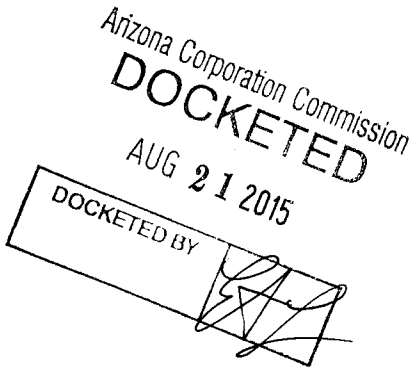
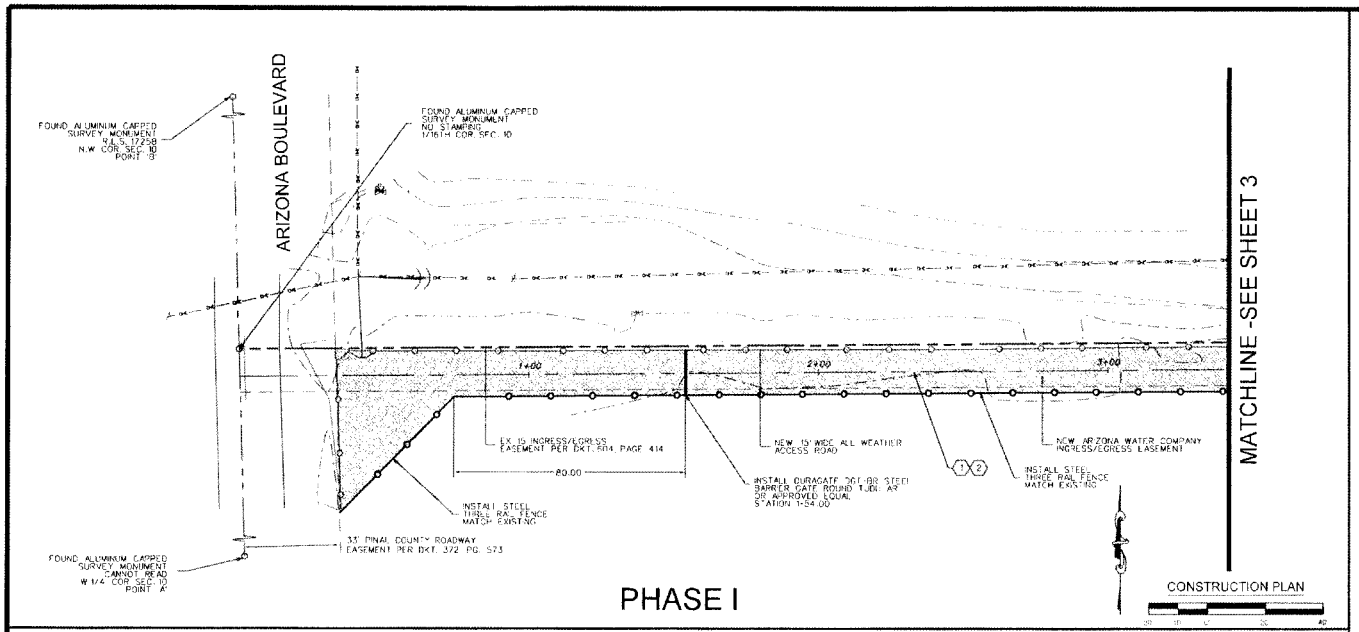
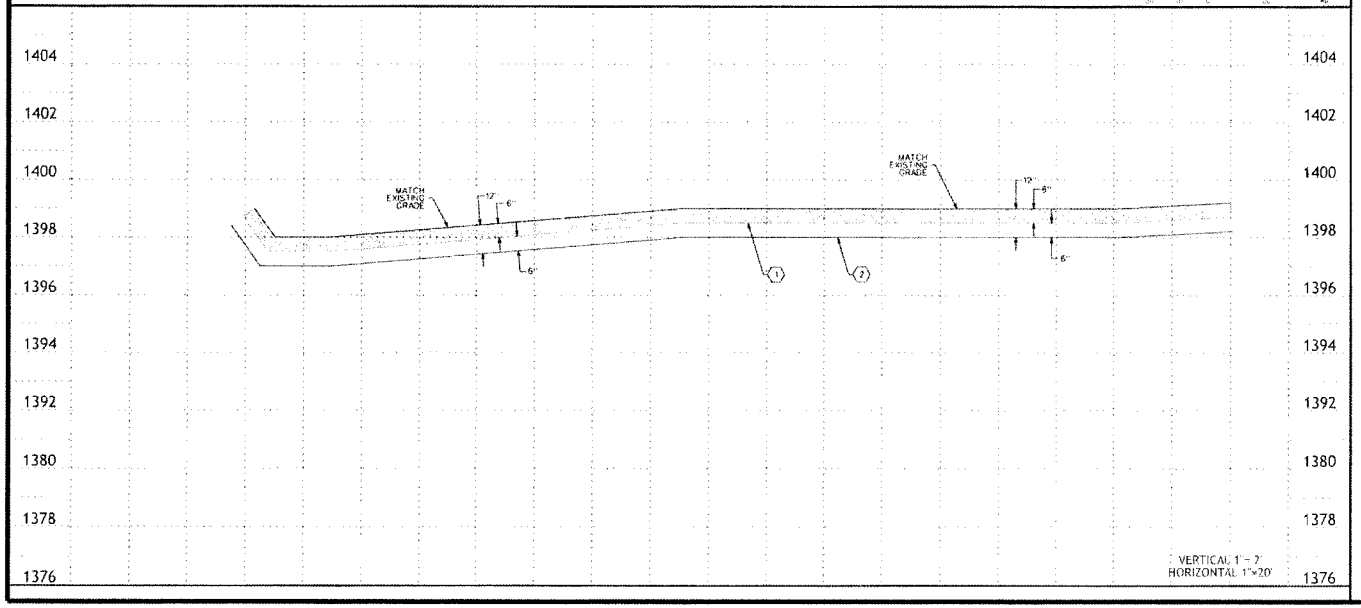
Arizona Water Company
W-01445A-15-0277

Amendment to Application

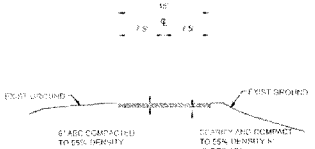
PART 10 OF 12







	WATER CONSTRUCTION
1	6" ABC COMPACTED TO 95%
2	SCARIFY AND COMPACT TO 95% UNDER ABC
3	FILL & COMPACT TO 95% PER MAG 211
4	PLACE GEOSYNTHETIC FABRIC CLASS B PER MAG 796.23
5	PLACE MAG 703 RIPRAP (D50=1.5') OR APPROVED EQUAL
6	PLACE GEOSYNTHETIC FABRIC CLASS A PER MAG 796.22
7	PLACE MAG 703 RIPRAP (D50=6") OR APPROVED EQUAL



LEGEND

- MONUMENTS FOUND AS NOTED
- LIGHT/POWER POLES
- EX. WATER METER BOX
- EX. FIRE HYDRANT
- NEW WATER VALVE
- EX. WATER VALVE
- STREET CENTERLINE/MONUMENT LINE
- PROPERTY LINE
- NEW WATER LINE
- EX. WATER LINE
- 15' INGRESS/EGRESS EASEMENT
- EX. OVERHEAD ELECTRIC
- EX. UNDERGROUND ELECTRIC
- EX. FENCE
- CONTOUR LINE (MAJOR)
- CONTOUR LINE (MINOR)
- TOE OF SLOPE
- TOP OF SLOPE
- EX. ASPHALT AREA
- EX. CONCRETE AREA
- NEW ACCESS ROAD (6" ABC)

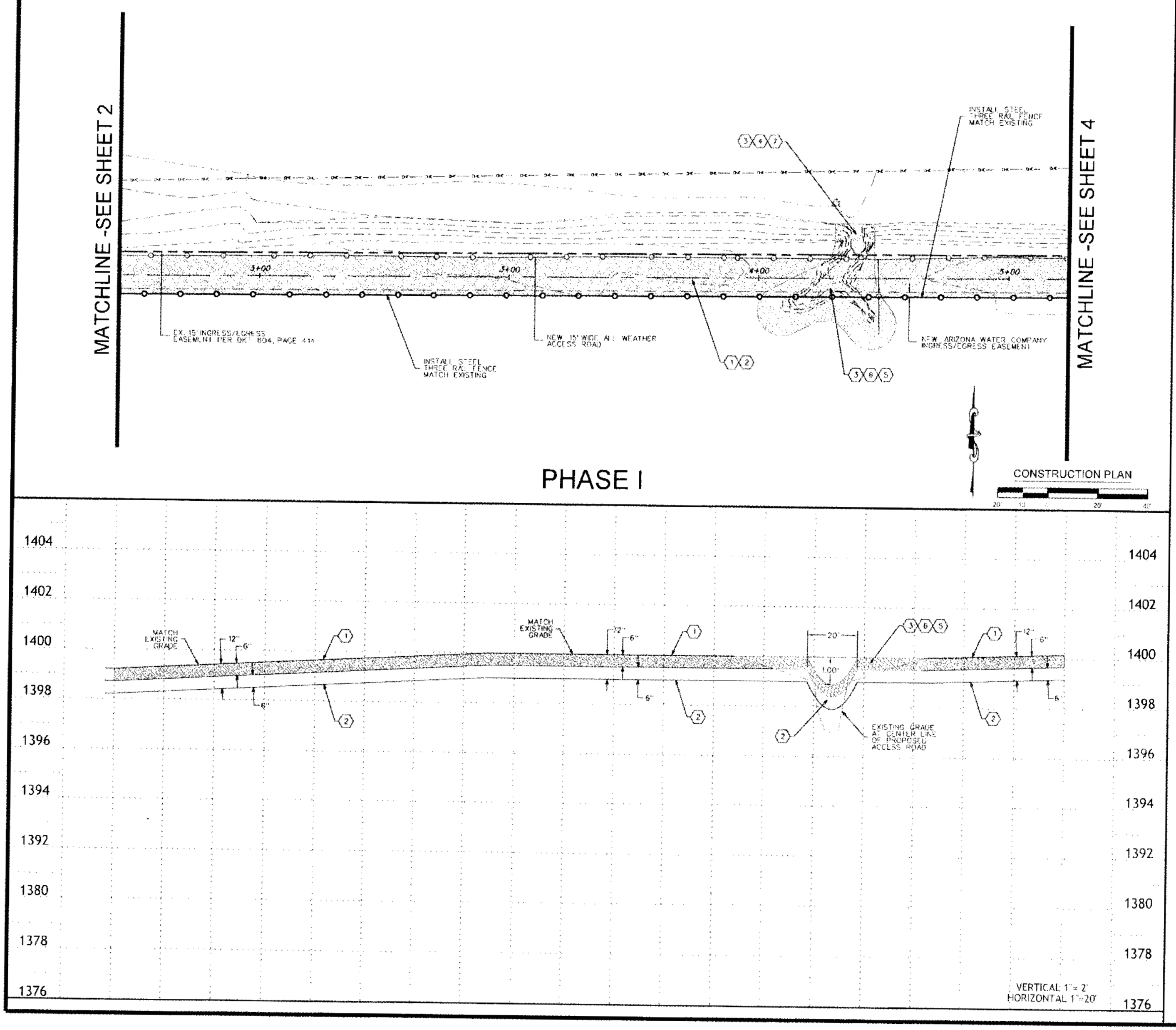
ARIZONA WATER COMPANY
9826 N BLACK CANYON HWY. POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCTION ACCESS ROAD TO APN 505-19-ANG THE COOLIDGE NITRATE PLANT

CONSTRUCTION PLAN/PROFILE

PROJECT NO. PV-0091

SHEET 2 OF 11



⬡	WATER CONSTRUCTION
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3	FILL & COMPACT TO 95% PER MAG 211
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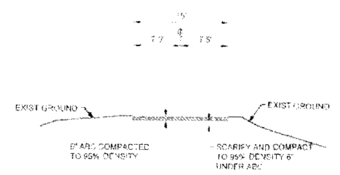


LEGEND

- MONUMENTS FOUND AS NOTED
- LIGHT/POWER POLES
- EX. WATER METER BOX
- EX. FIRE HYDRANT
- NEW WATER VALVE
- EX. WATER VALVE
- STREET CENTERLINE/MONUMENT LINE
- PROPERTY LINE
- NEW WATER LINE
- EX. WATER LINE
- 15' INGRESS/EGRESS EASEMENT
- EX. OVERHEAD ELECTRIC
- EX. UNDERGROUND ELECTRIC
- EX. FENCE
- COUNTOUR LINE (MAJOR)
- COUNTOUR LINE (MINOR)
- TOE OF SLOPE
- TOP OF SLOPE
- EX. ASPHALT AREA
- EX. CONCRETE AREA
- NEW ACCESS ROAD (6" ABC)

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

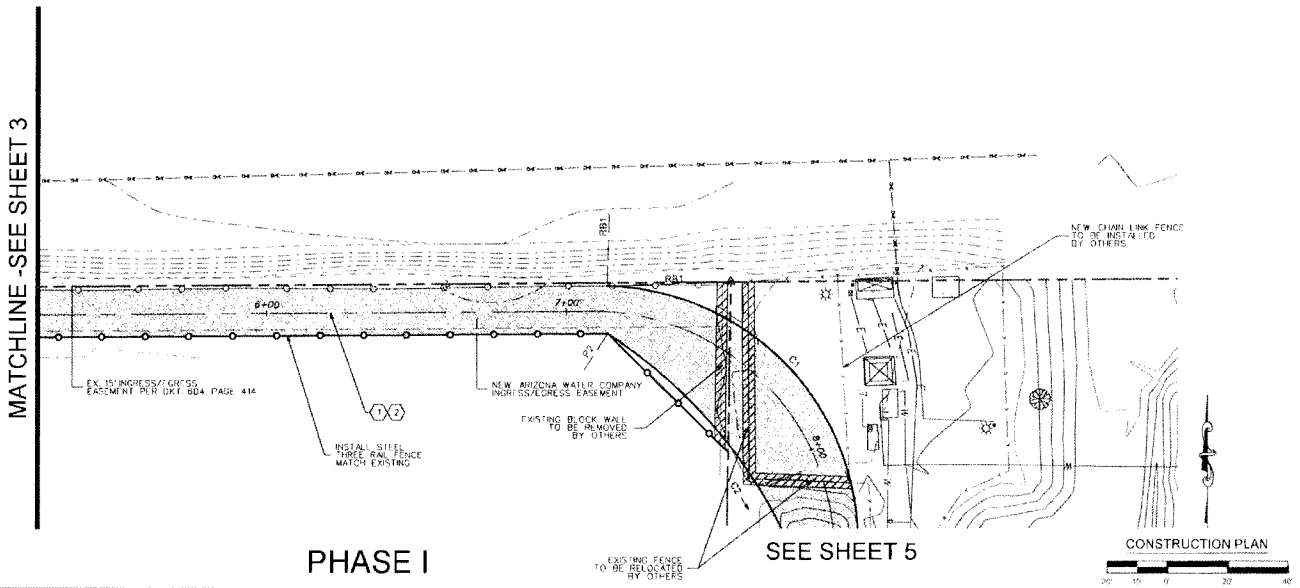
CONSTRUCT ACCESS ROAD TO WELL NOS. 9, 10 AND THE COOLIDGE NITRATE PLANT

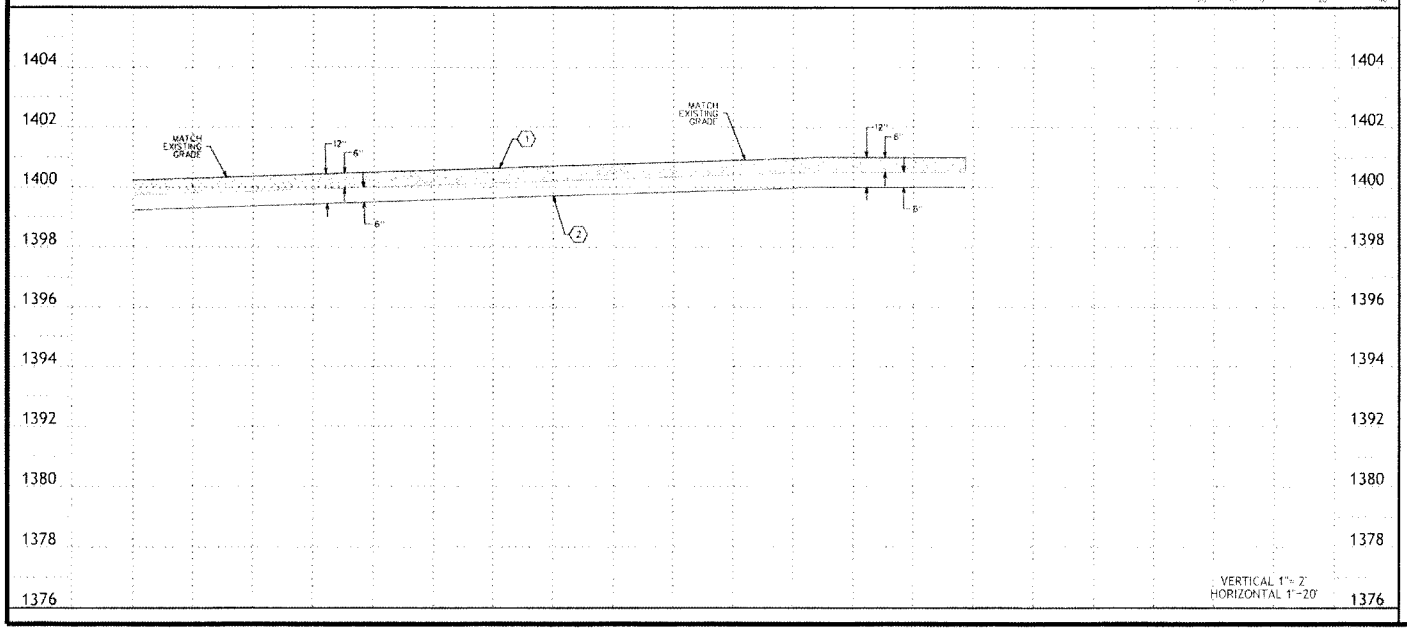
CONSTRUCTION PLAN/PROFILE

PINAL VALLEY (CL)
NW 1/4 SEC 10, T 6S R 8E
AS SHOWN

263-1100
1-800-STAKE-IT

PV-0091
SHEET 3 OF 11





	WATER CONSTRUCTION
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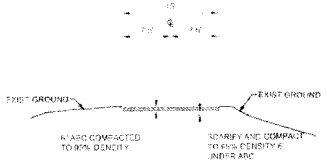
2	SCARIFY AND COMPACT TO 95% UNDER ABC
3	F.I. & COMPACT TO 95% PER MAG 211
4	PLACE GEOSYNTHETIC FABRIC CLASS B PER MAG 796.21
5	PLACE MAG 703 RIPRAP (D50=1.5') OR APPROVED EQUAL
6	PLACE GEOSYNTHETIC FABRIC CLASS A PER MAG 796.22
7	PLACE MAG 703 RIPRAP (D50=6") OR APPROVED EQUAL

CURVE	LENGTH	RADIUS	DELTA
C1	136.37'	86.07'	90°48'15"
C2	151.67'	163.87'	52°59'55"

LINE	LENGTH	BEARING
L1	41.32'	S88°14'03"W

LINE	LENGTH	BEARING
RB1	86.07'	S01°31'32"W
RB2	163.97'	S32°54'30"W



LEGEND

- MONUMENTS FOUND AS NOTED
- LIGHT/POWER POLES
- EX. WATER METER BOX
- EX. FIRE HYDRANT
- NEW WATER VALVE
- EX. WATER VALVE
- STREET CENTERLINE/MONUMENT LINE
- PROPERTY LINE
- NEW WATER LINE
- EX. WATER LINE
- 15' INGRESS/EGRESS EASEMENT
- EX. OVERHEAD ELECTRIC
- EX. UNDERGROUND ELECTRIC
- EX. FENCE
- CONTOUR LINE (MAJOR)
- CONTOUR LINE (MINOR)
- TOE OF SLOPE
- TOP OF SLOPE
- EX. ASPHALT AREA
- EX. CONCRETE AREA
- NEW ACCESS ROAD (6" ABC)

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-5860

CONSTRUCT ACCESS ROAD TO WELL NOS. 9, 10 AND THE GOLDEN N TRAFFIC PLANT

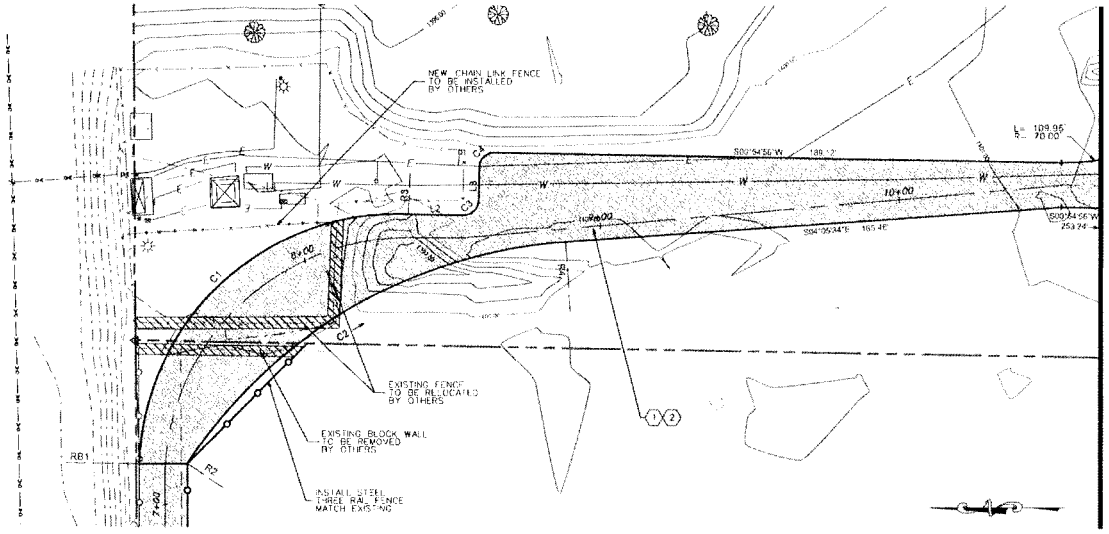
CONSTRUCTION PLAN/PROFILE

PINAL VALLEY CAL
SEC. 9 T.4 S.R.10 E.
2022
AS SHOWN
4/24/2015
MKC

JAMES WILSON
EXPIRES 9/30/15

PV-0091

SHEET 4 OF 11

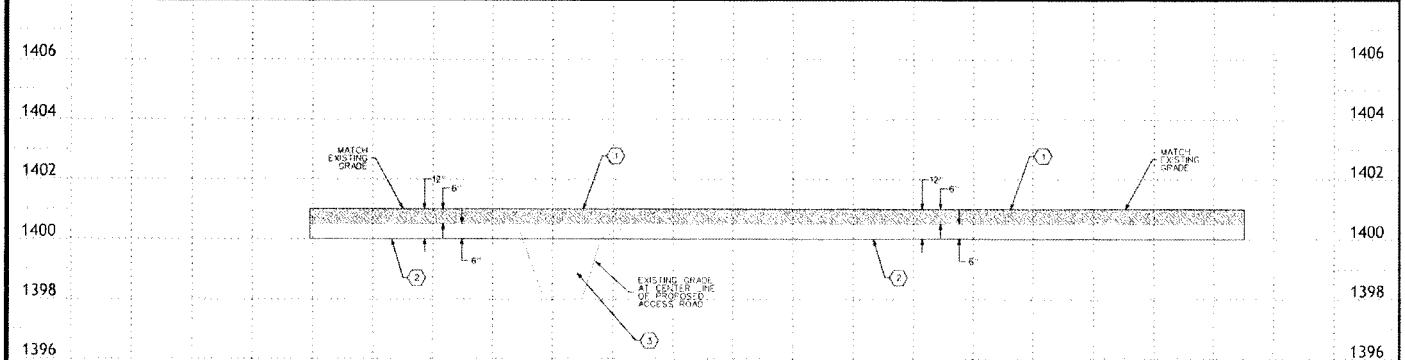


SEE SHEET 4

PHASE I

MATCHLINE - SEE SHEET 6
(END OF PHASE 1)

CONSTRUCTION PLAN



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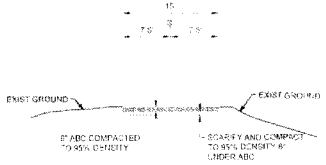
7	PLACE MAG 703 RIPRAP (D50=6") OR APPROVED EQUAL

CURVE	LENGTH	RADIUS	DELTA
C1	136.37'	86.07'	90°48'15"
C2	151.67'	163.87'	52°58'56"
C3	7.85'	5.00'	90°00'00"
C4	7.85'	5.00'	90°00'00"

LINE	LENGTH	BEARING
L1	41.32'	S88°14'03"W
L2	18.15'	S00°54'56"W
L3	11.15'	S89°05'04"E

LINE	LENGTH	BEARING
RB1	86.07'	S01°31'32"W
RB2	163.97'	S32°54'30"W
RB3	86.07'	N83°41'42"W
RB4	163.97'	S85°54'26"W



LEGEND

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- EX. OVERHEAD ELECTRIC
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- EX. FENCE
- COUNTOUR LINE (MAJOR)
- COUNTOUR LINE (MINOR)
- TOE OF SLOPE
- TOP OF SLOPE
- EX. ASPHALT AREA
- EX. CONCRETE AREA
- NEW ACCESS ROAD (6" ABC)

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY. - POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT ACCESS ROAD TO WELL NOS. 9, 10 AND THE COOLIDGE NITRATE PLANT

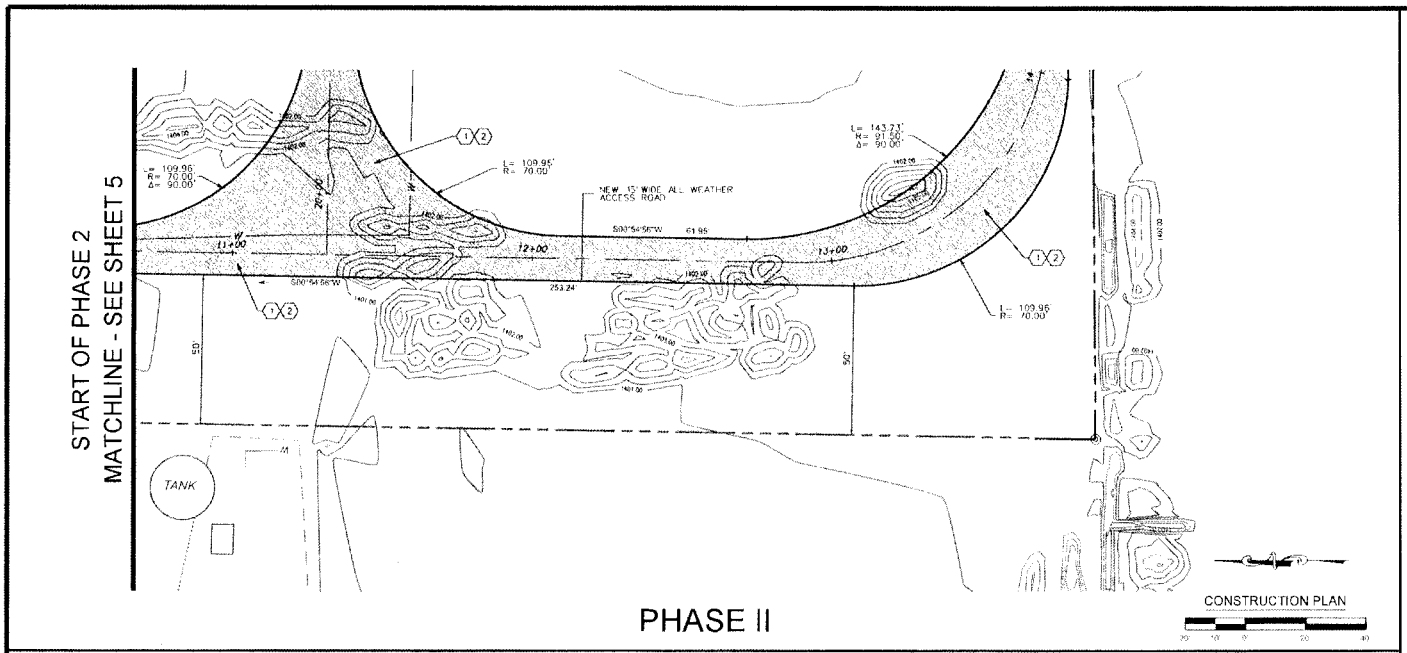
CONSTRUCTION PLAN/PROFILE

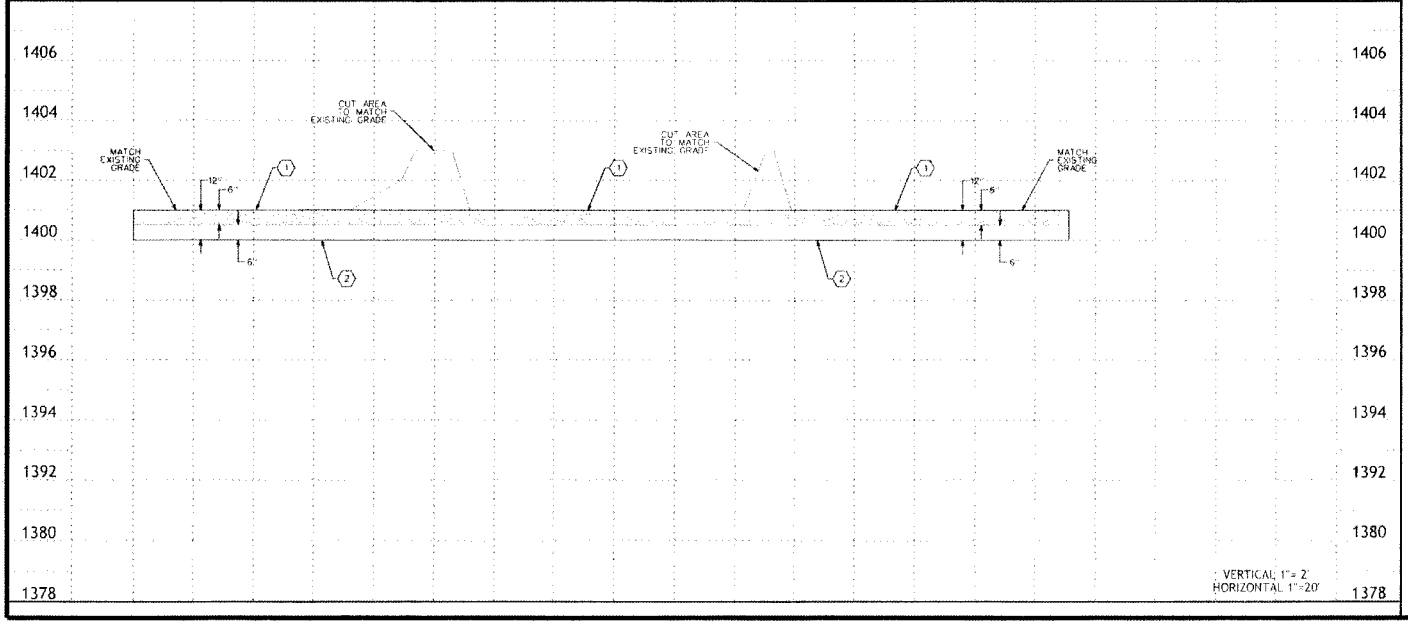
1104a JAMES T. WILSON ARIZONA U.S.A.

Expires 6/30/12

PV-0091

SHEET 5 OF 11





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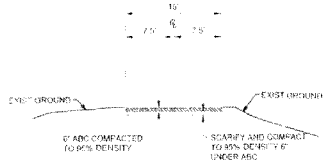

LEGEND

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- LIGHT/POWER POLES
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- EX. OVERHEAD ELECTRIC
- E — EX. UNDERGROUND ELECTRIC
- EX. FENCE
- CONTOUR LINE (MAJOR)
- CONTOUR LINE (MINOR)
- TOP OF SLOPE
- TOP OF SLOPE
- EX. ASPHALT AREA
- EX. CONCRETE AREA
- NEW ACCESS ROAD (6" ABC)

ARIZONA WATER COMPANY
3805 N BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT ACCESS ROAD TO WELL NOS. 9, 10 AND THE CLOUDLINE NITRATE PLANT

CONSTRUCTION PLAN/PROFILE

PROJECT MGR. PHASE 1A - 1.5 YEAR

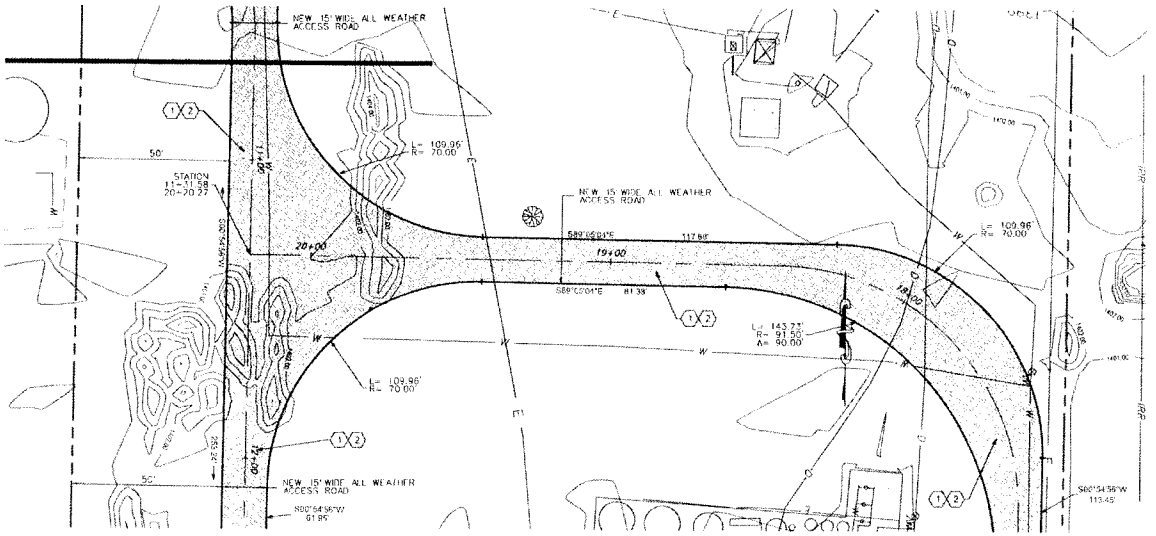
DESIGN DRAWN CHECKED DATE 4/21/2015 SCALE AS SHOWN

PROJECT SHEET NO. SHEET 6 OF 11

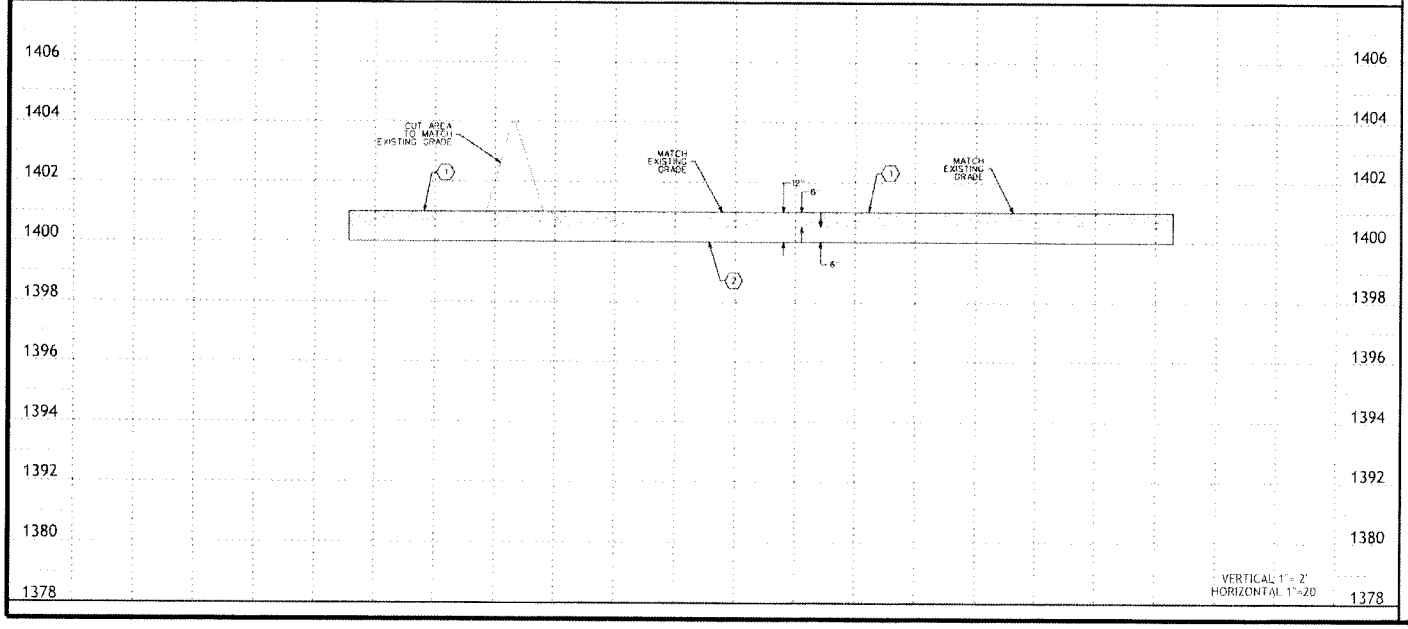
PV-0091

SHEET 6 OF 11

PHASE I



PHASE II



CONSTRUCTION PLAN

	WATER CONSTRUCTION
1	6" ABC COMPACTED TO 95%
2	SCARIFY AND COMPACT TO 95% UNDER ABC
3	FILL & COMPACT TO 95% PER MAG 211
4	PLACE GEOSYNTHETIC FABRIC CLASS B PER MAG 736.2.3
5	PLACE MAG 703 RIPRAP (D50=15") OR APPROVED EQUAL
6	PLACE GEOSYNTHETIC FABRIC CLASS A PER MAG 736.2.2
7	PLACE MAG 703 RIPRAP (D50=6") OR APPROVED EQUAL

LEGEND

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- EX. ASPHALT AREA
- EX. CONCRETE AREA
- NEW ACCESS ROAD (6" ABC)

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, AR 2OOMA 85038-9006
(623) 245-6550

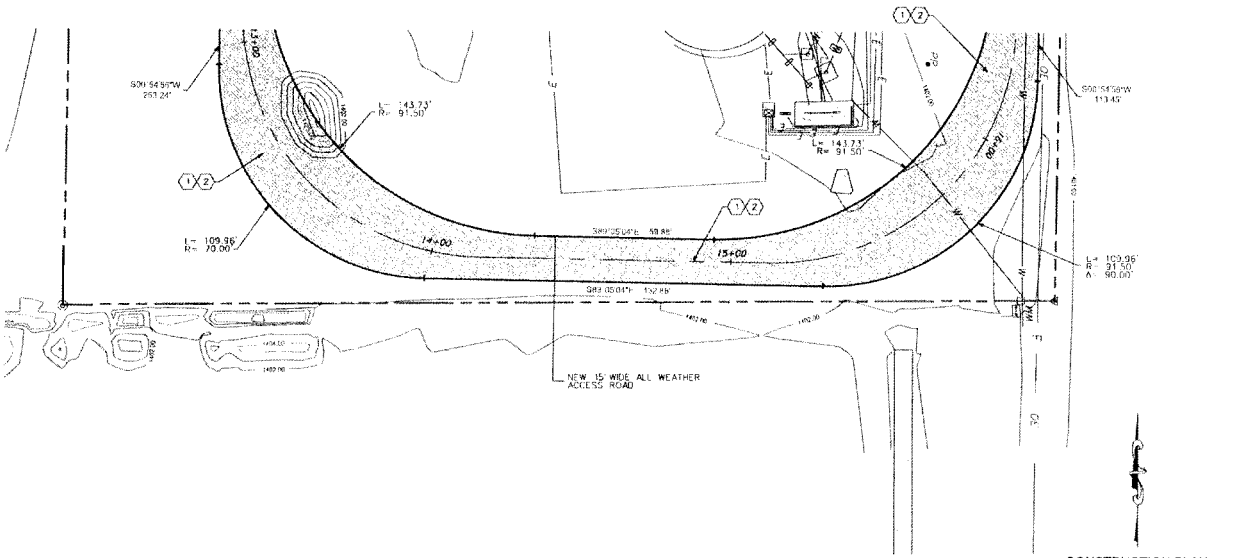
CONSTRUCT ACCESS ROAD TO WELL NOS. 9, 10, AND 11 AT ECOLIDGE NITRATE PLANT

CONSTRUCTION PLAN/PROFILE

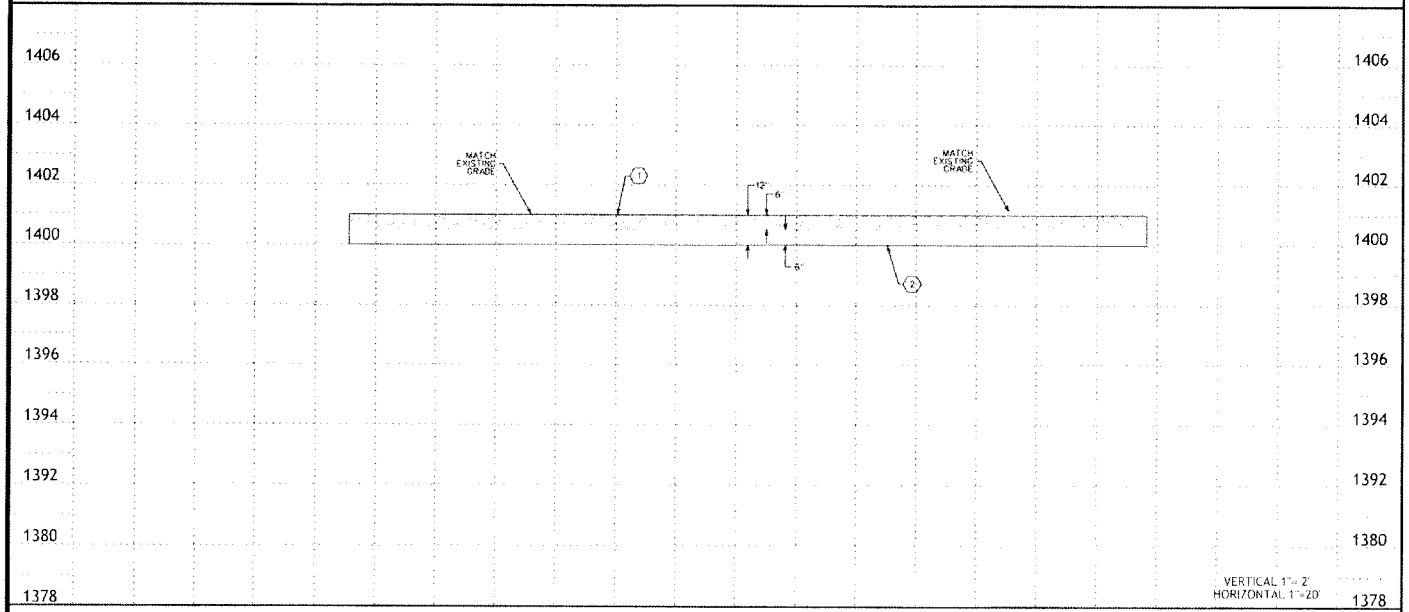
PROJECT SHEET NO.

PV-0091

SHEET 7 OF 11



PHASE II



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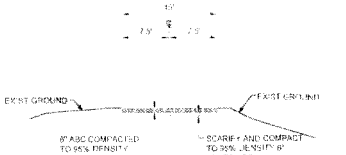

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- TOE OF SLOPE
- TOP OF SLOPE
- EX. ASPHALT AREA
- EX. CONCRETE AREA
- NEW ACCESS ROAD (6" ABC)

ARIZONA WATER COMPANY
3805 N BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

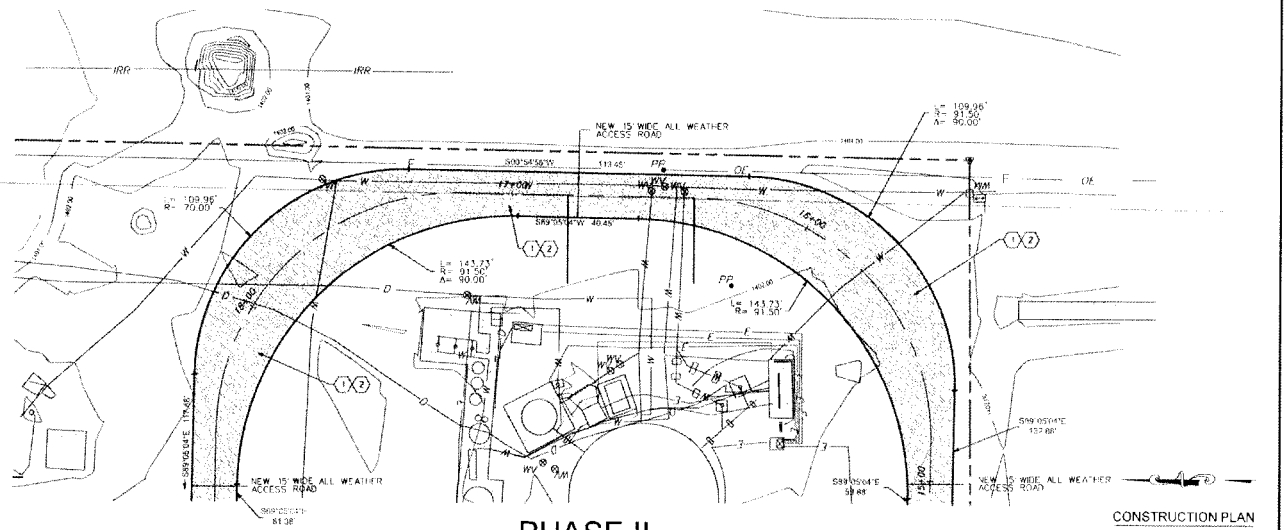
CONSTRUCT ACCESS ROAD TO WELL NOS. 9, 10 AND THE GOODLAND NITRATE PLANT

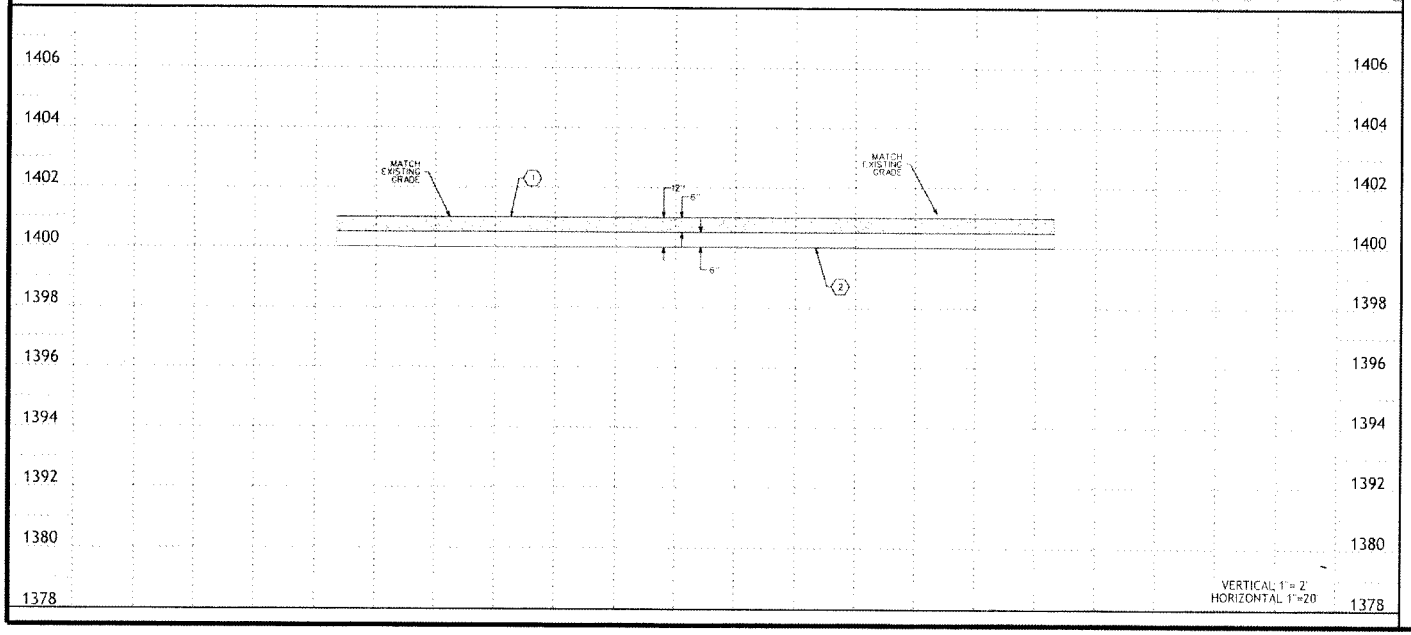
CONSTRUCTION PLAN/PROFILE

JAMES F. WILSON
ARIZONA U.S.A.
Expires 6/30/10

PV-0091

SHEET 8 OF 11





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5	PLACE MAG 703 RIPRAP (D50=1.5') OR APPROVED EQUAL
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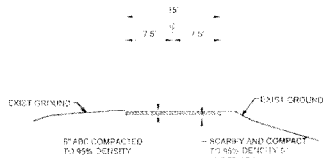


LEGEND

- MONUMENTS FOUND AS NOTED
- LIGHT/POWER POLES
- EX. WATER METER BOX
- EX. FIRE HYDRANT
- NEW WATER VALVE
- EX. WATER VALVE
- STREET CENTERLINE/MONUMENT LINE
- PROPERTY LINE
- NEW WATER LINE
- EX. WATER LINE
- 15' INGRESS/EGRESS EASEMENT
- EX. OVERHEAD ELECTRIC
- EX. UNDERGROUND ELECTRIC
- EX. FENCE
- COUNTOUR LINE (MAJOR)
- COUNTOUR LINE (MINOR)
- TOE OF SLOPE
- TOP OF SLOPE
- EX. ASPHALT AREA
- EX. CONCRETE AREA
- NEW ACCESS ROAD (6" ABC)

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY. POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT ACCESS ROAD TO WELLS NOS. 9, 10 AND THE BOULDER TRAILE PLANT

CONSTRUCTION PLAN/PROFILE

PINAL VALLEY COL
NW1/4 SEC. 10 T. 3S R. 8E
2:1/2
4/24/2015
AS SHOWN

263-1100
-MD-STAND-IT

PV-0091

SHEET 9 OF 11

E-8-1
CONSTRUCTION SPECIFICATIONS
FOR THE INSTALLATION OF WATER DISTRIBUTION SYSTEMS
DUCTILE IRON

DEFINITIONS

A. Company. The words "Company" or "Arizona Water Company" mean Arizona Water Company, and where applicable, any division of Arizona Water Company, whose principal place of business is located at 3805 North Black Canyon Highway, Phoenix, Arizona 85015-5351 (Post Office Box 29006, Phoenix, Arizona 85038-9006).

