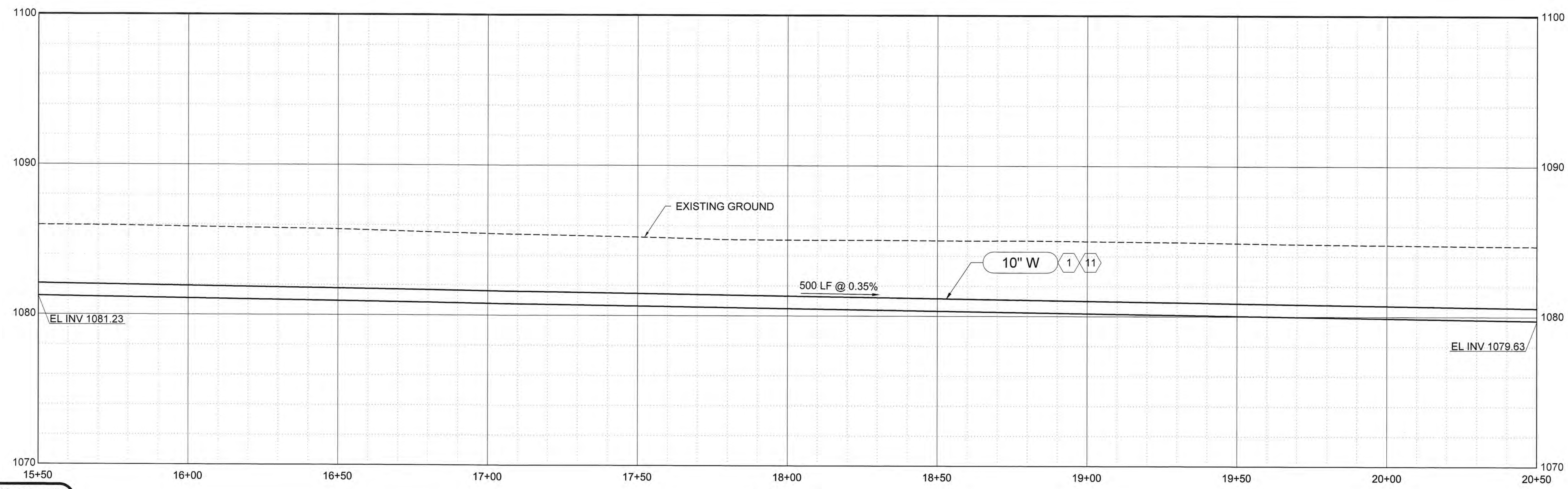
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GOODYEAR.pptx
VICINITY MAP.pptx
W2-SHEET/SC-CIVIL
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PLOT DATE: 9/27/2017 1:44 PM
CAD USER: JENNIFER JACOBSEN
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PLAN
SCALE: 1" = 20'

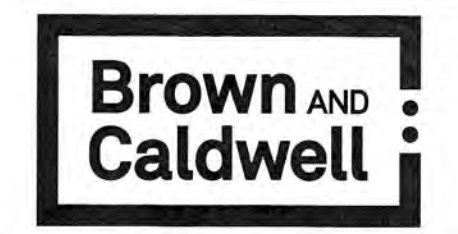
- GENERAL NOTES:
1. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING AND UTILITIES ALONG PIPE ALIGNMENT.
- KEY NOTES:
1. INSTALL 10" DIP WATER
11. INSTALL 2 - 2" PVC CONDUIT PER COG STANDARD DETAIL G-3293 AND TRENCH DETAIL A/C-011



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

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ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
CHECKED:
APPROVED:

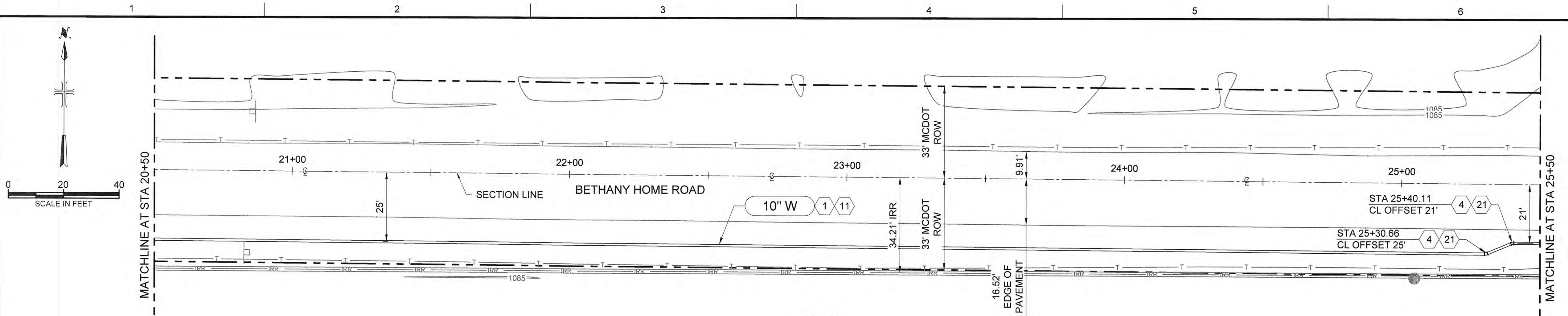
FILENAME
150285-C-004.DWG
BC PROJECT NUMBER
150285
CLIENT PROJECT NUMBER
CON-17-3838

CIVIL
PLAN AND PROFILE
STA 15+50 TO STA
20+50

DRAWING NUMBER
C-004

SHEET NUMBER
6 OF 17

GOODYEAR.pig
VICINITY MAP.pig
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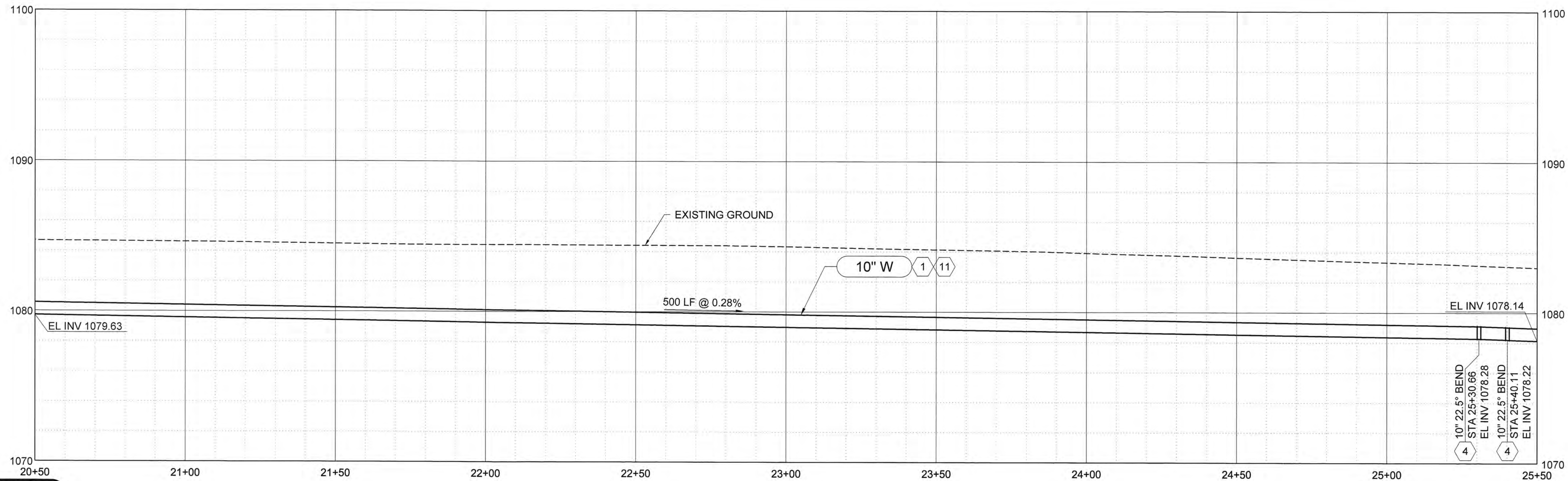


PLAN
SCALE: 1" = 20'

GENERAL NOTES:
1. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING AND UTILITIES ALONG PIPE ALIGNMENT.