B. Company's Authorized Representative. The words "Company's Authorized Representative" mean any officer of the Company, and any of the Company's Engineers, any Division Manager or Superintendent of the Company and/or such other person(s) designated in writing as the "Company's Authorized Representative" by the President or any Vice President of the Company.

C. Contractor. The word "Contractor" means either an individual or other entity employed to do the work as shown on the Construction Drawings and as specified herein.

D. Construction Drawings. The words "Construction Drawings" mean plans prepared by or on behalf of Arizona Water Company.

E. Contract. The word "Contract" means the written document titled "Proposal/Contract" when such document has been signed by an officer or other authorized representative of both the Contractor and the Company.

(1) GENERAL

All work is to be completed in a safe, workmanlike manner and in accordance with these Construction Specifications; any deviation therefrom must be approved in writing by the Company.

Installations must conform with the requirements of all governmental regulating agencies and the cost of conforming to such regulations must be included in the unit bid prices. Examples of such regulations, without attempting to be inclusive, are:

a. Special compaction and paving for street crossing.
b. Shoring when required because of the trench depth.
c. Closing a trench in those areas where no open trench is allowed overnight.
d. Barricading and traffic control as required.

(2) LOCATION MARKING

Alignment stakes as required in the opinion of the Company shall be furnished by the Company to the Contractor and shall be set by the Company at agreed upon intervals and offsets. Under normal circumstances these will reference the pipeline location five feet (5') into the right-of-way measured from property pins. Grade stakes will be provided only when the Construction Drawings show a pipeline depth other than covered in these Specifications. It is the responsibility of the Contractor to preserve all survey work.

(3) TRENCH EXCAVATION

The trench location is to be determined by the Construction Drawings.

FOR 8-INCH OR SMALLER PIPE: The depth of the trench prior to pipe laying shall be such that the finished pipeline shall have between thirty-six inches (36") and forty-two inches (42") of cover unless otherwise specified on the Construction Drawings.

FOR 12-INCH AND LARGER PIPE: The depth of the trench prior to pipe laying shall be such that the finished pipeline shall have between forty eight inches (48") and sixty inches (60") of cover unless otherwise specified on the Construction Drawings.

The width of the trench at and below the level of the top of the pipe shall be a minimum of twelve inches (12") plus the outside diameter of the pipe barrel and a maximum of twenty-four inches (24") plus the outside diameter of the pipe barrel.

The bottom of the trench shall be accurately graded to provide a uniform bearing for each length of pipe for the full length of the pipe. If the native material on the trench bottom can be reasonably dug by hand, bell holes shall be dug for the joints so that the joints in no way support the pipe. When native materials such as rock are encountered during trenching that will not provide a uniform support for the pipe, the trench will be over excavated an additional six inches (6") and suitable bedding material will be placed in the trench.

Bedding material will be placed by hand in four inch (4") lifts and compacted to ensure uniform compaction and to eliminate any voids under the pipe. When the space between the pipe and trench bottom varies, this must be backfilled and compacted in four-inch (4") lifts to the mid-section of the pipe.

Whenever the trench is over-excavated for whatever reason, the trench bottom will be brought up to the correct depth at the Contractor's expense using either method (a) or (b) as follows:

a. A.B.C. material shall be used and compacted to a uniform density of not less than 80% of the maximum density as determined by AASHTO T-99 method A and T-191.

b. Native material 100% of which will pass through a one and one-half inch (1-1/2") screen and at least 20% of which will pass through a number-8 screen shall be used and compacted to a uniform density of not less than 85% of the maximum density as determined by AASHTO T-99 method A and T-191.

(4) MATERIALS TO BE PROVIDED BY CONTRACTOR

Unless otherwise specified on the Construction Drawings or in the Contract, the Contractor will supply all of the necessary materials which will become a permanent and integral part of the water distribution system, including concrete blocking, anchors, backfill material, paving material and supplies used during the prosecution of the work. All materials provided by the Contractor to construct the water distribution system must be NSF Standard 61 approved. All potable water pipes and fittings shall have NSF-PW seal. Construction materials used in the water system shall be lead free as defined at AAC R28-4-504 and R18-1-101. The Contractor will provide the following materials:

a. FIRE HYDRANTS: Mueller Super Centurion 250 Fire Hydrant, meets ANSI/AWWA C502 Standard, Model No. A 423, 5-1/4" main valve opening, three way, 6" Mechanical Joint Shoe, 1-1/2" pentagon operating nut, color - yellow, drain open, open direction - left, 4' or 4' 6" bury depending on application. For pumper and hose nozzle information see below.

(1) One - 4" Pumper Nozzle, NST and Two - 2-1/2" Hose Nozzles NST (These locations only: Ajo, Casa Grande, Coolidge and San Manuel.)

(2) One - 4-1/2" Pumper Nozzle, NST and Two - 2-1/2" Hose Nozzles, NST (These locations only: Apache Junction, Arizona City, Lakeside, Oracle, Overgaard, Pinewood, Pimrock, Sedona, Sierra Vista, White Tank and Winkelman.)

(3) One - 4-1/2" Pumper Nozzle NST and Two - 2-1/2" Hose Nozzles NPT (Bisbee only.)

(4) One - 3" Pumper Nozzle GA 6-350 (5 threads per inch, 3.50 pitch diameter) and Two - 2-1/2" Hose Nozzles, NPT (Miami only.)

(5) One - 3-1/2" Pumper Nozzle GA 6-411 (6 threads per inch, 4.11 pitch diameter) and Two - 2-1/2" Hose Nozzle, NST (Superior only.)

b. FITTINGS: Manufactured by Tyler or Union: Crosses, Elbows, Tees, Cap, Reducer, Adapter, Plug, Blind Flange and Tapped Flange; Ductile Iron, Class 350 SSB, Cast Iron Cement Lined.

(1) Foster Adaptors for MJ, made by Infact Corporation: Available in size 4" to 16". Part No. 4" - 4FA-BC, 6" - 6FA-BC, 8" - 8FA-BC, 10" - 10FA-BC, 12" - 12FA-BC, 16" - 16FA-BC.

c. DETECTOR CHECK VALVE: Mueller/ Hersey FDC II, iron body, including: 5/8" x 3/4" Trim Kit. Trim Kit Part No.: 4" - 292080, 6" - 282082, 8" - 282085, 10" - 282496.

d. GATE VALVES: Mueller Resilient Wedge Gate Valves, meets AWWA C509 specification, 250 psig, Non rising stem, Part No. A-2360 sizes 4" through 12", Part No. A-2361 sizes 14" through 36", low zinc stems, epoxy coated inside and outside to meet the NSF 61 rating. The bonnet and stuffing box shall have 304 stainless steel bolts/nuts.

e. TRACER WIRE and WARNING TAPE

(1) TRACER WIRE: Shall be direct bury AWG #14 solid copper wire, Color: Blue.

(2) WARNING TAPE: Reef Industries, Standard Terra Tape in 3" widths, Color: Blue and imprinted "Arizona Water Company".

f. AIR RELEASE VALVE: Crispin Model AR10 with 1" NPT inlet and 1/2" NPT outlet, cast iron body and top flange with a 5/64" orifice with stainless steel valve sealing faces and BUNA-N rubber.

g. PRESSURE RELIEF VALVE: Watts 174A, Model M, 2" inlet, 2" outlet, Bronze Body, 30lb to 150lb pressure range.

h. MEGALUG: Mechanical Joint restraint made of ductile iron conforming to ASTM 536-80, 250 psi made by EBAA Iron, Inc., series 1100 or equal.

i. METER BOXES:

(1) Concrete Box with a steel regular lid. Number 1 Tucson specification.

(2) Concrete Box with a steel regular lid Number 2, 3, and 4 Phoenix specification.

j. PIPE, COPPER: Type K soft copper in 60 or 100-foot coils, per ASTM B88.

k. PIPE, DUCTILE IRON: Ductile Iron Pipe, Cement Lined, Push-on, conform to current ANSI/AWWA Specification A21.51/C151, Pressure Class 350 (sizes 4" through 12"), Pressure Class 250 (sizes 14" through 20"), or Pressure Class 200 for 24" through 36" pipe. Vendors:

(1) Pacific States Cast Iron Pipe Company
(2) Griffin Pipe
(3) United States Pipe and Foundry Company
(4) American Ductile Iron Pipe
(5) Clow Pipe (McWane, Inc.)

l. PIPE, PLASTIC: Plastic pipe, C-900 PVC per ANSI/AWWA C900, Class 150, sizes 6" through 12". NSF61 approved. Furnished in laying lengths of 20'. The barrel shall conform to the outside dimensions of steel pipe (IPS) or cast iron (CI) pipe equivalent and the wall thickness of dimension ratio (DR) 18.

m. POLYETHYLENE ENCASEMENT (Polywrap) for all pipeline and related fittings installed, EXCEPT for the Coolidge Division. Minimum 8 Mil, and installed per AWWA C105/A21.5-93 and ASTM A-674-89. Manufactured by the Pacific States Cast Iron Pipe Company. The wrapping tape shall be minimum 10 mil vinyl tape. No duct tape shall be used.

n. COUPLING: Mueller, straight three part union, tested to meet ANSI/AWWA C800, H15403, conductive compression.
Mueller, H15428, straight coupling, conductive compression by male iron pipe, tested to meet ANSI/AWWA C800 specification Size: 2".
Mueller, H15451, straight coupling, conductive compression by female iron pipe, tested to meet ANSI/AWWA C800 specification Size: 2".
Viking Johnson brand, sold by Mueller: MaxiFit Straight (2"-24"), MaxiFit Xtra Straight (4"-8") or MaxiStep Transition, tested to meet AWWA/ANSI C 219-91 specifications - certified to ISO 9001-1994 / Smith - Blair Quantum.

o. STOP, ANGLE METER, BALL: Mueller, valve, B24258, conductive compression by meter swivel nut, tested to meet ANSI/AWWA C800 size 5/8" x 3/4" x 3/4" for a 3/4" service or size 1" for a 1" service.
Mueller, valve, B24265, female pipe thread by meter swivel nut, tested to meet ANSI/AWWA C800, size 5/8" x 3/4" x 3/4" for a 3/4" service or size 1" for a 1" service.

p. STOP, CORP: Mueller, ball valve, B25008, taper thread by conductive compression, tested to meet ANSI/AWWA C800 specification, sizes: 3/4", 1" and 2".
Mueller, ball valve, B25025, iron pipe thread by conductive compression tested to meet ANSI/AWWA C800 specification. Sizes: 3/4", 1", and 2".
Mueller, 300 Ball Curb Valve, B-25122, taper thread by conductive compression, tested to meet ANSI/AWWA C800 specifications, size: 2" (2" service).

q. STOP, CURB: Oriseal valve, H10291, iron pipe thread by iron pipe thread, quarter turn check, brass, tested to 300 psi working pressure, tested to meet ANSI/AWWA C800 specification, size: 2".
Mueller, B20283, Mueller 300 ball curb valve, female iron pipe by female iron pipe, quarter turn check, tested to meet ANSI/AWWA C800 specification. Size: 2" (Blow-off E-9-8-1).

r. TAPPING SADDLE: Smith Blair, Cast Bronze ASTM-B584, 85-5-5-5, double strap, iron pipe threads, Models 321 and 323. Washers are silicon bronze, ASTM-B36. Gaskets are grade 60 Buna N or Mueller bronze double strap service saddle BR 2 S series, cast bronze, ASTM-B585, 85-5-5-5, or H16084, 200 psig, meets ANSI/AWWA C800.

s. TAPPING SLEEVE: Mueller H304 Stainless Steel Tapping Sleeve, JCM 432 18-8 Type 304 Stainless Steel Tapping Sleeve, Romac "SST" Type 304 Stainless Steel Tapping Sleeve or CASCADE-style CST-EX stainless steel pressure-rated tapping sleeve.

t. TAPPING VALVE: Mueller Resilient Wedge Tapping valve, Catalog Number T-2360-16, Class 125, sizes 4" through 12"; T-2361-16, Class 125, sizes 14" to 36" all with Type 304 stainless steel fasteners; bypass valves are required on 18" - 36" valves. flange by mechanical joint per ANSI/AWWA C111, iron wedge, non-rising stem. Epoxy coated interior/exterior per ANSI/AWWA C550 for NSF 61 compliance. 250 PSI range for valves 4" to 12"; 150 PSI range for valves 14" to 36".

u. BRANCH: Mueller, H15364, 1" male iron pipe by 3/4" male iron pipe, tested to meet ANSI/AWWA C800 specification. Size: 1" x 3/4" x 13-1/2", straight one.

v. VALVE BOXES: Valve Box with Cover, adjustable, Tyler 562 A or equal, made of cast iron.

w. VAULTS: Utility Vault Company, Chandler, AZ

(1) 4484-WA concrete vault with a 3660 aluminum double torsion door with a recessed padlock hasp, two - 18" x 24" center knockouts.

(2) 575-WA concrete vault with a 4874 aluminum double torsion door with a recessed padlock hasp, two - 18" x 24" center knock outs and adjustable frame.

(3) 812-5X-WA concrete vault with a 4874 aluminum double torsion door with a recessed padlock hasp, two - 18" x 24" center knockouts.

x. VALVE, METER: Mueller, 624265 1, Mueller 300 ball angle meter valve female iron pipe by meter nut, quarter turn check, lock wing, tested to meet ANSI/AWWA C800 specification. Size: 1".
Mueller, B25170, Mueller 300 ball straight valve, conductive compression by female iron pipe, quarter turn check, lock wing, tested to meet ANSI/AWWA C800 specification. Size: 1".

y. YOKES, METER: Reliacoter type copper meter yoke with horizontal inlet and outlet and meter thread ends, B2418, with lock wing Mueller 300 angle ball valve, full port, sizes: 1" x 12", 5/8" x 3/4" x 7", 5/8" x 3/4" x 9".
Mueller, 2" copper meter yoke with horizontal inlet and outlet and female iron pipe threads, 52423-99000, with lock wing Mueller 300 ball angle meter valves on inlet and outlet risers. Raised 1" by pass with lock wing Mueller 300 ball valve.

The Contractor also will be required to provide the following materials, the cost of which will be included in its unit bid price:

All materials and concrete for thrust blocks, other anchors, reinforcing steel, all gravel, crushed stone, A.B.C., earth, sand, or screened material which may be required; all material for bracing and shoring trenches and for construction of temporary barricades and traffic control equipment; all material for paving replacement and any water used for compaction of backfill.

(5) INSTALLATION OF MATERIALS

All materials are to be installed in accordance with manufacturers recommendations unless otherwise directed by these Specifications.

All pipe, fittings and valves shall be laid true to the lines, grades and locations established by the Specifications and the Construction Drawings.

The ends and inside of the pipe shall be thoroughly cleaned and inspected for damage. No damaged materials shall be installed in the water distribution system. Whenever the work ceases for any reason, all open pipeline ends shall be tightly plugged by the Contractor. Plugs shall be watertight and approved by the company.

Concrete thrust blocks of the sizes required by the plans and specifications are to be provided at all valves, changes in direction or size, or at any other point where an unbalanced thrust due to water pressure would exist. Thrust blocks are to be formed to prevent any concrete from spilling over or into a joint.

Trench curves as shown on the Construction Drawings may be made without fittings when using push on joint pipe up to twelve inches (12") in diameter, if the deflection of the pipe does not exceed five degrees (5°) or nineteen inches (19") per eighteen-foot (18') length of pipe. The minimum radius of such curves will be two hundred five feet (205').

Prior to construction, the appropriate agency(ies) will be notified as required by the permit(s).

It shall be the Contractor's responsibility to uncover all existing water lines being connected to, and to verify the location, depth and size of pipe before any construction begins.

Any construction performed without the knowledge of the duly authorized representative is liable for removal and replacement at the Contractor's expense.

All fire hydrants, frames, covers and valve boxes, etc. shall be adjusted to finished grade prior to the placing of the asphalt concrete surface course by the Contractor (where applicable).

Air release valves shall be installed at water system high points per Standard Detail E-9-8-2/E-9-8-3.

All water services shall be set a minimum of two feet (2') on the customer's property, preferably within the P.U.E. and not within right of way.

Unless otherwise specified on the construction drawings, all water mains shall be installed five feet (5') from the property line inside the right-of-way or easement.

Water valves shall be spaced not more than five hundred feet (500') in commercial districts and not more than eight hundred feet (800') in other districts. Variations may be required for transmission mains or special applications.

Installation of water line casing shall be per Standard Specification E-9-24-1.

Tracer Wire and Warning Tape are to be installed on all mains, tees, crosses, ells and fire hydrant laterals. They will not be installed on service lines. The tracer wire will be installed on the water main 45 degrees from the vertical centerline of the pipe and shall be taped to the fittings directly and on the main every 10 feet using a minimum 10 mil vinyl tape. The tracer wire shall be placed between the valve riser and box with a minimum of 12" of wire inside. The warning tape shall be installed a minimum of two feet below the surface, being measured from final grade, directly over the center of the pipe. Any splices in the tracer wire shall be joined using waterproof connectors. Any splices in the warning tape shall be joined using minimum 10 mil vinyl tape. The tracer wire shall be tested for continuity after backfill and compaction, but before paving. Any detected damages to the wire shall be repaired before paving will be allowed.

(6) BACKFILL OF WATER MAIN TRENCHES

Backfill of any excavation shall conform to the requirements of any of the governmental agencies having jurisdiction over the location. If no governmental agency having such jurisdiction specifies backfill or compaction requirements, and no special requirements are shown on the Construction Drawings, the procedure set forth in this section will apply for water line trenches.

The bedding material above the pipe and backfill material shall be compacted to a minimum of 70% compaction within a utility easement and 80% compaction within a right-of-way as determined by AASHTO T-99 method A and T-191. If water settling is used for compaction, it is the responsibility of the Contractor to prevent the pipe from floating.

The bedding material shall be either native material, 100% of which will pass through a one and one-half inch (1-1/2") screen and at least 20% of which will pass through a number-8 screen or imported material which conforms to M.A.G. specifications for A.B.C. or type-B select materials. Bedding material shall be used below and around the pipe and a minimum of twelve inches (12") above the pipe. Shade and bedding material to be mechanically compacted prior to remainder of trench back-fill.

The remainder of the trench shall be backfilled with native or imported material which shall be of sound earthen material free from broken concrete, wood, broken pavement, or other unsuitable substances. Except as otherwise specified, backfill may be material containing no pieces larger than six inches (6") in greatest dimension.

Where settlement occurs, additional backfill material shall be placed and compacted and the trench shall be brought to final grade.

(7) HYDROSTATIC TESTING OF COMPLETED PIPELINES

Hydrostatic testing of water pipelines will be completed before the new system is connected into the existing water system so that all testing can be done against all new materials.

The completed section of water pipeline to be tested shall be slowly filled with water with care being taken to expel air from the pipe. If necessary, the pipe will be tapped at high points to vent air.

The Contractor shall provide all equipment and labor necessary to accomplish this testing and the price shall be included in the unit prices. The Contractor shall notify the Company in advance of the testing so that the Company can schedule a duly authorized representative to be at the site during testing. The Contractor, at its own expense, shall make any necessary repairs to the system being tested in order to cause the section being tested to meet the test limits set below. The Contractor may request authorization of the Company to connect the new pipelines to the existing system prior to completion of pressure testing when, in the Company's sole opinion and judgment, conditions warrant such connection.

The Contractor shall assume all responsibility to complete pressure testing to Company's specifications after such connection, including, but not limited to, isolation of the new pipelines from the existing system, if necessary.

Connections prior to completion of pressure testing shall not be made unless prior Company authorization has been obtained, and any extra expenses resulting from such connections shall be the sole responsibility of the Contractor.

Leakage tests will be for a period of two hours at 200 + or - 5 psi at the point of lowest elevation. Leakage may not exceed 0.1 gallons per hour per one thousand feet (1,000') of pipe per inch of diameter. If dry utilities are not installed, a second pressure test is required.

(8) STERILIZATION AND FLUSHING OF COMPLETED WATER PIPELINES

Sterilization and flushing will conform to recommendations of Arizona State Department of Health Services Engineering Bulletin Number 8, latest edition, or any future Arizona Department of Environmental Quality bulletins. Contractor to follow all conditions of any discharge permit.

(9) NO OTHER UTILITIES ALLOWED IN OR NEAR WATER PIPELINE TRENCHES

No other utility installations will be permitted in the water pipeline trench or within five feet (5') of the Company's water pipeline when running parallel to the water pipelines.

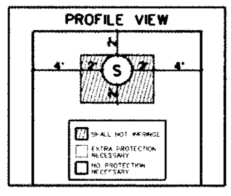
(10) PROTECTION OF WATER MAINS NEAR SEWERS

In order to protect water mains from contamination by sewers, the installation of the water mains must conform to the following requirements:

a. Horizontal - When water lines and sewers are laid parallel with each other, the horizontal distance between them shall not be less than six feet (6'). Each line shall be laid on undisturbed or bedded material in a separate trench. Where conditions prevent the minimum horizontal separation set forth above, extra protection will be required. Extra protection shall consist of constructing the sewer main with mechanical joint ductile iron pipe or with slip joint ductile iron pipe if joint restraint is provided, or encasing both water and sewer main in concrete. See AWC Standard Detail E-9-30-1 and E-9-30-2.

The Construction Drawings shall indicate the installation requirements. The drawings showing these exceptions shall have been approved by the appropriate state and/or county health department. Refer to the diagram below for clarification.

PROFILE VIEW



Under no circumstances will the horizontal separation between sewer mains and water mains be less than two feet (2'). All distances are to be measured from the outside of the sewer main to the outside of the water main.

b. Vertical - When a water main is parallel with or crosses a sewer main within two feet (2') above the sewer or greater than two feet (2') below the sewer, extra protection will be required. Extra protection shall consist of constructing the sewer main with mechanical joint ductile iron pipe or with slip joint ductile iron pipe if joint restraint is provided, or encasing both water and sewer main in concrete. See AWC Standard Detail E 9 30 1 and E 9 30 2.

The Construction Drawings shall indicate the installation requirements. The drawings showing these exceptions shall have been approved by the appropriate state and/or county health department.

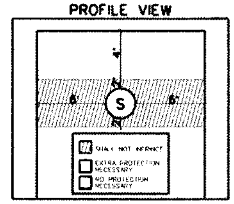
Under no circumstances will the vertical separation of a sewer main installed above a water main be less than two feet (2'). All distances are to be measured from the outside of the sewer main to the outside of the water main. Refer to the diagram above for clarification.

c. When unusual conditions such as, but not limited to, highway or bridge crossings prevent the water and sewer main separations required from being met, the appropriate state and/or county health department will review and may approve requests for authorization to use alternate construction techniques, materials and joints on a case-by-case basis.

d. No water pipe shall pass through or come into contact with any part of a sewer manhole. The minimum horizontal separation between water mains and manholes shall be six feet (6') measured from the center of the manhole.

e. The minimum separation between force mains or pressure sewers and water mains shall be two feet (2') vertically and six feet (6') horizontally under all conditions. Where a sewer force main crosses above, or less than six feet (6') below, a water line, the sewer main shall be encased in at least six inches (6") of concrete for ten feet (10') on either side of the water main. Refer to the diagram below for clarification.

PROFILE VIEW



f. Sewer mains (gravity, pressure, force) shall be kept a minimum of fifty feet (50') from drinking water wells, unless the following conditions are met:

1. Water main pipe, pressure tested in place to 50 psi without excessive leakage, may be used for gravity sewers at distances greater than twenty feet (20') from drinking water wells.

2. Water main pipe, pressure tested in place to 150 psi without excessive leakage, may be used for pressure sewers and force mains at distances greater than twenty feet (20') from drinking water wells.

g. No septic tank/disposal field system shall be constructed within one hundred feet (100') of a drinking water well.

h. All distances are measured perpendicularly from the outside of the sewer main to the outside of the water main. These separation requirements do not apply to building, plumbing or individual house service connections.

i. Use Mechanical joint ductile iron pipe with Megalug thrust restraints a minimum of ten (10') feet on each side of a sewer or storm drain crossing.

(11) COMPACTION

When crossing existing water mains a minimum of 95% compaction is required to the bottom of existing mains.

Arizona Water Company requires that no slurry be permitted to contact existing cement/asbestos or ductile iron pipes, unless authorized by the company. Slurry may be poured in the bottom of the sewer trench stopping three inches (3") below the existing water main. The backfill used around the main should be AB in sufficient depth to prevent slurry from contacting existing main.

(12) WATER MAIN MATERIAL SPECIFICATIONS

Ductile iron pipe (Push-on type) minimum class 350, cement lined and conform to AWWA C151.

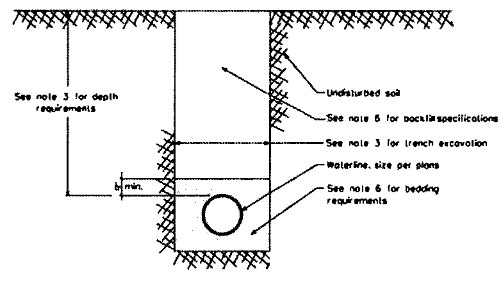
All main line valves shall conform to AWWA C500 with a minimum working pressure of 200 psi.

All cast iron fittings to be cement lined in accordance with AWWA C104 and shall conform to AWWA C110 with a minimum working pressure of 250 psi. Except for the Coolidge System - See Note 4.

Maximum joint deflection for 6" mechanical joint ductile iron pipe is seven degrees, seven minutes (7°,7') or twenty-seven inches (27") per eighteen-foot (18') length pipe, for a maximum curve of one hundred forty-five feet (145').

Maximum joint deflection for 8" and 12" mechanical joint ductile iron pipe is five degrees, twenty one minutes (5°,21') or twenty inches (20") per eighteen-foot (18') length pipe, for a maximum curve of one hundred ninety-five feet (195').

Maximum joint deflection for 6", 8" and 12" push-on joint ductile iron pipe is five degrees (5°) or nineteen inches (19") per eighteen-foot (18') length pipe for a maximum curve of two hundred five feet (205').



TYPICAL TRENCH DETAIL
Per MAG Detail 601, 601.4.2, 601.4.6

REVISIONS

The installation shown is to be installed in accordance with the Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality.

CALL TWO WORKING DAYS BEFORE YOU DIG
263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

W.O. NO.	15299
SYSTEM	PINAL VALLEY (CI)
LOCATION	NW 1/4 SEC 10, T 5S, R 8E
TAX DIST	2102
DATE	4/24/2015
SCALE	AS SHOWN
DRAWN BY	MC
REVIEWED BY	
CHECKED BY	

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT ACCESS ROAD TO WELL NOS. 9, 10 AND THE COOLIDGE NITRATE PLANT

AWC NOTES

11346
JAMES T. WILSON
ARIZONA, U.S.A.
Expires 6/30/15

PV-0091

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-5860

CONSTRUCT ACCESS ROAD TO WELL NOS. 9, 10 AND THE COOLIDGE NITRA-8 PLANT

AWC DETAILS

PV-0091

SHEET 11 OF 11

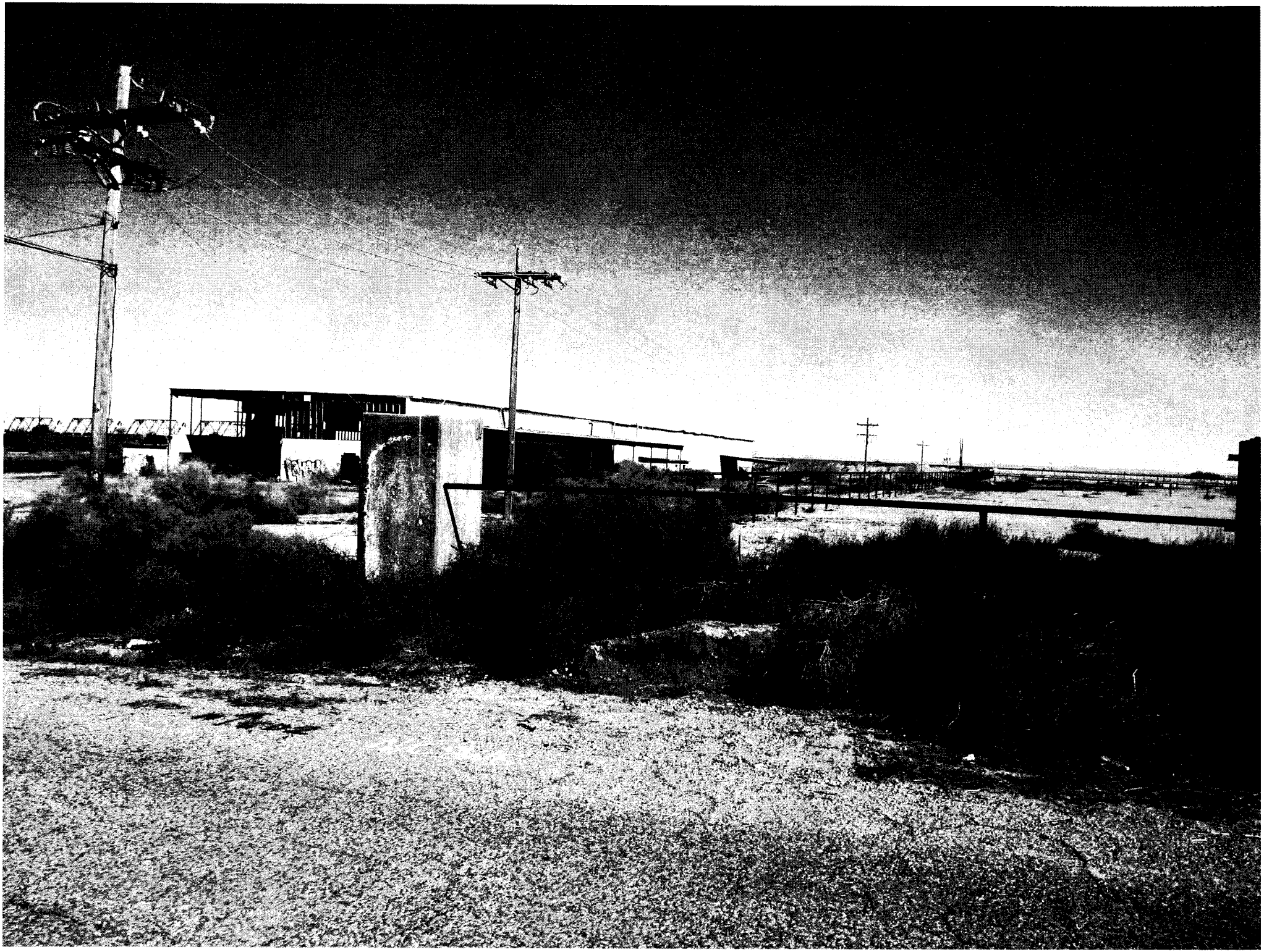
Production Drawing — Round Barrier Gate, Variable Length, 11' - 16'

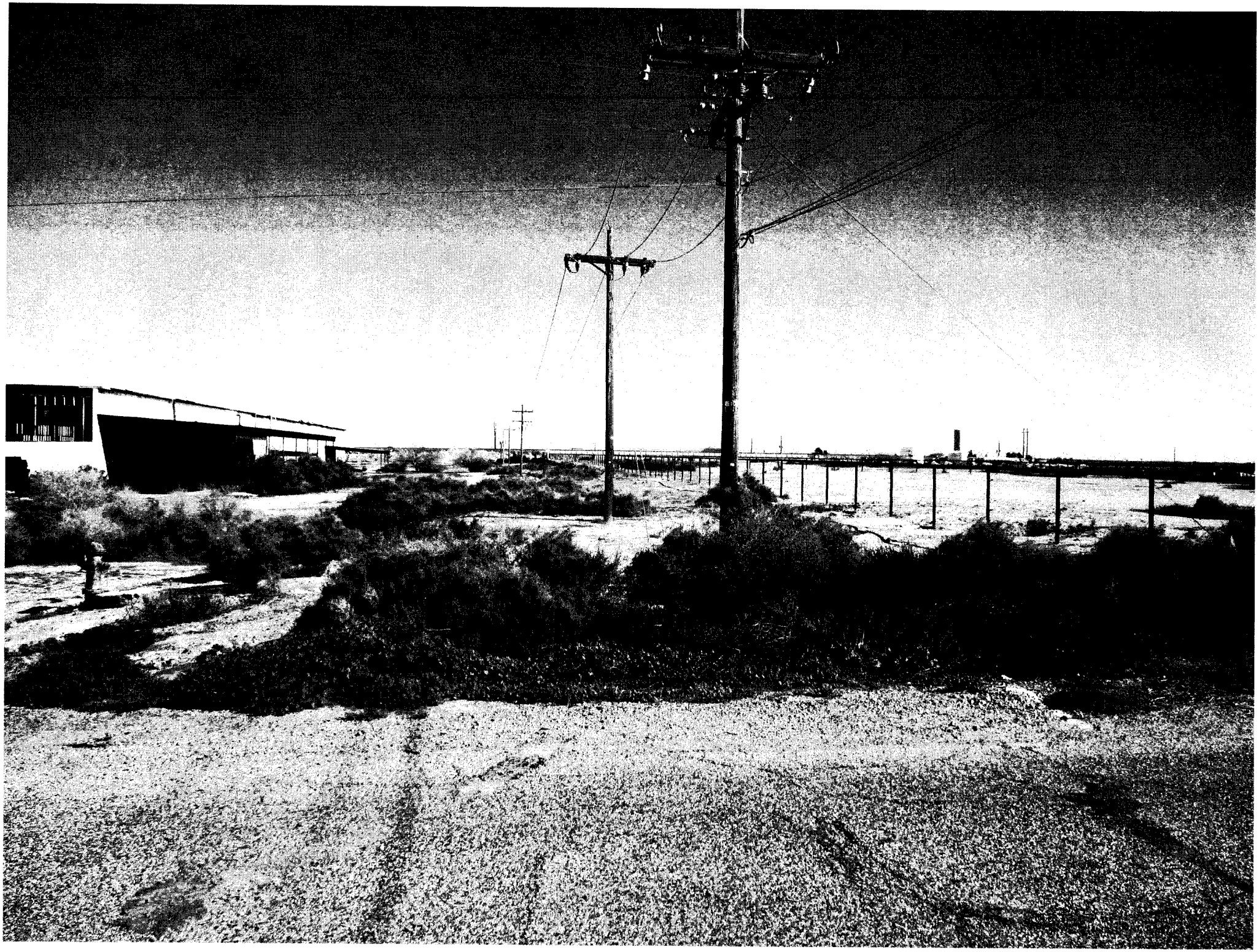
GATEDEPOT.COM

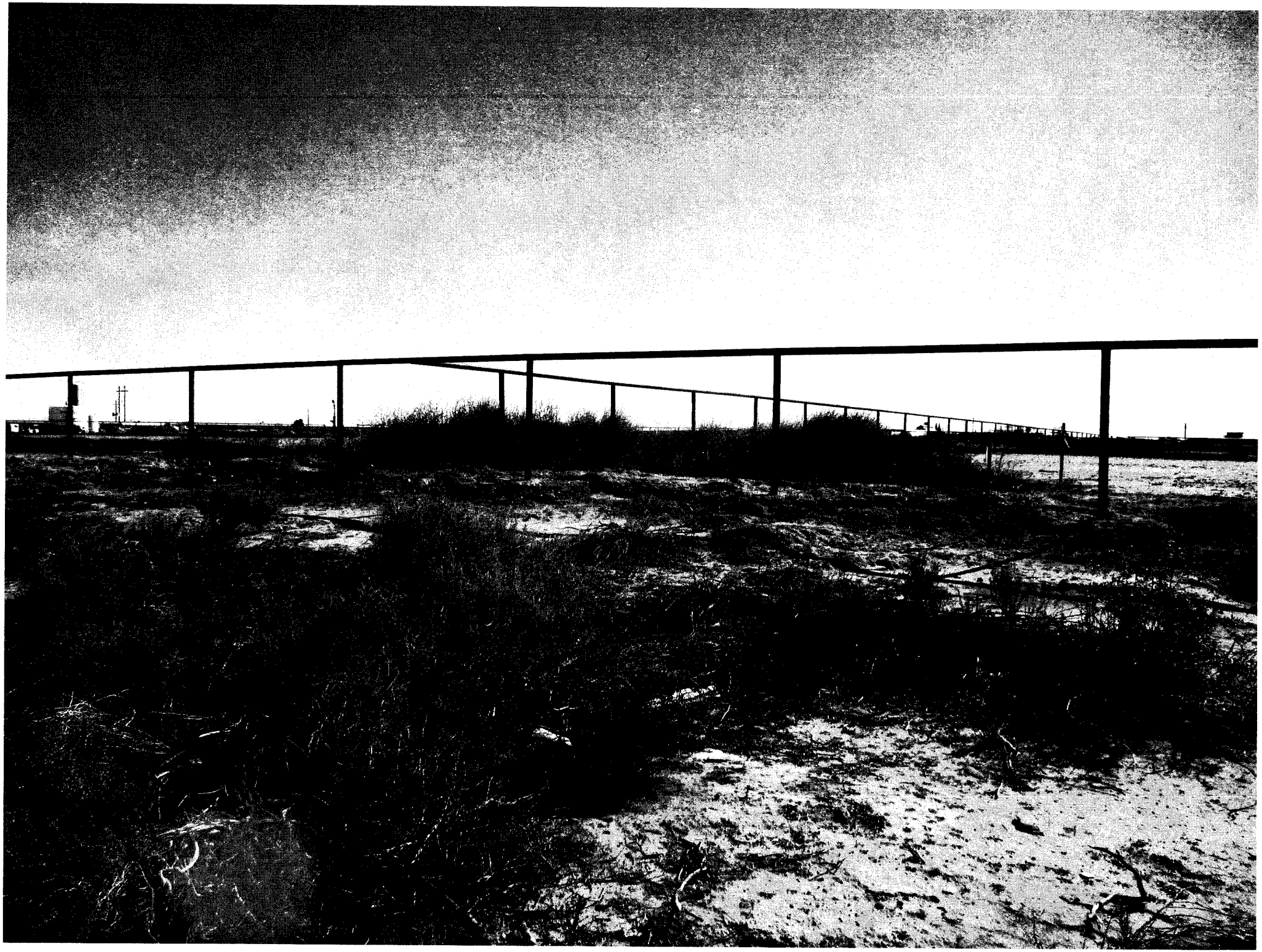
Production Drawing — Lock Detail Square Gate

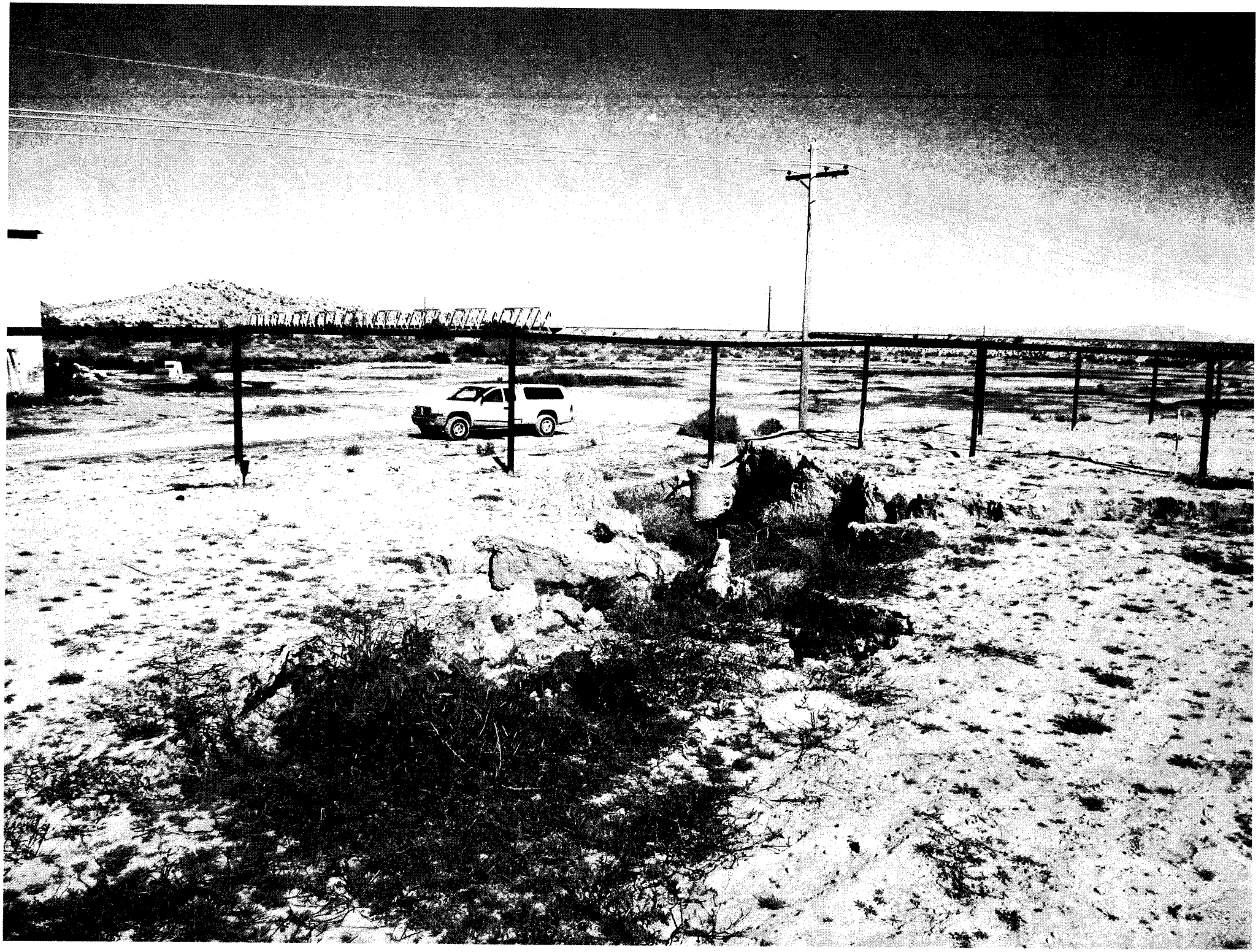
Insert

GATEDEPOT.COM









Western Group Rate Case

Exhibit FKS-1

5301 PV 33 Flush Line

ARIZONA WATER COMPANY
WORK AUTHORIZATION

W.A. NUMBER: 1-5301
P.E. NUMBER:
BUDGET ITEM NO.: 1-5301
SHEET NO.: 1 of 2

SYSTEM:	PINAL VALLEY	RETENTION REQUIRED:	☑ YES ☐ NO
DIVISION:	CASA GRANDE	WORK TO START BY:	UPON AUTHORIZATION
RESPONSIBLE PERSON:	RAY MURRIETA	WORK TO BE FINISHED BY:	WITHIN 120 DAYS
TAX CODE:	0437		

DESCRIPTION OF WORK:

Construct approximately 1,500 linear feet of 12-inch DIP flush line on Hancock Trail from Well No. 33 to Hacienda Road.

FACTORS JUSTIFYING WORK:

APPROVED 2015 BUDGET ITEM ($95,000)
Well No. 33 routinely flushes on startup and shut down to a retention basin south of the site and results in water overflowing onto the adjacent golf course. The company receives complaints from the golf course owners when the flush water discharges onto the golf course due to standing water. The golf course owners subsequently requested the company reduce discharges to the golf course. There is not sufficient space to construct an onsite retention basin to retain the flush water. Constructing the flush line to a more regional drainage system mitigates complaints from the golf course and maintains the company's ability to provide safe reliable and adequate water service.

COST ESTIMATE		AUTHORIZATION	DATE
COST OF WORK:		PREPARED BY: James Wilson JJW 2/20/15	2/10/15
MATERIAL	0		
LABOR	7,400	REVIEWED FOR ESMT/ROW VERIFICATION: Charles Briggs CB 02-20-2015	02-10-2015
CONTRACT PORTION	117,403		
OVERHEAD	15,000	REVIEWED BY: Andrew J. Haas AJH 2-20-15	2-17-15
TOTAL AUTHORIZED EXPENDITURES CHARGEABLE TO THIS W.A.	$ 139,803		
FUNDS RECEIVED:		APPROVED BY ENGINEERING: Fredrick Schneider 2-23-15	2-17-15
CONTRIBUTIONS RECEIVED	0		
REFUNDABLE ADVANCES RECEIVED	0	APPROVED BY FINANCE: Joseph Harris	2/18/15
TOTAL CONTRIBUTIONS/ADVANCES	0		
NET COMPANY CASH REQUIRED	$ 139,803	AUTHORIZED BY PRESIDENT: William Garfield	2-19-15

COMMENTS:

Transfer additional funds required ($44,803) from 1-5170 (Cottonwood Lane BPS)

CONSTRUCTION RELEASE:

RELEASED TO CONSTRUCTION
Authorized by FRED SCHNEIDER
Date 3/24/15

2015 BUDGET

AFH

ARIZONA WATER COMPANY

WORK AUTHORIZATION - DETAIL SHEET

W.A. NUMBER: 1-5301
P.E. NUMBER:
BUDGET ITEM NO.: 1-5301
SHEET NO.: 2 of 2

RETIREMENT PROPERTY UNITS	PLANT PROPERTY ACCOUNT	UNIT DESCRIPTION	QUANTITY	YEAR INSTALLED AND W.A. NUMBER

PROJECT DESCRIPTION:

Construct approximately 1,500 linear feet of 12-inch DIP flush line on Hancock Trail from Well No. 33 to Hacienda Road.

	DESCRIPTION	PLANT PROP ACCT	QUANTITY	UNIT COST	TOTAL
CONTRACT WORK	Install 12-inch DIP with polywrap and related fittings	343	1,440	$ 68.93	$ 99,259
	Install 12-inch GVB&C	343	3	2,443.00	7,329
	Install 2-inch blow off assembly	343	2	2,485.00	4,970
	Install air release valve	343	1	1,136.00	1,136
	Contracting Tax	343	1	2,916.74	2,917
	Performance and Payment Bond	343	1	1,792.12	1,792
	SERVICE CONNECTIONS COMPLETE: DOUBLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-SHORT	345			
TOTAL CONTRACT WORK					$ 117,403
MATERIALS					
	SERVICE CONNECTIONS: DOUBLE-LONG	345			
	SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS: SINGLE-LONG	345			
	SERVICE CONNECTIONS: SINGLE-SHORT	345			
	METERS	346			
TOTAL MATERIALS					$ -
LABOR	Engineering management and Design	343	40	$ 55.00	$ 2,200
	TESTING FEE	343	1	$ 1,000.00	1,000
	PERMIT FEE	343	1	500.00	500
	SURVEY FEE	343	1	1,500.00	1,500
	FIELD INSPECTION	343	40	55.00	2,200
	INSTALL SERVICE CONNECTIONS: DOUBLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-SHORT	345			
TOTAL LABOR					$ 7,400
SUBTOTAL - CONTRACT WORK, MATERIALS, AND LABOR					$ 124,803
OVERHEAD					15,000
TOTAL	REFUNDABLE PORTION ☐	NON-REFUNDABLE PORTION ☐		**COST ESTIMATE**	$ 139,803

AFH

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

February 20, 2015

Mr. Jim Morrison
Eagle Rock Excavating, LLC
4750 N. La Cholla Boulevard
Tucson, AZ 85705-4852

Re: Hancock Trail Replacement

PROJECT: Well No. 33 Flush Line	
SYSTEM: Pinal Valley	
CONTRACT NO.:	
P.E. NO.:	W.A. NO.: 1-5301

Dear Mr. Morrison:

Enclosed is your copy of the Proposal/Contract for the above-referenced project, which has been accepted by Arizona Water Company (the "Company"). The project shall be constructed in accordance with the Company's *General Conditions of Contract, the Specifications and the Drawings* which were included with the Company's previously provided Proposal/Contract, copies of which are being provided again and attached herewith.

Also enclosed are two copies of the Commencement Notice for the above-referenced project. Please sign one of the copies and return it to my attention retaining the other for your records.

As provided in paragraph 4 of the Company's Proposal/Contract executed by the Company on February 23, 2015, Eagle Rock Excavating, LLC acknowledged that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work. In addition, as provided in paragraph 44 of the Company's General Conditions of Contract, the 100% Performance and Payment Bonds must be provided within ten (10) calendar days of the date of the Commencement Notice. Failure to provide an acceptable 100% Performance and Payment Bond does not limit the Company's

ability to terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur.

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting. In addition, please provide the required Performance and Payment Bonds to the Company promptly so that the contracted work can be completed within the contract's timeline.

If you have any questions, please call me at this office.

Very truly yours,

James T. Wilson, P. E.
Senior Engineer
jwilson@azwater.com

afh
Enclosure

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street
Casa Grande, AZ 85122 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: EAGLE ROCK EXCAVATING, LLC	SYSTEM: PINAL VALLEY
ADDRESS: 4750 N. LA CHOLLA BOULEVARD	W.A. No(s): 1-5301
CITY ST ZIP: TUCSON, AZ 85705-4852	BID DUE DATE: December 23, 2014

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1. Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto. Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto. The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract. Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings.
2. Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract.
3. Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person.
4. Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work.
5. Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project. The materials list will include the manufacturer, part number, price and quantity included in this Proposal/Contract.
6. Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings. No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax. Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company. The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A.R.S.") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S. §42-5061 B.6.), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed. Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax.
7. Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project. Such records will include all supporting original vendor invoices for all materials purchased. Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof. The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility.
8. The Estimated Total Cost of the Project, shown on Page 2, is based on estimated labor and material quantities to be furnished. It includes an estimate of the Contracting Tax and the cost of the required Performance and Payment Bonds. Contractor will not cancel, modify or withdraw this Proposal/Contract during a ninety-day (90) period commencing on the Bid Due Date. The Company may accept this Proposal/Contract by signing and mailing, or otherwise delivering, a copy hereof to Contractor during such ninety-day (90) period. If the Company does not accept this Proposal/Contract during such ninety-day (90) period, Contractor may cancel this Proposal/Contract by giving written notice of cancellation to the Company.
9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project invoicing. Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly.
10. Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice. Contractor will complete the Project within 30 calendar days after the Commencement Notice is issued.
11. Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities.
12. The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice. This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract.