KEY NOTES:

- 1 INSTALL 10" DIP WATER
- 4 INSTALL 10" 22.5° DIP BEND
- 11 INSTALL 2 - 2" PVC CONDUIT PER COG STANDARD DETAIL G-3293 AND TRENCH DETAIL A/C-011
- 21 INSTALL JOINT RESTRAINT PER MAG STANDARD DETAIL 303-1 AND 303-2



PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

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PHOENIX, ARIZONA



ADAMAN WELL
NO. 3
TRANSMISSION
MAIN

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE
DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
CHECKED:
APPROVED:

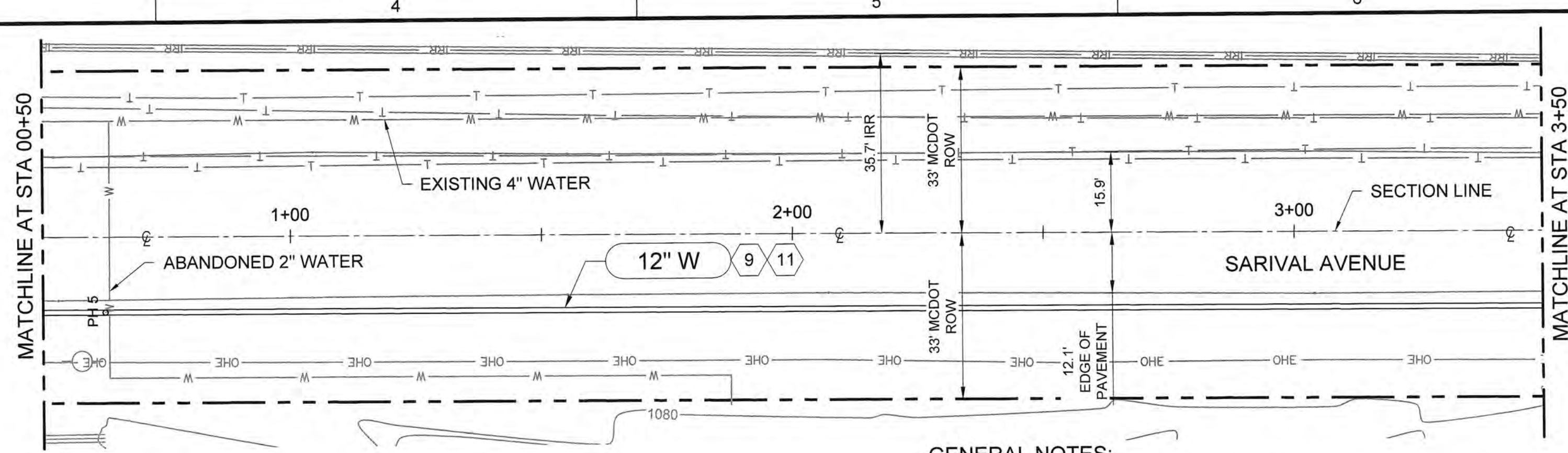
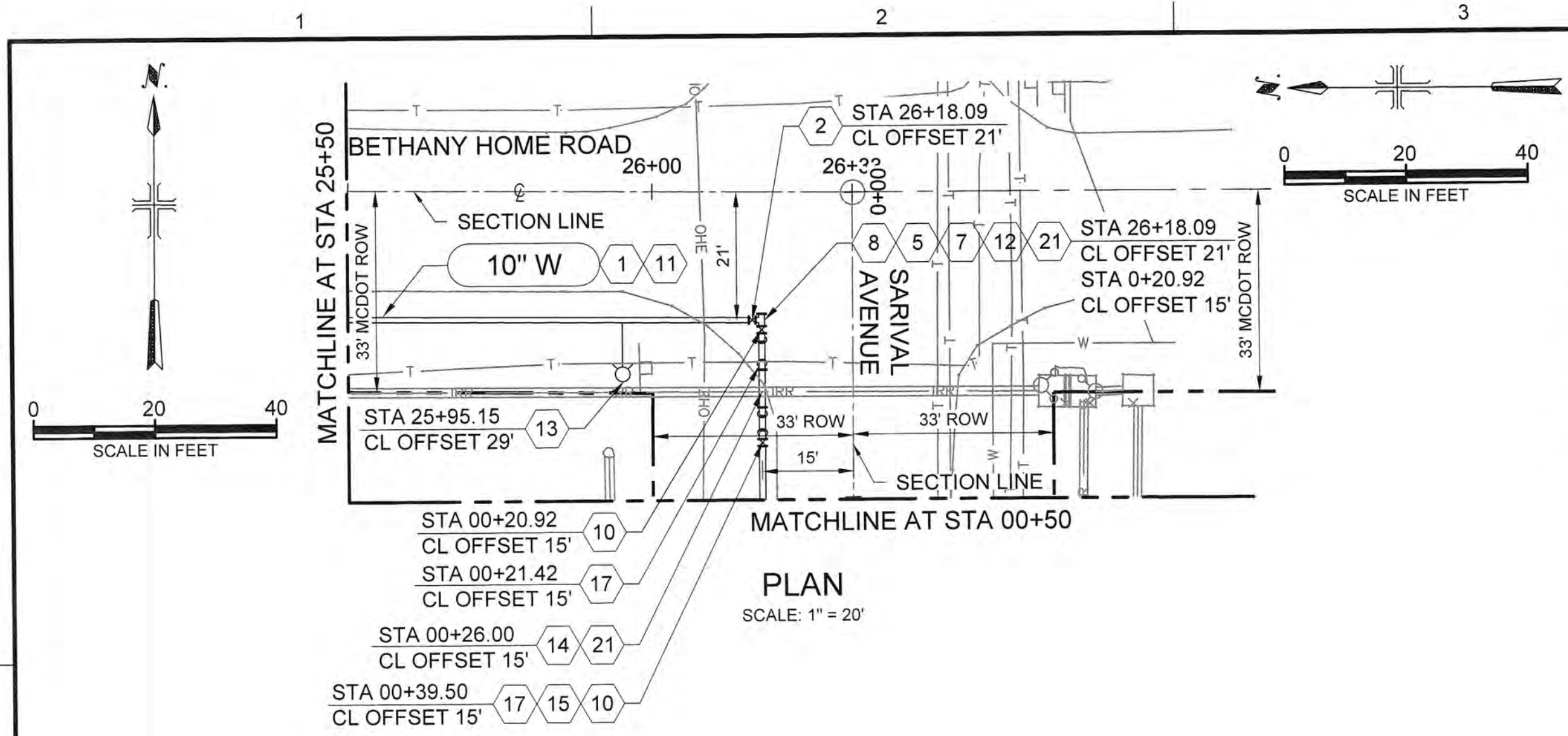
FILENAME
150285-C-005.DWG
BC PROJECT NUMBER
150285
CLIENT PROJECT NUMBER
CON-17-3838