SPECIAL CONDITIONS:

Pollution Insurance is not required for this project.

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
EAGLE ROCK EXCAVATING, LLC	ARIZONA WATER COMPANY
By:	By:
Print Name: Jim Morrison	Print Name: Fredrick K. Schneider, PE
Title: Project Manager / Estimator	Title: Vice President - Engineering
Date: 12/23/14	Date: 2-23-2015

AFH

AJH
01/20/09 I FKS I E-3-11-5/6

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street
Casa Grande, AZ 85122 PH: 520-836-6785

PROPOSAL/CONTRACT

CONTRACTOR: EAGLE ROCK EXCAVATING, LLC	SYSTEM: PINAL VALLEY
AZ CONTRACTOR LICENSE NO: 169906 CLASSIFICATION: A	W.A. No(s): 1-5301
ADDRESS: 4750 N. LA CHOLLA BOULEVARD	BID DUE DATE: December 23, 2014
CITY ST ZIP TUCSON, AZ 85705-4852	BID BOND REQUIRED ☑ Yes ☐ No

DESCRIPTION OF PROJECT: Install approximately 1440 LF of 12-inch ductile iron pipe with polywrap and related fittings along Hancock Trail from Arizona Water Company well site 33 to Hacienda Road.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
Install 12-inch ductile iron water main with polywrap and related fittings	1,440	41.64	27.29	59,966.26	39,302.34
Install 12-inch gate valve	3	591.29	1,851.71	1,773.88	5,555.12
Install 12-inch by 2-inch blowoff assembly	2	560.40	1,924.60	1,120.79	3,849.21
Install Air Relief Valve	1	340.35	795.65	340.35	795.65
				1	2
3. Total Labor to Install Exempt Materials (add the amounts in column 1)				3	63,201.29
4. Total Exempt Materials (add the amounts in column 2)					4 49,502.31

5-6. NON-EXEMPT MATERIALS	QUANTITY	LABOR	MATERIALS	LABOR	MATERIALS
				5	6
7. Total Labor to Install Non-Exempt Materials (add the amounts in column 5)				7	0
8. Total Non-Exempt Materials (add the amounts in column 6)					8 0
9. Subtotal A (add lines 3, 7 and 8)					9 63,201.29
10. Contracting Tax Base (multiply the amount on line 9 by 0.65)				10	41,080.84
11. Applicable Contracting Tax Rate				11	7.1 %
12. Contracting Tax (multiply the amount on line 10 by line 11)					12 2,916.74
13. Subtotal B (add lines 4, 9 and 12)					13 115,620.31
14. 100% Performance and Payment Bonds Cost					14 1,792.12
15. Estimated Total Cost (add lines 13 and 14)					15 117,412.45

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal, and traffic control necessary for the Project.

ARIZONA WATER COMPANY

COMMENCEMENT NOTICE

CONTRACTOR:

Mr. Jim Morrison
Eagle Rock Excavating, LLC
4750 N. La Cholla Boulevard
Tucson, AZ 85705-4852

DATE: 2/24/15
DIVISION: CASA GRANDE
SYSTEM: PINAL VALLEY
W.A.: 1-5301

THIS IS YOUR NOTICE TO PROCEED WITH THE FOLLOWING PROJECT(S):

DESCRIPTION OF WORK:

Install approximately 1,440 LF of LF of 12-inch ductile iron pipe with polywrap and related fittings along Hancock Trail from Arizona Water Company well site 33 to Hacienda Road.

PERFORMANCE AND PAYMENT BONDS REQUIRED: [X] Yes [ ] No

TOTAL DAYS ALLOWED: 40

COMPLETION DATE: 4/5/15

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting.

ARIZONA WATER COMPANY	***EAGLE ROCK EXCAVATING, LLC***
Company	Contractor *(type name)*
By [signature]	By
Title Vice President - Engineering	Title

AFH

ARIZONA WATER COMPANY

SPECIFICATIONS

GENERAL CONDITIONS OF CONTRACT: E-4-1

CONSTRUCTION SPECIFICATIONS: E-8-1

STANDARD SPECIFICATION DRAWINGS: E-9-1

gw 2/20/15

2007 EDITION WITH **2010** REVISIONS;
2012 GENERAL CONDITIONS OF CONTRACT

A copy of this entire Spec Book was sent out with Eagle Rock Excavating proposal package for 1-5301 Hancock Trail Replacement on 2/24/15 AM

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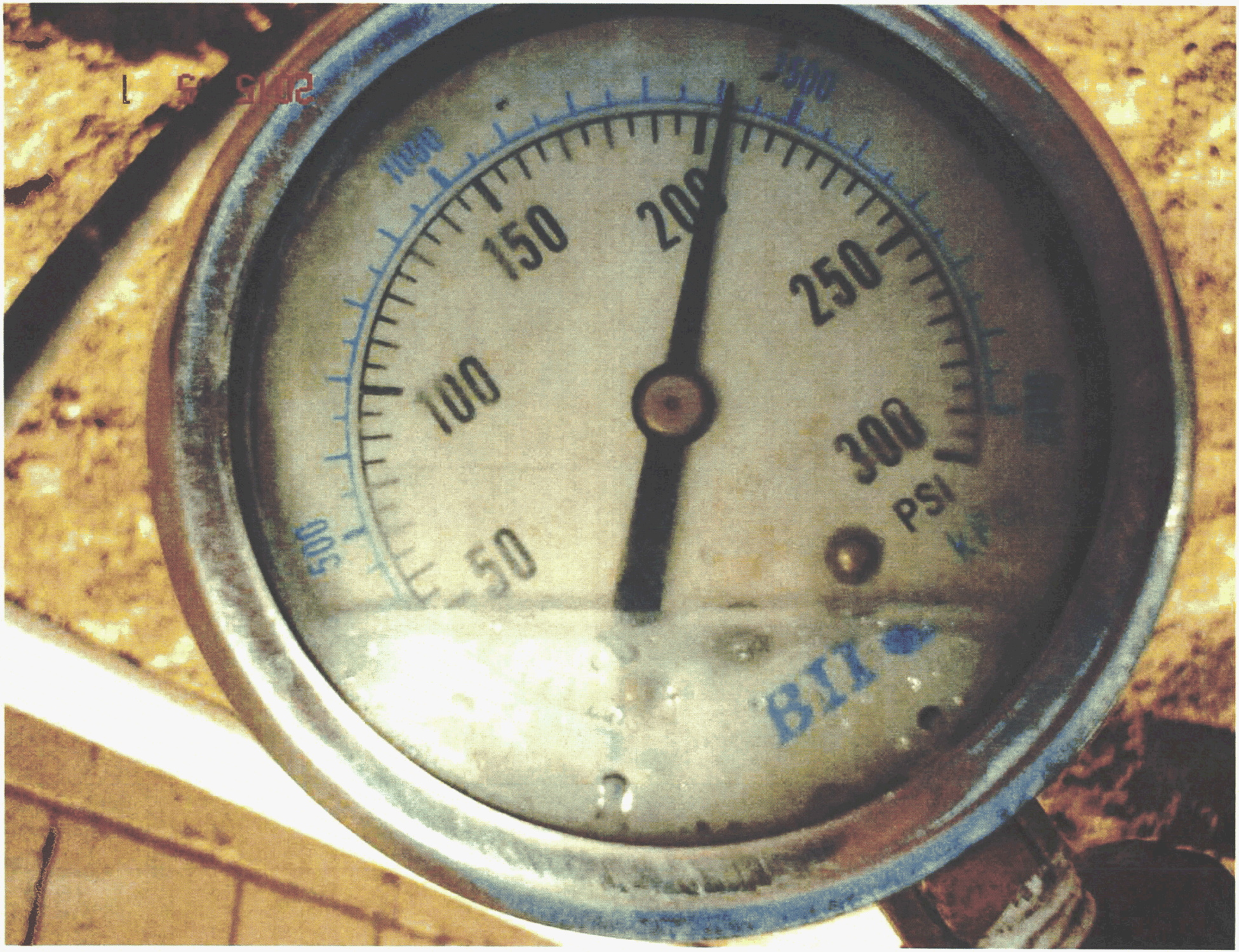
EAGLE ROCK
2015 3 16

EAGLE ROCK
2015 3 12

EAGLE ROCK
2015 11 24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City of Casa Grande, Development Center, 510 E. Florence Blvd, Casa Grande, AZ 85122 (520) 421-8630

CERTIFICATE OF APPROVAL TO CONSTRUCT WATER FACILITIES

CDP No: CDP-15-00374	**I-5310 Well No 33**	**12-inch flush line**
System Name: Pinal Valley		**PWS Number: 11-009**
Project Owner: Arizona Water Company		
Address: PO Box 29006, Phoenix AZ 850038-9006		
Project Location:	**Hancock Trail from Well No. 33 to Hacienda Road**	
Project Description: Construct approximately 1,461 L.F. of 12-inch D.I.P. flush line on Hancock Trail from Well No 33 to Hacienda Road in Casa Grande AZ		

Approval to construct the above-described facilities as represented in the approved documents on file with the City of Casa Grande is hereby given subject to provisions 1 through* 5 *continued on page 2 of 2

1. This project must be constructed in accordance with all applicable laws, including Title 49, Chapter 2, Article 9 of the Arizona Revised Statutes and Title 18, Chapter 5, Article 5 of the Arizona Administrative Code.
2. Upon completion of construction, the engineer shall fill out the Engineer's Certificate of Completion and submit it to the City of Casa Grande. If all requirements have been completed, the City will issue a Certificate of Approval of Construction. R18-5-507(B), Ariz. Admin. Code. At the project owner's request, the Department **may** conduct the final inspection required pursuant to Rl8-5-507(B); such a request must be made in writing in accordance with the time requirements of R18-5-507(C), Ariz. Admin. Code.
3. This certificate will be void if construction has not started within one year after the Certificate of Approval to Construct is issued, there is a halt in construction of more than one year, or construction is not completed within three years of the approval date. Upon receipt of a written request for an extension of time, the City may grant an extension of time; an extension of time must be in writing. Rl8-5-505(E), Ariz. Admin. Code.
4. The project owner shall be responsible to submit to the City a complete Approval of Construction application and required documentation. Operation of a newly constructed facility shall not begin until a Certificate of Approval of Construction has been issued by the City of Casa Grande. Rl8-5-507(A), Ariz. Admin. Code.

Approved by City Engineer: _____ Date: 3.3.15

RECEIVED
MAR 11 2015
PHOENIX OFFICE
ENGINEERING

5. The City of Casa Grande's review of this application was subject to the requirements of the licensing time frames ("LTF") statute under Arizona Revised Statutes ("A.R.S.") § 41-1072 through§ 41-1079 and the LTF rules under Arizona Administrative Code ("A.A.C.") R18-1-501 through R18-1-525. This Notice is being issued within the overall time frame for your application.

City of Casa Grande hereby approves your application for Approval to Construct Drinking Water Facilities under A.R.S. § 49-351. Your copy is enclosed.

This decision is an appealable agency action under A.R.S. § 41-1092. You have a right to request a hearing and file an appeal under A.R.S. § 41-1092.03(B). You must file a written Request for Hearing or Notice of Appeal within 30 days of your receipt of this Notice. A Request for Hearing or Notice of Appeal is filed when it is received by ADEQ's Hearing Administrator as follows:

Office of Administrative Counsel
Arizona Department of Environmental Quality 1110 W. Washington Street
Phoenix, AZ 85007

The Request for Hearing or Notice of Appeal shall identify the party, the party's address, the agency and the action being appealed and shall contain a concise statement of the reasons for the appeal. Upon proper filing of a Request for Hearing or Notice of Appeal, City of Casa Grande will serve a Notice of Hearing on all parties to the appeal. If you file a timely Request for Hearing or Notice of Appeal you have a right to request an informal settlement conference with ADEQ under A.R.S. § 41-1092.06. This request must be made in writing no later than 20 days before a scheduled hearing and must be filed with the Hearing Administrator at the above address.

Please contact the City of Casa Grande Development Center at 520-421-8630 if you have questions regarding this Notice or the Certificate of Approval to Construct.

ADEQ Arizona Department of Environmental Quality

ENGINEERING REVIEW SECTION
DATA REQUIRED WITH ECC

INSTRUCTIONS

Please complete the test data and submit this form with the Engineers Certificate of Completion. An Approval of Construction cannot be issued without the data identified below in accordance with Arizona Administrative Code (A.A.C.) R18-5-508(C). Please attach all supplemental information and calculations to this form.

WELL #33 12" FLUSH LINE

DATA

1.

PRESSURE TEST DATA				
Indicate Segment Tested	WELL #33 12" FLUSH LINE			
Pressure and Leakage Test Results (Pass/Fail)	PASS	PASS		
Date Tested	5-1-15	5-1-15		
Time Started	1:45pm	1:45pm		
Time Finished	3:45pm	3:45pm		
Pipe Diameter	12"	6"		
Footage Tested	1478 LF	5' LF		
Allowable Leakage	3.5472	0.006		
Leakage Observed	0	0		
Pressure at Test Point	205 psi	205 psi		
Employee Observing the Test (Please Print Legibly)	SCOTT H. JOHNSON			
Signature of Employee Observing the Test	Scott H. John			

2.

DISINFECTION SAMPLING					
Initial Sampling	Date	5-4-15	5-4-15		
(Minimum 50 ppm available chlorine)	Time	11:00 AM	11:00 AM		
	ppm Cl_2	200ppm	200ppm		
After 24 Hours Detention Time	Date	5-6-15	5-6-15		
(Minimum 10 ppm free chlorine)	Time	6:45 AM	6:45 AM		
	ppm Cl_2	200ppm	200ppm		
After Sufficient Flushing	Date	5-6-15	5-6-15		
(Water is clear and system Cl_2 residual is measured)	Time	9:45 AM	9:40 AM		
	ppm Cl_2	1.3	1.0		
Bacteriological Sampling(s):	Date	5-6-15	5-6-15		
	Time	10:00 AM	10:10 AM		
	Attached (Y/N)	Y	Y		
		(Yes)/No	(Yes)/No	Yes/No	Yes/No

3.

Certification

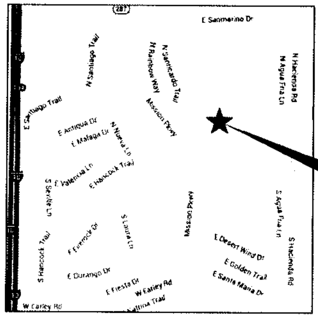
I, SCOTT H. JOHNSON, certify that I have inspected the work performed and have found it to be satisfactory and in accordance with Arizona Administrative Code, Arizona Engineering Bulletins, and the approved specifications.

Scott H. John — 5-13-15

Authorized Persons Signature — Date

Professional Seal
As per A.A.C. R18-5-507(B)(1)

CONSTRUCT APPROX. 1,478 L.F. OF 12-INCH D.I.P. FLUSH LINE ON HANCOCK TRAIL FROM WELL No. 33 TO HACIENDA ROAD IN CASA GRANDE, AZ.
NE 1/4 SEC. 25, T. 6 S., R. 6 E. OF THE G. & S. R. B. & M.



VICINITY MAP

GENERAL NOTES

1. All work and materials shall conform to current County Health Department Standards and Revisions, Arizona Water Company Standard Specifications and Details, and Arizona Department of Health Services Engineering Bulletin No. 10.
2. Permits required will be secured from the appropriate agency, I.E. county permit in county right-of-way.
3. Prior to construction, the appropriate agency(ies) will be notified as required by the permit(s).
4. All backfill, compaction, and testing shall be per current County, City, State, ADOT, and Arizona Water Company standards and specifications.
5. All water lines 8" and less are to have a minimum cover of 36 inches & all water lines 12" and greater are to have 48" of minimum cover over the top of pipe to finished grade, unless otherwise specified on the construction drawings.
6. All frames, covers, valve boxes, etc. shall be adjusted to finished grade prior to placing of asphaltic concrete surface course by the contractor (where applicable).
7. All water lines shall be pressure and leakage tested in accordance with AWWA C-600 or MAG 610.14.
8. All water lines are to be disinfected per ADEQ Engineering Bulletin No. 8 and AWWA C651-92.
9. Air release valves are required at water system high points per Arizona Water Company standard details.
10. Water/sewer separation shall be per current Arizona Water Company standards and ADEQ AAC R18-5-502.C.
11. It shall be the contractor's responsibility to uncover all existing water lines being connected to, and to verify the location, depth and size of pipe before any construction begins.
12. Any construction performed without the knowledge of the inspector or his representative is liable for removal and replacement at the contractor's expense.
13. In accordance with AAC R18-4-213, all materials added after January 1, 1993 which may come in contact with drinking water, shall conform to National Sanitation Foundation Standards 60 and 61.
14. All water services shall be set a minimum of 2 feet on the customer's property and NOT within right of way.
15. Unless otherwise specified on the construction drawings, all water mains are to be installed 5 feet from the property line inside the right of way or easement.
16. Water valves shall be spaced not more than 500 feet in commercial districts and not more than 800 feet in other districts. Variations may be required for transmission mains or special applications. Sufficient valving is required where water lines cross streams, railroads and major highways.
17. Maximum Joint Deflection For 6" Mechanical Joint Ductile Iron Pipe Is 7°-7'Or 27" For 18 Foot Length Pipe, For A Maximum Curve Of 145 Feet.
18. Maximum Joint Deflection For 6", 8", & 12" Push-On Joint Ductile Iron Pipe Is 5° Or 19" For 18 Foot Length Pipe, For A Maximum Curve Of 205 Feet.
19. Maximum Joint Deflection For 8" & 12" Mechanical Joint Ductile Iron Pipe Is 5°-21' Or 20" For 18 Foot Length Pipe, For A Maximum Curve Of 195 Feet.
20. All components must comply with SDWA's "Lead Free" standards.

CITY OF CASA GRANDE PLAN APPROVAL RECOMMENDED

CIVIL ENGINEER: ____________

DATE: ________ EXPIRATION DATE: ________

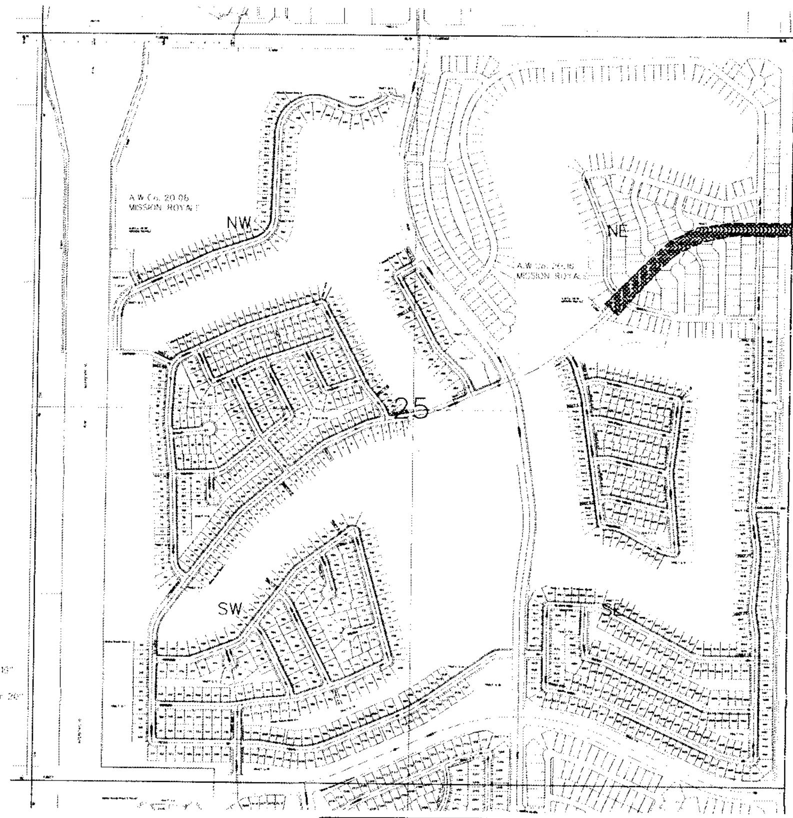
THE CITY APPROVES THESE PLANS IN CONCEPT ONLY.
THE CITY ACCEPTS NO RESPONSIBILITY FOR ERRORS OR OMISSIONS.

CITY OF CASA GRANDE PLAN APPROVAL

CITY ENGINEER: ____________

DATE: ________ EXPIRATION DATE: ________

THE CITY APPROVES THESE PLANS IN CONCEPT ONLY.
THE CITY ACCEPTS NO RESPONSIBILITY FOR ERRORS OR OMISSIONS.



AS BUILT

FOR WATER ONLY

41046 JAMES T. WILSON

Expires 6/30/18

REVISED PER FIELD AS BUILTS 5/27/15 JAK

PROJECT VICINITY

400' 200' 0' 400' 800'

OWNER/ENGINEER/DEVELOPER

ARIZONA WATER COMPANY
POST OFFICE BOX 29006
PHOENIX, AZ 85038-9006
(602) 240-6860 FAX (602) 294-2969
CONTACT: JAMES T. WILSON

SHEET INDEX			
SHT. No.	DWG. No.	DESCRIPTION	PREPARED BY
1	PV-0087	PROJECT VICINITY	A.W.Co.
2-5	PV-0087	CONSTRUCTION PLAN	A.W.Co.
6	PV-0087	GENERAL NOTES	A.W.Co.
7	PV-0087	STANDARD DETAILS AND SPECIFICATIONS	A.W.Co.

	QUANTITIES LIST	QUANTITY
1	12" D.I.P. W/ POLYWRAP & RELATED FITTINGS	1,478 L.F.
2	12" M.J. TEE	3
3	12" M.J. GATE VALVE WITH BOX AND COVER PER A.W.C. STD. SPEC. F-9.2-1	4
4	2" BLOWOFF ASSEMBLY PER A.W.C. STD. SPEC. E-9.8-1	1
5	12" X 6" M.J. X FLG. TEE	1
6	MUELLER 5-1/4" M.J. FLUSH TYPE FIRE HYDRANT PER A.W.C. STD. SPEC. E-9.1-1	1
7	12" M.J. PLUG	1
8	6" FLG. GATE VALVE WITH BOX AND COVER PER A.W.C. STD. SPEC. F-9.2-1	1
9	6" 90° FLG. ELL	1
10	12" M.J. CAP	1
11	6" D.I.P. W/ POLYWRAP & RELATED FITTINGS	6 L.F.
12	12" 45° M.J. ELL	2
13	AIR RELEASE PER A.W.C. STD. B.7	1

LEGEND

- 1/2" REBAR PROPERTY CORNER
- FIRE HYDRANT
- LIGHT/POWER POLES
- WATER VALVE
- STREET CENTERLINE/MONUMENT LINE
- PROPERTY LINE
- PROPOSED 12" WATER LINE

ADEQ APPROVAL

FILE No. ________

DATE ________

REVISED PER FIELD AS BUILTS 5/27/15 JAK

The installation shown is to be installed in accordance with the Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality.

263-1100
1-800-STAKE-IT

W.O. No.	1-5301
SYSTEM	PINAL VALLEY
LOCATION	NE 1/4 SEC. 25, T. 6 S., R. 6 E.
	C437
DATE	2/6/2015
SCALE	AS SHOWN
DRAWN BY	JAK

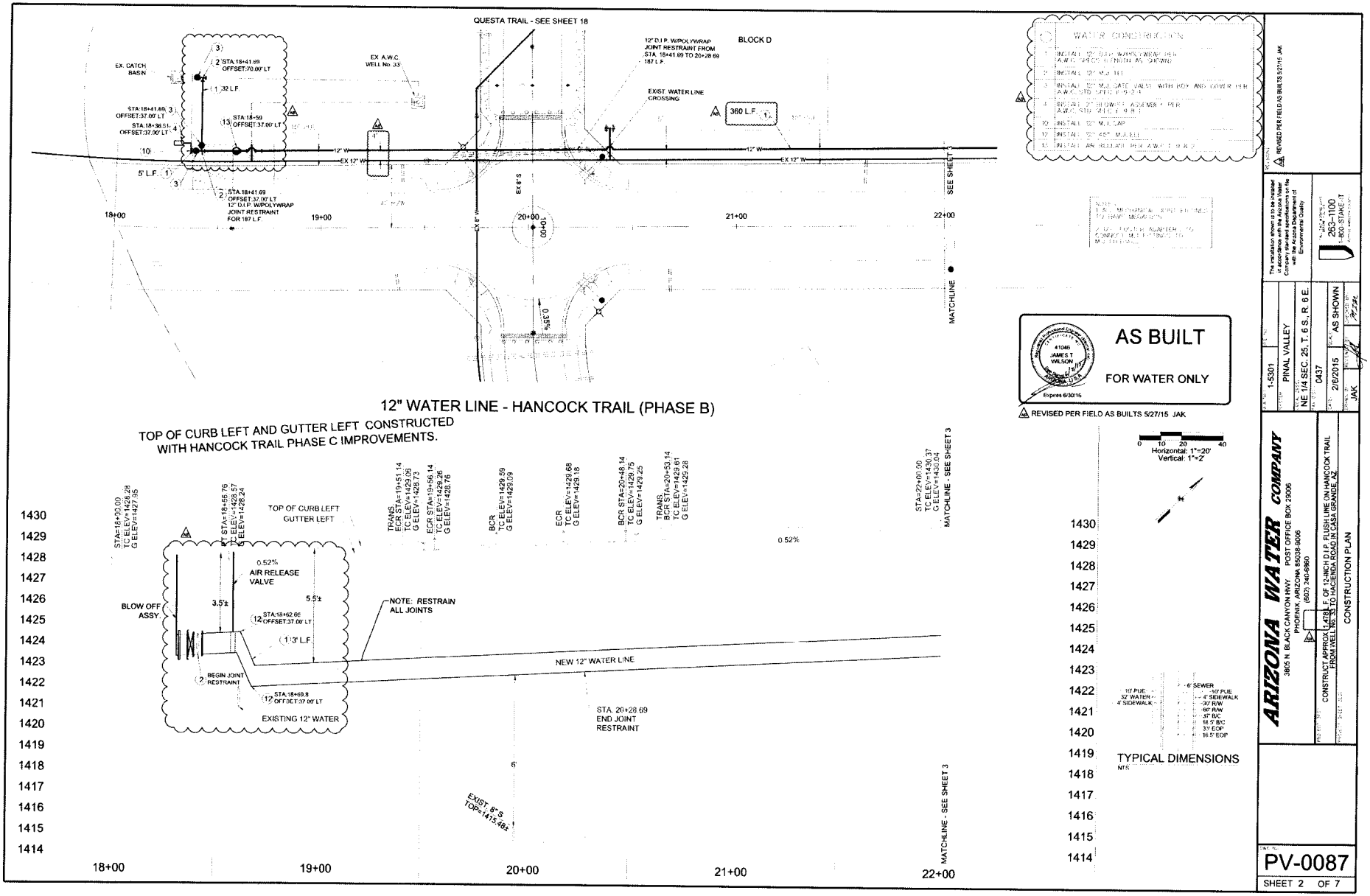
ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY. POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT APPROX. 1,478 L.F. OF 12-INCH D.I.P. FLUSH LINE ON HANCOCK TRAIL FROM WELL No. 33 TO HACIENDA ROAD IN CASA GRANDE, AZ.

PROJECT VICINITY

PV-0087

SHEET 1 OF 7



ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY. POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT APPROX. 1,478 L.F. OF 12-INCH D.I.P. PLUSH LINE ON HANCOCK TRAIL FROM HELL RIDE ST. TO HACIENDA ROAD IN CASA GRANDE, AZ.

CONSTRUCTION PLAN

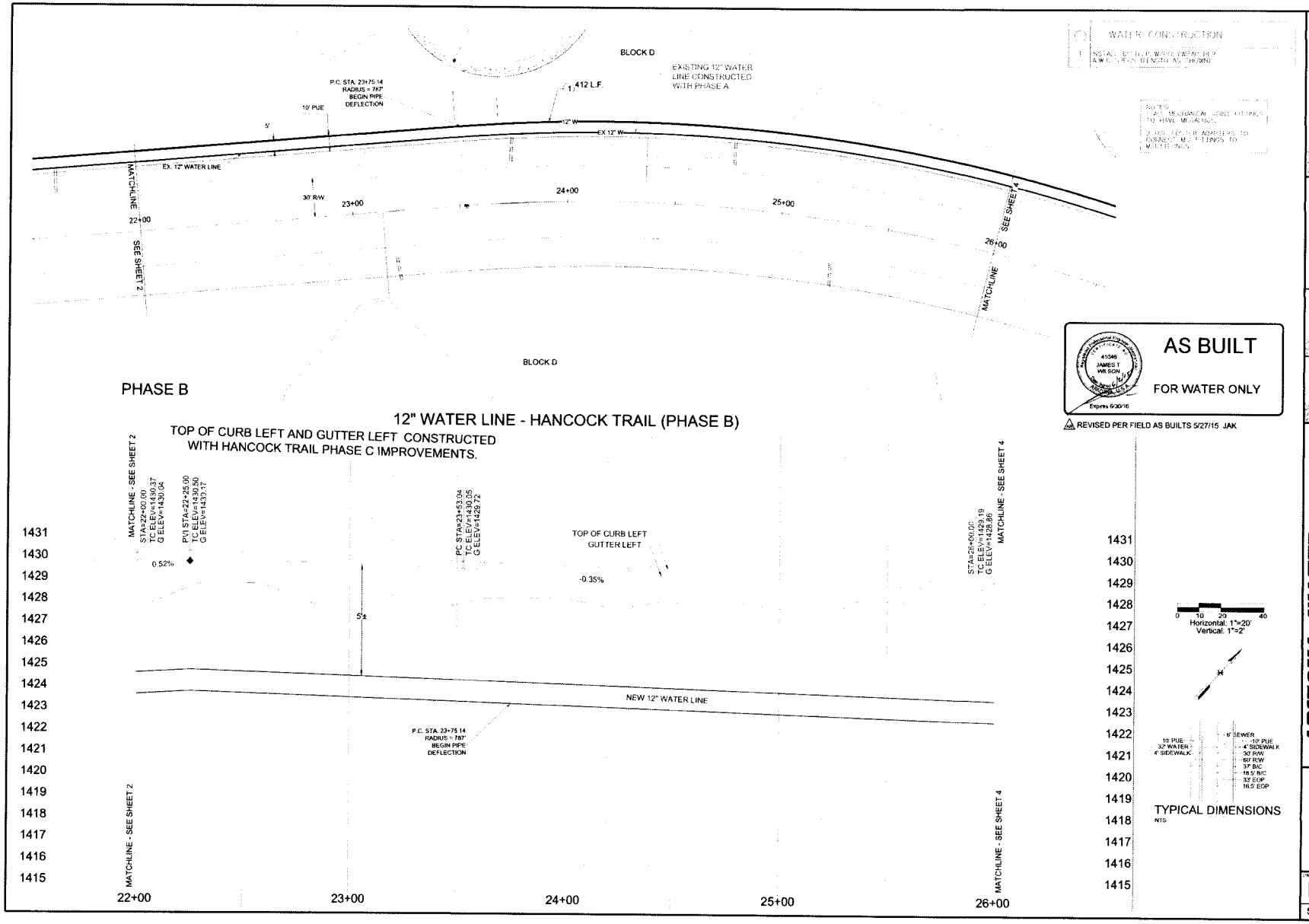
1-5301
PINAL VALLEY
NE 1/4 SEC. 25, T. 6 S., R. 6 E.
0437
2/6/2015
AS SHOWN
JAK

The installation shown on this plan is in accordance with the Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality

REVISED PER FIELD AS BUILTS 5/27/15 JAK

263-1100
1-800-STAKE-IT

PV-0087
SHEET 2 OF 7



REVISED PER FIELD AS BUILTS 5/27/15 JAK

The installation shown is to be installed in accordance with the Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality.

263-1100
1-800-STAKE-IT

1-5301

PINAL VALLEY

NE 1/4 SEC. 25, T. 6 S., R. 6 E.

0437

2/6/2015

AS SHOWN

JAK

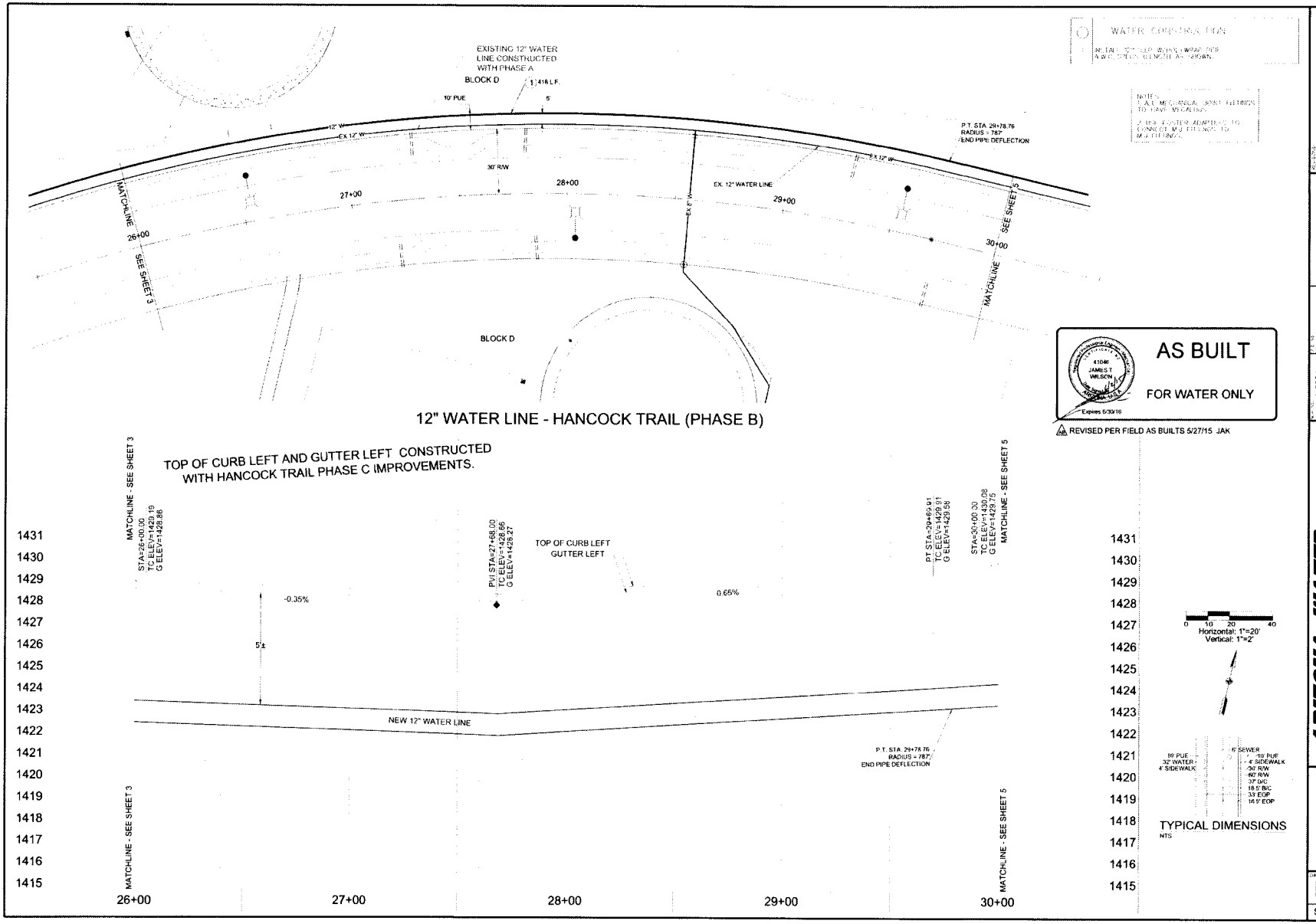
ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT APPROX. 1,478 L.F. OF 12-INCH D.I.P. FLUSH LINE ON HANCOCK TRAIL FROM WELL NO. 35 TO HACIENDA ROAD IN CASA GRANDE, AZ.

CONSTRUCTION PLAN

PV-0087

SHEET 3 OF 7



REVISED PER FIELD AS BUILTS 5/27/15 JAK

The installation shown is to be installed in accordance with the Arizona Water Company Standard specifications on file with the Arizona Department of Environmental Quality.

1-5301
PINAL VALLEY
NE 1/4 SEC. 26, T. 6 S., R. 9 E.
0437
26/2015
AS SHOWN
JAK

263-1100
(602) STAKE-IT

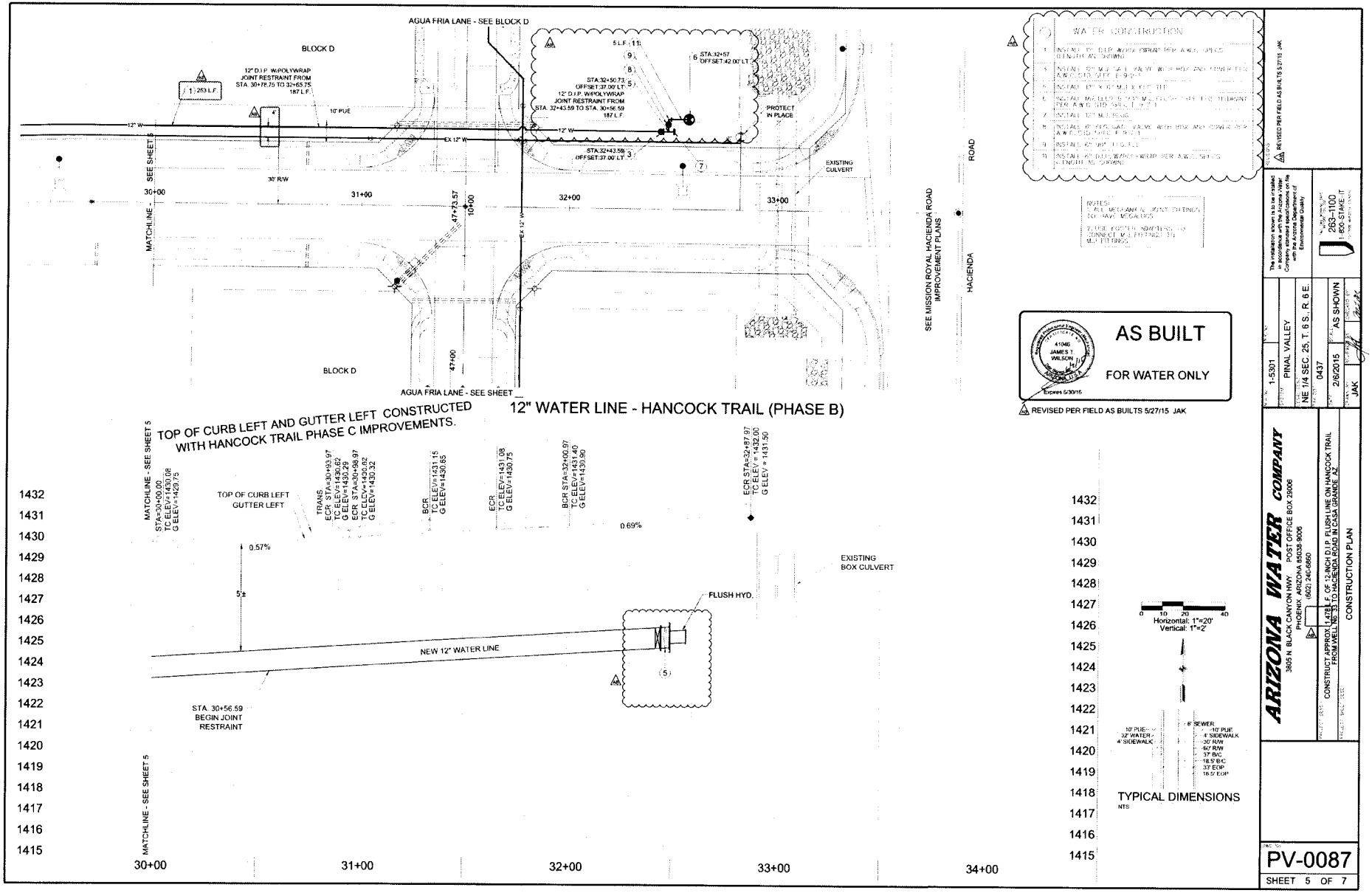
ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY. POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT APPROX. 1,178 L.F. OF 12-INCH D.I.P. FLUSH LINE ON HANCOCK TRAIL FROM WELL NO. 33 TO HACIENDA ROAD IN CASA GRANDE, AZ.

CONSTRUCTION PLAN

PV-0087

SHEET 4 OF 7



REVISED PER FIELD AS BUILTS 5/27/15 JAK

The installation shown is to be installed in accordance with the Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY. POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT APPROX. 1,415 L.F. OF 12-INCH D.I.P. FLUSH LINE ON HANCOCK TRAIL FROM WELL NO. 32 TO HACIENDA ROAD AT CASA GRANDE, AZ

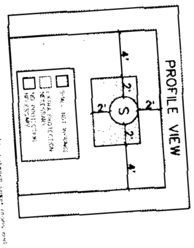
CONSTRUCTION PLAN

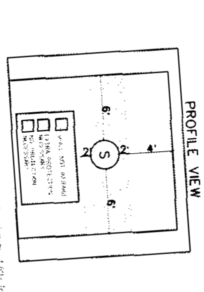
DRAWN BY	1-5301
DESIGNED BY	PINAL VALLEY
CHECKED BY	NE 1/4 SEC. 25, T. 6 S., R. 6 E.
PROJECT NO.	0437
DATE	2/6/2015
SCALE	AS SHOWN
APPROVED BY	JAK

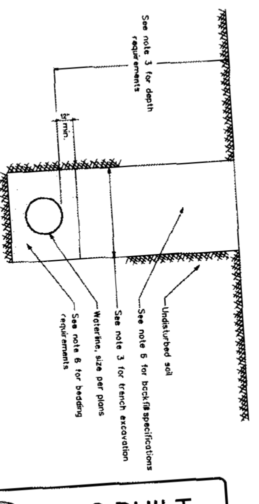
263-1100
1-800-STAKE IT

PV-0087

SHEET 5 OF 7







TYPICAL TRENCH DETAIL

AS BUILT

41046
JAMES T.
WILSON

Expires 6/30/16

FOR WATER ONLY

REVISED PER FIELD AS BUILTS 5/27/15 JAK

REVISED PER FIELD AS BUILTS 5/27/15 JAK

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT APPROX 1,478 L.F. OF 12-INCH D.I.P. FLUSH LINE ON HANCOCK TRAIL FROM WELL NO. 33 TO HACIENDA ROAD IN CASA GRANDE, AZ.

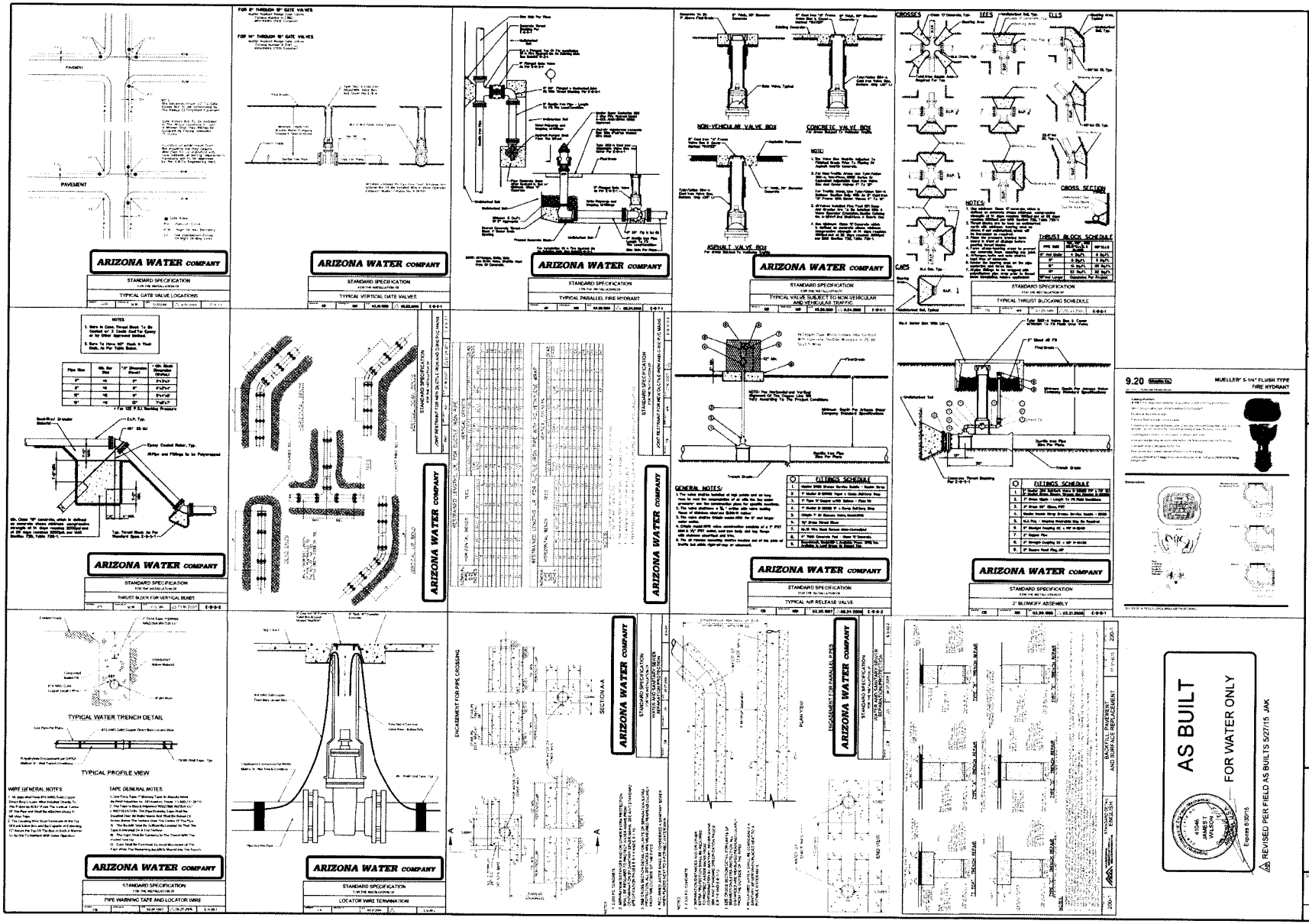
GENERAL NOTES

1-5301
PINAL VALLEY
NE 1/4 SEC. 25, T. 6 S., R. 6 E.
0437
2/6/2015
AS SHOWN
JAK

The installation shown is to be installed in accordance with the Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality

263-1100
1-800-STAKE-IT

PV-0087
SHEET 6 OF 7



ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

CONSTRUCT APPROX. 1,478 L.F. OF 12-INCH D.I.P. FLUSH LINE ON HANCOCK TRAIL FROM WELL NO. 33 TO HACIENDA ROAD IN CASA GRANDE. #2

STANDARD DETAILS AND SPECIFICATIONS

REVISED PER FIELD AS BUILTS 5/27/15 JAK

The installation shown is to be installed in accordance with the Arizona Water Company Standard Specifications on file with the Arizona Department of Environmental Quality

JOB NO.	1-3301
CITY	PINAL VALLEY
LOCATION	NE 1/4 SEC. 25, T. 6 S., R. 6 E.
DRAWING NO.	0437
DATE	2/6/2015
SCALE	AS SHOWN
DRAWN BY	JAK
APPROVED BY	

263-1100
1-800 STAKE-IT

PV-0087
SHEET 7 OF 7

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

June 2, 2015

Ms. Linda Harris
City of Casa Grande
Development Center
510 E. Florence Boulevard
Casa Grande, AZ 85122

Re: Approval of Construction

Dear Ms. Harris:

Enclosed is the Engineer's Certificate of Completion for the above-referenced project along with a copy of the Approval to Construct, the pressure, chlorination, bacteriological test data, and As Built Drawing.

If you have any questions concerning this construction, please call or write at your convenience.

Very truly yours,

Andrew J. Haas, P. E.
Chief Engineer

afh
Enclosures

ENGINEER'S CERTIFICATE OF COMPLETION AND FINAL INSPECTION "ECC"

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) - WATER QUALITY DIVISION 5/01

ADEQ FILE NO.: CDP-15-00374 → X DRINKING WATER DESIGN *(New separate form now used for WASTEWATER DESIGN)* If separate Drinking Water & Wastewater Approvals to Construct were issued, separate ECCs required	COUNTY: Pinal OWNER: ARIZONA WATER COMPANY

Project Name: Hancock Trail from Well No. 33 to Hacienda Road *(as shown on Approval to Construct)*

W.A. No.1-5301 SYSTEM NO.11-009

Project Description: Construct approximately 1,461 LF of 12-inch DIP flush line on Hancock Trail from Well No. 33 to Hacienda Road in Casa Grande, AZ.

The flushing hydrant was relocated from STA 32+72 to STA 32+57 due to a conflict with the existing fire hydrant.

A vertical realignment was installed at STA 18+70 due to a conflict with the existing well discharge line.

(as shown on Approval to Construct, unless completed project differed, in which case describe in detail)

I, James T. Wilson, a Professional Engineer registered in the State of Arizona, have inspected the construction of the above described project, and certify that *(check all applicable boxes, complete applicable blanks):*

ITEMS 1) THRU 4) MUST BE COMPLETED

☒ **1) The work on this project was completed on May 13, 2015 (date).**

☒ **2) On May 13, 2015 a final construction inspection was conducted by ☐ MYSELF [←check one→] ☒ under MY DIRECT SUPERVISION by Scott Johnson (print name).**

☒ **3) The materials utilized and the installation and construction of those materials and equipment are in conformance with the approved plans and specifications.**

☒ **4) All provisions listed in the ADEQ Approval to Construct for this project, a copy of which I have attached to this certificate, have been fully satisfied or exceptions are listed on the reverse side of this certificate.**

☒ **5) All construction and preoperational tests (infiltration, exfiltration, (pressure), deflection, (chlorination), (bacti), etc.)** ***[circle types performed]*** **were properly conducted, met ADEQ requirements, and are represented in attachments to this Certificate. The total number of pages of test results attached is 4.**

EITHER 6A) or 6B) MUST BE CHECKED

☒ **6A) Any deviation from the approved plans and the ADEQ Certificate of Approval to Construct have been noted on the attached "As-Built" plans (as stipulated in the Approval to Construct provisions) prepared and sealed pursuant to A.R.S.§ 32-125 on 6-2-15 (date). Of the total 7 sheets of "As-Built" plans attached, deviations from the approved plans are shown on sheets numbered 2 OF 7 AND 5 OF 7. All deviations from the approved plans comply with the ADEQ minimum design and construction standards contained in statute, rule, bulletin or referenced codes, and with the key elements of the approved plans.**

☐ **6B) The completed project did not deviate from the plans which received the Approval to Construct.**

EITHER 7A) or 7B) MUST BE CHECKED

☒ **7A) This project did not require the preparation of an Operation and Maintenance Manual.**

(the only projects which do NOT require an O&M manual are gravity-only sewage collection systems, single-family residence septic systems, and drinking water distribution projects that include no source, storage, or pressurization facilities)

☐ **7B) A FINAL Operation and Maintenance Manual has been prepared for this project and a copy is attached. This manual meets all ADEQ minimum design and construction standards contained in statute, rule, bulletin, referenced codes, the key elements of the approved plans, and, if applicable, with Attachment B of the September 10, 1994 Engineering Advisory for Individual Alternate Systems.**

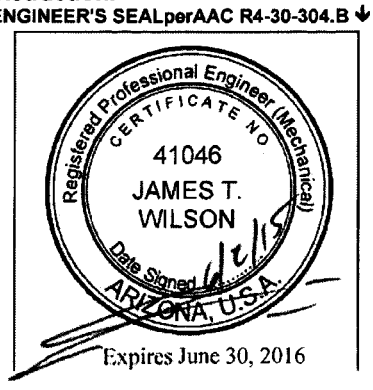
EITHER 8A) or 8B) MUST BE CHECKED

☒ **8A) Review of this project for Approval of Construction issuance does not require a fee because this project involves only drinking water, not wastewater.**

☐ **8B) In accordance with A.A.C. R18-9-103 Schedule B, a check in the amount of $_____ is attached as initial fee for review of the submitted and other information for issuance of an Approval of Construction.**

ADDITIONAL INFORMATION ↓ ENGINEER'S SEALperAAC R4-30-304.B ↓

☐ **9) Other, see additional information on reverse side.**



Expires June 30, 2016

Engineer Address PO Box 29006, Phoenix, AZ 85038-9006

Phone 602-240-6860

AZ DEPARTMENT OF ENVIRONMENTAL QUALITY ACCEPTANCE

EMPLOYEE SIGNATURE **(PRINTED NAME)** **DATE**

ADEQ Arizona Department of Environmental Quality

ENGINEERING REVIEW SECTION
DATA REQUIRED WITH ECC

Please complete the test data and submit this form with the Engineers Certificate of Completion. An Approval of Construction cannot be issued without the data identified below in accordance with Arizona Administrative Code (A.A.C.) R18-5-508(C). Please attach **all supplemental information and calculations to this form.**

DATA

1.

PRESSURE TEST DATA				
Indicate Segment Tested	WELL #33 12" FLUSH LINE			
Pressure and Leakage Test Results (Pass/Fail)	PASS	PASS		
Date Tested	5-1-15	5-1-15		
Time Started	1:45pm	1:45 pm		
Time Finished	3:45 pm	3:45 pm		
Pipe Diameter	12"	6"		
Footage Tested	1478 LF	5' LF		
Allowable Leakage	3.5472	0.0016		
Leakage Observed	0	0		
Pressure at Test Point	205 psi	205 psi		
Employee Observing the Test (Please Print Legibly)	SCOTT H. JOHNSON			
Signature of Employee Observing the Test	Scott H. John...			

2.

DISINFECTION SAMPLING					
Initial Sampling (Minimum 50 ppm available chlorine)	Date	5-4-15	5-4-15		
	Time	11:00 AM	11:00 AM		
	ppm Cl_2	200ppm	200ppm		
After 24 Hours Detention Time (Minimum 10 ppm free chlorine)	Date	5-6-15	5-6-15		
	Time	6:45 AM	6:45 AM		
	ppm Cl_2	200ppm	200ppm		
After Sufficient Flushing (Water is clear and system Cl_2 residual is measured)	Date	5-6-15	5-6-15		
	Time	9:45 AM	9:40 AM		
	ppm Cl_2	1.3	1.0		
Bacteriological Sampling(s):	Date	5-6-15	5-6-15		
	Time	10:00 AM	10:10 AM		
	Attached (Y/N)	Y	Y		
		(Yes)/No	(Yes)/No	Yes/No	Yes/No

3.

Certification

I, SCOTT H. JOHNSON, certify that I have inspected the work performed and have found it to be satisfactory and in accordance with Arizona Administrative Code, Arizona Engineering Bulletins, and the approved specifications.

Scott H. John... — 5-13-15

Authorized Persons Signature — Date

Professional Seal (As applicable)

Registered Professional Engineer (Mechanical) CERTIFICATE NO. 41046 JAMES T. WILSON Date Signed 6/2/15 ARIZONA U.S.A.

EXPIRES 6/30/16

LEGEND
Technical Services, Inc.
www.legend-group.com

17631 N. 25th Avenue • Phoenix, AZ 85023
P (602) 324-6100 • F (602) 324-6101

Regina Lynde
Arizona Water Company
3805 N. Black Canyon Hwy
Phoenix, AZ85015

Project: Specials
Project Number: Well #33 12 Flush Line WA-1-5301 5/6/15

Reported:
05/11/15 15:21

Analyte

Well #33 12" Flush Line #1 (Well #33 12" Flush Line #1) (5050517-01) Drinking Water (Grab) Sampled: 05/06/15 10:00
Received: 05/07/15 08:00

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.									
Microbiology									
E. coli	Absent		P/A	1	B5E0200	05/07/15 13:30	05/07/15 13:30	SM 9223B	
Total Coliforms	Absent		P/A	1	B5E0200	05/07/15 13:30	05/07/15 13:30	SM 9223B	

Well #33 12" Flush Line #2 (Well #33 12" Flush Line #2) (5050517-02) Drinking Water (Grab) Sampled: 05/06/15 10:10
Received: 05/07/15 08:00

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.									
Microbiology									
E. coli	Absent		P/A	1	B5E0200	05/07/15 13:30	05/07/15 13:30	SM 9223B	
Total Coliforms	Absent		P/A	1	B5E0200	05/07/15 13:30	05/07/15 13:30	SM 9223B	

Sample Condition Upon Receipt:

Temperature: 2.00 C
All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.
QA/QC Criteria: All analyses met method requirements unless otherwise qualified.
Accreditations: AZ(PHX)0004, AZ(TUC)OOO4, AIHA#102982, CDC ELITE Member.
Accreditation is applicable only to the test methods specified on each scope of accreditation held by LEGEND.
Comments: There were no problems encountered during the processing of the samples, unless otherwise noted.
All samples were analyzed on a "wet" basis unless designated as "dry weight".

Chain of Custody indicates special only do not report to ADEQ - BF

Notes and Definitions

Legend Technical Services of Arizona, Inc.

Barbara Grenke

Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Phone Number: (602) 324-6100

Regina Lynde Arizona Water Company 3805 N. Black Canyon Hwy Phoenix, AZ85015	Project: Specials Project Number: Well #33 12 Flush Line WA-1-5301 5/6/15
	Reported: 05/11/15 15:21

Laboratory Sample ID: 505517

CHAIN OF CUSTODY RECORD

LEGEND Technical Services, Inc.
www.legend-group.com

☐ 17631 N. 25th Avenue · Phoenix, AZ 85023 · (602) 324-6100 · Fax (602) 324-6101
☐ 4585 S. Palo Verde Rd, Ste 423 · Tucson, AZ 85714 · (520) 327-1234 · Fax (520) 327-0516

Page 1 of 1

Please Print Clearly

CLIENT INFORMATION

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
ARIZONA WATER CO.	220 E. 2ND ST	CASA GRANDE	AZ	85122	(520) 836-8785	(520) 836-2850

Project Name	Project Number	Contact	P.O. No.	Fax Results XL	QC Report ☐ EDD ☐
WELL #33 12" FLUSH LINE	WA-1-5301	RAY MURRIETA		Email Results DC	Special Detection Limits ☐

SAMPLE TYPE CODES

DW=Drinking Water; WW=Wastewater; SW=Surface Water; GW=Groundwater; O=Other
S=Soil/Solid; T=Travel Blank; FeFerric; G=Sludge/Biosolids

TURN AROUND TIME

Laboratory Authorization Required for Rush

☐ Standard 7-10 Day
☐ Other

REQUESTED ANALYSES

Client's Sample Identification	Date	Time	Sample Location	Composite	Grab	Sample Type	Compliance	No. of Containers	Sample Temp. Blank		Lab No.
WELL #33 12" FLUSH LINE #1	5/6/15	10:00AM	WELL #33 12" FLUSH LINE #1			DW NW		1		X	01
WELL #33 12" FLUSH LINE #2	5/6/15	10:10AM	WELL #33 12" FLUSH LINE #2			DW NW		1		X	02

TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments / Special Instructions: (SPECIAL) DO NOT REPORT TO A.D.E.Q. No. 1 - 1.3 Cl_2 No. 2 - 1.0 Cl_2
1281490159784 5914

SAMPLE CONDITION UPON RECEIPT (Lab Use)

No. of Containers	2	
Temperature	2.0	°C
Custody Seals	Y	(N)
Received Intact	Y	N
Preservation	(Y)	N

WHITE-LAB YELLOW-CLIENT

	RELINQUISHED BY			SAMPLES RECEIVED BY		
①	Sampler Signature: Scott H. Johnson Sampler Printed Name: SCOTT H. JOHNSON	Date: 5/6/15 Time:		Signature: JWard Printed Name: JWard	UPS	Date: 5/6/15 Time:
②	Signature: Printed Name: UPS	Date: 5/7/15 Time: 900		Signature: JWard Printed Name: JWard		Date: 5/7/15 Time: 800
③	Signature: Printed Name:	Date: Time:		Signature: Printed Name:		Date: Time:

FORM GEN-170 (12/13)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

City of Casa Grande, Development Center, 510 E. Florence Blvd, Casa Grande, AZ 85122 (520) 421-8630

CERTIFICATE OF APPROVAL TO CONSTRUCT WATER FACILITIES

CDP No: CDP-15-00374	**I-5310 Well No 33**	**12-inch flush line**
System Name: Pinal Valley		**PWS Number: 11-009**
Project Owner: Arizona Water Company		
Address: PO Box 29006, Phoenix AZ 850038-9006		
Project Location:	**Hancock Trail from Well No. 33 to Hacienda Road**	
Project Description: Construct approximately 1,461 L.F. of 12-inch D.I.P. flush line on Hancock Trail from Well No 33 to Hacienda Road in Casa Grande AZ		

Approval to construct the above-described facilities as represented in the approved documents on file with the City of Casa Grande is hereby given subject to provisions 1 through 5 continued on page 2 of 2

1. This project must be constructed in accordance with all applicable laws, including Title 49, Chapter 2, Article 9 of the Arizona Revised Statutes and Title 18, Chapter 5, Article 5 of the Arizona Administrative Code.
2. Upon completion of construction, the engineer shall fill out the Engineer's Certificate of Completion and submit it to the City of Casa Grande. If all requirements have been completed, the City will issue a Certificate of Approval of Construction. R18-5-507(B), Ariz. Admin. Code. At the project owner's request, the Department **may** conduct the final inspection required pursuant to R18-5-507(B); such a request must be made in writing in accordance with the time requirements of R18-5-507(C), Ariz. Admin. Code.
3. This certificate will be void if construction has not started within one year after the Certificate of Approval to Construct is issued, there is a halt in construction of more than one year, or construction is not completed within three years of the approval date. Upon receipt of a written request for an extension of time, the City may grant an extension of time; an extension of time must be in writing. R18-5-505(E), Ariz. Admin. Code.
4. The project owner shall be responsible to submit to the City a complete Approval of Construction application and required documentation. Operation of a newly constructed facility shall not begin until a Certificate of Approval of Construction has been issued by the City of Casa Grande. R18-5-507(A), Ariz. Admin. Code.

Approved by City Engineer: _____ Date: 3.3

RECEIVED
MAR 11 2015
PHOENIX OFFICE
ENGINEERING

5. The City of Casa Grande's review of this application was subject to the requirements of the licensing time frames ("LTF") statute under Arizona Revised Statutes ("A.R.S.") § 41-1072 through§ 41-1079 and the LTF rules under Arizona Administrative Code ("A.A.C.") R18-1-501 through R18-1-525. This Notice is being issued within the overall time frame for your application.

City of Casa Grande hereby approves your application for Approval to Construct Drinking Water Facilities under A.R.S. § 49-351. Your copy is enclosed.

This decision is an appealable agency action under A.R.S. § 41-1092. You have a right to request a hearing and file an appeal under A.R.S. § 41-1092.03(B). You must file a written Request for Hearing or Notice of Appeal within 30 days of your receipt of this Notice. A Request for Hearing or Notice of Appeal is filed when it is received by ADEQ's Hearing Administrator as follows:

Office of Administrative Counsel
Arizona Department of Environmental Quality 1110 W. Washington Street
Phoenix, AZ 85007

The Request for Hearing or Notice of Appeal shall identify the party, the party's address, the agency and the action being appealed and shall contain a concise statement of the reasons for the appeal. Upon proper filing of a Request for Hearing or Notice of Appeal, City of Casa Grande will serve a Notice of Hearing on all parties to the appeal. If you file a timely Request for Hearing or Notice of Appeal you have a right to request an informal settlement conference with ADEQ under A.R.S. § 41-1092.06. This request must be made in writing no later than 20 days before a scheduled hearing and must be filed with the Hearing Administrator at the above address.

Please contact the City of Casa Grande Development Center at 520-421-8630 if you have questions regarding this Notice or the Certificate of Approval to Construct.

Western Group Rate Case

Exhibit FKS-1

5303 PV 32 & 33 Nitrate

ARIZONA WATER COMPANY
WORK AUTHORIZATION

W.A. NUMBER: 1-5303
P.E. NUMBER: 1442
BUDGET ITEM NO.: 1-5303
SHEET NO.: 1 of 2

SYSTEM:	PINAL VALLEY	RETENTION REQUIRED:	☑ YES ☐ NO
DIVISION:	CASA GRANDE	WORK TO START BY:	UPON AUTHORIZATION
RESPONSIBLE PERSON:	JOHN KNOBBE	WORK TO BE FINISHED BY:	WITHIN 100 DAYS
TAX CODE:	0437		

DESCRIPTION OF WORK:

Design and install nitrate analyzers and electrical controls at Wells No. 32 and 33 in Casa Grande, Arizona.

FACTORS JUSTIFYING WORK:

APPROVED 2015 BUDGET ITEM ($125,000)
Company Engineers were informed of the recent Wells No. 32 and 33 (Well) water quality sample results for nitrates of more than 9 mg/L, which is approaching the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL) of 10 mg/L. EPA defines a violation of the MCL for nitrates as a Tier 1 acute violation. Water quality sample results for each Well have shown a steady increase in nitrates. Company Engineers determined it is necessary to install a nitrate analyzer at each Well discharge head to monitor nitrate levels and install controls at each Well to ensure that water pumped into the distribution system does not exceed the MCL. The nitrate analyzer and controls allow each Well to pump into the distribution system at a nitrate level up to an operator determined set point. The Company does not have a water storage tank in this area to blend with additional sources of supply to reduce nitrate concentrations. Installing a nitrate analyzer at each Well allows the Company to ~~continue to~~ provide a safe, adequate and reliable drinking water supply to the Pinal Valley water system.

COST ESTIMATE		AUTHORIZATION	DATE
COST OF WORK:		PREPARED BY: John Knobbe 12-3-15	1-27-2015
MATERIAL	52,000		
LABOR	15,430	REVIEWED FOR ESMT/ROW VERIFICATION: Charles Briggs CB 02-03-2015	01-27-2015
CONTRACT PORTION	88,218		
OVERHEAD	18,700	REVIEWED BY: James Wilson 2/4/15	1/27/15
TOTAL AUTHORIZED EXPENDITURES CHARGEABLE TO THIS W.A.	$ 174,348		
FUNDS RECEIVED:		APPROVED BY ENGINEERING: Fredrick Schneider 2-5-15	1-28-15
CONTRIBUTIONS RECEIVED	0		
REFUNDABLE ADVANCES RECEIVED	0	APPROVED BY FINANCE: Joseph Harris	1/30/15
TOTAL CONTRIBUTIONS/ADVANCES	0		
NET COMPANY CASH REQUIRED	$ 174,348	AUTHORIZED BY PRESIDENT: William Garfield	1-30-2015

COMMENTS:

Transfer additional funds required from WA 1-5170 (Cottonwood BPS) $49,348.
Transfer charges from PE 1442 to this WA.

CONSTRUCTION RELEASE:

RELEASED TO CONSTRUCTION
Authorized by FRED SCHNEIDER
Date 2/3/2015

2015 BUDGET

AFH

AJH
03/26/08| JPK:afh | WA.XLS

ARIZONA WATER COMPANY

WORK AUTHORIZATION - DETAIL SHEET

W.A. NUMBER: 1-5303
P.E. NUMBER: 1442
BUDGET ITEM NO.: 1-5303
SHEET NO.: 2 of 2

RETIREMENT PROPERTY UNITS	PLANT PROPERTY ACCOUNT	UNIT DESCRIPTION	QUANTITY	YEAR INSTALLED AND W.A. NUMBER

PROJECT DESCRIPTION:

Design and install nitrate analyzers and electrical controls at Wells No. 32 and 33 in Casa Grande, Arizona.

	DESCRIPTION	PLANT PROP ACCT	QUANTITY	UNIT COST	TOTAL
CONTRACT WORK	Design and layout nitrate analyzer and electrical controls	332	1	$ 10,221.00	$ 10,221
	Install nitrate analyzer enclosures, conduits, wires, air				
	conditioner, heater, area lights and electrical controls	332	2	15,500.00	31,000
	Install HACH nitrate analyzer and controller	332	2	750.00	1,500
	Install analyzer sample feed line and related fittings	332	2	2,400.00	4,800
	Install analyzer sample waste line and related fittings	332	2	950.00	1,900
	Install 6 ft.x6 ft. concrete foundation with floor drain	332	2	1,900.00	3,800
	Install programming for nitrate analyzer system and SCADA	332	2	4,139.50	8,279
	Install Aluma-Line shade canopy	332	2	7,800.00	15,600
	Contracting Tax	332	1	5,302.30	5,302
	100% Performance and Payment Bonds Cost	332	1	816.00	816
	Construction contingency	332	1	5,000.00	5,000
	SERVICE CONNECTIONS COMPLETE: DOUBLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-SHORT	345			
TOTAL CONTRACT WORK					$ 88,218
MATERIALS	HACH NITRATAX plus sc analyzer, controller and field service	332	2	$ 26,000.00	$ 52,000
	SERVICE CONNECTIONS: DOUBLE-LONG	345			
	SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS: SINGLE-LONG	345			
	SERVICE CONNECTIONS: SINGLE-SHORT	345			
	METERS	346			
TOTAL MATERIALS					$ 52,000
LABOR	Engineering design and project management	332	140	$ 65.00	$ 9,100
	Field design review	332	16	55.00	880
	TESTING FEE	332	1	$ 500.00	500
	PERMIT FEE				
	SURVEY FEE	332	1	2,750.00	2,750
	FIELD INSPECTION	332	40	55.00	2,200
	INSTALL SERVICE CONNECTIONS: DOUBLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-SHORT	345			
TOTAL LABOR					$ 15,430
SUBTOTAL - CONTRACT WORK, MATERIALS, AND LABOR					$ 155,648
OVERHEAD					18,700
TOTAL	REFUNDABLE PORTION ☐	NON-REFUNDABLE PORTION ☐		**COST ESTIMATE**	$ 174,348

AFH

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

February 3, 2015

Mr. Michael Young
Fann Environmental, LLC
6708 Corsair Avenue, Suite A
Prescott, AZ 86301

Re: WA 1-5303 Mission Royale Well Nos. 32 & 33 Nitrate Analyzers

PROJECT: Nitrate Analyzers	
SYSTEM: Pinal Valley	
CONTRACT NO.:	
P.E. NO.:	W.A. NO.: 1-5303

Dear Mr. Young:

Enclosed is your copy of the Proposal/Contract for the above-referenced project, which has been accepted by Arizona Water Company (the "Company"). The project shall be constructed in accordance with the Company's *General Conditions of Contract, the Specifications and the Drawings* which were included with the Company's previously provided Proposal/Contract, copies of which are being provided again and attached herewith.

Also enclosed are two copies of the Commencement Notice for the above-referenced project. Please sign one of the copies and return it to my attention retaining the other for your records.

As provided in paragraph 4 of the Company's Proposal/Contract executed by the Company on February 5, 2015, Fann Environmental, LLC acknowledged that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work. In addition, as provided in paragraph 44 of the Company's General Conditions of Contract, the 100% Performance and Payment Bonds must be provided within ten (10) calendar days of the date of the Commencement Notice. Failure to provide an acceptable 100% Performance and Payment Bond does not limit the Company's

ability to terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur.

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting. In addition, please provide the required Performance and Payment Bonds to the Company promptly so that the contracted work can be completed within the contract's timeline.

If you have any questions, please call me at this office.

Very truly yours,

John P. Knobbe
Lead Designer
jknobbe@azwater.com

afh
Enclosure

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street

PROPOSAL/CONTRACT

CONTRACTOR: FANN ENVIRONMENTAL, LLC	SYSTEM: PINAL VALLEY
ADDRESS: 6708 CORSAIR AVENUE, SUITE A	W.A. No(s): 1-5308 1442
CITY ST ZIP: PRESCOTT, AZ 86301	BID DUE DATE: May 29, 2014

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1. Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto. Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto. The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract. Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings.
2. Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract.
3. Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person.
4. Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work.
5. Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project. The materials list will include the manufacturer, part number, price and quantity included in this Proposal/Contract.
6. Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings. No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax. Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company. The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A.R.S.") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S. §42-5061 B.6.), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed. Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax.
7. Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project. Such records will include all supporting original vendor invoices for all materials purchased. Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof. The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility.
8. The Estimated Total Cost of the Project, shown on Page 2, is based on estimated labor and material quantities to be furnished. It includes an estimate of the Contracting Tax and the cost of the required Performance and Payment Bonds. Contractor will not cancel, modify or withdraw this Proposal/Contract during a ninety-day (90) period commencing on the Bid Due Date. The Company may accept this Proposal/Contract by signing and mailing, or otherwise delivering, a copy hereof to Contractor during such ninety-day (90) period. If the Company does not accept this Proposal/Contract during such ninety-day (90) period, Contractor may cancel this Proposal/Contract by giving written notice of cancellation to the Company.
9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project invoicing. Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly.
10. Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice. Contractor will complete the Project within 90 ~~120~~ NN calendar days after the Commencement Notice is issued.
11. Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities.
12. The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice. This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract.

SPECIAL CONDITIONS:

See attached Special Conditions dated 5-9-2014.

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
FANN ENVIRONMENTAL, LLC	*ARIZONA WATER COMPANY*
By: [signature]	By: [signature]
Print Name: Michael S. Young	Print Name: Fredrick K. Schneider, PE
Title: President / Member	Title: Vice President - Engineering
Date: 5/29/14	Date: 2-5-2015

AFH

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street
Casa Grande, AZ 85122 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: FANN ENVIRONMENTAL, LLC	SYSTEM: PINAL VALLEY
AZ CONTRACTOR LICENSE NO: CLASSIFICATION:	W.A. No(s): 1-5303 1442
ADDRESS: 6708 CORSAIR AVENUE, SUITE A	BID DUE DATE: May 29, 2014
CITY ST ZIP PRESCOTT, AZ 86301	BID BOND REQUIRED ☑ Yes ☐ No

DESCRIPTION OF PROJECT: Design-Build nitrate analyzers and electrical controls at Mission Royale Wells No. 32 and 33 in Casa Grande, Arizona. Design-Build in accordance with the attached design plans and Arizona Water Company Specifications.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6)	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
None	0	0	0	0	0
				1	2
3. Total Labor to Install Exempt Materials (add the amounts in column 1)				3 0	
4. Total Exempt Materials (add the amounts in column 2)					4 0

5-6. NON-EXEMPT MATERIALS	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
Design and layout nitrate analyzers, electrical controls, PLC's, cellular RTU's and area lights	Lot	15000.-	0	15000.-	0
Provide and install nitrate analyzer enclosures, trenching, conduits, wires, boxes, switches, timers, reset buttons, breakers, relays, terminations, grounding, air conditioners, heaters, area lights and electrical controls	Lot	18000.-	13000.-	18000.-	13000.-
Install HACH nitrate analyzer and controller and commission	2	750.-	0	1500.-	0
Provide and install nitrate analyzer sample feed lines, conduits, pressure gauges, pressure reducing valves, rotameters, tapping saddles, ball valves and freeze protection	Lot	2200.-	2600.-	2200.-	2600.-
Provide and install nitrate analyzer sample waste lines and related fittings	Lot	1150.-	750.-	1150.-	750.-
Provide and install 6 ft.x6 ft. concrete foundation with floor drain	2	1100.-	800.-	2200.-	1600.-
Provide and install Modicon M340 PLC and commission	2	3000.-	5500.-	6000.-	11000.-
Install Sixnet cellular RTU and commission	2	850.-	0	1700.-	0
Provide and Install nitrate analyzer system and SCADA programming	Lot	11000.-	0	11000.-	0
Install Aluma-Line shade canopy with shade panel	2	2000.-	5800.-	4000.-	11600.-
				5	6
7. Total Labor to Install Non-Exempt Materials (add the amounts in column 5)				7 62750.-	
8. Total Non-Exempt Materials (add the amounts in column 6)					8 40,550.-
9. Subtotal A (add lines 3, 7 and 8)					9 103,300.-
10. Contracting Tax Base (multiply the amount on line 9 by 0.65)				10 67145.-	
11. Applicable Contracting Tax Rate				11 10.70%	
12. Contracting Tax (multiply the amount on line 10 by line 11)					12 7184.51
13. Subtotal B (add lines 4, 9 and 12)					13 110,484.51
14. 100% Performance and Payment Bonds Cost					14 1089.-
15. Estimated Total Cost (add lines 13 and 14)					15 111,573.51

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal, and traffic control necessary for the Project.

ARIZONA WATER COMPANY

COMMENCEMENT NOTICE

CONTRACTOR:

Mr. Michael Young
Fann Environmental, LLC
6708 Corsair Avenue, Suite A
Prescott, AZ 86301

DATE: 2/6/15
DIVISION: CASA GRANDE
SYSTEM: PINAL VALLEY
W.A.: 1-5303

THIS IS YOUR NOTICE TO PROCEED WITH THE FOLLOWING PROJECT(S):

DESCRIPTION OF WORK:

Design-Build nitrate analyzers and electrical controls at Mission Royale Well Nos. 32 and 33 in Casa Grande, Arizona. Design-Build in accordance with the attached design plans and Arizona Water Company Specifications.

PERFORMANCE AND PAYMENT BONDS REQUIRED: [X] Yes [ ] No

TOTAL DAYS ALLOWED: 100

COMPLETION DATE: 5/17/15

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting.

ARIZONA WATER COMPANY	FANN ENVIRONMENTAL, LLC
Company	Contractor *(type name)*
By	By
Title Vice President - Engineering	Title

AFH
W:\PROJECTS\CG\PVINSIDEWA\ACTIVE WA\1-5303 CG WELLS 32 AND 33 NO3 ANALYZERS JPK\AGREEMENTS\CONTRACTS\E-3-18-2 FANN COMMENCEMENT NOTICE 1-5303 NITRATE ANALYZERS.DOCX 1/15/09 | FKS:afh | E

ARIZONA WATER COMPANY

CASA GRANDE WELLS NO. 32 AND 33 – CASA GRANDE, AZ
DESIGN-BUILD ELECTRICAL EQUIPMENT FOR NITRATE ANALYZER
SPECIAL CONDITIONS 5-9-2014

Existing Facility Information

Site Location: Well 32 – 278 E. Santa Ynez – Casa Grande, AZ 85194
Well 33 - 2602 E. Hancock Trail – Casa Grande, AZ 85194

Site Facilities: See attached Drawing No. PV-0079

Existing Electrical Panel: See attached Wells No. 32 and 33 existing RTU control panel diagrams and Well No. 32 existing SES, MCC and RVAR pump controller diagrams.

New Facility Information

1. New Nitrate Analyzer:
    a. Two each HACH SC200 controller
    b. Two each NITRATAX plus sc 5 mm with flow-through cell
    c. Supplied by Arizona Water Company (Company) and installed by the Contractor

2. New Modicon M340 programmable logic controller (PLC):
    a. Two each BMXCPS3500 - HI PWR AC PWR SUPPLY
    b. Two each BMXXBP0800 - 8SLOT BACKPLANE
    c. Two each BMXP341000 - CUP340-10 MODBUS
    d. Four each BMXDDI1602 - DIG 16I 24VDC SINK
    e. Two each BMXDRA0805 - DIG 8Q ISOLATED RELAYS
    f. Two each BMXAMI0410 - ANA 4 U/I IN ISOL HI SPD
    g. Two each BMXNOE0100 - 10/100 RJ45 ETHERNET
    h. Six each 990XSM00206 - MULTI MODULE MULTI MODUL
    i. Two each 990XSM00210 - ADU206/256/210 to AMI0410 QWA
    j. Two each Weidmuller ethernet switch, unmanaged, IE-SW8-ECO
    k. Supplied and installed by the Contractor

3. New cellular RTU:
    a. Two each Sixnet SN-6601-VZ-AC Cellular RTU
    b. Two each LTE/multiband stub antenna
    c. Supplied by the Company and installed by the Contractor

4. New side mount enclosure air conditioner for the new 37"Wx72"Hx24"D nitrate analyzer enclosures:
    a. Air Conditioner: Two each Pentair-Hoffman or Thermal Edge Inc.

b. General: 120V, 1Ø, 60Hz, Nema 3R
c. Temperature: Max. outside air temp. 125°F; Max. inside air temp. 90°F
d. Supplied and installed by the Contractor

5. New electric heater for the new 37"Wx72"Hx24"D nitrate analyzer enclosures:
   a. Electric Heater: Two each Pentair-Hoffman
   b. General: 120V, 1Ø, 60Hz
   c. Temperature: Min. outside air temp. 10°F; Min. inside air temp. 45°F
   d. Supplied and installed by the Contractor

6. New shade canopy area light fixture:
   a. Light fixture: Two each Lithonia, Catalog No. DMW 2 32 MVOLT GEB10IS with mounting hardware and switch
   b. Supplied and installed by the Contractor

7. New controls, timers, reset buttons with fault light, circuit breakers, relays, conduits and wires.
   a. Supplied and installed by the Contractor

8. New Programming: Program new PLC's and cellular RTU's to send SCADA data and alarms to the Casa Grande office and add SCADA control, data and alarms to the existing master SCADA computer in accordance with the control description below.
   a. Contractor shall use Delta Systems Engineering for all programming services
   b. Supplied and installed by the Contractor

General Scope of Work

1. Contractor shall design and construct all electrical equipment, including all controls, circuit breakers, relays, conduits, timers and wires necessary for operation of the new nitrate analyzers, PLC's, cellular RTU's and air conditioners. The Contractor shall install the following:
   a. New HACH nitrate analyzers in lockable Pentair-Hoffman enclosures
   b. New Modicon M340 PLC's and Ethernet switches
   c. New Sixnet cellular RTU's with stub antennas
   d. New Pentair-Hoffman or Thermal Edge Inc. side mount air conditioners
   e. New Pentair-Hoffman electric heaters
   f. New Lithonia fluorescent lighting fixtures
   g. New controls and relays to control start, stop and pump-to-waste of Wells
   h. Manual reset buttons with fault light to reset Wells if shut down occurs due to high nitrate level
   i. New control and SCADA programming

Special Conditions

1. MANDATORY PRE-BID MEETING ON ***May 19, 2014 AT 9:00 AM*** at the site.
2. Any RFI must be received no later than *May 26, 2014.*

3. Bids are due by ***May 29, 2014 AT 2:00 PM*** at the following address:
   Arizona Water Company
   Attn: John Knobbe
   3805 North Black Canyon Highway
   Phoenix, AZ 85015
4. See attached supplemental electrical specifications.
5. Company will provide electronic CAD files of Drawing No. PV-0079 and topographic survey for design purposes.
6. Contractor shall provide detailed design plans signed by a professional engineer:
   a. Contractor shall plan for, at a minimum, one (1) design review meeting prior to final construction plans.
   b. Contractor shall provide As-Built drawings and O&M manuals at the end of the project (three hard copies and one compact disk).
7. Contractor's electrical subcontractor shall provide 24 hour on-call service through the guarantee period (see Company's GCC, E-4-1, 41. Guarantee).

Control Description

1. There are three modes of operation for the well pump;
   a. Local: When the Local-Off-Remote (LOR) switch is in Local, the pump and control valves are under operator control through physical switches in the control panel. The PLC or SCADA has no control on the pump and will only monitor the status of the pump.
   b. Remote-Manual: When the LOR switch is in Remote and the pump is placed in Manual mode using the master SCADA computer (MSC) screen, the pump and control valves are under operator control through graphic switches on the MSC screen. The PLC will monitor the appropriate pump alarm and interlocks and allow the pump to run if conditions are clear but not take the decision to start or stop the pump.
   c. Remote-Automatic: When the LOR switch is in Remote and the pump is placed in Automatic mode using the MSC screen, the PLC logic takes over control of the pump and control valves. There are three possible modes of operation and the operator will choose one;
      - Burgess Peak tank based control: Start/stop set points (SP) in feet, entered by the operator will determine the run status of the well. Start SP will be less than the stop SP.
      - Time of Day: The following table will be filled by the operator (gray cells show sample data) and the well will operate on the designated day of the week, at the designated time, and for the designated time period (hr);

	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Well Number	32	29	33	29	32	33	32
Start Time	8:00	13:30	7:30	14:00	9:00	16:00	6:30
Run Duration	5.5	1.0	9.5	2.0	12.0	2.5	15.0

2. At start up, the Well will pump-to-waste (PTW) for a duration determined by an existing operator adjustable PTW timer, set at the existing electric panel.
3. If the sampled nitrate level is above an operator adjustable HIGH set point of 9.5 mg/L at the MSC, then the SCADA program will override the PTW timer and the Well will continue to PTW for an operator adjustable maximum (MAX) PTW SP at the MSC computer.
4. The MAX PTW SP will be an accumulated value over a running 24 hour period. Once the MAX PTW SP is exceeded, the Well will shut down and a manual reset button with fault light at the motor starter panel will allow the Well to re-start and reset the PTW duration.
5. If the sampled nitrate level is/falls below an operator adjustable LOW SP of 9.1 mg/L at the MSC, either after exceeding the PTW timer duration or before exceeding the MAX PTW SP, then the Well will transition into the distribution system.
6. If the sampled nitrate level does not fall below the LOW SP of 9.1 mg/L after exceeding the MAX PTW SP, then the Well will shut down and the manual reset button will allow the Well to re-start and reset the MAX PTW.
7. If the Well is pumping into the distribution system and the sampled nitrate level rises above the HIGH SP of 9.5 mg/L, then the Well will transition to PTW until the sampled nitrate level falls below the LOW SP of 9.1 mg/L or the MAX PTW SP is exceeded.
8. If the PTW valve sequence fails, then the valve shall fail open and the Well shall PTW until it exceeds the MAX PTW SP.

Indications at the MSC

1. Nitrate level
2. Well status
3. PTW valve status

WIN-911 Alarms

1. High nitrate sample (> 9.5 mg/L)
2. Manual PTW timer exceeded
3. MAX PTW exceeded
4. Well fail to start/stop
5. Incomplete PTW valve sequence
6. Communication failure

ARIZONA WATER COMPANY

SPECIFICATIONS

GENERAL CONDITIONS OF CONTRACT: E-4-1

CONSTRUCTION SPECIFICATIONS: E-8-1

STANDARD SPECIFICATION DRAWINGS: E-9-1

2007 EDITION WITH **2010** REVISIONS;
2012 GENERAL CONDITIONS OF CONTRACT

12-3-15

A copy of this entire Spec Book was sent out with Fann Enviromental Proposal package for 1-5303 Mission Royale #32+33 Nitrate Analyzer on 2/6/15

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

May 23, 2014

Mr. Donald Loose
Alta Land Survey, Inc.
344 E. 4th Street
Benson, AZ 85602

Re: Boundary and Topographic Survey for Mission Royale Well Sites 32 and 33 in Casa Grande AZ.

Dear Mr. Loose:

Attached is a copy of the Task Order for the above referenced project. Please sign and return it to my attention.

If you have any questions, please call me at this office.

Very truly yours,

Charles Briggs
Real Property Specialist
engineering@azwater.com

afh
Enclosure

AGREEMENT FOR GENERAL ENGINEERING SERVICES BETWEEN ARIZONA WATER COMPANY AND ALTA LAND SURVEY, INC.

TASK ORDER AUTHORIZATION

ALTA Land Survey, Inc. Project Number _____

AWC Project Number Boundary and Topographic Survey for Mission Royale Well Sites 32 and 33 in Casa Grande, AZ.

Arizona Water Company
P.O. Box 29006
Phoenix, Arizona 85038-9006

Effective Date of Authorization May 15, 2014

Upon execution of this Task Order, and effective as of the date shown above, the parties agree that ALTA Land Survey, Inc. shall perform the following services:

SCOPE OF SERVICES

As per the attached "Exhibit A". **NOTE: Authorization to commence will be given verbally by Division Manager (Ray Murietta, or in his absence, Kevin Pakka, Ops Superintendant).**

COMPENSATION

As per the attached "Exhibit A" dated May 14, 2014.

GENERAL TERMS AND CONDITIONS

ALTA Land Survey's services shall be governed by the Master Agreement dated June 17, 2011 together with this Task Order and any Exhibits attached hereto.

The services performed within this Task Order shall commence on or about May 20, 2014, and shall be complete on or before May 26, 2014.

ALTA Land Survey's Representative in charge of the services is Donald Loose, who may be contacted at 520-456-9400 and dloose@alta-land.com. Client's Representative in charge of the services is Charles Briggs, who may be contacted at 602-240-6860 and cbriggs@azwater.com.

ARIZONA WATER COMPANY	**ALTA LAND SURVEY, INC.**
By C A B	By _____
Title REAL PROPERTY SPECIALIST	Title _____
Date MAY 23, 2014	Date _____

W:\01-Agreements, Drafts, Ltrs & Docs\Master Agreements\ALTA Land Survey\ALTA Land Survey Task Order CG 32 & 33 Nitrate Site - Survey docx
CB:AFB 11:13 AM 6/10/14

ALTA Land Survey, Inc.
Surveying ~ Drafting ~ Construction Staking
344 E. 4th Street, Benson, AZ 85602 520-720-6476

May 14, 2014

Charles Briggs
Real Property Specialist
Arizona Water Company
P.O. Box 29006
Phoenix, AZ 85038-9006

RE: Mission Royale Well Sites 32 and 33, Casa Grande- Boundary and Topographic Survey

Dear Charles:

ALTA Land Survey, Inc. is pleased to provide you with the following proposal to perform a boundary and topographic survey of Mission Royale Well Sites 32 and 33 in Casa Grande, AZ. We have reviewed the Scope of Services and for the site and the following is the Scope of Services:

- Generate topography with 1 foot contours. Elevations shall be based on local known permanent monument with the vertical datum based on NAVD '88.
- Locate property corners and/or set property corners, if necessary
- Record the survey at the Pinal County Recorder's Office.
- Include a basis of bearing and vicinity map on Record of Survey drawings.
- Include a cadastral location of the survey.
- Take color digital photographs of the survey.

The cost to perform the above referenced work is **$2750.00.** If awarded the contract to perform the above referenced work, the survey shall begin on or before May 20, 2014 and the deliverables will be submitted for review by May 26, 2014.

We appreciate the opportunity to provide you with this proposal and we look forward to hearing from you.

Sincerely,

CB
5-23-14

Donald J. Loose
President

MISSION ROYALE WELLS NO.32 AND 33 NITRATE ANALYZERS DESIGN BUILD

OWNER: ARIZONA WATER COMPANY
CONTRACTOR: FANN ENVIRONMENTAL
ENGINEER: WATER WORKS ENGINEERS

OWNER:

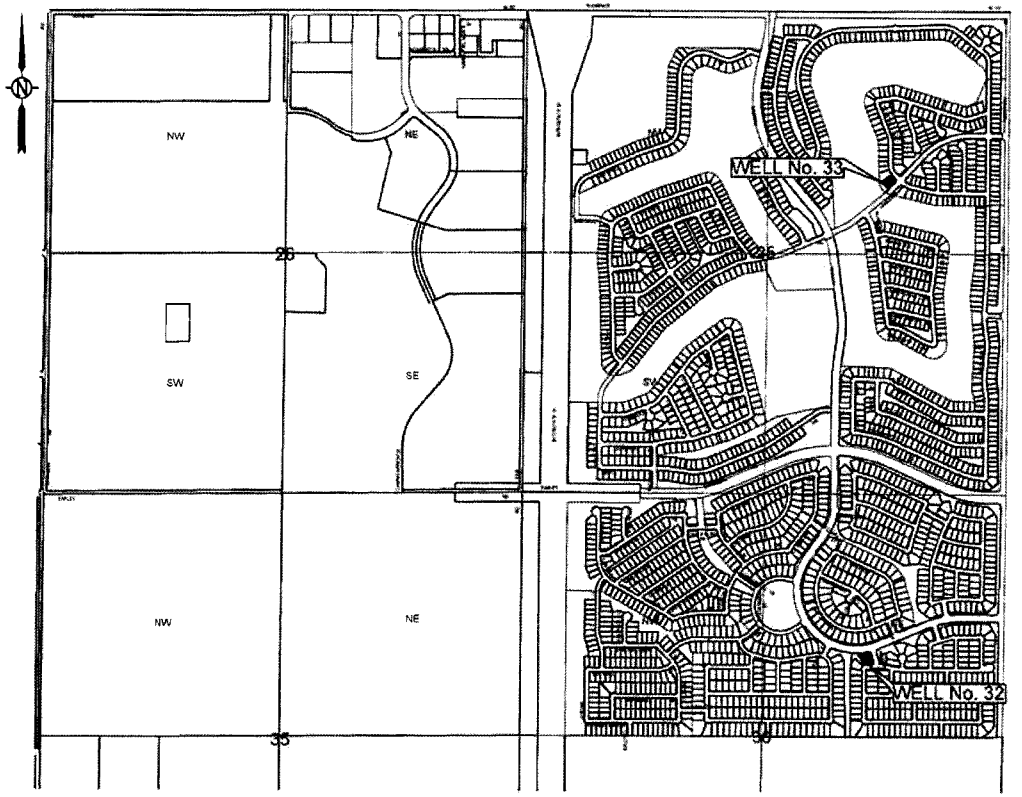
ARIZONA WATER COMPANY
POST OFFICE BOX 29006
PHOENIX, AZ 85038-9006
(602) 240-6860
CONTACT: JOHN KNOBBE

CONTRACTOR

FANN ENVIROMENTAL, LLC
6708 CORSAIR AVE
PRESCOTT, AZ 86301
(928) 778-5395
CONTACT:

ENGINEER

WATER WORKS ENGINEERS
7500 N. DOBSON RD. SUITE 200
SCOTTSDALE, AZ 85256
(480) 661-1742
CONTACT: BENJAMIN W. LEE , P.E.



VICINITY MAP
SCALE 1"=400'

DRAWING INDEX

DWG NO.	DWG TITLE
	GENERAL
G-001	COVER SHEET AND INDEX
	CIVIL
C-001	WELL NO.32 RESULTS OF SURVEY
C-002	WELL NO.33 RESULTS OF SURVEY
C-003	WELL NO.32 SITE PLAN
C-004	WELL NO.33 SITE PLAN
C-005	NITRATE ANALYZER DETAIL
	ELECTRICAL
E-01	ELECTRICAL NOTES, SYMBOLS AND LEGEND
E-02	WELL NO.32 - SITE PLAN, SCHEDULES AND DIAGRAMS
E-03	SITE PLAN - WELL NO.33
E-04	ELECTRICAL DETAILS

This installation shall be installed in accordance with the Arizona Water Company Standard Specifications and with the Arizona Department of Environmental Quality

Blue Stake, Inc.
263-1100
1-800-STAKE-IT

PINAL VALLEY
NE 1/4 SEC. 25-7S-8E, G.&S.R.B.&M.

DATE: 3-27-2015
SCALE: AS SHOWN
DRAWN BY: BWL
CHECKED BY: V.H.P.

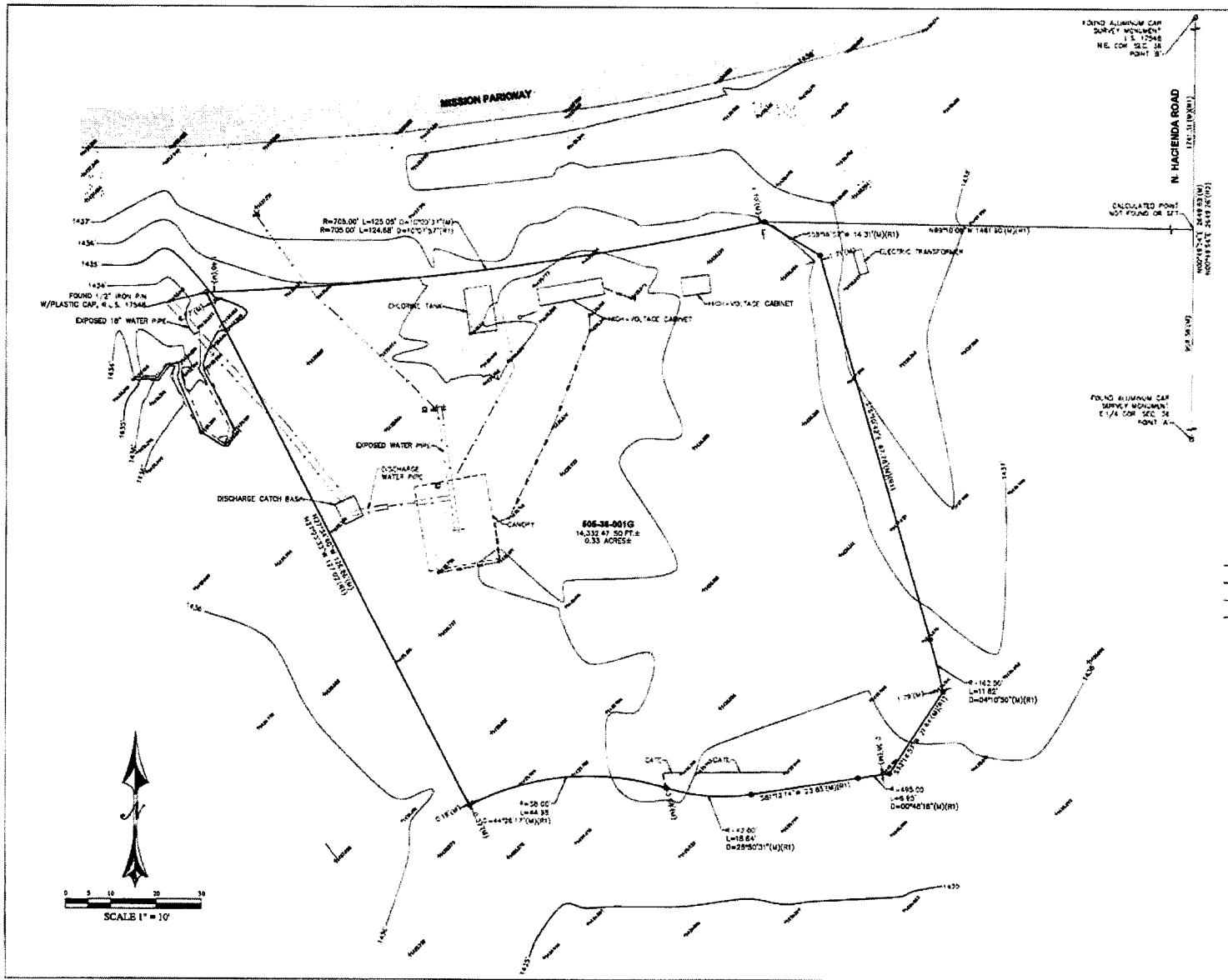
WATERWORKS ENGINEERS
7500 N. Dobson Rd. Suite 200 • Scottsdale, AZ • 480-661-1742

MISSION ROYALE WELLS NO. 32 AND 33 NITRATE ANALYZER
COVER SHEET AND INDEX

FOR WATER ONLY

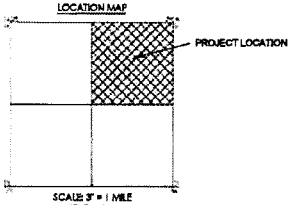
G-001

SHEET 1 OF 6



RESULTS OF SURVEY

LOCATION MAP



SCALE 3" = 1 MILE
SECTION 36

LEGEND:

- MONUMENTS FOUND AS NOTED
- SET 1/2" IRON PIN WITH PLASTIC CAP, R.L.S. 23079 UNLESS OTHERWISE NOTED.
- (N1) RECORD DATA PER FEE # 2005-175787
- (R2) RECORD DATA PER FEE # 2008-082580 - CABINET H, SLIDE 062
- (M) MEASURED DATA
- ANTENNA
- ELECTRIC CONTROL PANEL
- HOSE BIB
- LIGHT POLE
- PUMP
- WATER BOX
- WATER VALVE
- TOE
- TOP
- UNDERGROUND ELECTRIC
- WATER LINE
- ASPHALT AREA
- CONCRETE AREA

BASIS OF BEARING:

BEARINGS ARE BASED ON A FOUND ALUMINUM CAP SURVEY MONUMENT REPRESENTING THE EAST 1/4 CORNER OF SECTION 36 (POINT "A") AND A FOUND BRASS CAP SURVEY MONUMENT REPRESENTING THE NORTH-EAST CORNER OF SECTION 36 (POINT "B"), SAID BEARING IS NORTH 00°48'52" EAST PER FEE # 2005-175787.

BASIS OF ELEVATION:

ELEVATIONS ARE BASED ON N.G.S. CONTROL POINT "AJ 48" (PID # CZ2074). SAID ELEVATION IS 1443.8' NAVD88.