CIVIL
PLAN AND PROFILE
STA 20+50 TO STA
25+50

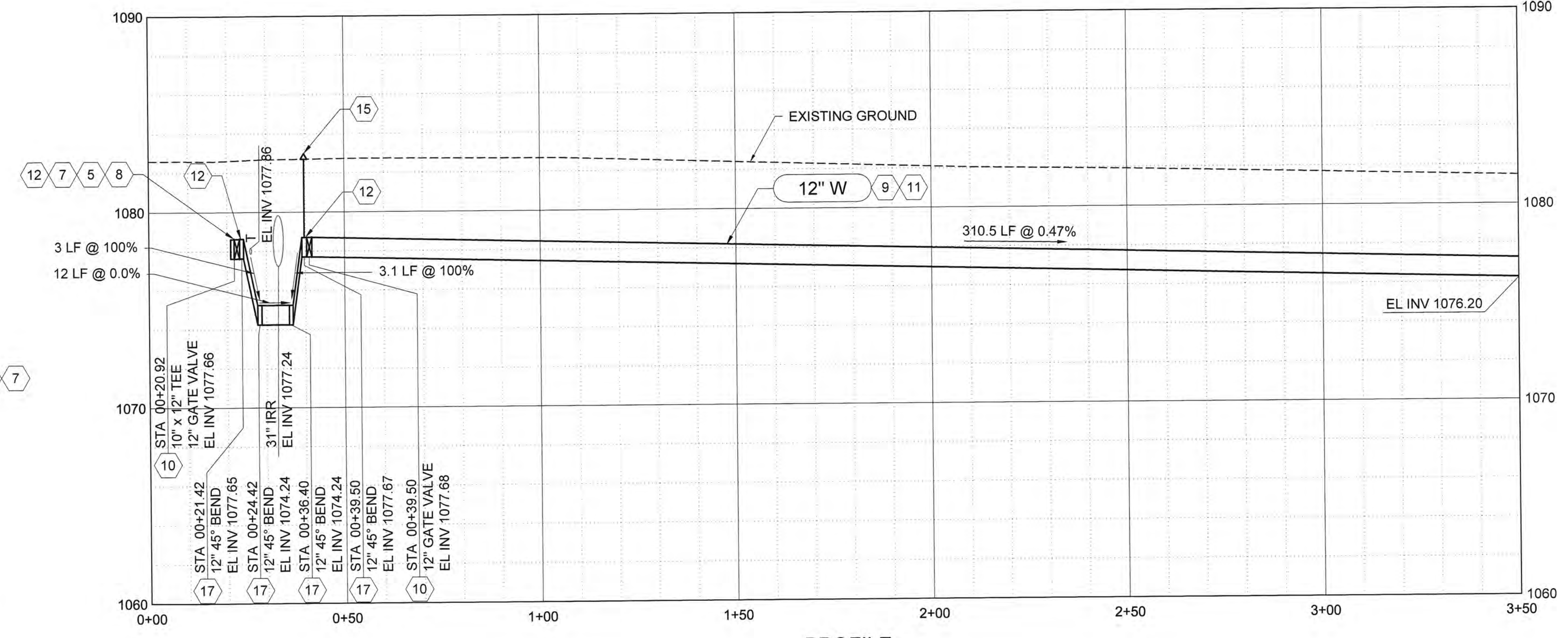