CERTIFICATION:

I HEREBY CERTIFY THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION AND THAT THIS PROPERTY CORNERS AND SURVEY MONUMENTS EXIST AS SHOWN HEREON

Donald J. Lowe

DONALD J. LOWE R.L.S. # 23079 DATE
EXPIRES: 06-30-2015

WELL NO 32 RESULTS OF SURVEY

C-001

SHEET 2 OF 6

ALTA LAND SURVEY, INC
SURVEYING, CONSTRUCTION STAKING & DRAFTING
544 E. 4TH ST
BENSON, AZ 85602
(520) 720-6479

REVISIONS			
NO	DESCRIPTION	BY	DATE

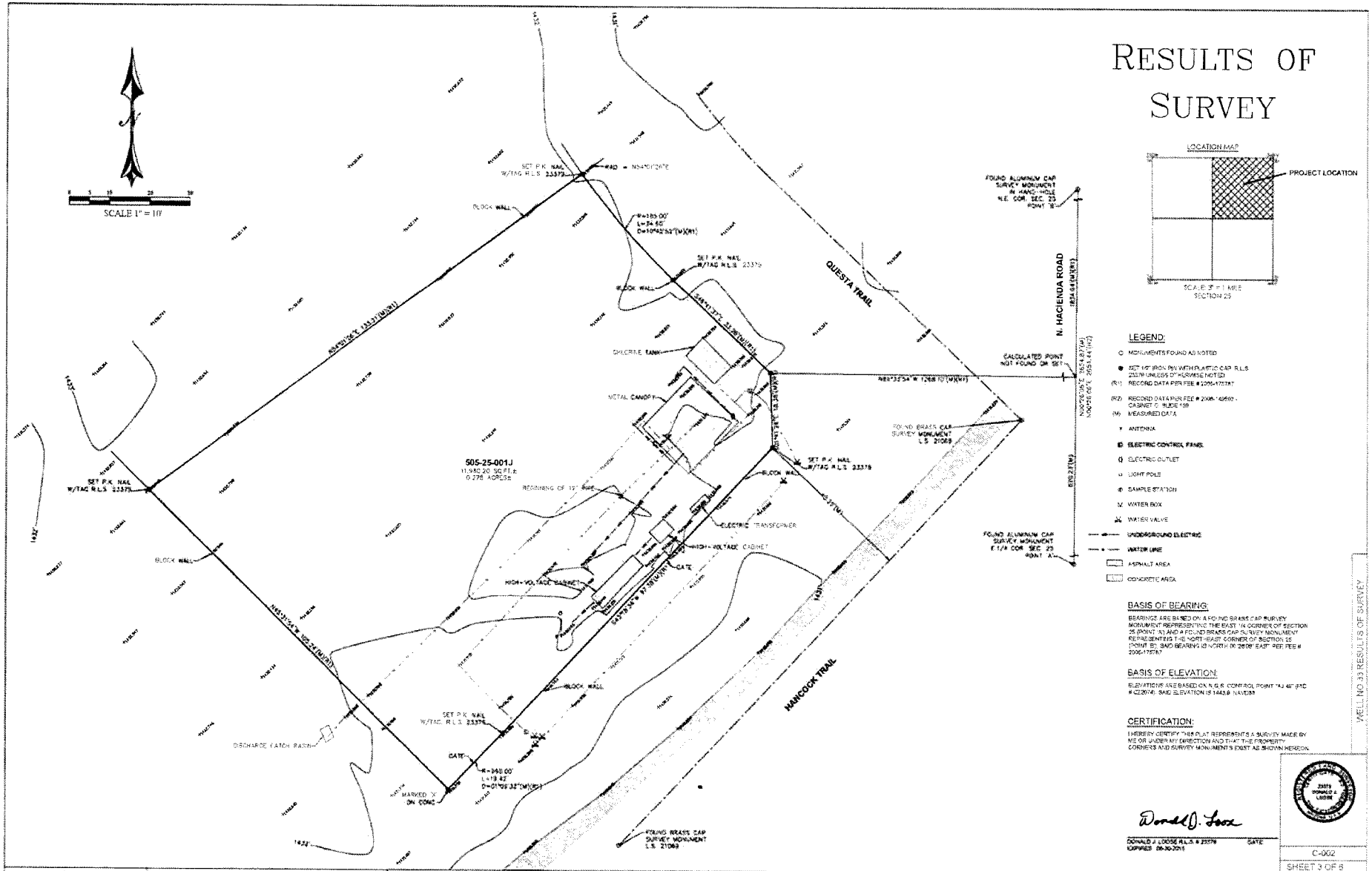
FEE#_____ BOOK____ SURVEY, PAGE____

A PORTION OF SEC. 36, T-06-S., R-06-E.
GILA AND SALT RIVER MERIDIAN
PINAL COUNTY, ARIZONA

A PORTION OF OF THE N.E. 1/4 OF SEC. 36, T-06-S., R-06-E. OF THE G.&S.R.M., PINAL COUNTY AZ

PROJECT NO.	14-0038	Drawn By: AMC	Date: 06/03/2014
		Checked By:	Sheet: 1 of 1

RESULTS OF SURVEY



LOCATION MAP

LEGEND:

- ○ MONUMENTS FOUND AS NOTED
- ● SET 1/2" IRON PIN WITH PLASTIC CAP, R.L.S. 23379 UNLESS OTHERWISE NOTED
- (R1) RECORD DATA PER FEE # 2006-175787
- (R2) RECORD DATA PER FEE # 2006-164560 - CABINET C, SLIDE 109
- (M) MEASURED DATA
- ANTENNA
- ELECTRIC CONTROL PANEL
- ELECTRIC OUTLET
- LIGHT POLE
- SAMPLE STATION
- WATER BOX
- WATER VALVE
- UNDERGROUND ELECTRIC
- WATER LINE
- ASPHALT AREA
- CONCRETE AREA

BASIS OF BEARING:

BEARINGS ARE BASED ON A FOUND BRASS CAP SURVEY MONUMENT REPRESENTING THE EAST 1/4 CORNER OF SECTION 25 (POINT "A") AND A FOUND BRASS CAP SURVEY MONUMENT REPRESENTING THE NORTHEAST CORNER OF SECTION 25 (POINT "B"), SAID BEARING IS NORTH 00°26'06" EAST PER FEE # 2006-175787

BASIS OF ELEVATION:

ELEVATIONS ARE BASED ON N.G.S. CONTROL POINT "AJ 467" (PID # CZ2074), SAID ELEVATION IS 1443.8' (NAVD88)

CERTIFICATION:

I HEREBY CERTIFY THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION AND THAT THE PROPERTY CORNERS AND SURVEY MONUMENTS EXIST AS SHOWN HEREON.

Donald J. Loose

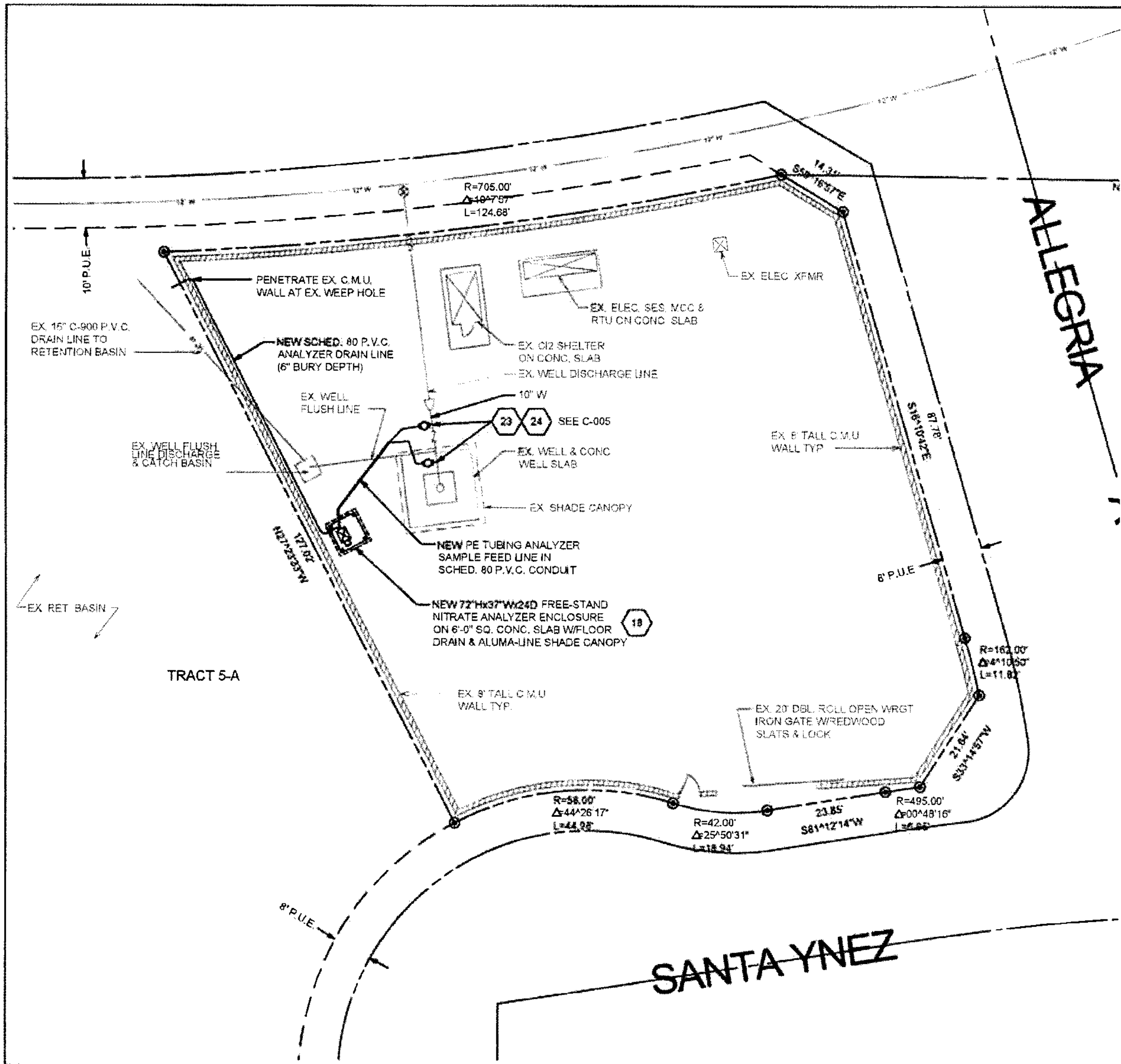
DONALD J. LOOSE R.L.S. # 23379 DATE
EXPIRES 06-30-2015

WELL NO. 33 RESULTS OF SURVEY

C-002

SHEET 3 OF 8

ALTA LAND SURVEY, INC.	REVISIONS				FEE#_____ BOOK____ SURVEY, PAGE____	A PORTION OF SEC. 25, T-06-S., R-06-E. GILA AND SALT RIVER MERIDIAN PINAL COUNTY, ARIZONA	A PORTION OF OF THE N.E. 1/4 OF SEC. 25, T-06-S., R-06-E. OF THE G.&S.R.M., PINAL COUNTY AZ
SURVEYING, CONSTRUCTION STAKING & DRAFTING	NO.	DESCRIPTION	BY	DATE			PROJECT NO. 14-093A
544 E. 4TH ST. BISBEE, AZ 85603 (520) 720-6676							Drawn By: AMC Checked By: Date: 08/05/2014 Sheet: 1 of 1



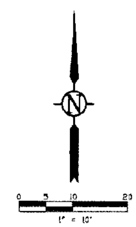
LEGEND

- ◉ — *REBAR PROPERTY CORNER
- STREET CENTERLINE/MONUMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- U.G. ELECTRIC LINE
- EX. WATER LINE
- EX. P.U.E.

GENERAL NOTES

1. NEW PIPING SHALL BE DISINFECTED IN ACCORDANCE WITH ADEQ ENGINEERING BULLETIN No. 8 BEFORE BEING PLACED INTO SERVICE.
2. ALL MATERIALS AND PRODUCTS USED IN WATER SYSTEM, INCLUDING SURFACE COATINGS & PAINTS, SHALL CONFORM TO NSF STANDARD 61 & CURRENT AWWA D102.
3. CONSTRUCTION MATERIALS USED IN WATER SYSTEM SHALL BE LEAD-FREE AS PER A.A.C. R18-4-504 AND R18-1-101 (43).
4. ALL EXPOSED P.V.C. PIPE & FITTINGS SHALL BE PAINTED TO PROTECT FROM UV SOLAR RADIATION.
   A. PAINT EXPOSED ANALYZER FEED LINE DARK BLUE & LABEL.
   B. PAINT EXPOSED ANALYZER WASTE LINE OLIVE GREEN & LABEL.
5. ANY EXPOSED PIPING SUBJECT TO FREEZING SHALL BE INSULATED.
6. FOUNDATION: BEAR FOOTING ON UNDISTURBED SOIL OR APPROVED ENGINEERED FILL. SOIL PRESSURE 1,500 PSF PER IBC 1804.2, CLASS 4 MATERIAL.
7. CONCRETE: A.C.I. MANUAL OF CONCRETE PRACTICE, TYPE II CEMENT, MINIMUM 28 DAY STRENGTH OF 3,000 PSI. MECHANICALLY VIBRATE WHEN PLACED. MAXIMUM SLUMP 5".
8. REINFORCING: ASTM A615, GRADE 60 DEFORMED BARS. CONCRETE COVER TO REINFORCING:
   A. CONCRETE AGAINST EARTH——3"

LAP SPLICES: 48 BAR DIAMETERS UNLESS OTHERWISE NOTED.



263-1100
1-800-STAKE-IT

PINAL VALLEY
NE 1/4 SEC. 25, T. 6 S., R. 8 E.
3-27-2015 | AS SHOWN
VHP | BWL

WATERWORKS ENGINEERS

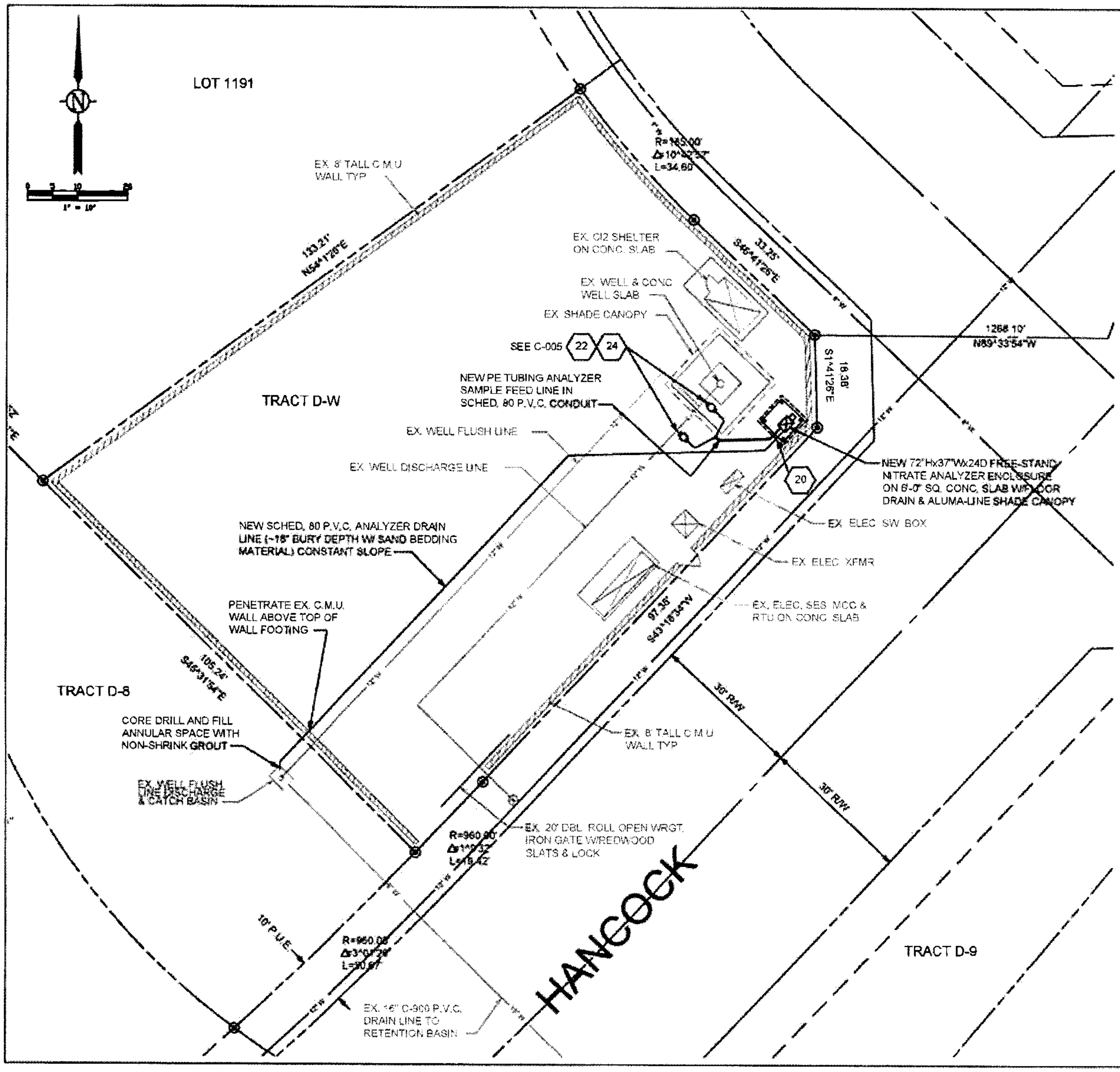
MISSION ROYALE WELLS NO. 32 AND 33 NITRATE ANALYZER

WELL NO. 32 SITE PLAN

FOR WATER ONLY

C-003

SHEET 4 OF 6



LEGEND

- ◉ — * REBAR PROPERTY CORNER
- STREET CENTERLINE/MONUMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- U.G. ELECTRIC LINE
- EX. WATER LINE
- EX. P.U.E.

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   A. CONCRETE AGAINST EARTH——3"

LAP SPLICES: 48 BAR DIAMETERS UNLESS OTHERWISE NOTED.

WATERWORKS ENGINEERS

MISSION ROYALE WELLS NO 32 AND 33 NITRATE ANALYZER

WELL NO 33 SITE PLAN

PINAL VALLEY

NE 1/4 SEC.25, T.6 S., R. 6 E.

3-27-2015 | AS SHOWN

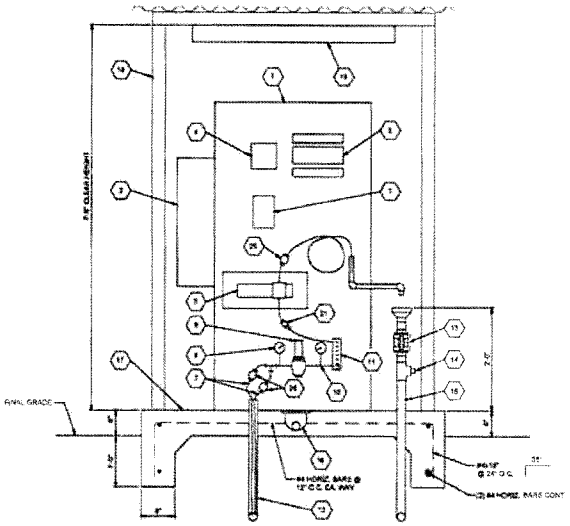
VHP | BWL

263-1100
1-800-STAKE-IT

FOR WATER ONLY

C-004

SHEET 5 OF 6



TYP. NITRATE ANALYZER DETAIL

N.T.S.

	MATERIAL SCHEDULE (1) (2)	WELL 22 QUANTITY	WELL 23 QUANTITY	SUPPLIED BY	INSTALLED BY
1.	72"Hx27"Wx24"D PENTAIR-HOFFMAN MILD STEEL TYPE 4 FREE-STAND ENCLOSURE W/3 POINT LATCH, LOCK & ALL NECESSARY MOUNTING HARDWARE AND ACCESSORIES	1	1	CONTR.	CONTR.
2.	A/R CONDITIONER - PENTAIR-HOFFMAN OR THERMAL EDGE INC., 120V, 1PH, 60Hz, NEMA 3P	1	1	CONTR.	CONTR.
3.	ELECTRIC HEATER - PENTAIR-HOFFMAN 120V, 1PH, 60Hz	1	1	CONTR.	CONTR.
4.	HACH sc200 UNIVERSAL CONTROLLER	1	1	A.W.Co.	CONTR.
5.	HACH NITRATAX plus sc 5 mm ANALYZER W/FLOW THROUGH CELL	1	1	A.W.Co.	CONTR.
6.	TERMINAL BLOCK & RACEWAYS W/FINGER SAFE ELECTRICAL COVERS	1	1	CONTR.	CONTR.
7.	3/8" O.D. POLYETHYLENE TUBING SAMPLE FEED LINE	60 L.F.	60 L.F.	CONTR.	CONTR.
8.	ASHCROFT 0-150 P.S.I. TYPE 1008SW PRESSURE GAUGE, MODEL 25 1008SW 02L 150#	1	1	CONTR.	CONTR.
9.	CLA-VAL MODEL CRD 2-7 P.S.I. PRESSURE REDUCING CONTROL VALVE W/S.S. BODY	1	1	CONTR.	CONTR.
10.	ASHCROFT 0-15 P.S.I. TYPE 1009SW PRESSURE GAUGE, MODEL 25 1008SW 02L 15#	1	1	CONTR.	CONTR.
11.	BLUE-WHITE MODEL F-55250LA PANEL MOUNT ADJUSTABLE ROTAMETER	1	1	CONTR.	CONTR.
12.	2" SCHED. 80 P.V.C. SAMPLE FEED LINE CONDUIT	30 L.F.	30 L.F.	CONTR.	CONTR.
13.	2" ASAHI/AMERICA TYPE 21 BALL VALVE	1	1	CONTR.	CONTR.
14.	GARDEN HOSE CONNECTION	1	1	CONTR.	CONTR.
15.	2" SCHED. 80 P.V.C. SAMPLE WASTE DRAIN LINE	60 L.F.	1.60 L.F.	CONTR.	CONTR.
16.	ZURN MODEL Z-4408 SHALLOW BODY FLOOR DRAIN W/2" IP TRIM. OUTLET	1	1	CONTR.	CONTR.
17.	REINFORCED CONCRETE FOUNDATION	1	1	CONTR.	CONTR.
18.	ALUMA-LINE SHADE CANOPY W/SHADE SCREEN PANEL ON SOUTHEAST EXPOSURE	1	-	CONTR.	CONTR.
19.	LITHONIA DMW 48-INCH 2 LAMP (32W T8) FLUGRESCENT LIGHT FIXTURE W/SWITCH	1	1	CONTR.	CONTR.
20.	ALUMA-LINE SHADE CANOPY W/SHADE SCREEN PANEL ON SOUTHWEST EXPOSURE	-	1	CONTR.	CONTR.
21.	CHECK VALVE	1	1	CONTR.	CONTR.
22.	1"X1" DOUBLE STRAP SADDLE	-	2	CONTR.	CONTR.
23.	1"X1" DOUBLE STRAP SADDLE	2	-	CONTR.	CONTR.
24.	1" BALL CORP STOP	2	3	CONTR.	CONTR.
25.	3/8" CHANGELOK SST BALL VALVE	3	3	CONTR.	CONTR.

(1) SEE CONTRACT PROPOSAL DESIGN-BUILD ELECTRICAL EQUIPMENT FOR NITRATE ANALYZER SPECIAL CONDITIONS DATED 5-8-2014 FOR ADDITIONAL FACILITY INFORMATION, GENERAL SCOPE OF WORK, SPECIAL CONDITIONS, CONTROL DESCRIPTION, SCADA INDICATIONS AND ALARMS.

This construction drawing is to be installed in accordance with the Arizona Water Quality Control Regulations and in accordance with the Arizona Department of Environmental Quality

263-1100
1400 S. STAKEY

FINAL VALLEY
NE 1/4, SEC. 25, T. 6 S., R. 6 E.
3-27-2015
AS SHOWN
VHP
BWL

WATERWORKS ENGINEERS

MISSION ROYALE WELLS NO. 22 AND 23 NITRATE ANALYZER

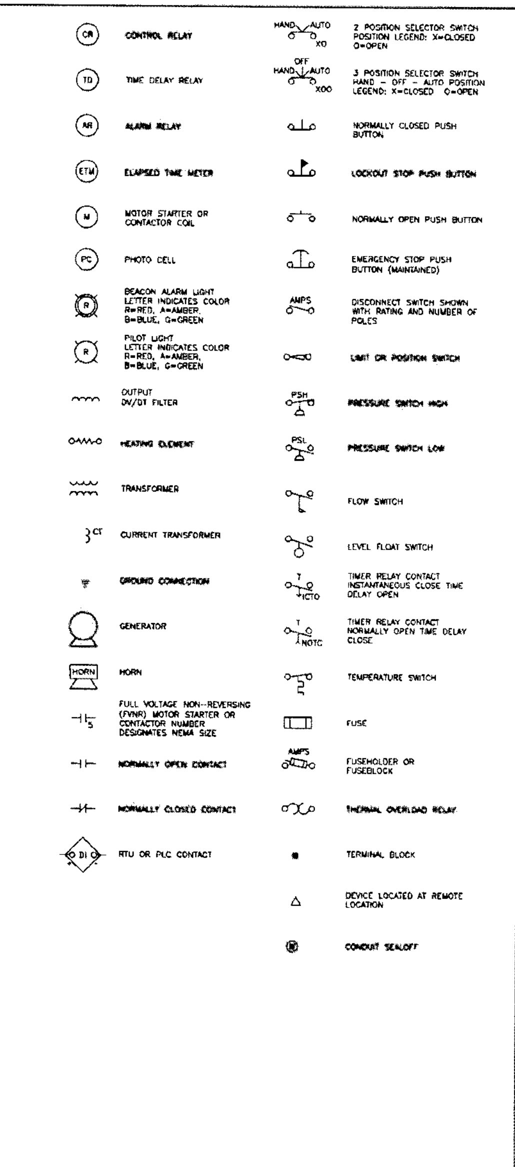
NITRATE ANALYZER DETAIL

FOR WATER ONLY

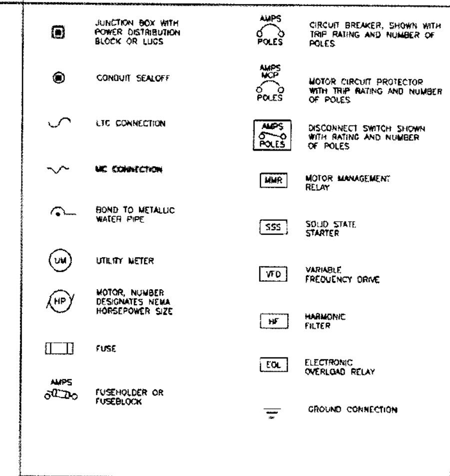
C-005

SHEET 6 OF 6

SCHEMATIC DIAGRAM SYMBOLS



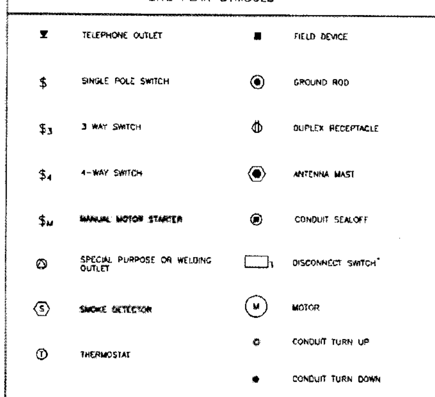
POWER SINGLE LINE DIAGRAM SYMBOLS



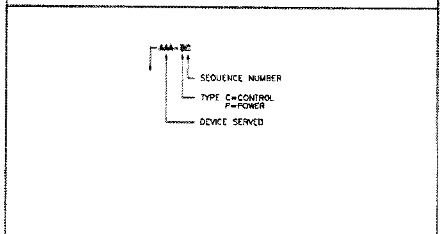
ELECTRICAL ABBREVIATIONS

A	AMPERE	JB	JUNCTION BOX	PMP	PUMP
AFD	ADJUSTABLE FREQUENCY DRIVE	L, LO	LOW	PNL	PANEL
AFF	ABOVE FINISHED FLOOR	LAN	LOCAL AREA NETWORK	PO	PULSE OUTPUT
AFG	ABOVE FINISHED GRADE	LC	LOOP CONTROLLER	PPB	POWER PULLBOX
AI	ANALOG INPUT	LCL	LEVEL CONTROL LOW	PPG	POUNDS PER GALLON
AIC	AMPS INTERRUPTING CAPACITY	LCP	LOCAL CONTROL PANEL	PPH	POUNDS PER HOUR
AO	ANALOG OUTPUT	LOS	LOCK-OUT-STOP	PPM	PARTS PER MILLION
AS	AIR SUPPLY	LOR	LOCAL/OFF/REMOTE	PR	PAIR
ATS	AUTOMATIC TRANSFER SWITCH	LS	LEVEL (i.e., FLOAT) SWITCH	PRES	PRESSURE
BC	BYPASS CONTACTOR	LTC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT	PS	PRESSURE SWITCH
C	CONDUIT	M	MOTOR	PSH	PRESSURE SWITCH, HIGH
CB	CIRCUIT BREAKER	MA	MANUAL/AUTO	PSI	POUNDS PER SQUARE INCH
CCW	COUNTER CLOCKWISE	mA	MILLIAMP	PV	PROCESS VARIABLE
CL2	CHLORINE	MAX	MAXIMUM	RAS	RETURN ACTIVATED SLUDGE
CON	CONTACTOR	MC	MANUFACTURER'S CABLE	RW	RAW WATER
CPB	CONTROL PULLBOX	MCB	MAIN CIRCUIT BREAKER	RF	RADIO FREQUENCY
CU	COPPER, BARE	MCC	MOTOR CONTROL CENTER	RIO	REMOTE INPUT OUTPUT
CV	CONTROL VALVE	MCP	MOTOR CIRCUIT PROTECTOR	RS	RAW SEWAGE
CW	CLOCKWISE	MFR(S)	MANUFACTURER(S)	RSP	RAW SEWAGE PUMP
DCS	DISTRIBUTED CONTROL SYSTEM	MGD	MILLION GALLONS PER DAY	RST	RESET
DI	DISCRETE INPUT	MGL	MILLIGRAMS PER LITER	RTD	RESISTANCE TEMPERATURE DETECTOR
DO	DISCRETE OUTPUT	MH	MANHOLE	RTU	REMOTE TELEMETRY UNIT
DP	DISTRIBUTION PANEL	MIN	MINIMUM	RWT	REFLECTED WAVE TRAP
DV/DT	DIFFERENTIAL VOLTAGE/TIME	MOV	MOTOR OPERATED VALVE	SCA	SHORT CIRCUIT AMPS
DWG	DRAWING	MMR	MOTOR MANAGEMENT RELAY	SEQ	SERVICE ENTRANCE EQUIPMENT
ETM	ELAPSED TIME METER	MTU	MASTER TELEMETRY UNIT	SES	SERVICE ENTRANCE SECTION
EOL	ELECTRONIC OVERLOAD	NEC	NATIONAL ELECTRICAL CODE	SLC	SINGLE LOOP CONTROLLER
EXIST	EXISTING	NECA	NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION	SLOS	START-LOCK-OUT-STOP
FA	FOUL AIR			SMC	SUBMERSIBLE MANUFACTURER CABLE
FC	FAIL CLOSED	N.C.	NORMALLY CLOSED	SO2	SULFUR DIOXIDE
FE	FLOW ELEMENT	N.O.	NORMALLY OPEN	SP	SET POINT
FLA	FULL LOAD AMPS	NIC	NOT IN CONTRACT	SPC	SPARE CONDUIT
FS	FLOW SWITCH	NOTC	NORMALLY OPEN TIMED CLOSED	SPR	SPARE
FVNR	FULL VOLTAGE NON-REVERSING	NPW	NON-POTABLE WATER	SS	START/STOP
FW	FINISHED WATER	NS	NITROGEN SUPPLY	SSS	SOLID STATE STARTER (SOFT START)
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	NTS	NOT TO SCALE	ST	SHUNT TRIP
GFP	GROUND FAULT PROTECTION	NTU	TURBIDITY	TC	TELEPHONE CABLE
GND	GROUND	OCA	OPEN/CLOSE/AUTO	TS	TEMPERATURE SWITCH
GPD	GALLONS PER DAY	OF	OVERFLOW	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
GPH	GALLONS PER HOUR	OIT	OPERATOR INTERFACE TERMINAL		
GPM	GALLONS PER MINUTE	OL	OVERLOAD	TYP	TYPICAL
GRS	GALVANIZED RIGID STEEL	OLR	OVERLOAD RELAY	UG	UNDERGROUND
H, HI	HIGH	OO	ON/OFF (MAINTAINED)	UL	UNDERWRITERS LABORATORIES
H2S	HYDROGEN SULFIDE	OR	OFF-REMOTE	UNO	UNLESS NOTED OTHERWISE
HMI	HUMAN MACHINE INTERFACE	OSC	OPEN/STOP/CLOSE	V	VOLT
HOA	HAND-OFF-AUTO	P	PHASE	VFD	VARIABLE FREQUENCY DRIVE
HOR	HAND-OFF-REMOTE	PB	PULL BOX	W	WATT, WIRE
I	CURRENT	PCP	PROCESS CONTROL PANEL	WAS	WASTE ACTIVATED SLUDGE
IC	INSTRUMENTATION CABLE	PCV	PRESSURE CONTROL VALVE	WP	WEATHERPROOF
ICR	INTERMITTENT CYCLE REACTOR	PFR	PHASE/POWER FAILURE RELAY	XFMR	TRANSFORMER
IO	INPUT/OUTPUT	PI	PULSE INPUT	XMR	TRANSFORMER
ISC	SHORT CIRCUIT CURRENT	PLC	PROGRAMMABLE LOGIC CONTROLLER	XMTR	TRANSMITTER
		PLI	PLANT INFLUENT	ZS	POSITION (i.e., LIMIT) SWITCH

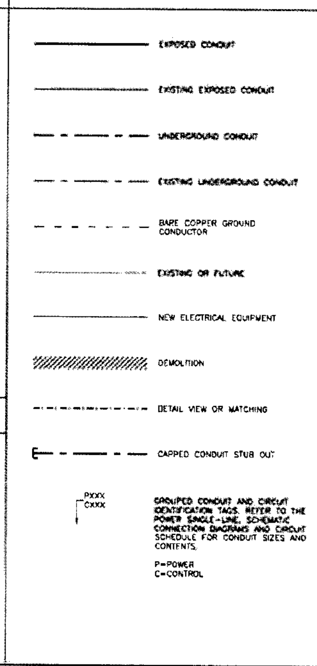
SITE PLAN SYMBOLS



CIRCUIT SCHEDULE LEGEND



ELECTRICAL LINETYPES



GENERAL NOTES

1. THE COMPLETED INSTALLATION SHALL COMPLY WITH LATEST REVISION OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE COMPLETED IN A NEAT, WORKMANLIKE MANNER IN ACCORDANCE WITH THE LATEST NECA STANDARDS OF INSTALLATION UNDER COMPETENT SUPERVISION. INSTALL GROUNDING PER NEC.
2. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND OTHER FACTORS, WHICH MAY AFFECT THE EXECUTION OF THE WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
3. THE CONTRACTOR SHALL COORDINATE WORK WITH THE UTILITIES PROVIDING SERVICES ON THIS PROJECT, AND SHALL COMPLY WITH ALL THEIR INSTALLATION REQUIREMENTS.
4. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH THE LATEST REVISION OF NEMA, ANSI, UL, OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURERS' NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS, AND BID PRICE.
5. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS, OR ANY OTHER PREVENTABLE CAUSES. EQUIPMENT DAMAGED DURING SHIPPING OR CONSTRUCTION, PRIOR TO ACCEPTANCE BY THE ENGINEER OR THE OWNER, WILL BE REJECTED AS DEFECTIVE.
6. LEAVE THE SITE CLEAN. REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK. DAMAGED PAINT AND FINISHES SHALL BE TOUCHED UP OR REPAINTED WITH MATCHING COLOR PAINT AND FINISH.
7. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC. MINIMUM CONDUIT DEPTH SHALL BE 24 INCHES. MINIMUM UNDERGROUND CONDUIT SIZE SHALL BE 1 INCH.
8. CONDUITS SHALL BE MARKED AT EACH END WITH MATCHING NUMBERED BRASS TAGS. SPARE CONDUITS SHALL HAVE A PULL STRING INSTALLED, SECURED, AND CAPPED.
9. EXPOSED CONDUITS SHALL BE GALVANIZED RIGID STEEL (GRS). MINIMUM SIZE 3/4 INCH, UNLESS OTHERWISE NOTED ON THE PLANS.
10. SAFETY SWITCHES, ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, AND OTHER ELECTRICAL DEVICES SHALL BE UL LISTED, AND RATED FOR HEAVY DUTY SERVICE.
11. WIRING DEVICES SHALL BE SPECIFICATION GRADE.
12. THE CONTRACTOR IS RESPONSIBLE FOR MANAGING, SCHEDULING, DOCUMENTING, AND PERFORMING THE WORK SO THAT A COMPLETE ELECTRICAL, INSTRUMENTATION AND CONTROL SYSTEM FOR THE FACILITY IS PROVIDED. ACCURATE SHOP AND RECORD DRAWINGS, AND O&M MANUALS SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE OF THE WORK.
13. TYPICAL DETAILS SHALL APPLY IN ALL CASES, WHETHER SPECIFICALLY REFERRED TO OR NOT.

263-1100

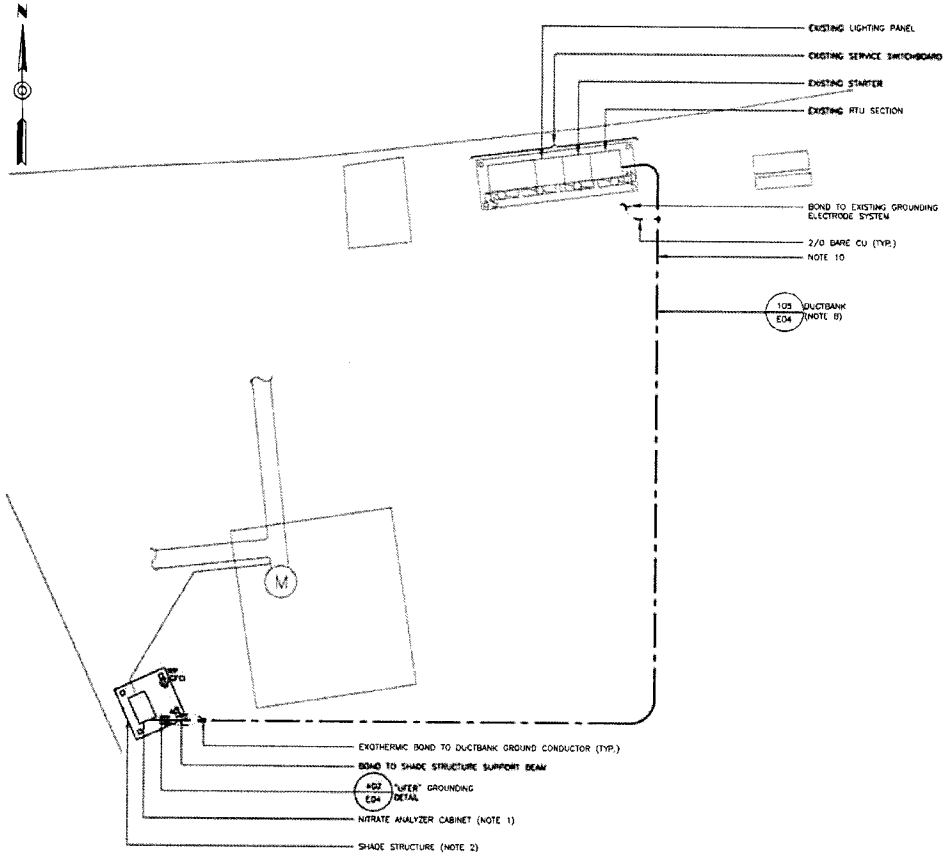
DELTA SYSTEMS ENGINEERING INC
3550 N. CENTRAL AVE, SUITE 915
PHOENIX, AZ 85012 602.266.4658

ARIZONA WATER COMPANY WELLS 32 & 33 NITRATE ANALYZER ADD. ELECTRICAL NOTES, SYMBOLS AND LEGEND

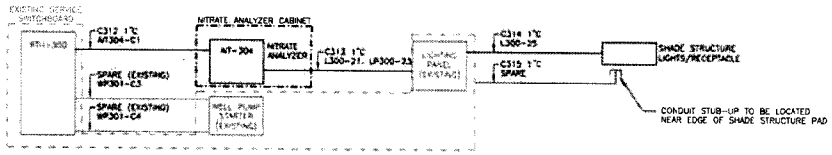
Scale	NONE
Job No.	1893.00.100
Designed	DLN
Drawn	JNA
Checked	DLN
Approved	HT
Date	APRIL 2015
Sheet	E01

XREF: 1893.00.100_Title Block

PLOTTED: April 20, 2015 BY: jnravens DWG FILE: X:\1800's\1893.00 AWC Well 32 & 33 Nitrate Analyzer Addition\100 - E&I Design_CAD Files\1893.00.100_E01.dwg



A WELL # 32 SITE PLAN
N.T.S.



B CONDUIT BLOCK DIAGRAM

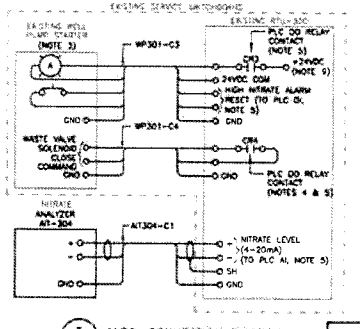
NOTES:

1. REFER TO DESIGN BY WATER WORKS ENGINEERS FOR NITRATE ANALYZER CABINET CONSTRUCTION DETAILS/REQUIREMENTS. ENSURE ALL COMPONENTS AND ASSOCIATED ELECTRICAL TERMINATIONS WITHIN NITRATE ANALYZER CABINET ASSOCIATED WITH VOLTAGES GREATER THAN 30V ARE FINGER SAFE. IF A COMPONENT OR TERMINATION ISN'T FINGER SAFE BY DESIGN, IT SHALL BE PROVIDED WITH A PROTECTIVE COVER SO AS TO PREVENT ACCIDENTAL OPERATOR CONTACT.
2. DESIGN AND CONSTRUCTION OF SHADE STRUCTURE AND ASSOCIATED CONCRETE PAD SHALL BE CONTRACTOR'S RESPONSIBILITY. CONTRACTOR SHALL UTILIZE ALUMALINE FOR SHADE STRUCTURE DESIGN. DESIGN IS TO BE REVIEWED AND APPROVED BY ARIZONA WATER COMPANY ("COMPANY") PRIOR TO CONSTRUCTION. REFER TO DESIGN BY ARIZONA WATER COMPANY FOR SHADE STRUCTURE LIGHTING FIXTURE REQUIREMENTS.
3. MOUNT RESET PUSHBUTTON AND PILOT LIGHT ON INNER DOOR OF WELL PUMP STARTER CABINET. INDICATOR LIGHT, PUSHBUTTON, AND ASSOCIATED NAMEPLATES SHALL BE CONSISTENT WITH ASSOCIATED EXISTING STARTER INDICATOR LIGHTS, PUSHBUTTONS AND NAMEPLATES.
4. RTU RELAY CONTACT 'CR4' IS TO BE INCORPORATED INTO EXISTING WELL PUMP STARTER CONTROL LOGIC IN PLACE OF EXISTING NORMALLY OPEN TIME DELAY CLOSE (NOTC) 'FLOW TO WASTE' TIMER RELAY CONTACT ('WVTR') THEREBY TURNING CONTROL OF WASTE VALVE OPERATION OVER SOLELY TO SITE RTU/PLC. REFER TO ORIGINAL WELL PUMP STARTER AS-BUILT DRAWINGS DATED 4/11/08 FOR INFORMATION PERTAINING TO EXISTING STARTER LOGIC.
5. UTILIZE DISCRETE OUTPUT DO-3 IN RACK 1, SLOT 5 FOR NITRATE ALARM LIGHT, DISCRETE OUTPUT DO-4 IN RACK 1, SLOT 5 FOR WASTE VALVE CLOSE COMMAND, DISCRETE INPUT DI-2 IN RACK 1, SLOT 4 FOR NITRATE ALARM DISABLE PUSHBUTTON, AND AI POINT AI-3 IN RACK 2, SLOT 7 FOR NITRATE LEVEL. REFER TO ORIGINAL RTU AS-BUILT DRAWINGS DATED 4/11/08 FOR SPECIFIC I/O CARD WIRING/TERMINATION INFORMATION.
6. INFORMATION REFLECTED IN PANEL SCHEDULE WAS TAKEN FROM KELLER ELECTRICAL DRAWINGS DATED 5/19/07.
7. WHERE AVAILABLE, EXISTING CONDUITS CAN BE UTILIZED TO ROUTE WIRING INTO EXISTING SERVICE SWITCHBOARD.
8. NEW UNDERGROUND CONDUITS SHALL BE EITHER CONCRETE ENCASED, SCHEDULE 40 PVC (IN ACCORDANCE WITH DETAIL 1015) OR DIRECT BURIED, PVC-COATED GRS. IF PVC-COATED GRS CONDUITS ARE UTILIZED, ENSURE SUITABLE BACKFILL MATERIAL IS UTILIZED TO PREVENT DAMAGE TO PVC COATING. PVC-COATED GRS CONDUITS SHALL BE BURIED AT A DEPTH IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE TABLE 300.5.
9. HIGH NITRATE LEVEL ALARM LIGHT IS TO BE POWERED BY EXISTING RTU 24VDC POWER SUPPLY VIA A 0.5A FUSE. FUSE TYPE/STYLE, IS TO BE CONSISTENT WITH EXISTING CABINET CONTROL FUSES.
10. **CONDUIT ROUTING SHOWN IS APPROXIMATE AND SCHEMATIC IN NATURE. ACTUAL ROUTING IS TO BE FIELD DETERMINED.**

C WELL # 32 PANEL A SCHEDULE
(NOTE 6)

CIRCUIT	CONDUCTORS
WP301-C3	4 - #14, #14 GND
WP301-C4	2 - #14, #14 GND
AIT304-C1	1 - 4C, #14 GND

D CIRCUIT SCHEDULE



E MISC. CONNECTION DIAGRAM
CONNECTION

263-1100

DELTA SYSTEMS ENGINEERING INC
3550 N. CENTRAL AVE., SUITE 915
PHOENIX, AZ 85012 602.264.4662

ARIZONA WATER COMPANY WELLS 32 & 33 NITRATE ANALYZER ADD.
WELL 32 - SITE PLAN, SCHEDULES AND DIAGRAMS

Scale	NONE
Job No.	1893.00.100
Designed	DLN
Drawn	JMA
Checked	DLN
Approved	MT
Date	APRIL 2015
Sheet	E02

XREF: (1893.00.100_Title Block

PLOTTED: April 20, 2015 BY: jarvens DWG FILE: K:\1800's\1893.00 AWC Well 32 & 33 Nitrate Analyzer Addition\100 - Eal Design_CAD Files\1893.00.100_E02.dwg

NOTES:

1. REFER TO DESIGN BY WATER WORKS ENGINEERS FOR NITRATE ANALYZER CABINET CONSTRUCTION DETAILS/REQUIREMENTS. ENSURE ALL COMPONENTS AND ASSOCIATED ELECTRICAL TERMINATIONS WITHIN NITRATE ANALYZER CABINET ASSOCIATED WITH VOLTAGES GREATER THAN 50V ARE FINGER SAFE. IF A COMPONENT OR TERMINATION ISN'T FINGER SAFE BY DESIGN, IT SHALL BE PROVIDED WITH A PROTECTIVE COVER SO AS TO PREVENT ACCIDENTAL OPERATOR CONTACT.
2. DESIGN AND CONSTRUCTION OF SHADE STRUCTURE AND ASSOCIATED CONCRETE PAD SHALL BE CONTRACTOR'S RESPONSIBILITY. CONTRACTOR SHALL UTILIZE ALUMALINE FOR SHADE STRUCTURE DESIGN. DESIGN IS TO BE REVIEWED AND APPROVED BY ARIZONA WATER COMPANY ("COMPANY") PRIOR TO CONSTRUCTION. REFER TO DESIGN BY ARIZONA WATER COMPANY FOR SHADE STRUCTURE LIGHTING FIXTURE REQUIREMENTS.
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4. RTU RELAY CONTACT 'CR4' IS TO BE INCORPORATED INTO EXISTING WELL PUMP STARTER CONTROL LOGIC IN PLACE OF EXISTING NORMALLY OPEN TIME DELAY CLOSE (NOTO) 'FLOW TO WASTE' TIMER RELAY CONTACT ('WOTR') THEREBY TURNING CONTROL OF WASTE VALVE OPERATION OVER SOLELY TO SITE RTU/PLC. REFER TO ORIGINAL WELL PUMP STARTER AS-BUILT DRAWINGS DATED 4/11/08 FOR INFORMATION PERTAINING TO EXISTING STARTER LOGIC
5. UTILIZE DISCRETE OUTPUT DO-3 IN RACK 1, SLOT 5 FOR NITRATE ALARM LIGHT, DISCRETE OUTPUT DO-4 IN RACK 1, SLOT 5 FOR WASTE VALVE CLOSE COMMAND, DISCRETE INPUT DI-2 IN RACK 1, SLOT 4 FOR NITRATE ALARM DISABLE PUSHBUTTON, AND AI POINT AI-1 IN RACK 2, SLOT 7 FOR NITRATE LEVEL. REFER TO ORIGINAL RTU AS-BUILT DRAWINGS DATED 4/11/08 FOR SPECIFIC I/O CARD WIRING/TERMINATION INFORMATION.
6. INFORMATION REFLECTED IN PANEL SCHEDULE WAS TAKEN FROM KELLER ELECTRICAL DRAWINGS DATED 5/19/07.
7. WHERE AVAILABLE, EXISTING CONDUITS CAN BE UTILIZED TO ROUTE WIRING INTO EXISTING SERVICE SWITCHBOARD.
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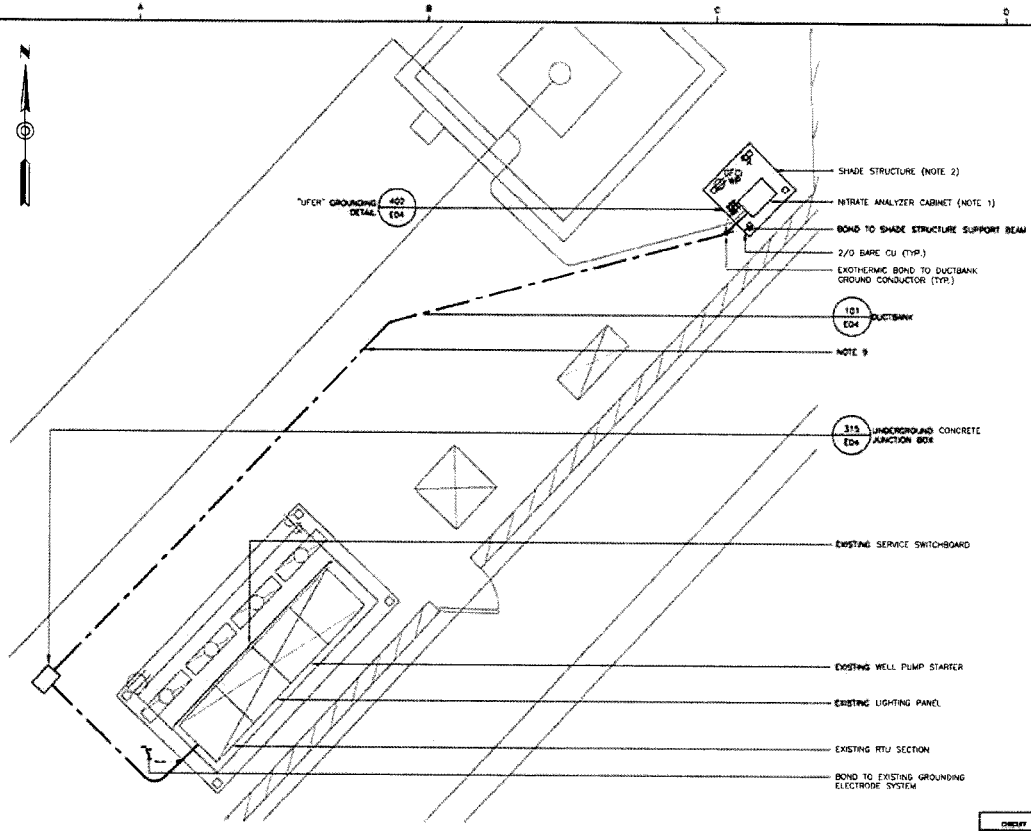
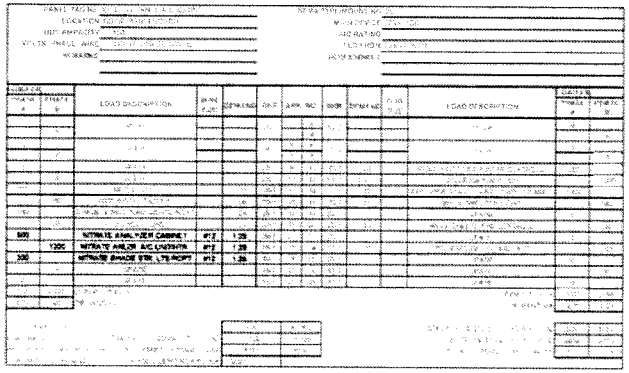
9. CONDUIT ROUTING SHOWN IS APPROXIMATE AND SCHEMATIC IN NATURE. ACTUAL ROUTING IS TO BE FIELD DETERMINED.



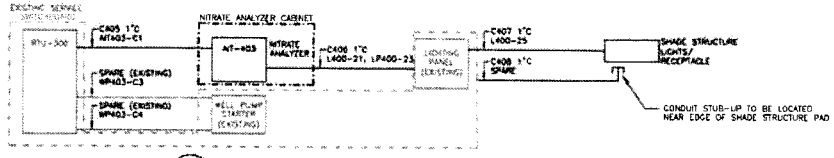
A WELL # 33 SITE PLAN
N.T.S.



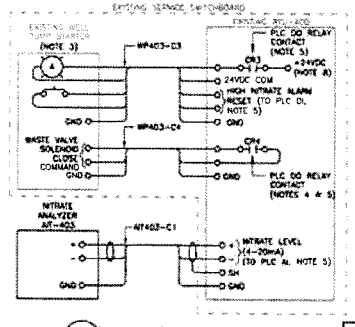
C WELL # 33 PANEL A SCHEDULE
(NOTE 6)

CIRCUIT	CONDUCTORS
WP403-C3	4 - #14, #14 GND
WP403-C4	2 - #14, #14 GND
AT403-C1	1 - C, #14 GND

D CIRCUIT SCHEDULE



B CONDUIT BLOCK DIAGRAM



E MISC. CONNECTION DIAGRAM
CONNECTION

263-1100

Scale	NONE
Job No.	1893.00.100
Designed	DLN
Drawn	JHA
Checked	DLN
Approved	NT
Date	APRIL 2015
Sheet	E03

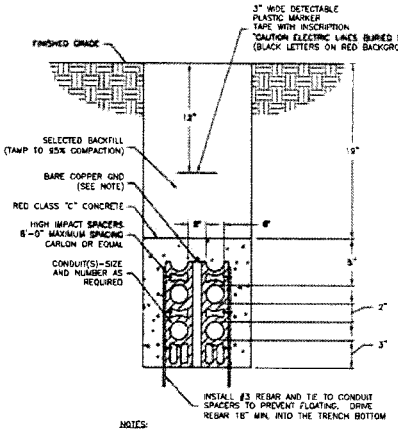
ARIZONA WATER COMPANY WELLS
32 & 33 NITRATE ANALYZER ADD.
SITE PLAN – WELL # 33

DELTA SYSTEMS ENGINEERING INC
3550 N. CENTRAL AVE., SUITE 915
PHOENIX, AZ 85012 602.266.4656

Expires 9/30/15

Rev'd	By	Date	Description

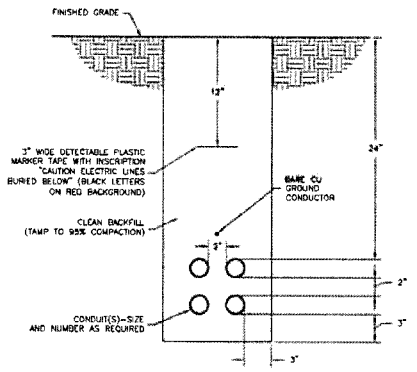
PLOTTED: April 20, 2015 By: jahrens DWG FILE: K:\1800's\1893.00 AWC Well 32 & 33 Nitrate Analyzer Application\100 - Eng Design_CAD Files\1893.00.100_E03.dwg



NOTES:

1. GROUND CONDUCTOR SHALL RUN CONTINUOUSLY THROUGH MANHOLES AND SHALL CONTINUE FROM DUCTBANK INTO SWITCHGEAR OR BUILDING GROUNDING SYSTEM AND SHALL BE BONDED TO EACH RIGID METAL CONDUIT. SIZE TO BE #2/0 (MIN.) UNLESS OTHERWISE INDICATED ON PLANS.
2. ALL DIMENSIONS ARE MINIMUM.
3. CLASSIFICATION OF VEHICULAR AREAS TO BE CONFIRMED BY 'COMPANY'.

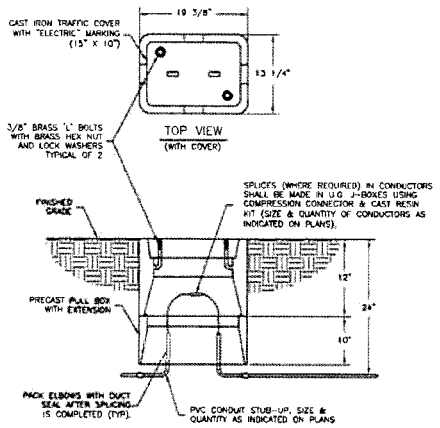
105 TYP — DUCTBANK – CONCRETE ENCASED



NOTES:

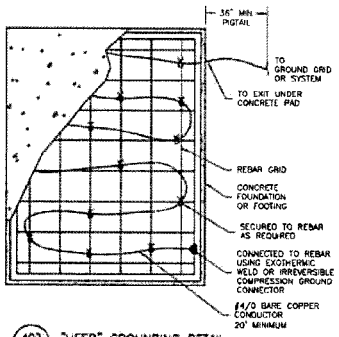
1. GROUND CONDUCTOR SHALL RUN CONTINUOUSLY THROUGH MANHOLES AND SHALL CONTINUE FROM DUCTBANK INTO SWITCHGEAR OR BUILDING GROUNDING SYSTEM AND SHALL BE BONDED TO EACH RIGID METAL CONDUIT. SIZE TO BE #2/0 (MIN.) UNLESS OTHERWISE INDICATED ON PLANS.
2. ALL DIMENSIONS ARE MINIMUM.
3. CLASSIFICATION OF NON-VEHICULAR AREAS TO BE CONFIRMED BY 'COMPANY'.

101 TYP — DUCTBANK – DIRECT BURIED
NOT TO SCALE

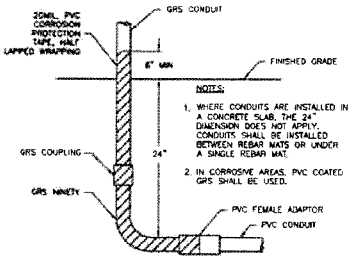


NOTE: ALL DIMENSIONS ARE MINIMUM

315 TYP — UNDERGROUND CONCRETE JUNCTION BOX
NOT TO SCALE



402 TYP — "UFER" GROUNDING DETAIL
NOT TO SCALE



NOTES:

1. WHERE CONDUITS ARE INSTALLED IN A CONCRETE SLAB, THE 24" DIMENSION DOES NOT APPLY. CONDUITS SHALL BE INSTALLED BETWEEN REBAR MATS OR UNDER A SINGLE REBAR MAT.
2. IN CORROSIVE AREAS, PVC COATED GRS SHALL BE USED.

170 TYP — GRS STUB UP DETAIL
NOT TO SCALE

263-1100

DELTA SYSTEMS ENGINEERING
3550 N. CENTRAL AVE., SUITE 915
PHOENIX, AZ 85012 602-266-4555

ARIZONA WATER COMPANY WELLS
32 & 33 NITRATE ANALYZER ADD.
ELECTRICAL DETAILS

Scale	NONE
Job No.	1893.00.100
Designed	DLN
Drawn	JHA
Checked	DLN
Approved	NT
Date	APRIL 2015
Sheet	E04

PLOTTED: April 20, 2015 By: johnsons DWG FILE: X:\1800's\1893.00 AWC Well 32 & 33 Nitrate Analyzer Addition\100 - E&I Design_CAD Files\1893.00.100_E04.dwg

Western Group Rate Case

Exhibit FKS-1

5303 PV 32 & 33 Nitrate

ARIZONA WATER COMPANY
WORK AUTHORIZATION

W.A. NUMBER: 1-5303
P.E. NUMBER: 1442
BUDGET ITEM NO.: 1-5303
SHEET NO.: 1 of 2

SYSTEM:	PINAL VALLEY
DIVISION:	CASA GRANDE
RESPONSIBLE PERSON:	JOHN KNOBBE
TAX CODE:	0437

RETENTION REQUIRED:	☑ YES ☐ NO
WORK TO START BY:	UPON AUTHORIZATION
WORK TO BE FINISHED BY:	WITHIN 100 DAYS

DESCRIPTION OF WORK:

Design and install nitrate analyzers and electrical controls at Wells No. 32 and 33 in Casa Grande, Arizona.

FACTORS JUSTIFYING WORK:

APPROVED 2015 BUDGET ITEM ($125,000)
Company Engineers were informed of the recent Wells No. 32 and 33 (Well) water quality sample results for nitrates of more than 9 mg/L, which is approaching the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL) of 10 mg/L. EPA defines a violation of the MCL for nitrates as a Tier 1 acute violation. Water quality sample results for each Well have shown a steady increase in nitrates. Company Engineers determined it is necessary to install a nitrate analyzer at each Well discharge head to monitor nitrate levels and install controls at each Well to ensure that water pumped into the distribution system does not exceed the MCL. The nitrate analyzer and controls allow each Well to pump into the distribution system at a nitrate level up to an operator determined set point. The Company does not have a water storage tank in this area to blend with additional sources of supply to reduce nitrate concentrations. Installing a nitrate analyzer at each Well allows the Company to ~~continue to~~ provide a safe, adequate and reliable drinking water supply to the Pinal Valley water system.

COST ESTIMATE	
COST OF WORK:	
MATERIAL	52,000
LABOR	15,430
CONTRACT PORTION	88,218
OVERHEAD	18,700
TOTAL AUTHORIZED EXPENDITURES CHARGEABLE TO THIS W.A.	$ 174,348
FUNDS RECEIVED:	
CONTRIBUTIONS RECEIVED	0
REFUNDABLE ADVANCES RECEIVED	0
TOTAL CONTRIBUTIONS/ADVANCES	0
NET COMPANY CASH REQUIRED	$ 174,348

AUTHORIZATION	DATE
PREPARED BY: John Knobbe 2-3-15	1-27-2015
REVIEWED FOR ESMT/ROW VERIFICATION: Charles Briggs CB 02-03-2015	01-27-2015
REVIEWED BY: ~~James Wilson~~ 2/4/15	1/27/15
APPROVED BY ENGINEERING: Fredrick Schneider 2-5-15	1-28-15
APPROVED BY FINANCE: Joseph Harris	1/30/15
AUTHORIZED BY PRESIDENT: William Garfield	1-30-2015

COMMENTS:

Transfer additional funds required from
WA 1-5170 (Cottonwood BPS) $49,348.
Transfer charges from PE 1442 to this WA.

CONSTRUCTION RELEASE:

RELEASED TO CONSTRUCTION
Authorized by FRED SCHNEIDER
Date 2/3/2015

2015 BUDGET

AFH

AJH

ARIZONA WATER COMPANY

WORK AUTHORIZATION - DETAIL SHEET

W.A. NUMBER: 1-5303
P.E. NUMBER: 1442
BUDGET ITEM NO.: 1-5303
SHEET NO.: 2 of 2

RETIREMENT PROPERTY UNITS	PLANT PROPERTY ACCOUNT	UNIT DESCRIPTION	QUANTITY	YEAR INSTALLED AND W.A. NUMBER

PROJECT DESCRIPTION:

Design and install nitrate analyzers and electrical controls at Wells No. 32 and 33 in Casa Grande, Arizona.

	DESCRIPTION	PLANT PROP ACCT	QUANTITY	UNIT COST	TOTAL
CONTRACT WORK	Design and layout nitrate analyzer and electrical controls	332	1	$ 10,221.00	$ 10,221
	Install nitrate analyzer enclosures, conduits, wires, air				
	conditioner, heater, area lights and electrical controls	332	2	15,500.00	31,000
	Install HACH nitrate analyzer and controller	332	2	750.00	1,500
	Install analyzer sample feed line and related fittings	332	2	2,400.00	4,800
	Install analyzer sample waste line and related fittings	332	2	950.00	1,900
	Install 6 ft.x6 ft. concrete foundation with floor drain	332	2	1,900.00	3,800
	Install programming for nitrate analyzer system and SCADA	332	2	4,139.50	8,279
	Install Aluma-Line shade canopy	332	2	7,800.00	15,600
	Contracting Tax	332	1	5,302.30	5,302
	100% Performance and Payment Bonds Cost	332	1	816.00	816
	Construction contingency	332	1	5,000.00	5,000
	SERVICE CONNECTIONS COMPLETE: DOUBLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-SHORT	345			
TOTAL CONTRACT WORK					$ 88,218
MATERIALS	HACH NITRATAX plus sc analyzer, controller and field service	332	2	$ 26,000.00	$ 52,000
	SERVICE CONNECTIONS: DOUBLE-LONG	345			
	SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS: SINGLE-LONG	345			
	SERVICE CONNECTIONS: SINGLE-SHORT	345			
	METERS	346			
TOTAL MATERIALS					$ 52,000
LABOR	Engineering design and project management	332	140	$ 65.00	$ 9,100
	Field design review	332	16	55.00	880
	TESTING FEE	332	1	$ 500.00	500
	PERMIT FEE				
	SURVEY FEE	332	1	2,750.00	2,750
	FIELD INSPECTION	332	40	55.00	2,200
	INSTALL SERVICE CONNECTIONS: DOUBLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-SHORT	345			
TOTAL LABOR					$ 15,430
SUBTOTAL - CONTRACT WORK, MATERIALS, AND LABOR					$ 155,648
OVERHEAD					18,700
TOTAL	REFUNDABLE PORTION ☐	NON-REFUNDABLE PORTION ☐		**COST ESTIMATE**	$ 174,348

AFH

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

February 3, 2015

Mr. Michael Young
Fann Environmental, LLC
6708 Corsair Avenue, Suite A
Prescott, AZ 86301

Re: WA 1-5303 Mission Royale Well Nos. 32 & 33 Nitrate Analyzers

PROJECT: Nitrate Analyzers	
SYSTEM: Pinal Valley	
CONTRACT NO.:	
P.E. NO.:	W.A. NO.: 1-5303

Dear Mr. Young:

Enclosed is your copy of the Proposal/Contract for the above-referenced project, which has been accepted by Arizona Water Company (the "Company"). The project shall be constructed in accordance with the Company's *General Conditions of Contract, the Specifications and the Drawings* which were included with the Company's previously provided Proposal/Contract, copies of which are being provided again and attached herewith.

Also enclosed are two copies of the Commencement Notice for the above-referenced project. Please sign one of the copies and return it to my attention retaining the other for your records.

As provided in paragraph 4 of the Company's Proposal/Contract executed by the Company on February 5, 2015, Fann Environmental, LLC acknowledged that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work. In addition, as provided in paragraph 44 of the Company's General Conditions of Contract, the 100% Performance and Payment Bonds must be provided within ten (10) calendar days of the date of the Commencement Notice. Failure to provide an acceptable 100% Performance and Payment Bond does not limit the Company's

ability to terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur.

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting. In addition, please provide the required Performance and Payment Bonds to the Company promptly so that the contracted work can be completed within the contract's timeline.

If you have any questions, please call me at this office.

Very truly yours,

John P. Knobbe
Lead Designer
jknobbe@azwater.com

afh
Enclosure

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street

PROPOSAL/CONTRACT

CONTRACTOR: FANN ENVIRONMENTAL, LLC	SYSTEM: PINAL VALLEY
ADDRESS: 6708 CORSAIR AVENUE, SUITE A	W.A. No(s): 1-5308 1442
CITY ST ZIP: PRESCOTT, AZ 86301	BID DUE DATE: May 29, 2014

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1. Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto. Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto. The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract. Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings.
2. Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract.
3. Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person.
4. Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work.
5. Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project. The materials list will include the manufacturer, part number, price and quantity included in this Proposal/Contract.
6. Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings. No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax. Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company. The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A.R.S.") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S. §42-5061 B.6.), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed. Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax.
7. Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project. Such records will include all supporting original vendor invoices for all materials purchased. Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof. The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility.
8. The Estimated Total Cost of the Project, shown on Page 2, is based on estimated labor and material quantities to be furnished. It includes an estimate of the Contracting Tax and the cost of the required Performance and Payment Bonds. Contractor will not cancel, modify or withdraw this Proposal/Contract during a ninety-day (90) period commencing on the Bid Due Date. The Company may accept this Proposal/Contract by signing and mailing, or otherwise delivering, a copy hereof to Contractor during such ninety-day (90) period. If the Company does not accept this Proposal/Contract during such ninety-day (90) period, Contractor may cancel this Proposal/Contract by giving written notice of cancellation to the Company.
9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project invoicing. Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly.
10. Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice. Contractor will complete the Project within 90 ~~120~~ NN calendar days after the Commencement Notice is issued.
11. Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities.
12. The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice. This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract.

SPECIAL CONDITIONS:

See attached Special Conditions dated 5-9-2014.

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
FANN ENVIRONMENTAL, LLC	*ARIZONA WATER COMPANY*
By:	By:
Print Name: Michael S. Young	Print Name: Fredrick K. Schneider, PE
Title: President / Member	Title: Vice President - Engineering
Date: 5/29/14	Date: 2-5-2015

AFH

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street
Casa Grande, AZ 85122 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: FANN ENVIRONMENTAL, LLC	SYSTEM: PINAL VALLEY
AZ CONTRACTOR LICENSE NO: CLASSIFICATION:	W.A. No(s): 1-5303 1442
ADDRESS: 6708 CORSAIR AVENUE, SUITE A	BID DUE DATE: May 29, 2014
CITY ST ZIP PRESCOTT, AZ 86301	BID BOND REQUIRED ☑ Yes ☐ No

DESCRIPTION OF PROJECT: Design-Build nitrate analyzers and electrical controls at Mission Royale Wells No. 32 and 33 in Casa Grande, Arizona. Design-Build in accordance with the attached design plans and Arizona Water Company Specifications.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6)	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
None	0	0	0	0	0
				1	2
3. Total Labor to Install Exempt Materials (add the amounts in column 1)				3 0	
4. Total Exempt Materials (add the amounts in column 2)					4 0

5-6. NON-EXEMPT MATERIALS	QUANTITY	LABOR	MATERIALS	LABOR	MATERIALS
Design and layout nitrate analyzers, electrical controls, PLC's, cellular RTU's and area lights	Lot	15000.-	0	15000.-	0
Provide and install nitrate analyzer enclosures, trenching, conduits, wires, boxes, switches, timers, reset buttons, breakers, relays, terminations, grounding, air conditioners, heaters, area lights and electrical controls	Lot	18000.-	13000.-	18000.-	13000.-
Install HACH nitrate analyzer and controller and commission	2	750.-	0	1500.-	0
Provide and install nitrate analyzer sample feed lines, conduits, pressure gauges, pressure reducing valves, rotameters, tapping saddles, ball valves and freeze protection	Lot	2200.-	2600.-	2200.-	2600.-
Provide and install nitrate analyzer sample waste lines and related fittings	Lot	1150.-	750.-	1150.-	750.-
Provide and install 6 ft.x6 ft. concrete foundation with floor drain	2	1100.-	800.-	2200.-	1600.-
Provide and install Modicon M340 PLC and commission	2	3000.-	5500.-	6000.-	11000.-
Install Sixnet cellular RTU and commission	2	850.-	0	1700.-	0
Provide and Install nitrate analyzer system and SCADA programming	Lot	11000.-	0	11000.-	0
Install Aluma-Line shade canopy with shade panel	2	2000.-	5800.-	4000.-	11600.-
				5	6
7. Total Labor to Install Non-Exempt Materials (add the amounts in column 5)				7 62750.-	
8. Total Non-Exempt Materials (add the amounts in column 6)					8 40,550.-
9. Subtotal A (add lines 3, 7 and 8)					9 103,300.-
10. Contracting Tax Base (multiply the amount on line 9 by 0.65)				10 67145.-	
11. Applicable Contracting Tax Rate				11 10.70%	
12. Contracting Tax (multiply the amount on line 10 by line 11)					12 7184.51
13. Subtotal B (add lines 4, 9 and 12)					13 110484.51
14. 100% Performance and Payment Bonds Cost					14 1089.-
15. Estimated Total Cost (add lines 13 and 14)					15 111,573.51

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal, and traffic control necessary for the Project.

ARIZONA WATER COMPANY

COMMENCEMENT NOTICE

CONTRACTOR:

Mr. Michael Young
Fann Environmental, LLC
6708 Corsair Avenue, Suite A
Prescott, AZ 86301

DATE: 2\16\15
DIVISION: CASA GRANDE
SYSTEM: PINAL VALLEY
W.A.: 1-5303

THIS IS YOUR NOTICE TO PROCEED WITH THE FOLLOWING PROJECT(S):

DESCRIPTION OF WORK:

Design-Build nitrate analyzers and electrical controls at Mission Royale Well Nos. 32 and 33 in Casa Grande, Arizona. Design-Build in accordance with the attached design plans and Arizona Water Company Specifications.

PERFORMANCE AND PAYMENT BONDS REQUIRED: [X] Yes [ ] No

TOTAL DAYS ALLOWED: 100

COMPLETION DATE: 5\17\15

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting.

ARIZONA WATER COMPANY	***FANN ENVIRONMENTAL, LLC***
Company	Contractor *(type name)*
By [signature]	By
Title Vice President - Engineering	Title

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ARIZONA WATER COMPANY

CASA GRANDE WELLS NO. 32 AND 33 – CASA GRANDE, AZ
DESIGN-BUILD ELECTRICAL EQUIPMENT FOR NITRATE ANALYZER
SPECIAL CONDITIONS 5-9-2014

Existing Facility Information

Site Location: Well 32 – 278 E. Santa Ynez – Casa Grande, AZ 85194
Well 33 - 2602 E. Hancock Trail – Casa Grande, AZ 85194

Site Facilities: See attached Drawing No. PV-0079

Existing Electrical Panel: See attached Wells No. 32 and 33 existing RTU control panel diagrams and Well No. 32 existing SES, MCC and RVAR pump controller diagrams.

New Facility Information

1. New Nitrate Analyzer:
    a. Two each HACH SC200 controller
    b. Two each NITRATAX plus sc 5 mm with flow-through cell
    c. Supplied by Arizona Water Company (Company) and installed by the Contractor

2. New Modicon M340 programmable logic controller (PLC):
    a. Two each BMXCPS3500 - HI PWR AC PWR SUPPLY
    b. Two each BMXXBP0800 - 8SLOT BACKPLANE
    c. Two each BMXP341000 - CUP340-10 MODBUS
    d. Four each BMXDDI1602 - DIG 16I 24VDC SINK
    e. Two each BMXDRA0805 - DIG 8Q ISOLATED RELAYS
    f. Two each BMXAMI0410 - ANA 4 U/I IN ISOL HI SPD
    g. Two each BMXNOE0100 - 10/100 RJ45 ETHERNET
    h. Six each 990XSM00206 - MULTI MODULE MULTI MODUL
    i. Two each 990XSM00210 - ADU206/256/210 to AMI0410 QWA
    j. Two each Weidmuller ethernet switch, unmanaged, IE-SW8-ECO
    k. Supplied and installed by the Contractor

3. New cellular RTU:
    a. Two each Sixnet SN-6601-VZ-AC Cellular RTU
    b. Two each LTE/multiband stub antenna
    c. Supplied by the Company and installed by the Contractor

4. New side mount enclosure air conditioner for the new 37"Wx72"Hx24"D nitrate analyzer enclosures:
    a. Air Conditioner: Two each Pentair-Hoffman or Thermal Edge Inc.

b. General: 120V, 1Ø, 60Hz, Nema 3R
c. Temperature: Max. outside air temp. 125°F; Max. inside air temp. 90°F
d. Supplied and installed by the Contractor

5. New electric heater for the new 37"Wx72"Hx24"D nitrate analyzer enclosures:
   a. Electric Heater: Two each Pentair-Hoffman
   b. General: 120V, 1Ø, 60Hz
   c. Temperature: Min. outside air temp. 10°F; Min. inside air temp. 45°F
   d. Supplied and installed by the Contractor

6. New shade canopy area light fixture:
   a. Light fixture: Two each Lithonia, Catalog No. DMW 2 32 MVOLT GEB10IS with mounting hardware and switch
   b. Supplied and installed by the Contractor

7. New controls, timers, reset buttons with fault light, circuit breakers, relays, conduits and wires.
   a. Supplied and installed by the Contractor

8. New Programming: Program new PLC's and cellular RTU's to send SCADA data and alarms to the Casa Grande office and add SCADA control, data and alarms to the existing master SCADA computer in accordance with the control description below.
   a. Contractor shall use Delta Systems Engineering for all programming services
   b. Supplied and installed by the Contractor

General Scope of Work

1. Contractor shall design and construct all electrical equipment, including all controls, circuit breakers, relays, conduits, timers and wires necessary for operation of the new nitrate analyzers, PLC's, cellular RTU's and air conditioners. The Contractor shall install the following:
   a. New HACH nitrate analyzers in lockable Pentair-Hoffman enclosures
   b. New Modicon M340 PLC's and Ethernet switches
   c. New Sixnet cellular RTU's with stub antennas
   d. New Pentair-Hoffman or Thermal Edge Inc. side mount air conditioners
   e. New Pentair-Hoffman electric heaters
   f. New Lithonia fluorescent lighting fixtures
   g. New controls and relays to control start, stop and pump-to-waste of Wells
   h. Manual reset buttons with fault light to reset Wells if shut down occurs due to high nitrate level
   i. New control and SCADA programming

Special Conditions

1. MANDATORY PRE-BID MEETING ON ***May 19, 2014 AT 9:00 AM*** at the site.
2. Any RFI must be received no later than *May 26, 2014.*

3. Bids are due by ***May 29, 2014 AT 2:00 PM*** at the following address:
   Arizona Water Company
   Attn: John Knobbe
   3805 North Black Canyon Highway
   Phoenix, AZ 85015
4. See attached supplemental electrical specifications.
5. Company will provide electronic CAD files of Drawing No. PV-0079 and topographic survey for design purposes.
6. Contractor shall provide detailed design plans signed by a professional engineer:
   a. Contractor shall plan for, at a minimum, one (1) design review meeting prior to final construction plans.
   b. Contractor shall provide As-Built drawings and O&M manuals at the end of the project (three hard copies and one compact disk).
7. Contractor's electrical subcontractor shall provide 24 hour on-call service through the guarantee period (see Company's GCC, E-4-1, 41. Guarantee).

Control Description

1. There are three modes of operation for the well pump;
   a. Local: When the Local-Off-Remote (LOR) switch is in Local, the pump and control valves are under operator control through physical switches in the control panel. The PLC or SCADA has no control on the pump and will only monitor the status of the pump.
   b. Remote-Manual: When the LOR switch is in Remote and the pump is placed in Manual mode using the master SCADA computer (MSC) screen, the pump and control valves are under operator control through graphic switches on the MSC screen. The PLC will monitor the appropriate pump alarm and interlocks and allow the pump to run if conditions are clear but not take the decision to start or stop the pump.
   c. Remote-Automatic: When the LOR switch is in Remote and the pump is placed in Automatic mode using the MSC screen, the PLC logic takes over control of the pump and control valves. There are three possible modes of operation and the operator will choose one;
      - Burgess Peak tank based control: Start/stop set points (SP) in feet, entered by the operator will determine the run status of the well. Start SP will be less than the stop SP.
      - Time of Day: The following table will be filled by the operator (gray cells show sample data) and the well will operate on the designated day of the week, at the designated time, and for the designated time period (hr);

	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Well Number	32	29	33	29	32	33	32
Start Time	8:00	13:30	7:30	14:00	9:00	16:00	6:30
Run Duration	5.5	1.0	9.5	2.0	12.0	2.5	15.0

2. At start up, the Well will pump-to-waste (PTW) for a duration determined by an existing operator adjustable PTW timer, set at the existing electric panel.
3. If the sampled nitrate level is above an operator adjustable HIGH set point of 9.5 mg/L at the MSC, then the SCADA program will override the PTW timer and the Well will continue to PTW for an operator adjustable maximum (MAX) PTW SP at the MSC computer.
4. The MAX PTW SP will be an accumulated value over a running 24 hour period. Once the MAX PTW SP is exceeded, the Well will shut down and a manual reset button with fault light at the motor starter panel will allow the Well to re-start and reset the PTW duration.
5. If the sampled nitrate level is/falls below an operator adjustable LOW SP of 9.1 mg/L at the MSC, either after exceeding the PTW timer duration or before exceeding the MAX PTW SP, then the Well will transition into the distribution system.
6. If the sampled nitrate level does not fall below the LOW SP of 9.1 mg/L after exceeding the MAX PTW SP, then the Well will shut down and the manual reset button will allow the Well to re-start and reset the MAX PTW.
7. If the Well is pumping into the distribution system and the sampled nitrate level rises above the HIGH SP of 9.5 mg/L, then the Well will transition to PTW until the sampled nitrate level falls below the LOW SP of 9.1 mg/L or the MAX PTW SP is exceeded.
8. If the PTW valve sequence fails, then the valve shall fail open and the Well shall PTW until it exceeds the MAX PTW SP.

Indications at the MSC

1. Nitrate level
2. Well status
3. PTW valve status

WIN-911 Alarms

1. High nitrate sample (> 9.5 mg/L)
2. Manual PTW timer exceeded
3. MAX PTW exceeded
4. Well fail to start/stop
5. Incomplete PTW valve sequence
6. Communication failure

ARIZONA WATER COMPANY

SPECIFICATIONS

GENERAL CONDITIONS OF CONTRACT: E-4-1

CONSTRUCTION SPECIFICATIONS: E-8-1

STANDARD SPECIFICATION DRAWINGS: E-9-1

2007 EDITION WITH **2010** REVISIONS;
2012 GENERAL CONDITIONS OF CONTRACT

2-3-15

A copy of this entire Spec Book was sent out with Fann Environmental Proposal package for 1-5303 Mission Royale #32+33 Nitrate Analyzer on 2/6/15

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

May 23, 2014

Mr. Donald Loose
Alta Land Survey, Inc.
344 E. 4th Street
Benson, AZ 85602

Re: Boundary and Topographic Survey for Mission Royale Well Sites 32 and 33 in Casa Grande AZ.

Dear Mr. Loose:

Attached is a copy of the Task Order for the above referenced project. Please sign and return it to my attention.

If you have any questions, please call me at this office.

Very truly yours,

Charles Briggs
Real Property Specialist
engineering@azwater.com

afh
Enclosure

AGREEMENT FOR GENERAL ENGINEERING SERVICES BETWEEN ARIZONA WATER COMPANY AND ALTA LAND SURVEY, INC.

TASK ORDER AUTHORIZATION

ALTA Land Survey, Inc. Project Number _____

AWC Project Number Boundary and Topographic Survey for Mission Royale Well Sites 32 and 33 in Casa Grande, AZ.

Arizona Water Company
P.O. Box 29006
Phoenix, Arizona 85038-9006

Effective Date of Authorization May 15, 2014

Upon execution of this Task Order, and effective as of the date shown above, the parties agree that ALTA Land Survey, Inc. shall perform the following services:

SCOPE OF SERVICES

As per the attached "Exhibit A". **NOTE: Authorization to commence will be given verbally by Division Manager (Ray Murietta, or in his absence, Kevin Pakka, Ops Superintendant).**

COMPENSATION

As per the attached "Exhibit A" dated May 14, 2014.

GENERAL TERMS AND CONDITIONS

ALTA Land Survey's services shall be governed by the Master Agreement dated June 17, 2011 together with this Task Order and any Exhibits attached hereto.

The services performed within this Task Order shall commence on or about May 20, 2014, and shall be complete on or before May 26, 2014.

ALTA Land Survey's Representative in charge of the services is Donald Loose, who may be contacted at 520-456-9400 and dloose@alta-land.com. Client's Representative in charge of the services is Charles Briggs, who may be contacted at 602-240-6860 and cbriggs@azwater.com.

ARIZONA WATER COMPANY	**ALTA LAND SURVEY, INC.**
By C A B	By _____
Title REAL PROPERTY SPECIALIST	Title _____
Date MAY 23, 2014	Date _____

ALTA Land Survey, Inc.
Surveying ~ Drafting ~ Construction Staking
344 E. 4th Street, Benson, AZ 85602 520-720-6476

May 14, 2014

Charles Briggs
Real Property Specialist
Arizona Water Company
P.O. Box 29006
Phoenix, AZ 85038-9006

RE: Mission Royale Well Sites 32 and 33, Casa Grande- Boundary and Topographic Survey

Dear Charles:

ALTA Land Survey, Inc. is pleased to provide you with the following proposal to perform a boundary and topographic survey of Mission Royale Well Sites 32 and 33 in Casa Grande, AZ. We have reviewed the Scope of Services and for the site and the following is the Scope of Services:

- Generate topography with 1 foot contours. Elevations shall be based on local known permanent monument with the vertical datum based on NAVD '88.
- Locate property corners and/or set property corners, if necessary
- Record the survey at the Pinal County Recorder's Office.
- Include a basis of bearing and vicinity map on Record of Survey drawings.
- Include a cadastral location of the survey.
- Take color digital photographs of the survey.

The cost to perform the above referenced work is **$2750.00.** If awarded the contract to perform the above referenced work, the survey shall begin on or before May 20, 2014 and the deliverables will be submitted for review by May 26, 2014.

We appreciate the opportunity to provide you with this proposal and we look forward to hearing from you.

Sincerely,

CB
5-23-14

Donald J. Loose
President

MISSION ROYALE WELLS NO.32 AND 33 NITRATE ANALYZERS DESIGN BUILD

OWNER: ARIZONA WATER COMPANY
CONTRACTOR: FANN ENVIRONMENTAL
ENGINEER: WATER WORKS ENGINEERS

OWNER:

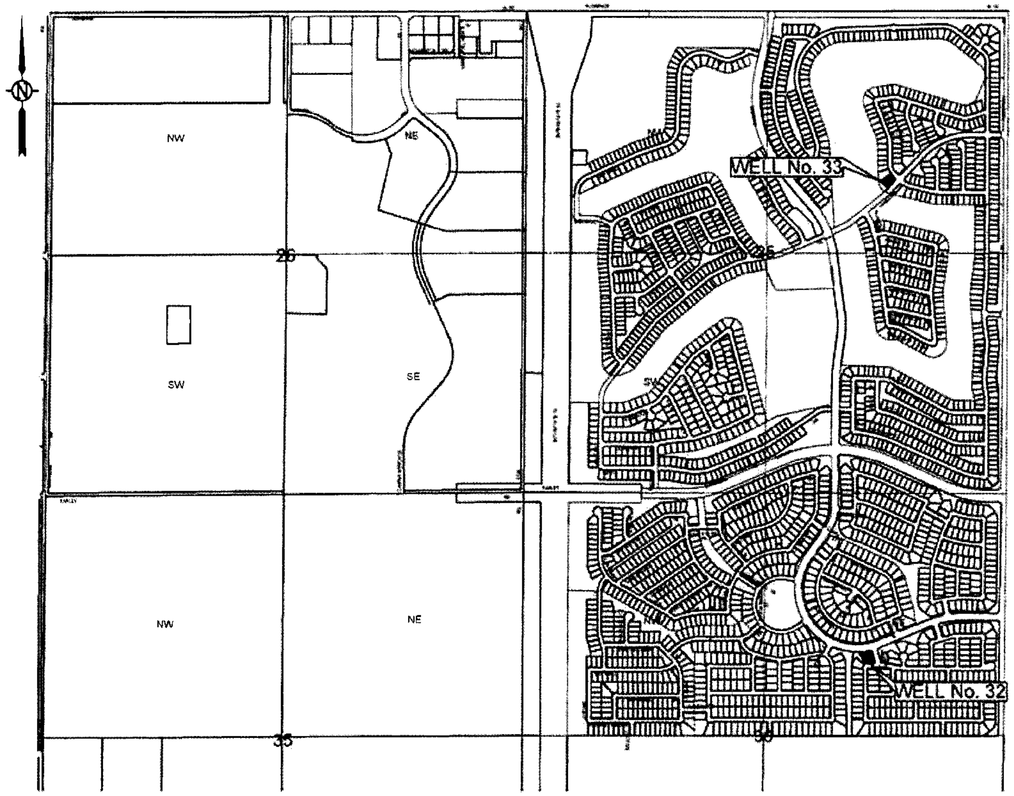
ARIZONA WATER COMPANY
POST OFFICE BOX 29006
PHOENIX, AZ 85038-9006
(602) 240-6860
CONTACT: JOHN KNOBBE

CONTRACTOR

FANN ENVIROMENTAL, LLC
6708 CORSAIR AVE
PRESCOTT, AZ 86301
(928) 778-5335
CONTACT:

ENGINEER

WATER WORKS ENGINEERS
7580 N. DOBSON RD, SUITE 200
SCOTTSDALE, AZ 85256
(480) 661-1742
CONTACT: BENJAMIN W. LEE, P.E.



VICINITY MAP
SCALE 1"=600'

DRAWING INDEX

DWG NO.	DWG TITLE
	GENERAL
G-001	COVER SHEET AND INDEX
	CIVIL
C-001	WELL NO.32 RESULTS OF SURVEY
C-002	WELL NO.33 RESULTS OF SURVEY
C-003	WELL NO.32 SITE PLAN
C-004	WELL NO.33 SITE PLAN
C-005	NITRATE ANALYZER DETAIL
	ELECTRICAL
E-01	ELECTRICAL NOTES, SYMBOLS AND LEGEND
E-02	WELL NO.32 - SITE PLAN, SCHEDULES AND DIAGRAMS
E-03	SITE PLAN - WELL NO.33
E-04	ELECTRICAL DETAILS

WATERWORKS ENGINEERS

MISSION ROYALE WELLS NO. 32 AND 33 NITRATE ANALYZER

COVER SHEET AND INDEX

PINAL VALLEY

NE 1/4 SEC.25-T.6 S.,R. 8 E.

3-27-2015 | AS SHOWN

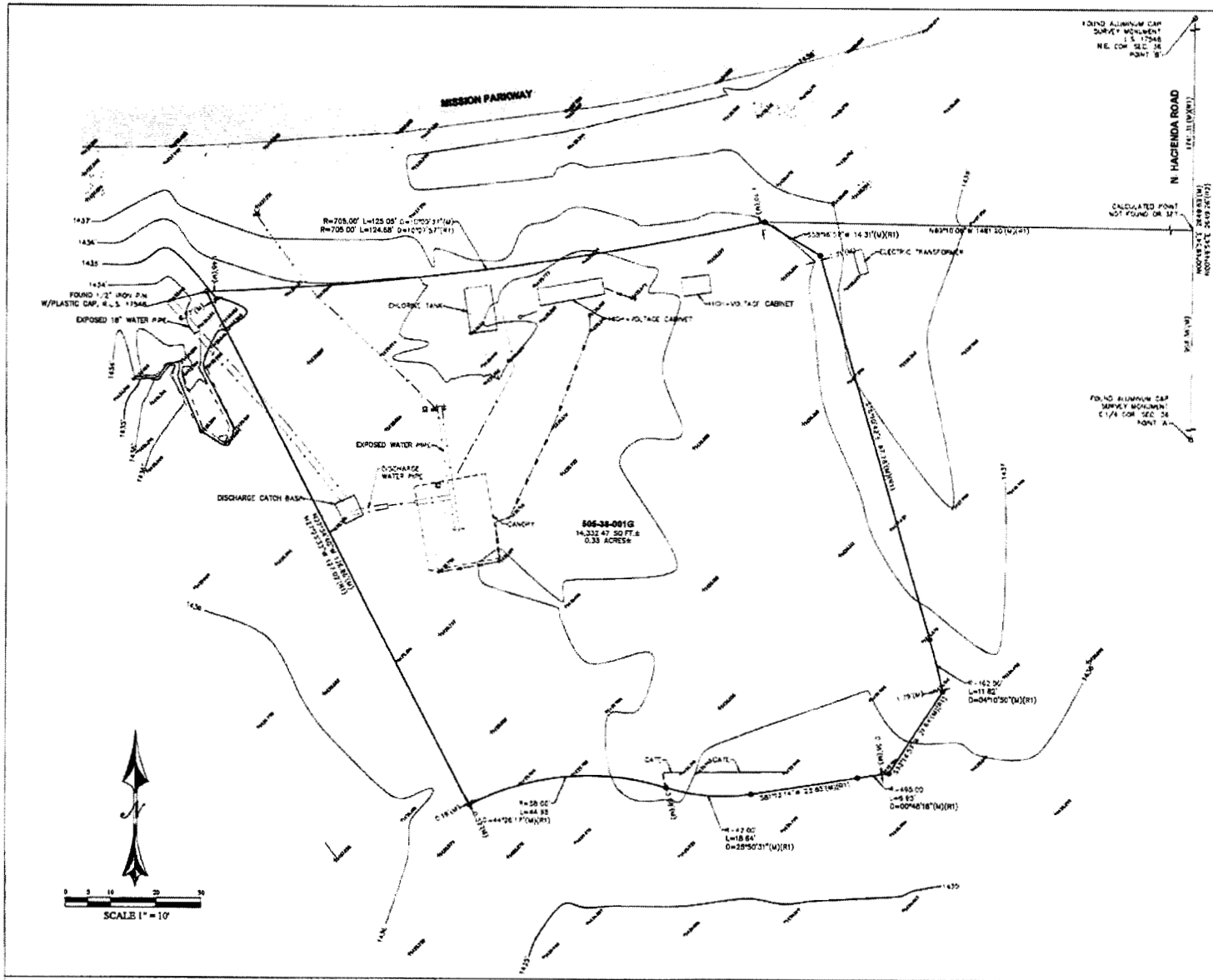
VHP | BWL

263-1100
1-800-STAKE-IT

FOR WATER ONLY

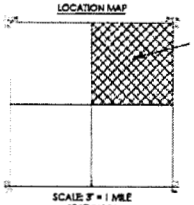
G-001

SHEET 1 OF 6



RESULTS OF SURVEY

LOCATION MAP



SCALE 3" = 1 MILE
SECTION 36

LEGEND:

- MONUMENTS FOUND AS NOTED
- SET 1/2" IRON PIN WITH PLASTIC CAP, R.L.S. 23379 UNLESS OTHERWISE NOTED.
- (N1) RECORD DATA PER FEE # 2005-173787
- (R2) RECORD DATA PER FEE # 2008-080580 - CABINET H, SLIDE 063
- (M) MEASURED DATA
- ANTENNA
- ELECTRIC CONTROL PANEL
- HOSE BIB
- LIGHT POLE
- PUMP
- WATER BOX
- WATER VALVE
- TOE
- TOP
- UNDERGROUND ELECTRIC
- WATER LINE
- ASPHALT AREA
- CONCRETE AREA

BASIS OF BEARING:

BEARINGS ARE BASED ON A FOUND ALUMINUM CAP SURVEY MONUMENT REPRESENTING THE EAST 1/4 CORNER OF SECTION 36 (POINT 'A') AND A FOUND BRASS CAP SURVEY MONUMENT REPRESENTING THE NORTH-EAST CORNER OF SECTION 36 (POINT 'B'), SAID BEARING IS NORTH 00°46'58" EAST PER FEE # 2005-173787.

BASIS OF ELEVATION:

ELEVATIONS ARE BASED ON N.G.S. CONTROL POINT "AJ 48" (PID # GD2716). SAID ELEVATION IS 1443.8 NAVD88.

CERTIFICATION:

I HEREBY CERTIFY THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION AND THAT THE PROPERTY CORNERS AND SURVEY MONUMENTS EXIST AS SHOWN HEREON

Donald J. Lucas

DONALD J. LUCAS, R.L.S. # 23379 — DATE

EXPIRES: 09-30-2015

WELL NO 32 RESULTS OF SURVEY

C-001

SHEET 2 OF 6

ALTA LAND SURVEY, INC
SURVEYING, CONSTRUCTION STAKING & DRAFTING
344 E. 6TH ST.
BENSON, AZ 85602
(520) 720-6478

REVISIONS			
NO.	DESCRIPTION	BY	DATE

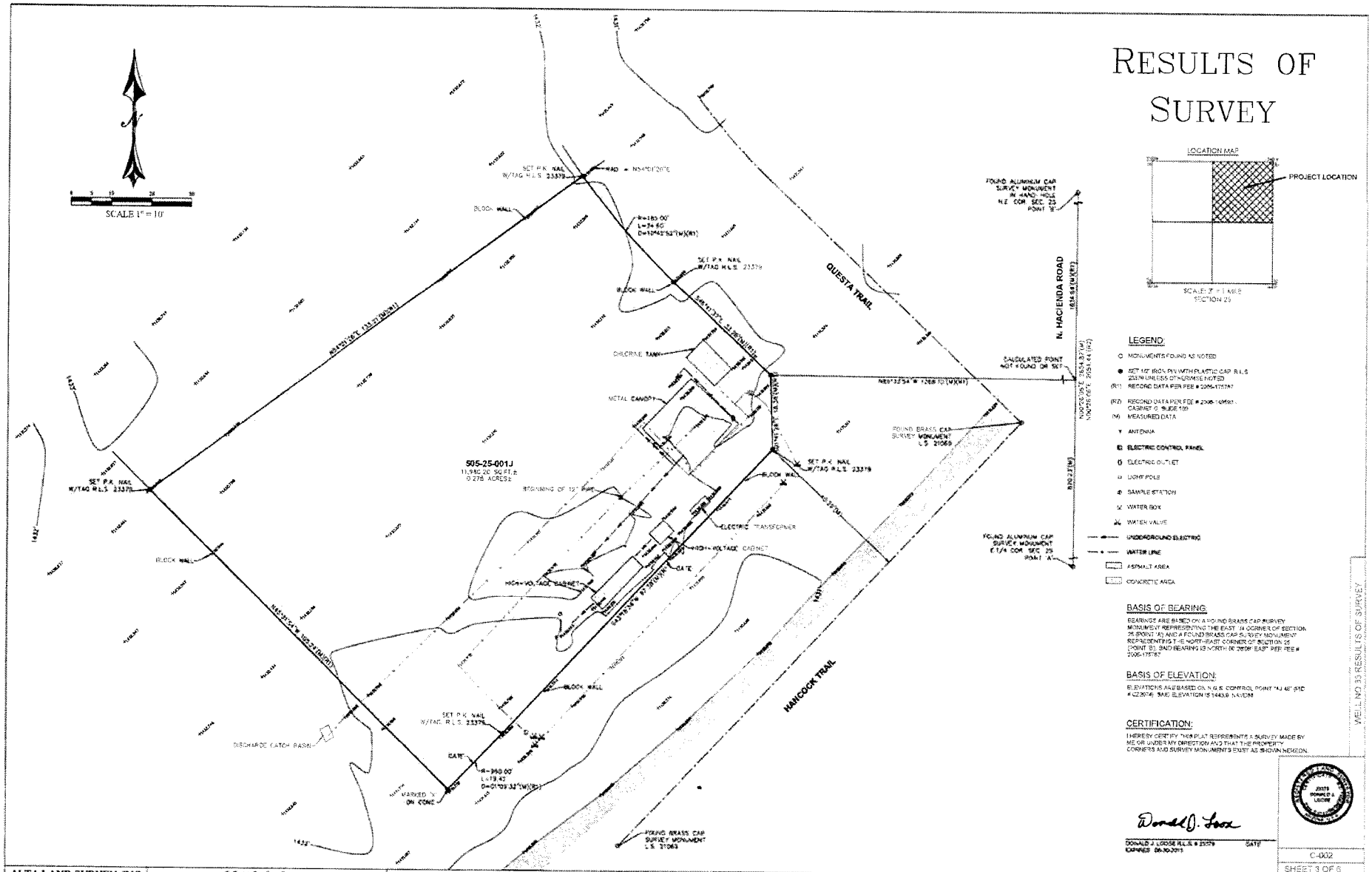
FEE#_____ BOOK____ SURVEY, PAGE____

A PORTION OF SEC. 36, T-06-S., R-06-E. GILA AND SALT RIVER MERIDIAN PINAL COUNTY, ARIZONA

A PORTION OF THE N.E. 1/4 OF SEC. 36, T-06-S., R-06-E. OF THE G.&S.R.M., PINAL COUNTY AZ

PROJECT NO.	14-09.38	Drawn By: AAC	Date: 06/03/2014
		Checked By:	Sheet: 1 of 1

RESULTS OF SURVEY



BASIS OF BEARING:

BEARINGS ARE BASED ON A FOUND BRASS CAP SURVEY MONUMENT REPRESENTING THE EAST 1/4 CORNER OF SECTION 25 (POINT "A") AND A FOUND BRASS CAP SURVEY MONUMENT REPRESENTING THE NORTH-EAST CORNER OF SECTION 25 (POINT "B"). SAID BEARING IS NORTH 00°28'06" EAST PER FEE # 2006-175787

BASIS OF ELEVATION:

ELEVATIONS ARE BASED ON A N.G.S. CONTROL POINT "HJ 48" (PID # CZ2074). SAID ELEVATION IS 1443.9 N.A.V.D.88

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION AND THAT THE PROPERTY CORNERS AND SURVEY MONUMENTS EXIST AS SHOWN HEREON.