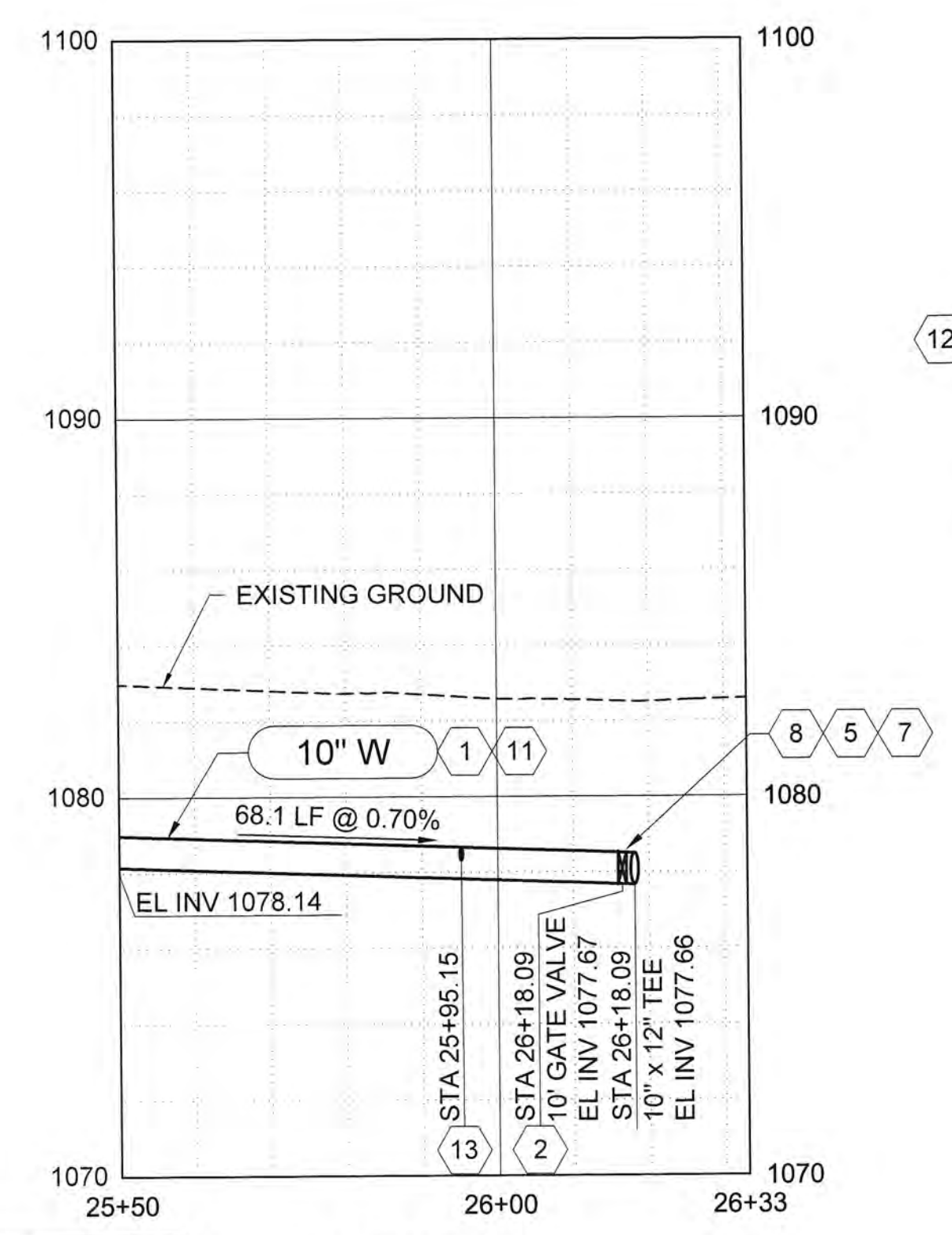
DRAWING NUMBER
C-005