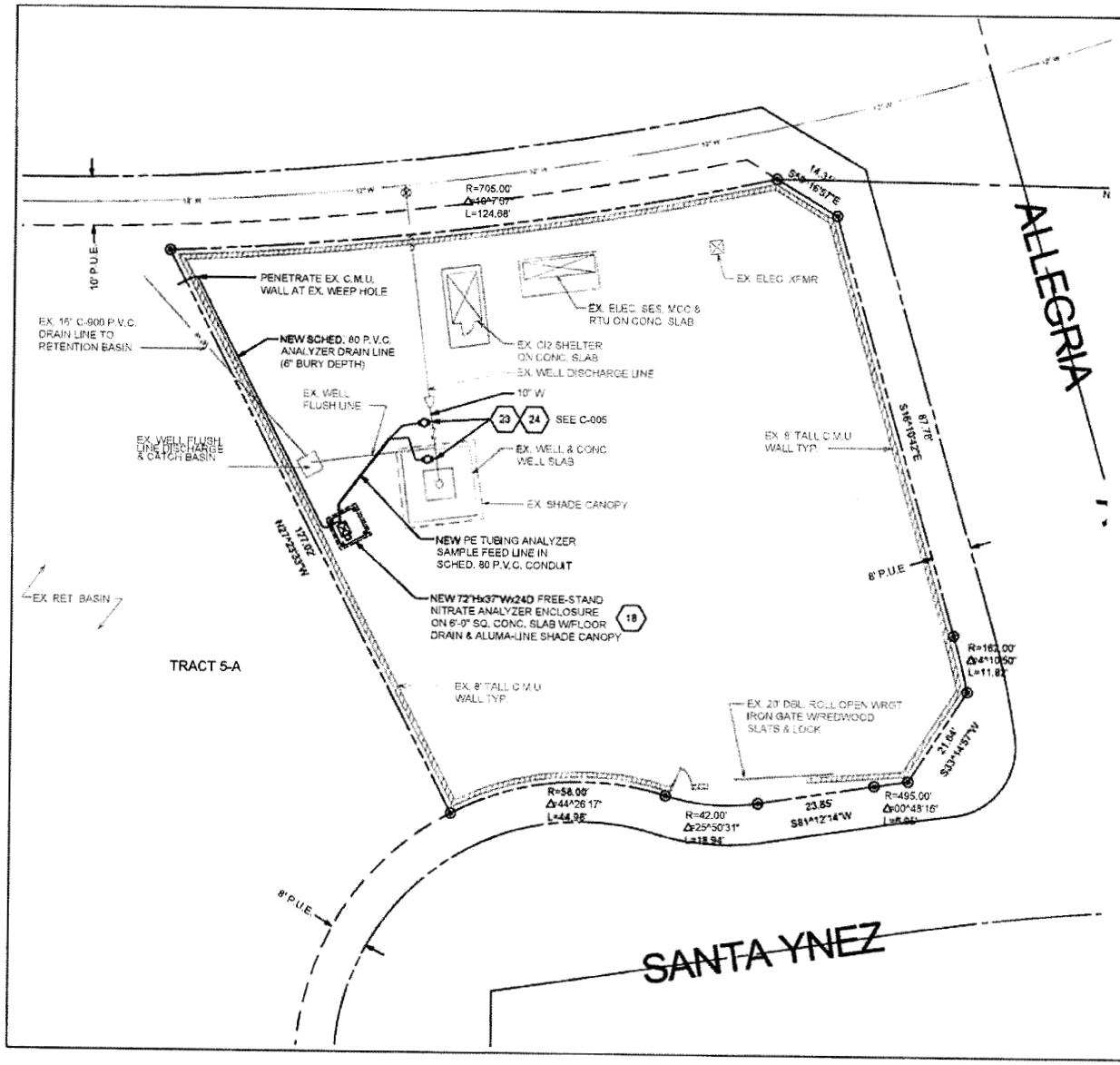
Donald J. Looze

DONALD J. LOOZE R.L.S. # 23379 DATE
EXPIRES 09-30-2015

WELL NO 33 RESULTS OF SURVEY

C-002
SHEET 3 OF 6

ALTA LAND SURVEY, INC	REVISIONS			FEE#_____ BOOK____ SURVEY, PAGE____	A PORTION OF SEC. 25, T-06-S., R-06-E. GILA AND SALT RIVER MERIDIAN PINAL COUNTY, ARIZONA	A PORTION OF OF THE N.E. 1/4 OF SEC. 25, T-06-S., R-06-E. OF THE G.&S.R.M., PINAL COUNTY AZ
SURVEYING, CONSTRUCTION STAKING & DRAFTING	NO.	DESCRIPTION	BY	DATE		PROJECT NO. 14-093A; Drawn By: AHC; Checked By: ; Date: 08/25/2014; Sheet: 1 of 1
344 E. 4TH ST. RICHSON, AZ 85602 (520) 720-6676						



LEGEND

- ⊙ — " REBAR PROPERTY CORNER
- STREET CENTERLINE/MONUMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- E — U.G. ELECTRIC LINE
- W — EX. WATER LINE
- EX. P.U.E.

GENERAL NOTES

1. NEW PIPING SHALL BE DISINFECTED IN ACCORDANCE WITH ADEQ ENGINEERING BULLETIN No. 8 BEFORE BEING PLACED INTO SERVICE.
2. ALL MATERIALS AND PRODUCTS USED IN WATER SYSTEM, INCLUDING SURFACE COATINGS & PAINTS, SHALL CONFORM TO NSF STANDARD 61 & CURRENT AWWA D102.
3. CONSTRUCTION MATERIALS USED IN WATER SYSTEM SHALL BE LEAD-FREE AS PER A.A.C. R18-4-504 AND R18-7-101 (43).
4. ALL EXPOSED P.V.C. PIPE & FITTINGS SHALL BE PAINTED TO PROTECT FROM UV SOLAR RADIATION.
   A. PAINT EXPOSED ANALYZER FEED LINE DARK BLUE & LABEL
   B. PAINT EXPOSED ANALYZER WASTE LINE OLIVE GREEN & LABEL
5. ANY EXPOSED PIPING SUBJECT TO FREEZING SHALL BE INSULATED.
6. FOUNDATION: BEAM FOOTING ON UNDISTURBED SOIL OR APPROVED ENGINEERED FILL. SOIL PRESSURE 1,500 PSF PER IBC 1804.2. CLASS 4 MATERIAL.
7. CONCRETE: A.C.I. MANUAL OF CONCRETE PRACTICE. TYPE II CEMENT. MINIMUM 28 DAY STRENGTH OF 3,000 PSI. MECHANICALLY VIBRATE WHEN PLACED. MAXIMUM SLUMP 5".
8. REINFORCING: ASTM A615, GRADE 60 DEFORMED BARS. CONCRETE COVER TO REINFORCING
   A. CONCRETE AGAINST EARTH——3"

LAP SPLICES: 48 BAR DIAMETERS UNLESS OTHERWISE NOTED.

WATERWORKS ENGINEERS

MISSION ROYALE WELLS NO. 22 AND 33 NITRATE ANALYZER

WELL NO. 22 SITE PLAN

PINAL VALLEY

NE 1/4 SEC. 23-7 E.S.R. & B.E.

3-27-2015

AS SHOWN

BWI

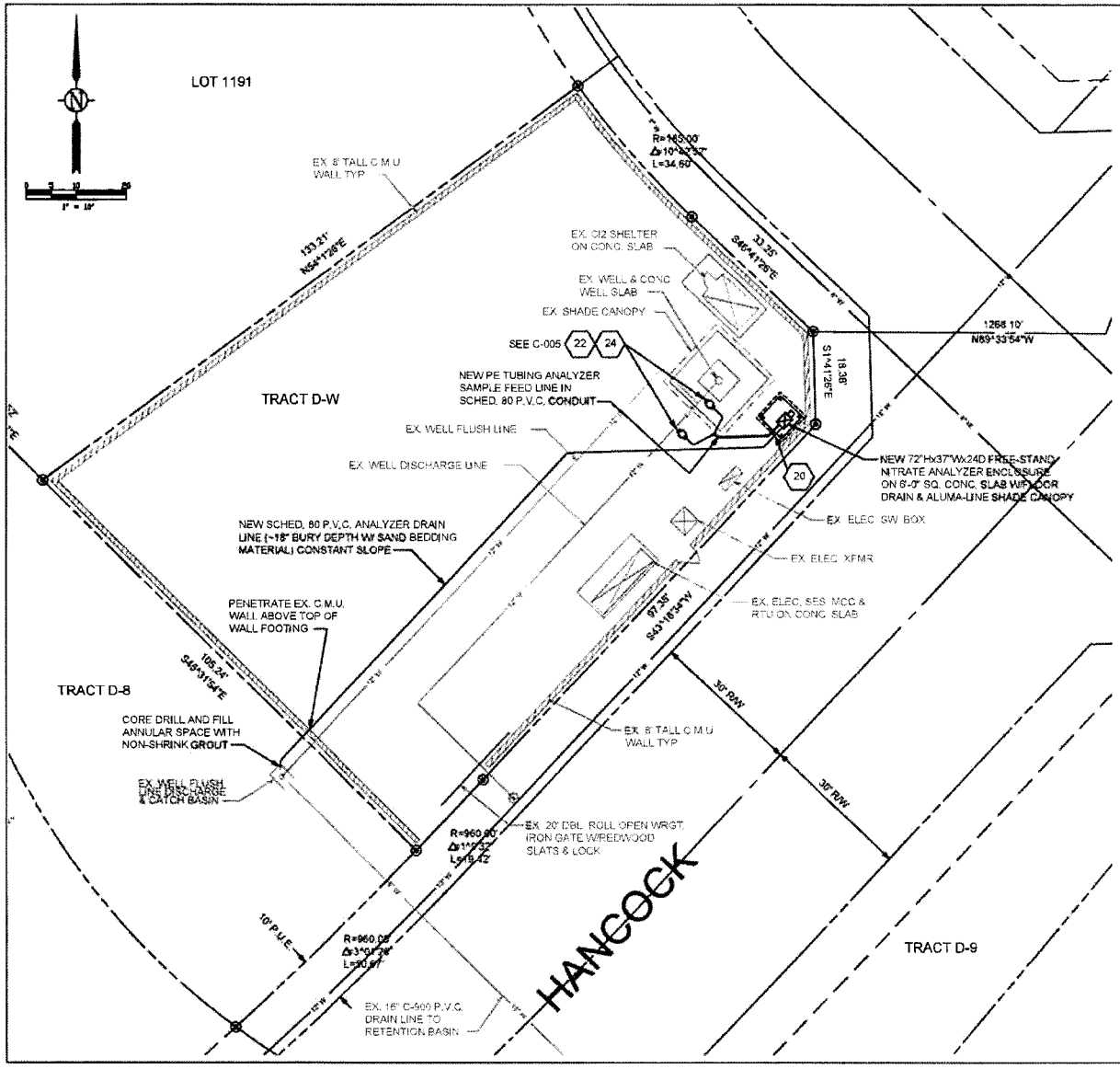
VHP

263-11100

FOR WATER ONLY

C-003

SHEET 4 OF 6



LEGEND

- ⊙ — " REBAR PROPERTY ℄ CORNER
- STREET CENTERLINE/MONUMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- U.G. ELECTRIC LINE
- EX. WATER LINE
- EX. P.U.E.

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   - B. PAINT EXPOGED ANALYZER WASTE LINE OLIVE GREEN & LABEL
5. ANY EXPOSED PIPING SUBJECT TO FREEZING SHALL BE INSULATED.
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7. CONCRETE: A.C.I. MANUAL OF CONCRETE PRACTICE, TYPE II CEMENT, MINIMUM 28 DAY STRENGTH OF 3,000 PSI. MECHANICALLY VIBRATE WHEN PLACED. MAXIMUM SLUMP 5".
8. REINFORCING: ASTM A615, GRADE 60 DEFORMED BARS. CONCRETE COVER TO REINFORCING
   - A. CONCRETE AGAINST EARTH——3"

LAP SPLICES: 48 BAR DIAMETERS UNLESS OTHERWISE NOTED.

WATERWORKS ENGINEERS

MISSION ROYALE WELLS NO. 32 AND 33 NITRATE ANALYZER

WELL NO.33 SITE PLAN

PINAL VALLEY

NE 1/4 SEC. 23, T. 6 S., R. 4 E.

DATE: 3-27-2015

SCALE: AS SHOWN

DRAWN BY: VHP

CHK'D: BWL

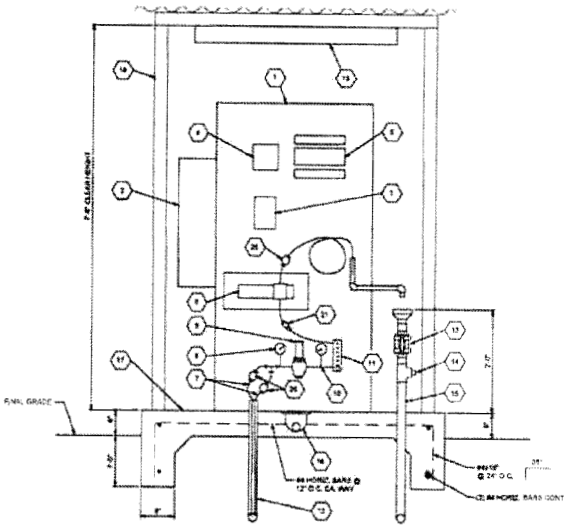
263-1100

1-800-STAKE-IT

FOR WATER ONLY

C-004

SHEET 5 OF 6



TYP. NITRATE ANALYZER DETAIL

N.T.S.

	MATERIAL SCHEDULE (1) (2)	WELL 32 QUANTITY	WELL 33 QUANTITY	SUPPLIED BY	INSTALLED BY
1.	72"Hx37"Wx24"D PENTAIR-HOFFMAN MILD STEEL TYPE 4 FREE-STAND ENCLOSURE W/3 POINT LATCH, LOCK & ALL NECESSARY MOUNTING HARDWARE AND ACCESSORIES	1	1	CONTR.	CONTR.
2.	AIR CONDITIONER - PENTAIR-HOFFMAN OR THERMAL EDGE INC., 120V, 1PH, 60Hz, NEMA 3R	1	1	CONTR.	CONTR.
3.	ELECTRIC HEATER - PENTAIR-HOFFMAN 120V, 1PH, 60Hz	1	1	CONTR.	CONTR.
4.	HACH sc200 UNIVERSAL CONTROLLER	1	1	S.WCD.	CONTR.
5.	HACH NITRATAX plus sc 5 mm ANALYZER W/FLOW THROUGH CELL	1	1	S.WCD.	CONTR.
6.	TERMINAL BLOCK & RACEWAYS W/FINGER SAFE ELECTRICAL COVERS	1	1	CONTR.	CONTR.
7.	3/8" O.D. POLYETHYLENE TUBING SAMPLE FEED LINE	65 L.F.	65 L.F.	CONTR.	CONTR.
8.	ASHCROFT 0-150 P.S.I. TYPE 1009SW PRESSURE GAUGE, MODEL 25 1009SW 02L 15GP	1	1	CONTR.	CONTR.
9.	CLA-VAL MODEL CRD 2-7 P.S.I. PRESSURE REDUCING CONTROL VALVE W/E.S. BODY	1	1	CONTR.	CONTR.
10.	ASHCROFT 0-15 P.S.I. TYPE 1009SW PRESSURE GAUGE, MODEL 25 1009SW 02L 15#.	1	1	CONTR.	CONTR.
11.	BLUE-WHITE MODEL F-55250LA PANEL MOUNT ADJUSTABLE ROTAMETER	1	1	CONTR.	CONTR.
12.	2" SCHED. 80 P.V.C. SAMPLE FEED LINE CONDUIT	50 L.F.	30 L.F.	CONTR.	CONTR.
13.	2" ASAHI/AMERICA TYPE 21 BALL VALVE	1	1	CONTR.	CONTR.
14.	GARDEN HOSE CONNECTION	1	1	CONTR.	CONTR.
15.	2" SCHED. 80 P.V.C. SAMPLE WASTE DRAIN LINE	65 L.F.	140 L.F.	CONTR.	CONTR.
16.	ZURN MODEL Z1480B SHALLOW BODY FLOOR DRAIN W/2" (F.TR.H). OUTLET	1	1	CONTR.	CONTR.
17.	REINFORCED CONCRETE FOUNDATION	1	1	CONTR.	CONTR.
18.	ALUMA-LINE SHADE CANOPY W/SHADE SCREEN PANEL ON SOUTHEAST EXPOSURE	1	-	CONTR.	CONTR.
19.	LITHONIA DMW 48/INCH 2 LAMP (32W T8) FLUORESCENT LIGHT FIXTURE W/SWITCH	1	1	CONTR.	CONTR.
20.	ALUMA-LINE SHADE CANOPY W/SHADE SCREEN PANEL ON SOUTHWEST EXPOSURE	-	1	CONTR.	CONTR.
21.	CHECK VALVE	1	1	CONTR.	CONTR.
22.	12"X1" DOUBLE STRAP SADDLE	-	2	CONTR.	CONTR.
23.	10"X1" DOUBLE STRAP SADDLE	2	-	CONTR.	CONTR.
24.	1" BALL CORP STOP	2	2	CONTR.	CONTR.
25.	3/8" SWAGELOK S&T BALL VALVE	3	3	CONTR.	CONTR.

(1) SEE CONTRACT PROPOSAL DESIGN-BUILD ELECTRICAL EQUIPMENT FOR NITRATE ANALYZER SPECIAL CONDITIONS DATED 5-8-2014 FOR ADDITIONAL FACILITY INFORMATION, GENERAL SCOPE OF WORK, SPECIAL CONDITIONS, CONTROL DESCRIPTION, SCADA INDICATIONS AND ALARMS.

WATERWORKS ENGINEERS

MISSION ROYALE WELLS NO. 32 AND 33 NITRATE ANALYZER

NITRATE ANALYZER DETAIL

FINAL VALLEY

NE 1/4, SEC. 28-T.4 S.-R. 4 E.

3-27-2015

AS SHOWN

VHP

BWL

263-1100

1-800-STAKE-IT

FOR WATER ONLY

C-005

SHEET 6 OF 6

SCHEMATIC DIAGRAM SYMBOLS

- CR — CONTROL RELAY
- TD — TIME DELAY RELAY
- AR — ALARM RELAY
- ETM — ELAPSED TIME METER
- M — MOTOR STARTER OR CONTACTOR COIL
- PC — PHOTO CELL
- R — BEACON ALARM LIGHT LETTER INDICATES COLOR R=RED, A=AMBER, B=BLUE, G=GREEN
- R — PILOT LIGHT LETTER INDICATES COLOR R=RED, A=AMBER, B=BLUE, G=GREEN
- OUTPUT DV/DT FILTER
- HEATING ELEMENT
- TRANSFORMER
- CT — CURRENT TRANSFORMER
- GROUND CONNECTION
- GENERATOR
- HORN — HORN
- 5 — FULL VOLTAGE NON-REVERSING (FVNR) MOTOR STARTER OR CONTACTOR NUMBER DESIGNATES NEMA SIZE
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- DI — RTU OR PLC CONTACT
- HAND / AUTO, XO — 2 POSITION SELECTOR SWITCH POSITION LEGEND: X=CLOSED O=OPEN
- HAND / OFF / AUTO, XOO — 3 POSITION SELECTOR SWITCH HAND – OFF – AUTO POSITION LEGEND: X=CLOSED O=OPEN
- NORMALLY CLOSED PUSH BUTTON
- LOCKOUT STOP PUSH BUTTON
- NORMALLY OPEN PUSH BUTTON
- EMERGENCY STOP PUSH BUTTON (MAINTAINED)
- AMPS — DISCONNECT SWITCH SHOWN WITH RATING AND NUMBER OF POLES
- LIMIT OR POSITION SWITCH
- PSH — PRESSURE SWITCH HIGH
- PSL — PRESSURE SWITCH LOW
- FLOW SWITCH
- LEVEL FLOAT SWITCH
- T, NCTO — TIMER RELAY CONTACT INSTANTANEOUS CLOSE TIME DELAY OPEN
- T, NOTC — TIMER RELAY CONTACT NORMALLY OPEN TIME DELAY CLOSE
- TEMPERATURE SWITCH
- FUSE
- AMPS — FUSEHOLDER OR FUSEBLOCK
- THERMAL OVERLOAD RELAY
- TERMINAL BLOCK
- DEVICE LOCATED AT REMOTE LOCATION
- CONDUIT SEALOFF

POWER SINGLE LINE DIAGRAM SYMBOLS

- JUNCTION BOX WITH POWER DISTRIBUTION BLOCK OR LUGS
- CONDUIT SEALOFF
- LTC CONNECTION
- MC CONNECTION
- BOND TO METALLIC WATER PIPE
- UM — UTILITY METER
- HP — MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE
- FUSE
- AMPS — FUSEHOLDER OR FUSEBLOCK
- AMPS, POLES — CIRCUIT BREAKER, SHOWN WITH TRIP RATING AND NUMBER OF POLES
- AMPS, MCP, POLES — MOTOR CIRCUIT PROTECTOR WITH TRIP RATING AND NUMBER OF POLES
- AMPS, POLES — DISCONNECT SWITCH SHOWN WITH RATING AND NUMBER OF POLES
- MMR — MOTOR MANAGEMENT RELAY
- SSS — SOLID STATE STARTER
- VFD — VARIABLE FREQUENCY DRIVE
- HF — HARMONIC FILTER
- EOL — ELECTRONIC OVERLOAD RELAY
- GROUND CONNECTION

SITE PLAN SYMBOLS

- TELEPHONE OUTLET
- $ — SINGLE POLE SWITCH
- $3 — 3 WAY SWITCH
- $4 — 4-WAY SWITCH
- $M — MANUAL MOTOR STARTER
- SPECIAL PURPOSE OR WELDING OUTLET
- S — SMOKE DETECTOR
- T — THERMOSTAT
- FIELD DEVICE
- GROUND ROD
- DUPLEX RECEPTACLE
- ANTENNA MAST
- CONDUIT SEALOFF
- DISCONNECT SWITCH
- M — MOTOR
- CONDUIT TURN UP
- CONDUIT TURN DOWN

CIRCUIT SCHEDULE LEGEND

AAA-BC

- SEQUENCE NUMBER
- TYPE C=CONTROL P=POWER
- DEVICE SERVED

ELECTRICAL ABBREVIATIONS

A	AMPERE
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFC	ABOVE FINISHED GRADE
AI	ANALOG INPUT
AIC	AMPS INTERRUPTING CAPACITY
AO	ANALOG OUTPUT
AS	AIR SUPPLY
ATS	AUTOMATIC TRANSFER SWITCH
BC	BYPASS CONTACTOR
C	CONDUIT
CB	CIRCUIT BREAKER
CCW	COUNTER CLOCKWISE
CLZ	CHLORINE
CON	CONTACTOR
CPB	CONTROL PULLBOX
CU	COPPER, BARE
CV	CONTROL VALVE
CW	CLOCKWISE
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
DP	DISTRIBUTION PANEL
DV/DT	DIFFERENTIAL VOLTAGE/TIME
DWG	DRAWING
ETM	ELAPSED TIME METER
EOL	ELECTRONIC OVERLOAD
EXIST	EXISTING
FA	FOUL AIR
FC	FAIL CLOSED
FE	FLOW ELEMENT
FLA	FULL LOAD AMPS
FS	FLOW SWITCH
FVNR	FULL VOLTAGE NON-REVERSING
FW	FINISHED WATER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRS	GALVANIZED RIGID STEEL
H, HI	HIGH
H2S	HYDROGEN SULFIDE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
I	CURRENT
IC	INSTRUMENTATION CABLE
ICR	INTERMITTENT CYCLE REACTOR
IO	INPUT/OUTPUT
ISC	SHORT CIRCUIT CURRENT
JB	JUNCTION BOX
L, LO	LOW
LAN	LOCAL AREA NETWORK
LC	LOOP CONTROLLER
LCL	LEVEL CONTROL, LOW
LCP	LOCAL CONTROL PANEL
LOS	LOCK-OUT-STOP
LOR	LOCAL/OFF/REMOTE
LS	LEVEL (i.e., FLOAT) SWITCH
LTC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
M	MOTOR
MA	MANUAL/AUTO
mA	MILLIAMP
MAX	MAXIMUM
MC	MANUFACTURER'S CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR(S)	MANUFACTURER(S)
MGD	MILLION GALLONS PER DAY
MGL	MILLIGRAMS PER LITER
MH	MANHOLE
MIN	MINIMUM
MOV	MOTOR OPERATED VALVE
MMR	MOTOR MANAGEMENT RELAY
MTU	MASTER TELEMETRY UNIT
NEC	NATIONAL ELECTRICAL CODE
NECA	NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NIC	NOT IN CONTRACT
NOTC	NORMALLY OPEN TIMED CLOSED
NPW	NON-POTABLE WATER
NS	NITROGEN SUPPLY
NTS	NOT TO SCALE
NTU	TURBIDITY
OCA	OPEN/CLOSE/AUTO
OF	OVERFLOW
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD
OLR	OVERLOAD RELAY
OO	ON/OFF (MAINTAINED)
OR	OFF-REMOTE
OSC	OPEN/STOP/CLOSE
P	PHASE
PB	PULL BOX
PCP	PROCESS CONTROL PANEL
PCV	PRESSURE CONTROL VALVE
PFR	PHASE/POWER FAILURE RELAY
PI	PULSE INPUT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLI	PLANT INFLUENT
PMP	PUMP
PNL	PANEL
PO	PULSE OUTPUT
PPB	POWER PULLBOX
PPG	POUNDS PER GALLON
PPH	POUNDS PER HOUR
PPM	PARTS PER MILLION
PR	PAIR
PRES	PRESSURE
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH, HIGH
PSI	POUNDS PER SQUARE INCH
PV	PROCESS VARIABLE
RAS	RETURN ACTIVATED SLUDGE
RW	RAW WATER
RF	RADIO FREQUENCY
RIO	REMOTE INPUT OUTPUT
RS	RAW SEWAGE
RSP	RAW SEWAGE PUMP
RST	RESET
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TELEMETRY UNIT
RWT	REFLECTED WAVE TRAP
SCA	SHORT CIRCUIT AMPS
SEQ	SERVICE ENTRANCE EQUIPMENT
SES	SERVICE ENTRANCE SECTION
SLC	SINGLE LOOP CONTROLLER
SLOS	START-LOCK-OUT-STOP
SMC	SUBMERSIBLE MANUFACTURER CABLE
SO2	SULFUR DIOXIDE
SP	SET POINT
SPC	SPARE CONDUIT
SPR	SPARE
SS	START/STOP
SSS	SOLID STATE STARTER (SOFT START)
ST	SHUNT TRIP
TC	TELEPHONE CABLE
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT, WIRE
WAS	WASTE ACTIVATED SLUDGE
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMR	TRANSFORMER
XMTR	TRANSMITTER
ZS	POSITION (i.e., LIMIT) SWITCH

ELECTRICAL LINETYPES

- EXPOSED CONDUIT
- EXISTING EXPOSED CONDUIT
- UNDERGROUND CONDUIT
- EXISTING UNDERGROUND CONDUIT
- BARE COPPER GROUND CONDUCTOR
- EXISTING OR FUTURE
- NEW ELECTRICAL EQUIPMENT
- DEMOLITION
- DETAIL VIEW OR MATCHING
- CAPPED CONDUIT STUB OUT
- PXXX / CXXX — GROUPED CONDUIT AND CIRCUIT IDENTIFICATION TAGS. REFER TO THE POWER SINGLE-LINE, SCHEMATIC CONNECTION DIAGRAMS AND CIRCUIT SCHEDULE FOR CONDUIT SIZES AND CONTENTS.

P=POWER
C=CONTROL

GENERAL NOTES

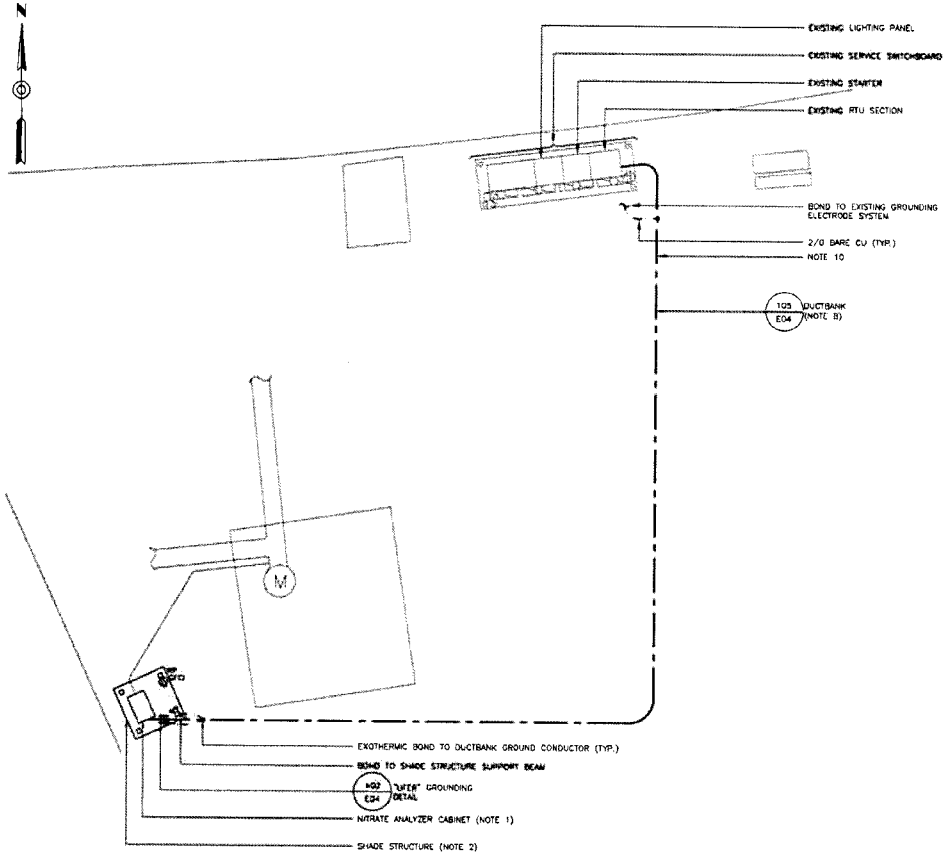
1. THE COMPLETED INSTALLATION SHALL COMPLY WITH LATEST REVISION OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE COMPLETED IN A NEAT, WORKMANLIKE MANNER IN ACCORDANCE WITH THE LATEST NECA STANDARDS OF INSTALLATION UNDER COMPETENT SUPERVISION. INSTALL GROUNDING PER NEC.
2. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND OTHER FACTORS, WHICH MAY AFFECT THE EXECUTION OF THE WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
3. THE CONTRACTOR SHALL COORDINATE WORK WITH THE UTILITIES PROVIDING SERVICES ON THIS PROJECT, AND SHALL COMPLY WITH ALL THEIR INSTALLATION REQUIREMENTS.
4. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH THE LATEST REVISION OF NEMA, ANSI, UL, OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURERS' NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS, AND BID PRICE.
5. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS, OR ANY OTHER PREVENTABLE CAUSES. EQUIPMENT DAMAGED DURING SHIPPING OR CONSTRUCTION, PRIOR TO ACCEPTANCE BY THE ENGINEER OR THE OWNER, WILL BE REJECTED AS DEFECTIVE.
6. LEAVE THE SITE CLEAN. REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK. DAMAGED PAINT AND FINISHES SHALL BE TOUCHED UP OR REPAINTED WITH MATCHING COLOR PAINT AND FINISH.
7. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC. MINIMUM CONDUIT DEPTH SHALL BE 24 INCHES. MINIMUM UNDERGROUND CONDUIT SIZE SHALL BE 1 INCH.
8. CONDUITS SHALL BE MARKED AT EACH END WITH MATCHING NUMBERED BRASS TAGS. SPARE CONDUITS SHALL HAVE A PULL STRING INSTALLED, SECURED, AND CAPPED.
9. EXPOSED CONDUITS SHALL BE GALVANIZED RIGID STEEL (GRS). MINIMUM SIZE 3/4 INCH, UNLESS OTHERWISE NOTED ON THE PLANS.
10. SAFETY SWITCHES, ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, AND OTHER ELECTRICAL DEVICES SHALL BE UL LISTED, AND RATED FOR HEAVY DUTY SERVICE.
11. WIRING DEVICES SHALL BE SPECIFICATION GRADE.
12. THE CONTRACTOR IS RESPONSIBLE FOR MANAGING, SCHEDULING, DOCUMENTING, AND PERFORMING THE WORK SO THAT A COMPLETE ELECTRICAL, INSTRUMENTATION AND CONTROL SYSTEM FOR THE FACILITY IS PROVIDED. ACCURATE SHOP AND RECORD DRAWINGS, AND O&M MANUALS SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE OF THE WORK.
13. TYPICAL DETAILS SHALL APPLY IN ALL CASES, WHETHER SPECIFICALLY REFERRED TO OR NOT.

263-1100

DELTA SYSTEMS ENGINEERING INC
3550 N. CENTRAL AVE., SUITE 915
PHOENIX, AZ 85012 602.266.4656

ARIZONA WATER COMPANY WELLS
32 & 33 NITRATE ANALYZER ADD.
ELECTRICAL NOTES, SYMBOLS
AND LEGEND

Scale	NONE
Job No.	1893.00.100
Designer	DLN
Drawn	JNA
Checked	DLN
Approved	HT
Date	APRIL 2015
Sheet	E01



A WELL # 32 SITE PLAN
N.T.S.

NOTES:

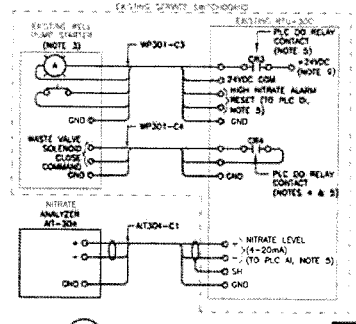
1. REFER TO DESIGN BY WATER WORKS ENGINEERS FOR NITRATE ANALYZER CABINET CONSTRUCTION DETAILS/REQUIREMENTS. ENSURE ALL COMPONENTS AND ASSOCIATED ELECTRICAL TERMINATIONS WITHIN NITRATE ANALYZER CABINET ASSOCIATED WITH VOLTAGES GREATER THAN 30V ARE FINGER SAFE. IF A COMPONENT OR TERMINATION ISN'T FINGER SAFE BY DESIGN, IT SHALL BE PROVIDED WITH A PROTECTIVE COVER SO AS TO PREVENT ACCIDENTAL OPERATOR CONTACT.
2. DESIGN AND CONSTRUCTION OF SHADE STRUCTURE AND ASSOCIATED CONCRETE PAD SHALL BE CONTRACTOR'S RESPONSIBILITY. CONTRACTOR SHALL UTILIZE ALUMALINE FOR SHADE STRUCTURE DESIGN. DESIGN IS TO BE REVIEWED AND APPROVED BY ARIZONA WATER COMPANY ("COMPANY") PRIOR TO CONSTRUCTION. REFER TO DESIGN BY ARIZONA WATER COMPANY FOR SHADE STRUCTURE LIGHTING FIXTURE REQUIREMENTS.
3. MOUNT RESET PUSHBUTTON AND PILOT LIGHT ON INNER DOOR OF WELL PUMP STARTER CABINET. INDICATOR LIGHT, PUSHBUTTON, AND ASSOCIATED NAMEPLATES SHALL BE CONSISTENT WITH ASSOCIATED EXISTING STARTER INDICATOR LIGHTS, PUSHBUTTONS AND NAMEPLATES.
4. RTU RELAY CONTACT "CR4" IS TO BE INCORPORATED INTO EXISTING WELL PUMP STARTER CONTROL LOGIC IN PLACE OF EXISTING NORMALLY OPEN TIME DELAY CLOSE (NOTC) "FLOW TO WASTE" TIMER RELAY CONTACT ("WVTR") THEREBY TURNING CONTROL OF WASTE VALVE OPERATION OVER SOLELY TO SITE RTU/PLC. REFER TO ORIGINAL WELL PUMP STARTER AS-BUILT DRAWINGS DATED 4/11/08 FOR INFORMATION PERTAINING TO EXISTING STARTER LOGIC.
5. UTILIZE DISCRETE OUTPUT DO-3 IN RACK 1, SLOT 5 FOR NITRATE ALARM LIGHT, DISCRETE OUTPUT DO-4 IN RACK 1, SLOT 5 FOR WASTE VALVE CLOSE COMMAND, DISCRETE INPUT DI-2 IN RACK 1, SLOT 4 FOR NITRATE ALARM DISABLE PUSHBUTTON, AND AI POINT AI-1 IN RACK 2, SLOT 7 FOR NITRATE LEVEL. REFER TO ORIGINAL RTU AS-BUILT DRAWINGS DATED 4/11/08 FOR SPECIFIC I/O CARD WIRING/TERMINATION INFORMATION.
6. INFORMATION REFLECTED IN PANEL SCHEDULE WAS TAKEN FROM KELLER ELECTRICAL DRAWINGS DATED 5/19/07.
7. WHERE AVAILABLE, EXISTING CONDUITS CAN BE UTILIZED TO ROUTE WIRING INTO EXISTING SERVICE SWITCHBOARD.
8. NEW UNDERGROUND CONDUITS SHALL BE EITHER CONCRETE ENCASED, SCHEDULE 40 PVC (IN ACCORDANCE WITH DETAIL 1G5) OR DIRECT BURIED, PVC-COATED GRS. IF PVC-COATED GRS CONDUITS ARE UTILIZED, ENSURE SUITABLE BACKFILL MATERIAL IS UTILIZED TO PREVENT DAMAGE TO PVC COATING. PVC-COATED GRS CONDUITS SHALL BE BURIED AT A DEPTH IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE TABLE 300.5.
9. HIGH NITRATE LEVEL ALARM LIGHT IS TO BE POWERED BY EXISTING RTU 24VDC POWER SUPPLY VIA A 0.5A FUSE. FUSE TYPE/STYLE, IS TO BE CONSISTENT WITH EXISTING CABINET CONTROL FUSES.
10. CONDUIT ROUTING SHOWN IS APPROXIMATE AND SCHEMATIC IN NATURE. ACTUAL ROUTING IS TO BE FIELD DETERMINED.

C WELL # 32 PANEL A SCHEDULE
(NOTE 6)

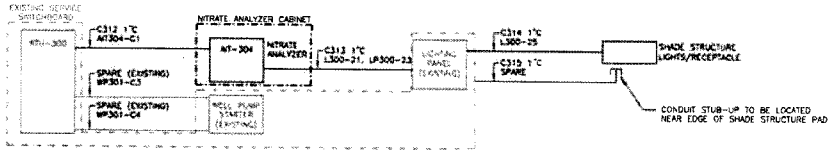
LOAD DESCRIPTION	LOAD (VA) PHASE A	LOAD (VA) PHASE B
NITRATE ANALYZER CABINET	125	
NITRATE ANALYZER AIC UNITRON	125	
NITRATE SHADE STR LTG/RCPT	128	

CIRCUIT	CONDUCTORS
WP301-C1	4 - #14 #14 GND
WP301-C4	3 - #14 #14 GND
AIT304-C1	1 - #6 #14 GND

D CIRCUIT SCHEDULE



E MISC. CONNECTION DIAGRAM
CONNECTION



B CONDUIT BLOCK DIAGRAM

263-1100

Rev #	By	Date	Description

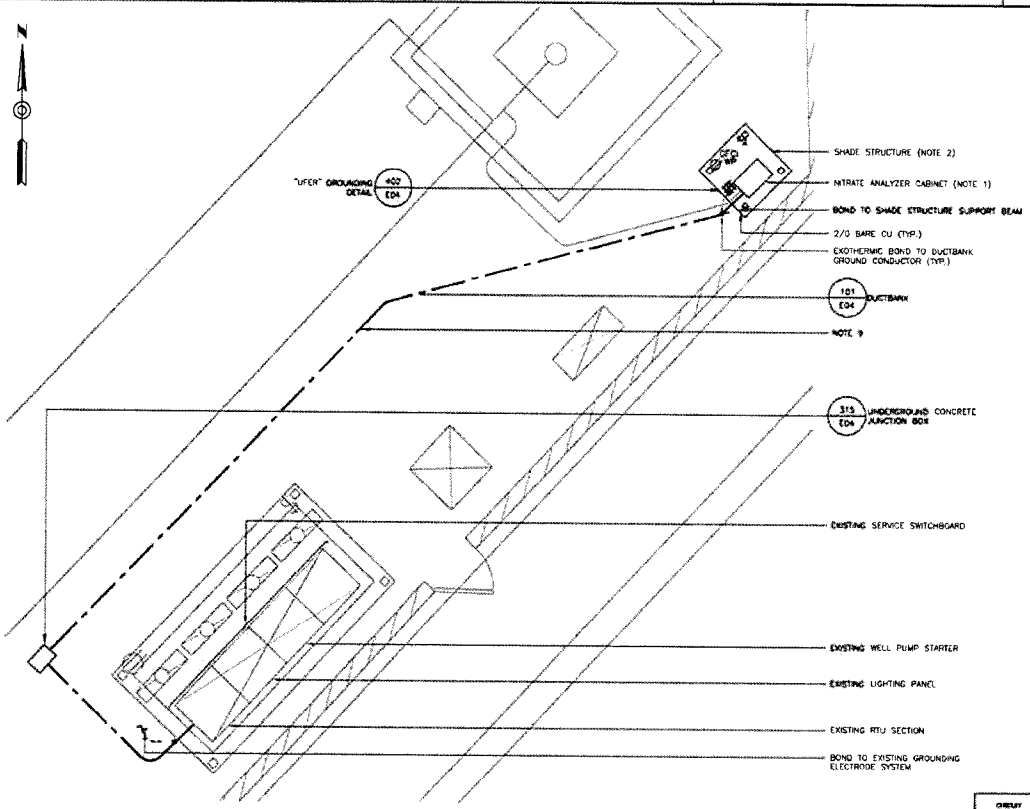
DELTA SYSTEMS ENGINEERING INC
3550 N. CENTRAL AVE., SUITE 915
PHOENIX, AZ 85012 602.265.4958

ARIZONA WATER COMPANY WELLS
32 & 33 NITRATE ANALYZER ADD.
WELL 32 – SITE PLAN,
SCHEDULES AND DIAGRAMS

Scale	NONE
Job No.	1893.00.100
Designed	DLN
Drawn	JMA
Checked	DLN
Approved	MT
Date	APRIL 2015
Sheet	E02

XREF: (1893.00.100_Title Block)

PLOTTED: April 20, 2015 By: jamena DWG FILE: K:\1800's\1893.00 AWC Well 32 & 33 Nitrate Analyzer Addition\100 - Edd Design_CAD Files\1893.00.100_E02.dwg



A WELL # 33 SITE PLAN
N.T.S.

NOTES:

1. REFER TO DESIGN BY WATER WORKS ENGINEERS FOR NITRATE ANALYZER CABINET CONSTRUCTION DETAILS/REQUIREMENTS. ENSURE ALL COMPONENTS AND ASSOCIATED ELECTRICAL TERMINATIONS WITHIN NITRATE ANALYZER CABINET ASSOCIATED WITH VOLTAGES GREATER THAN 50V ARE FINGER SAFE. IF A COMPONENT OR TERMINATION ISN'T FINGER SAFE BY DESIGN, IT SHALL BE PROVIDED WITH A PROTECTIVE COVER SO AS TO PREVENT ACCIDENTAL OPERATOR CONTACT.
2. DESIGN AND CONSTRUCTION OF SHADE STRUCTURE AND ASSOCIATED CONCRETE PAD SHALL BE CONTRACTOR'S RESPONSIBILITY. CONTRACTOR SHALL UTILIZE ALUMALINE FOR SHADE STRUCTURE DESIGN. DESIGN IS TO BE REVIEWED AND APPROVED BY ARIZONA WATER COMPANY ("COMPANY") PRIOR TO CONSTRUCTION. REFER TO DESIGN BY ARIZONA WATER COMPANY FOR SHADE STRUCTURE LIGHTING FIXTURE REQUIREMENTS.
3. MOUNT RESET PUSHBUTTON AND PILOT LIGHT ON INNER DOOR OF WELL PUMP STARTER CABINET. INDICATOR LIGHT, PUSHBUTTON, AND ASSOCIATED NAMEPLATES SHALL BE CONSISTENT WITH ASSOCIATED EXISTING STARTER INDICATOR LIGHTS, PUSHBUTTONS AND NAMEPLATES.
4. RTU RELAY CONTACT 'CR4' IS TO BE INCORPORATED INTO EXISTING WELL PUMP STARTER CONTROL LOGIC IN PLACE OF EXISTING NORMALLY OPEN TIME DELAY CLOSE (NOTC) "FLOW TO WASTE" TIMER RELAY CONTACT ("WVTR") THEREBY TURNING CONTROL OF WASTE VALVE OPERATION OVER SOLELY TO SITE RTU/PLC. REFER TO ORIGINAL WELL PUMP STARTER AS-BUILT DRAWINGS DATED 4/11/08 FOR INFORMATION PERTAINING TO EXISTING STARTER LOGIC.
5. UTILIZE DISCRETE OUTPUT DO-3 IN RACK 1, SLOT 5 FOR NITRATE ALARM LIGHT, DISCRETE OUTPUT DO-4 IN RACK 1, SLOT 5 FOR WASTE VALVE CLOSE COMMAND, DISCRETE INPUT DI-2 IN RACK 1, SLOT 4 FOR NITRATE ALARM DISABLE PUSHBUTTON, AND AI POINT AI-1 IN RACK 2, SLOT 7 FOR NITRATE LEVEL. REFER TO ORIGINAL RTU AS-BUILT DRAWINGS DATED 4/11/08 FOR SPECIFIC I/O CARD WIRING/TERMINATION INFORMATION.
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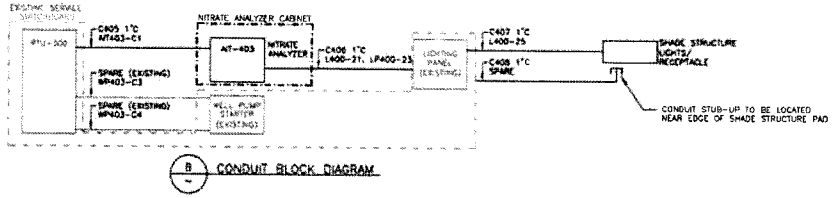
8. HIGH NITRATE LEVEL ALARM LIGHT IS TO BE POWERED BY EXISTING RTU 24VDC POWER SUPPLY VIA A 0.5A FUSE. FUSE TYPE/STYLE, IS TO BE CONSISTENT WITH EXISTING CABINET CONTROL FUSES.
9. CONDUIT ROUTING SHOWN IS APPROXIMATE AND SCHEMATIC IN NATURE. ACTUAL ROUTING IS TO BE FIELD DETERMINED.

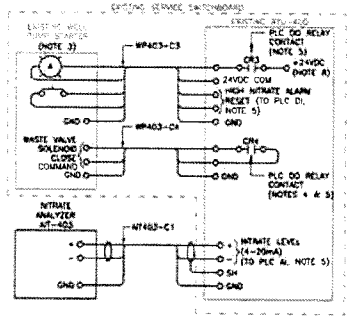
C WELL # 33 PANEL A SCHEDULE
(NOTE 6)

CIRCUIT	CONDUCTORS
WP403-C3	4 - #14, #14 GND
WP403-C4	2 - #14, #14 GND
NT403-C1	1 - C, #14 GND

D CIRCUIT SCHEDULE



B CONDUIT BLOCK DIAGRAM



E MISC. CONNECTION DIAGRAM
CONNECTION

263-1100

ARIZONA WATER COMPANY WELLS 32 & 33 NITRATE ANALYZER ADD.
SITE PLAN – WELL # 33

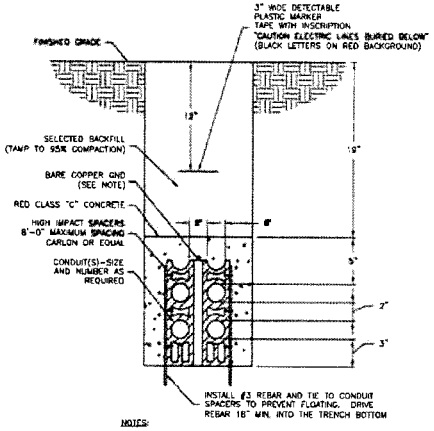
Scale	NONE
Job No.	1893.00.100
Designed	DLN
Drawn	JHA
Checked	DLN
Approved	WT
Date	APRIL 2015
Sheet	E03

DELTA SYSTEMS ENGINEERING INC
3550 N. CENTRAL AVE., SUITE 915
PHOENIX, AZ 85012 602.266.4656

Expires 9/30/15

Rev'd	By	Date	Description

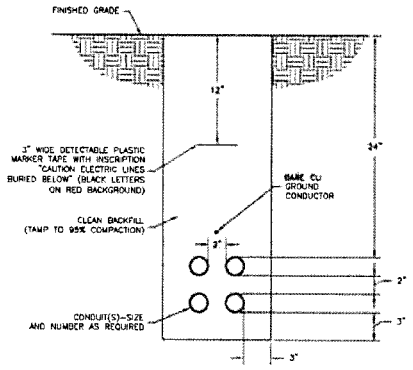
PLOTTED: April 20, 2015 8m jahrens DWG FILE: K:\1800's\1893.00 AWC Well 32 & 33 Nitrate Analyzer Addition\100 - E&I Design_CAD Files\1893.00.100_E03.dwg
XREFs: Well 33 Site Plan; 1893.00_TCD_Title Block



NOTES:

1. GROUND CONDUCTOR SHALL RUN CONTINUOUSLY THROUGH MANHOLES AND SHALL CONTINUE FROM DUCTBANK INTO SWITCHGEAR OR BUILDING GROUNDING SYSTEM AND SHALL BE BONDED TO EACH RIGID METAL CONDUIT. SIZE TO BE #2/0 (MIN.) UNLESS OTHERWISE INDICATED ON PLANS.
2. ALL DIMENSIONS ARE MINIMUM.
3. CLASSIFICATION OF VEHICULAR AREAS TO BE CONFIRMED BY "COMPANY".