SHEET NUMBER
7 OF 17

GOODYEAR.DWG
VICINITY MAP.PDF
Path: P:\GOODYEAR, CITY OF\150285 - ADAMAN WELL 3 TRANSMISSION MAINS\DRAWINGS\WMW2-SHEETSC-CIVIL FILENAME: 150285-C-006.DWG PLOT DATE: 9/27/2017 1:38 PM CAD USER: JENNIFER JACOBSEN



- GENERAL NOTES:**
- CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING AND UTILITIES ALONG PIPE ALIGNMENT.
- KEY NOTES:**
- | | |
|---|---|
| 1. INSTALL 10" DIP WATER | 12. INSTALL INTERCONNECTION CONDUIT PULL BOX PER GOC STANDARD DETAIL G-3295 |
| 2. INSTALL 10" GATE VALVE, BOX, AND COVER PER MAG STANDARD DETAIL 391, TYPE "A" | 13. INSTALL FLUSHING HYDRANT PER COG STANDARD DETAIL G-3330. HYDRANT TO BE PAINTED GREY |
| 5. INSTALL 10" x 12" x 12" DIP TEE | 14. VERTICAL REALIGNMENT PER COG STANDARD DETAIL G-3301 |
| 7. ELECTRONIC BALL MARKER PER COG STANDARD DETAIL G-3305 | 15. INSTALL AIR RELEASE VALVE PER COG STANDARD DETAIL G-3328 |
| 8. INSTALL 12" BLIND FLANGE | 17. INSTALL 12" 45° DIP BEND |
| 9. INSTALL 12" DIP WATER | 21. INSTALL JOINT RESTRAINT PER MAG STANDARD DETAIL 303-1 AND 303-2 |
| 10. INSTALL 12" GATE VALVE, BOX, AND COVER PER MAG STANDARD DETAIL 391, TYPE "A" | |
| 11. INSTALL 2 - 2" PVC CONDUIT PER GOC STANDARD DETAIL G-3293 AND TRENCH DETAIL A/C-011 | |



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PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

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**ADAMAN WELL
NO. 3
TRANSMISSION
MAIN**

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. SANDERS
DRAWN: J. JACOBSEN
CHECKED: T. MORACA
APPROVED:

FILENAME: 150285-C-006.DWG
BC PROJECT NUMBER: 150285
CLIENT PROJECT NUMBER: CON-17-3838

**CIVIL
PLAN AND PROFILE
STA 25+50 TO STA
3+50**

DRAWING NUMBER
C-006
SHEET NUMBER
8 OF 17