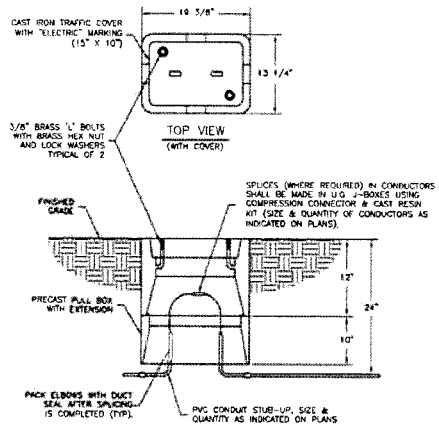
105 TYP — DUCTBANK - CONCRETE ENCASED



NOTES:

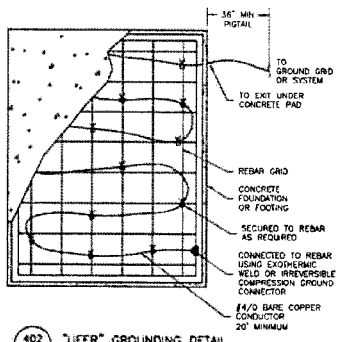
1. GROUND CONDUCTOR SHALL RUN CONTINUOUSLY THROUGH MANHOLES AND SHALL CONTINUE FROM DUCTBANK INTO SWITCHGEAR OR BUILDING GROUNDING SYSTEM AND SHALL BE BONDED TO EACH RIGID METAL CONDUIT. SIZE TO BE #2/0 (MIN.) UNLESS OTHERWISE INDICATED ON PLANS.
2. ALL DIMENSIONS ARE MINIMUM.
3. CLASSIFICATION OF NON-VEHICULAR AREAS TO BE CONFIRMED BY "COMPANY".

101 TYP — DUCTBANK - DIRECT BURIED
NOT TO SCALE

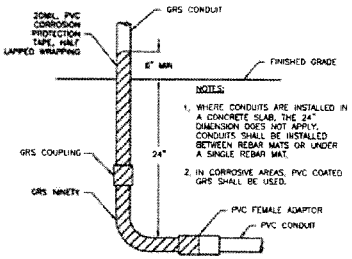


NOTE: ALL DIMENSIONS ARE MINIMUM

315 TYP — UNDERGROUND CONCRETE JUNCTION BOX
NOT TO SCALE



402 TYP — "UFER" GROUNDING DETAIL
NOT TO SCALE



NOTES:

1. WHERE CONDUITS ARE INSTALLED IN A CONCRETE SLAB, THE 24" DIMENSION DOES NOT APPLY. CONDUITS SHALL BE INSTALLED BETWEEN REBAR MATS OR UNDER A SINGLE REBAR MAT.
2. IN CORROSIVE AREAS, PVC COATED GRS SHALL BE USED.

170 TYP — GRS STUB UP DETAIL
NOT TO SCALE

263-1100

ARIZONA WATER COMPANY WELLS
32 & 33 NITRATE ANALYZER ADD.
ELECTRICAL DETAILS

Area: NONE
Job No.: TB93.00.100
Designed: DLN
Drawn: JHA
Checked: DLN
Approved: MT
Date: APRIL 2015
Sheet: E04

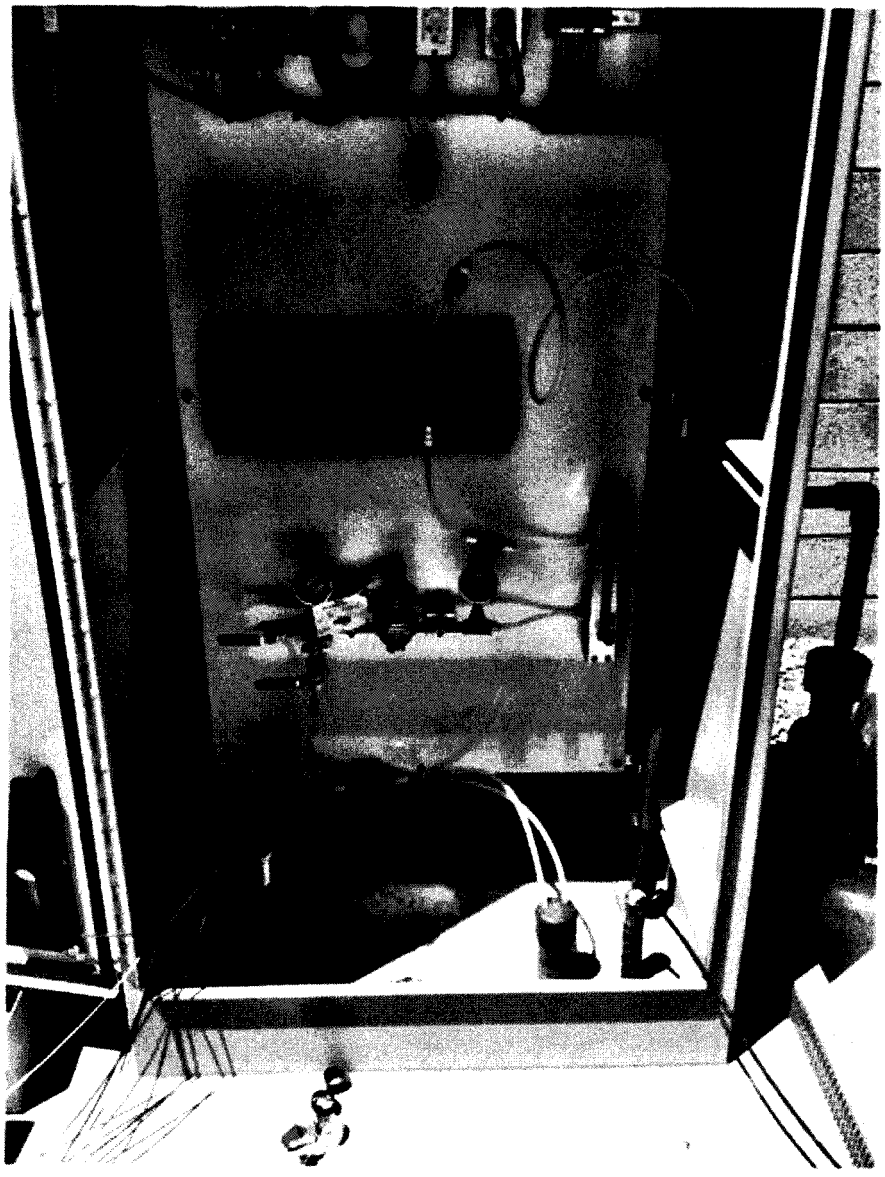
DELTA SYSTEMS INC
3550 N. CENTRAL AVE., SUITE 915
PHOENIX, AZ 85012 602.265.4050

Description | Rev'd By | Date

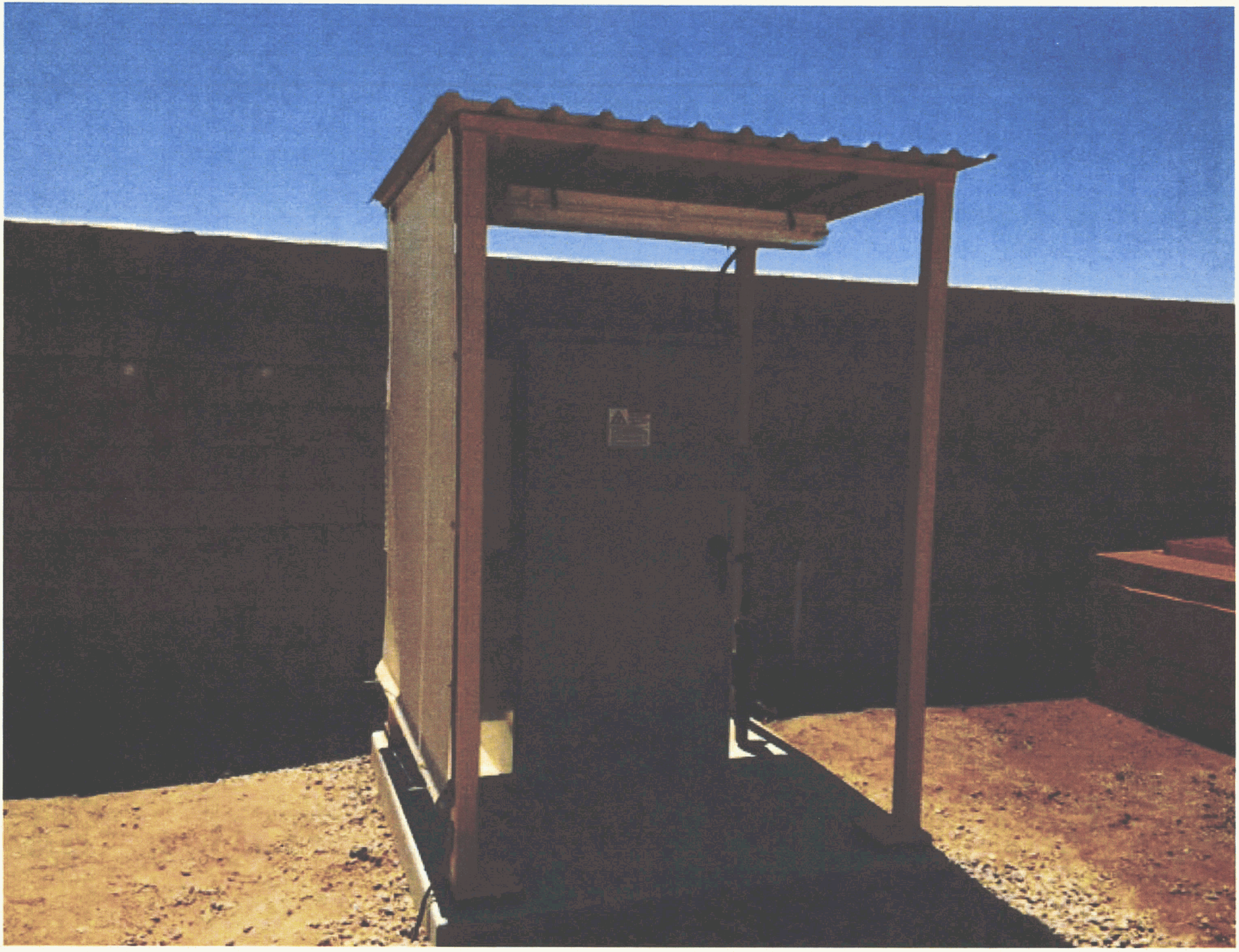
Expires 3/30/15

PLOTTED: April 20, 2015 By: johnsons DWG FILE: X:\1800's\1893.00 AWC Well 32 & 33 Nitrate Analyzer Addition\100 - Edit Design_CAD Files\1893.00.100_E04.dwg

XREF: 1893.00.100_Title Block



CG Well 32 5-19-15
New Nitrate Analyzer



ARIZONA WATER COMPANY

CONSTRUCTION PLACED IN SERVICE NOTICE

WORK AUTHORIZATION NO.: 1-5303

DIVISION: PV / CG

DATE PLACED IN SERVICE: 6 | 5 | 2015

CONTRACT NO:

FOR PURPOSES OF *MODIFIED ACCELERATED COST RECOVERY SYSTEM*, AN ASSET IS "PLACED IN SERVICE" WHEN IT IS IN A CONDITION OR STATE OF READINESS AND AVAILABILITY FOR A SPECIFICALLY ASSIGNED FUNCTION, WHETHER IT BE FOR USE IN A TRADE OR BUSINESS, OR FOR THE PRODUCTION OF INCOME.

I CERTIFY THAT THE ASSET(S) CONSTRUCTED PURSUANT TO THE PROVISIONS OF THE ABOVE-REFERENCED WORK AUTHORIZATION ARE READY FOR SERVICE AS OF THE DATE SHOWN ABOVE.

Division Manager or Operations Superintendent
(signature)

6-9-15
Date

SUBMIT ORIGINAL TO ACCOUNTING DEPARTMENT

A-1-3-1
FKS 11/24/11

Document2
XXX:XXX 6:01 PM 6/9/15

Western Group Rate Case

Exhibit FKS-1

5304 PV Well 27

ARIZONA WATER COMPANY
WORK AUTHORIZATION

W.A. NUMBER: 1-5304
P.E. NUMBER:
BUDGET ITEM NO.: 1-5304
SHEET NO.: 1 of 2

SYSTEM:	PINAL VALLEY	RETENTION REQUIRED:	☑ YES ☐ NO
DIVISION:	CASA GRANDE	WORK TO START BY:	UPON AUTHORIZATION
RESPONSIBLE PERSON:	JAMES WILSON	WORK TO BE FINISHED BY:	WITHIN ???? DAYS
TAX CODE:			

DESCRIPTION OF WORK:

Install a second 60 HP 500 GPM booster pump, starter panel and new suction and discharge headers at the Lake In The Desert Booster Pump Station at Well No. 27.

FACTORS JUSTIFYING WORK:

Approved 2015 Budget Item ($75,000)
The BPS supplies water to the Casa Grande upper pressure zone. The upper pressure zone is supplied on the west side by the Scott Drive booster pump station and on the east side by the BPS. The BPS is necessary to supply system pressure and demand in the eastern portion of the upper pressure zone during peak demand. The BPS consists of a single 60HP 500 GPM booster pump. If the pump fails during peak demand the Company receives low pressure complaints from customers north of the BPS in the Las Montana's subdivision.

COST ESTIMATE		AUTHORIZATION	DATE
COST OF WORK:		PREPARED BY: James Wilson	
MATERIAL	0		
LABOR	0	REVIEWED FOR ESMT/ROW VERIFICATION: Charles Briggs	
CONTRACT PORTION	0		
OVERHEAD	0	REVIEWED BY: Mario Mendez	
TOTAL AUTHORIZED EXPENDITURES CHARGEABLE TO THIS W.A.	$ -		
FUNDS RECEIVED:		APPROVED BY ENGINEERING: Fredrick Schneider	
CONTRIBUTIONS RECEIVED	0		
REFUNDABLE ADVANCES RECEIVED	0	APPROVED BY FINANCE: Joseph Harris	
TOTAL CONTRIBUTIONS/ADVANCES	0		
NET COMPANY CASH REQUIRED	$ -	AUTHORIZED BY PRESIDENT: William Garfield	

COMMENTS:

CONSTRUCTION RELEASE:

AFH

ARIZONA WATER COMPANY

WORK AUTHORIZATION - DETAIL SHEET

W.A. NUMBER: 1-5304
P.E. NUMBER:
BUDGET ITEM NO.: B-1
SHEET NO.: 2 of 2

RETIREMENT PROPERTY UNITS	PLANT PROPERTY ACCOUNT	UNIT DESCRIPTION	QUANTITY	YEAR INSTALLED AND W.A. NUMBER
	343	6-inch distribution header	20	2010, 1-4620

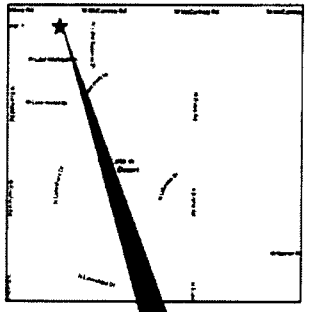
PROJECT DESCRIPTION:

Install a second 60 HP 500 GPM booster pump, starter panel and new suction and discharge headers at the Lake In The Desert Booster Pump Station at Well No. 27.

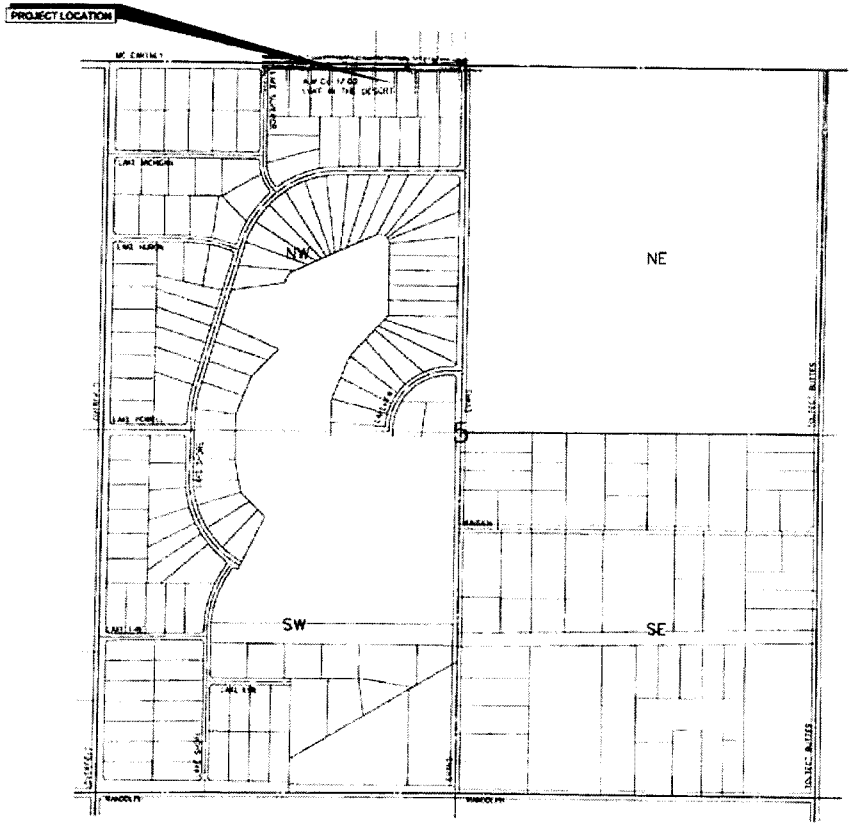
	DESCRIPTION	PLANT PROP ACCT	QUANTITY	UNIT COST	TOTAL
CONTRACT WORK					
	SERVICE CONNECTIONS COMPLETE: DOUBLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-SHORT	345			
TOTAL CONTRACT WORK					$ -
MATERIALS					
	SERVICE CONNECTIONS: DOUBLE-LONG	345			
	SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS: SINGLE-LONG	345			
	SERVICE CONNECTIONS: SINGLE-SHORT	345			
	METERS	346			
TOTAL MATERIALS					$ -
LABOR					
	TESTING FEE				
	PERMIT FEE				
	SURVEY FEE				
	FIELD INSPECTION				
	INSTALL SERVICE CONNECTIONS: DOUBLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-SHORT	345			
TOTAL LABOR					$ -
SUBTOTAL - CONTRACT WORK, MATERIALS, AND LABOR					$ -
OVERHEAD					0
TOTAL	REFUNDABLE PORTION ☐	NON-REFUNDABLE PORTION ☐		**COST ESTIMATE**	$ -

AFH

INSTALL A 60 HP, 500 GPM BOOSTER PUMP AT LAKE IN THE DESERT WELL SITE No. 27 IN CASA GRANDE, AZ. NW1/4 SEC. 5, T. 6 S., R. 7 E. OF THE G. & S. R. B. & M.



VICINITY MAP



PROJECT VICINITY

OWNER/ENGINEER/DEVELOPER

SHEET INDEX

SHT. No.	DWG No.	DESCRIPTION	SCALE
1	PV-0093	PROJECT VICINITY	AS SHOWN
2	PS-0093	SITE OVERALL	AS SHOWN
3	PS-0093	BOOSTER PUMP STATION & SITE CONTROL ELEVATIONS	AS SHOWN
4	PS-0093	AW Co. NOTES	AS SHOWN
5	PS-0093	AW Co. STANDARD SPECIFICATIONS AND DETAILS	AS SHOWN

BASIS OF BEARING

JUL 20

1:3304	
PINAL VALLEY	
NW 1/4 SEC. 5, T. 6 S., R. 7 E.	
2100	
2/15/2015	AS SHOWN
JAK	

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY. POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

INSTALL A 60 HP, 500 GPM BOOSTER PUMP AT LAKE IN THE DESERT WELL SITE No. 27
IN CASA GRANDE, AZ

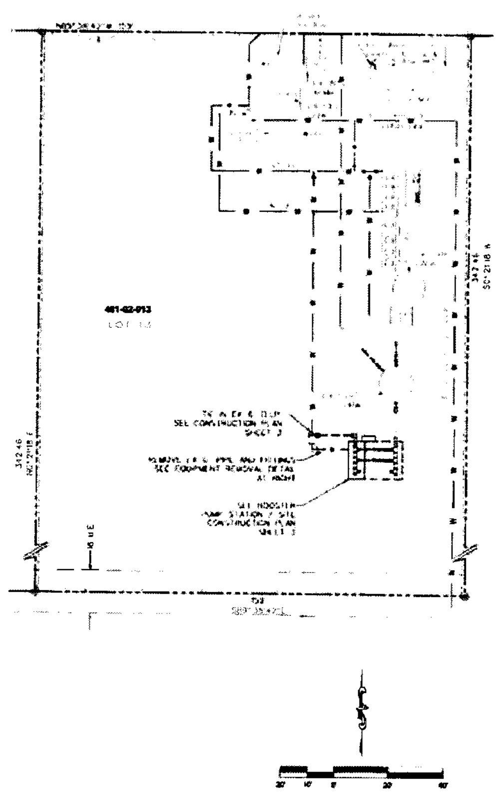
PROJECT VICINITY

PV-0093

SHEET 1 OF 5

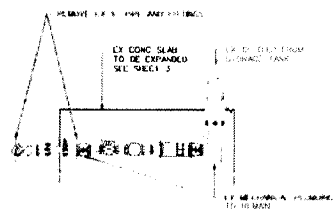
LEGEND

- ⊙ — 1/2" REBAR PROPERTY CORNER
- ⊠ — ELECTRICAL EQUIPMENT/BOXES
- LIGHT/POWER POLES
- ⊗ — WATER VALVE
- STREET CENTERLINE/MONUMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EASEMENT LINE
- EX WATER LINE
- EX WATER LINE TO BE ABANDONED
- OVERHEAD ELECTRIC
- EX CHAIN LINK FENCE
- CONTOURS



SITE OVERALL

◯	FITTING SCHEDULE	QUANTITY	FURNISHED BY	INSTALLED BY
1	12" DIP W/POLYWRAP AND JOINT RESTRAINT	[illegible]	CONTR	CONTR
2	12" MJ 90° ELL	[illegible]	CONTR	CONTR
3	12" FOSTER ADAPTOR	[illegible]	CONTR	CONTR
4	12" MJ PLUG	[illegible]	CONTR	CONTR
5	12" MJ X FLG 90° ELL		CONTR	CONTR
6	6" FLG GATE VALVE	[illegible]	CONTR	CONTR
7	6" ROMAC RESTRAINED FLANGE COUPLING ADAPTOR	[illegible]	CONTR	CONTR
8	[illegible] FLG X PE SPOOL [illegible]	[illegible]	CONTR	CONTR
9	6" X 4" FLG ECCENTRIC REDUCER	[illegible]	CONTR	CONTR
10	4" CLASS 125 COMPANION FLG [illegible]	[illegible]	CONTR	CONTR
11	[illegible]	[illegible]	CONTR	CONTR
12	4" CLASS 300 COMPANION FLG [illegible] THRD	[illegible]	CONTR	CONTR
13	GRUNDFOS [illegible] PUMP	[illegible]	A W C	CONTR
14	GRUNDFOS 60HP/3PH/60HZ/480V/3550RPM MOTOR	[illegible]	A W C	CONTR
15	4" CLA VAL [illegible] BOOSTER PUMP CONTROL VALVE	[illegible]	CONTR	CONTR
16	12" X 6" FLG TEE	[illegible]	CONTR	CONTR
17	12" X [illegible] FLG X FLG DIP SPOOL	[illegible]	CONTR	CONTR
18	[illegible]	[illegible]	CONTR	CONTR
19	1" BALL CORP STOP MIP	[illegible]	CONTR	CONTR
20	1" CLA-VAL [illegible] AIR RELEASE VALVE		CONTR	CONTR
21	[illegible] 0-300 PSI PRESSURE GAUGE ([illegible] SW-02) 300*)		CONTR	CONTR
22	1" BALL CORP STOP MIP X FIP	[illegible]	CONTR	CONTR
23	[illegible] AWC STD DTL [illegible]		CONTR	CONTR
24	[illegible]	[illegible]	A W C	CONTR
25	4" X 1'-0" FLG X FLG DIP SPOOL	[illegible]	CONTR	CONTR
26	4" X 2'-0" [illegible]	[illegible]	CONTR	CONTR
27	[illegible] ROMAC RESTRAINED FLANGE COUPLING ADAPTOR		CONTR	CONTR
28	12" X 6" MJ [illegible]		CONTR	CONTR
29	6" [illegible]	[illegible]	CONTR	CONTR
30	[illegible]	[illegible]	CONTR	CONTR
31	[illegible] EX 2" X 19" O.D REDUCING FLANGE WITH 2" BALL CORP	[illegible]	A W C	CONTR
32	2" X 19" O.D REDUCING FLANGE	[illegible]	CONTR	CONTR
33	2" BALL CORP STOP [illegible]	[illegible]	CONTR	CONTR
34	6" X 3'-0" DIP	[illegible]	CONTR	CONTR
35	6" X 1'-0" MJ SLEEVE		CONTR	CONTR
36	[illegible] FLG X FLG DIP SPOOL		CONTR	CONTR



EQUIPMENT REMOVAL DETAIL
NO SCALE

JUL 20 2015

The installation shown is to be installed in accordance with the Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality

263-1100
1-800-STAKE-IT

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

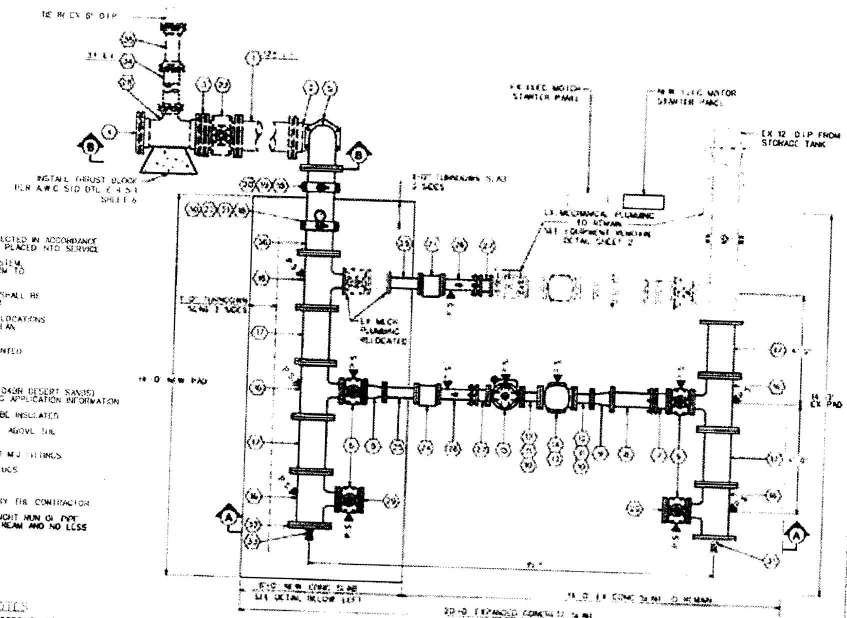
INSTALL A 60 HP, 500 GPM BOOSTER PUMP AT LAKE IN THE DESERT WELL SITE No 27
IN CASA GRANDE, AZ

SITE OVERALL

1-6304	PINAL VALLEY
NW 1/4 SEC. 5 T. 6 S. R. 7 E.	2100
2/18/2015	AS SHOWN
JAK	

41046
JAMES T. WILSON

PV-0093
SHEET 2 OF 5



CONSTRUCTION NOTES

1. BOOSTER PUMPS AND NEW PIPING SHALL BE DISINFECTED IN ACCORDANCE WITH ADEQ ENGINEERING BULLETIN No 8 BEFORE BEING PLACED INTO SERVICE
2. ALL MATERIALS AND PRODUCTS USED IN WATER SYSTEM, INCLUDING SURFACE COATINGS & PAINTS, SHALL CONFORM TO NSF STANDARD 61 & CURRENT AWWA D102
3. CONSTRUCTION MATERIALS USED IN WATER SYSTEM SHALL BE LEAD FREE AS PER A.A.C. R18-4-504 AND R18-1-101 (43)
4. USE COOPER B-LINE PIPE SUPPORTS OR EQUAL AT LOCATIONS NOTED BY P.S.# ON BOOSTER PUMP STATION PIPING PLAN (SEE PIPE SUPPORT DETAIL THIS SHEET)
5. ALL ABOVE GROUND PIPING & VALVES SHALL BE PAINTED (EXCEPT METERS & CONTROL VALVES)

PIPE COATING PREPARATION SSPC SP6
PRIME COAT: TNEMEC SERIES 135 CHEMBUILD
FINISH COAT: TNEMEC SERIES 73 ENDURASHIELD (COLOR 040R DESERT SAND)
REFER TO TNEMEC PRODUCT DATA SHEETS FOR COATING APPLICATION INFORMATION

6. ANY EXPOSED PIPING SUBJECT TO FREEZING SHALL BE INSULATED
7. ALL ELECTRICAL J-BOXES SHALL BE A MINIMUM OF 6" ABOVE THE FINISHED CONCRETE SURFACE
8. USE FOSTER ADAPTORS TO CONNECT M.J. FITTINGS TO M.J. FITTINGS
9. ALL MECHANICAL JOINT FITTINGS ARE TO HAVE MEGA-LUGS
10. POLYWRAP ALL D.I.P. BELOW GRADE
11. ALL MATERIALS & PIPE REMOVED MUST BE DISPOSED BY THE CONTRACTOR
12. THE PRODUCTION METER SHALL HAVE A MINIMUM STRAIGHT RUN OF PIPE WITH NO FITTINGS OF AT LEAST 5 PIPE DIAMETERS UPSTREAM AND NO LESS THAN 2 PIPE DIAMETERS DOWNSTREAM

CONCRETE SLAB NOTES

1. FOUNDATION BEAR FOOTING ON UNDISTURBED SOIL OR APPROVED ENGINEERED FILL SOIL PRESSURE 1500 PSF PER IBC 1804.2 CLASS 4 MATERIAL
2. CONCRETE: ACI MANUAL OF CONCRETE PRACTICE, TYPE II CEMENT, MINIMUM 28 DAY STRENGTH OF 3,000 PSI. MECHANICALLY VIBRATE WHEN PLACED. MAXIMUM SLUMP 5
3. REINFORCING ASTM A615 GRADE 60 DEFORMED BARS

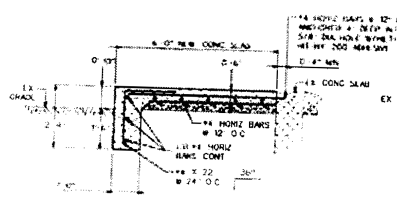
CONCRETE COVER TO REINFORCING:

A. CONCRETE AGAINST EARTH ---- 3"
B. OTHER ---- 1 1/2"

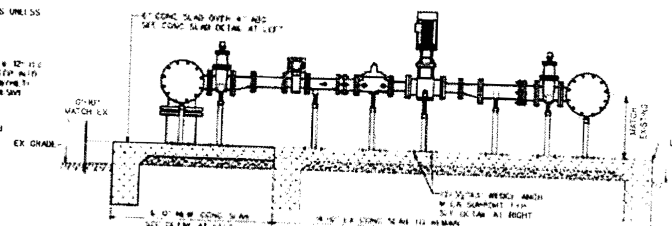
LAP SPLICES 48 BAR DIAMETERS UNLESS OTHERWISE NOTED

FITTING SCHEDULE

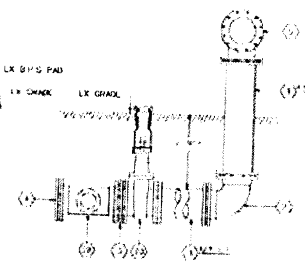
No.	FITTING SCHEDULE	QUANTITY	FURNISHED BY	INSTALLED BY
1	12" D.I.P. W/POLYWRAP AND JOINT RESTRAINT	[illegible]	CONTR	CONTR
2	12" M.J. 90° ELL		CONTR	CONTR
3	12" FOSTER ADAPTOR		CONTR	CONTR
4	12" M.J. PLUG		CONTR	CONTR
5	[illegible]		CONTR	CONTR
6	6" FLG GATE VALVE		CONTR	CONTR
7	6" ROMAC RESTRAINED FLANGE COUPLING ADAPTOR		CONTR	CONTR
8	[illegible] D.I.P. FLG x PE SPOOL [illegible]		CONTR	CONTR
9	6" X 4" FLG ECCENTRIC REDUCER		CONTR	CONTR
10	4" CLASS 125 COMPANION FLG (I.P. THRD.)		CONTR	CONTR
11	[illegible]		CONTR	CONTR
12	4" CLASS 300 COMPANION FLG (I.P. THRD.)		CONTR	CONTR
13	GRUNDFOS CR 90-4 [illegible]		CONTR	CONTR
14	GRUNDFOS [illegible]		A.W.C.	CONTR
15	4" CLA-VAL [illegible] BOOSTER PUMP CONTROL VALVE		A.W.C.	CONTR
16	12" X 6" FLG TEE		CONTR	CONTR
17	12" X 2'-0" FLG X FLG D.I.P. SPOOL		CONTR	CONTR
18	[illegible]		CONTR	CONTR
19	1" BALL CORP. STOP [illegible]		CONTR	CONTR
20	1" CLA-VAL 34AR 1B AIR RELEASE VALVE		CONTR	CONTR
21	ASHCROFT 0-300 P.S.I. PRESSURE GAUGE (35-1009-SW-02L-300#)		CONTR	CONTR
22	[illegible] BALL CORP. STOP [illegible]		CONTR	CONTR
23	12" M.J. G.V. [illegible] (A.W.C. STD. DTL. [illegible])		CONTR	CONTR
24	[illegible]		CONTR	CONTR
25	[illegible]		A.W.C.	CONTR
26	[illegible] FLG X FLG D.I.P. SPOOL [illegible]		CONTR	CONTR
27	4" ROMAC RESTRAINED FLANGE COUPLING ADAPTOR		CONTR	CONTR
28	12" X [illegible] M.J. TEE		CONTR	CONTR
29	[illegible] BLIND FLANGE		CONTR	CONTR
30	3/4" THREADLESS HOSE BIBB		CONTR	CONTR
31	RELOCATE [illegible] REDUCING FLANGE WITH 2" BALL CORP.		A.W.C.	CONTR
32	2" X 19" O.D. REDUCING FLANGE		CONTR	CONTR
33	2" BALL CORP. STOP [illegible]		CONTR	CONTR
34	[illegible]		CONTR	CONTR
35	6" X 1'-0" M.J. SLEEVE		CONTR	CONTR
36	12" X 3'-0" FLG X FLG D.I.P. SPOOL		CONTR	CONTR



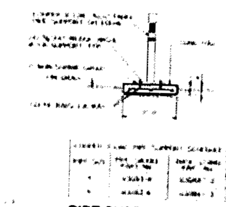
CONCRETE SLAB DETAIL



SECTION A - A
LOOKING NORTH



VIEW B - B
LOOKING NORTH



PIPE SUPPORT DETAIL

BOOSTER PUMP STATION/SITE CONSTRUCTION PLAN

JUL 20 2015

ARIZONA WATER COMPANY
3805 N BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX ARIZONA 85038-9006
(602) 240-6860

INSTALL A 60 HP, 800 GPM BOOSTER PUMP AT LAKE IN THE DESERT WELL SITE No 27 IN CASA GRANDE, AZ

BOOSTER PUMP STATION / SITE CONSTRUCTION PLAN

1-5304	PINAL VALLEY
NW 1/4 SEC 6, T 6 S, R 7 E	2100
2/15/2015	AS SHOWN
JAK	

263-1100
1-800-STAKE-IT

PV-0093
SHEET 3 OF 5

CONSTRUCTION SPECIFICATIONS
FOR THE INSTALLATION OF WATER DISTRIBUTION SYSTEMS
DUCTILE IRON

DEFINITIONS

A. Company: The words "Company" or "Arizona Water Company" mean Arizona Water Company and where applicable any division of Arizona Water Company whose principal place of business is located at 3805 North Black Canyon Highway Phoenix Arizona 85015-5351 (Post Office Box 29006, Phoenix, Arizona 85038-9006)

B. Company's Authorized Representative: The words "Company's Authorized Representative" mean any officer of the Company and any of the Company's Engineers, any Division Manager or Superintendent of the Company and/or such other personnel designated in writing as the "Company's Authorized Representative" by the President or any Vice President of the Company

C. Contractor: The word "Contractor" means ... as shown on the Construction Drawings and as specified herein

D. Construction Drawings: The words "Construction Drawings" mean plans prepared by or on behalf of Arizona Water Company

E. Contract: The word "Contract" means the written document titled "Proposal/Contract" when such document has been signed by an officer or other authorized representative of both the Contractor and the Company

(1) GENERAL

Installations must conform with the requirements of all governmental regulatory agencies and the cost of conforming to such regulations must be included in the unit bid prices. Examples of such regulations without attempting to be inclusive are:

a. Special compaction and paving for street crossing
b. ...
c. ...
d. Barricading and traffic control as required

(2) LOCATION MARKING

Alignment stakes as required in the opinion of the Company shall be furnished by the Company to the Contractor and shall be set by the Company at agreed upon intervals and offsets. ... Grade stakes will be provided only when the Construction Drawings show a pipeline depth other than covered in these Specifications. It is the responsibility of the Contractor to preserve all survey work.

(3) TRENCH EXCAVATION

...

(4) MATERIALS TO BE FURNISHED BY CONTRACTOR

...

(5) INSTALLATION OF MATERIALS

...

(6) BACKFILL OF WATER MAIN TRENCHES

...

(7) HYDROSTATIC TESTING OF COMPLETED PIPELINES

...

(8) STERILIZATION AND FLUSHING OF COMPLETED WATER PIPELINES

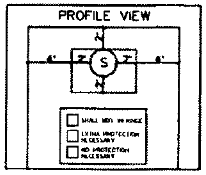
...

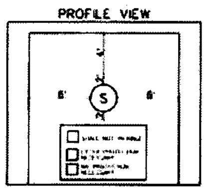
(9) NO OTHER UTILITIES ALLOWED IN OR NEAR WATER MAIN TRENCHES

...

(10) PROTECTION OF WATER MAINS NEAR SEWERS

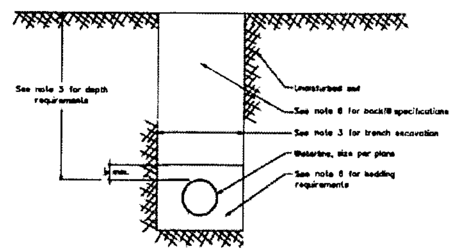
...





(11) CONTACTOR

(12) WATER MAIN MATERIAL SPECIFICATIONS



TYPICAL TRENCH DETAIL
Per MAG Detail 601 601.4.2 601.4.6

JUL 20 2015

The installation shown is to be constructed in accordance with the Arizona Water Company standard specifications and the Arizona Department of Environmental Quality

263-1100
1-800-STAKE-IT

1-8304 | PINAL VALLEY
NW 1/4 SEC 5 T 6 S R 7 E
2100
2/15/2015 | AS SHOWN
JAK

ARIZONA WATER COMPANY
3805 N BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX ARIZONA 85038-9006
(602) 240-6860

INSTALL A 60 HP, 500 GPM BOOSTER PUMP AT LAKE IN THE DESERT WELL SITE No 27 IN CASA GRANDE, AZ

A W Co NOTES

41046 JAMES T WILSON
Expires 6/30/16

PV-0093
SHEET 4 OF 5

ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

INSTALL A 60 HP- 600 GPM BOOSTER PUMP AT LARGE IN THE DESERT WELL SITE No. 27
IN CASA GRANDE, AZ

A W Co. STANDARD SPECIFICATIONS AND DETAILS

PV-0093

SHEET 5 OF 5

T-5304

PINAL VALLEY

NW 1/4 SEC. 8, T. 6 S., R. 7 E.

2100

2/18/2015 AS SHOWN

JAK

The information shown is to be resolved in accordance with the Arizona Water Company Standard specifications on file with the Arizona Department of Environmental Quality

263-1100
1-800-STAKE IT

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

July 23, 2015

Mr. Mike Young
Fann Environmental, LLC
6708 Corsair Avenue, Suite A
Prescott, AZ 86301

Re: Request for Proposal/Contract

Dear Mr. Young:

You are hereby invited to submit a formal written bid for the Booster Pump Station expansion at the Lake in the Desert Well No. 27, in accordance with Arizona Water Company's *General Conditions of Contract, Construction Specifications* and *Standard Specification Drawings*, and with specific plans and related construction drawings for this project.

Bids must be submitted on the enclosed Proposal forms. Sealed bids will be received at the above address until August 7, 2015. Return both completed proposal forms with original signatures to the Company. There will be no formal bid opening.

A current Certificate of Insurance from the bidder must be on file with Arizona Water Company before the bidder's proposal will be considered. A **bid bond** will be required for this project.

Before a bidder is awarded a contract, the bidder may be required to demonstrate to Arizona Water Company's satisfaction that the bidder has the necessary facilities, ability, and financial resources to perform the work in a satisfactory manner within the time stipulated, and that the bidder has experience in the same or similar construction work. The bidder may also be required to furnish references concerning the bidder's qualifications.

Arizona Water Company reserves the right to reject or accept any bid.

A discussion of this project and a tour of the construction site may be scheduled by calling me at the above number.

Very truly yours,

James T. Wilson, P. E.
Senior Engineer
jwilson@azwater.com

afh
Enclosure

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street
Casa Grande, AZ 85130 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: FANN ENVIRONMENTAL, LLC	SYSTEM: PINAL VALLEY
ADDRESS: 6708 CORSAIR AVENUE, SUITE A	W A No(s): 1-5304
CITY ST ZIP: PRESCOTT, AZ 86301	BID DUE DATE: August 7, 2015

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1. Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto. Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto. The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract. Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings.
2. Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract.
3. Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person.
4. Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work.
5. Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project. The materials list will include the manufacturer, part number, price and quantity included in this Proposal/Contract.
6. Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings. No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax. Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company. The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A.R.S.") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S. §42-5061 B.6.), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed. Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax.
7. Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project. Such records will include all supporting original vendor invoices for all materials purchased. Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof. The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility.
8. The Estimated Total Cost of the Project, shown on Page 2, is based on estimated labor and material quantities to be furnished. It includes an estimate of the Contracting Tax and the cost of the required Performance and Payment Bonds. Contractor will not cancel, modify or withdraw this Proposal/Contract during a ninety-day (90) period commencing on the Bid Due Date. The Company may accept this Proposal/Contract by signing and mailing, or otherwise delivering, a copy hereof to Contractor during such ninety-day (90) period. If the Company does not accept this Proposal/Contract during such ninety-day (90) period, Contractor may cancel this Proposal/Contract by giving written notice of cancellation to the Company.
9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project invoicing. Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly.
10. Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice. Contractor will complete the Project within _____ calendar days after the Commencement Notice is issued.
11. Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities.
12. The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice. This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract.

SPECIAL CONDITIONS:

Contractor must attend a mandatory pre-bid meeting on July 24, 2015. Company will make two progress payments and one final payment.
A copy of the Company's EIC specifications are attached hereto and incorporated into this Proposal/Contract.

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
FANN ENVIRONMENTAL, LLC	*ARIZONA WATER COMPANY*
By:	By:
Print Name:	Print Name: Fredrick K. Schneider, PE
Title:	Title: Vice President - Engineering
Date:	Date:

AFH

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street
Casa Grande, AZ 85130 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: FANN ENVIRONMENTAL, LLC	SYSTEM: PINAL VALLEY
AZ CONTRACTOR LICENSE NO: CLASSIFICATION:	W A No(s): 1-5304
ADDRESS: 6708 CORSAIR AVENUE, SUITE A	BID DUE DATE: August 7, 2015
CITY ST ZIP PRESCOTT, AZ 86301	BID BOND REQUIRED: √ Yes ☐ No

DESCRIPTION OF PROJECT: Install new suction and discharge headers and starter at the Lake in the Desert Booster Station at 7317 W. McCartney Road Casa Grande, AZ.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6)	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
Provide and install new suction and discharge headers with all related fittings	Lot				
				1	2
3. Total Labor to Install Exempt Materials (add the amounts in column 1)				3	
4. Total Exempt Materials (add the amounts in column 2)					4

5-6. NON-EXEMPT MATERIALS	QUANTITY	LABOR	MATERIALS	LABOR	MATERIALS
Demo existing 6-inch discharge pipe.	1				
Provide and install starter panel with alternator switch and all necessary conduits, wire, and controls (match existing starter panel).	1				
Provide and install concrete pad extension	1				
				5	6
7. Total Labor to Install Non-Exempt Materials (add the amounts in column 5)				7	
8. Total Non-Exempt Materials (add the amounts in column 6)					8
9. Subtotal A (add lines 3, 7 and 8)					9
10. Contracting Tax Base (multiply the amount on line 9 by 0.65)				10	
11. Applicable Contracting Tax Rate				11	
12. Contracting Tax (multiply the amount on line 10 by line 11)					12
13. Subtotal B (add lines 4, 9 and 12)					13
14. 100% Performance and Payment Bonds Cost					14
15. Estimated Total Cost (add lines 13 and 14)					15

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal, and traffic control necessary for the Project.

ARIZONA WATER COMPANY

Pinal Valley - Casa Grande
220 E. 2nd Street
Casa Grande, AZ 85130 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: FANN ENVIRONMENTAL, LLC	SYSTEM: PINAL VALLEY
ADDRESS: 6708 CORSAIR AVENUE, SUITE A	W A No(s): 1-5304
CITY ST ZIP: PRESCOTT, AZ 86301	BID DUE DATE: August 7, 2015

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1. Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto. Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto. The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract. Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings.
2. Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract
3. Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person.
4. Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work.
5. Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project. The materials list will include the manufacturer, part number, price and quantity included in this Proposal/Contract.
6. Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings. No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax. Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company. The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A.R.S.") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S. §42-5061 B.6.), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed. Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax.
7. Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project. Such records will include all supporting original vendor invoices for all materials purchased. Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof. The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility.
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9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project invoicing. Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly.
10. Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice. Contractor will complete the Project within _____ calendar days after the Commencement Notice is issued.
11. Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities.
12. The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice. This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract.

SPECIAL CONDITIONS:

Contractor must attend a mandatory pre-bid meeting on July 24, 2015. Company will make two progress payments and one final payment.
A copy of the Company's EIC specifications are attached hereto and incorporated into this Proposal/Contract.

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
FANN ENVIRONMENTAL, LLC	*ARIZONA WATER COMPANY*
By:	By:
Print Name:	Print Name: Fredrick K. Schneider, PE
Title:	Title: Vice President - Engineering
Date:	Date:

AFH

ARIZONA WATER COMPANY
Pinal Valley - Casa Grande
220 E. 2nd Street
Casa Grande, AZ 85130 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: FANN ENVIRONMENTAL, LLC	SYSTEM: PINAL VALLEY
AZ CONTRACTOR LICENSE NO: CLASSIFICATION:	W.A. No(s): 1-5304
ADDRESS: 6708 CORSAIR AVENUE, SUITE A	BID DUE DATE: August 7, 2015
CITY ST ZIP PRESCOTT, AZ 86301	BID BOND REQUIRED ☑ Yes ☐ No

DESCRIPTION OF PROJECT: Install new suction and discharge headers and starter at the Lake in the Desert Booster Station at 7317 W. McCartney Road Casa Grande, AZ.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6)	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
Provide and Install new suction and discharge headers with all related fittings	Lot				
				1	2

3. Total Labor to Install Exempt Materials (add the amounts in column 1)	3
4. Total Exempt Materials (add the amounts in column 2)	4

5-6. NON-EXEMPT MATERIALS	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
Demo existing 6-inch discharge pipe.	1				
Provide and install starter panel with alternator switch and all necessary conduits, wire, and controls (match existing starter panel).	1				
Provide and install concrete pad extension	1				
				5	6

7. Total Labor to Install Non-Exempt Materials (add the amounts in column 5)	7
8. Total Non-Exempt Materials (add the amounts in column 6)	8
9. Subtotal A (add lines 3, 7 and 8)	9
10. Contracting Tax Base (multiply the amount on line 9 by 0.85)	10
11. Applicable Contracting Tax Rate	11
12. Contracting Tax (multiply the amount on line 10 by line 11)	12
13. Subtotal B (add lines 4, 9 and 12)	13
14. 100% Performance and Payment Bonds Cost	14
15. Estimated Total Cost (add lines 13 and 14)	15

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal, and traffic control necessary for the Project.

ARIZONA WATER COMPANY

SPECIFICATIONS

GENERAL CONDITIONS OF CONTRACT: E-4-1

CONSTRUCTION SPECIFICATIONS: E-8-1

STANDARD SPECIFICATION DRAWINGS: E-9-1

gw 7/23/15

2007 EDITION WITH **2010** REVISIONS;
2012 GENERAL CONDITIONS OF CONTRACT

A copy of this entire Spec Book was sent out with Farm Environmental Invitation to bid package for I-5304 PV 27 Redundant Pump on 7/23/15 gs

E&C Design Guidelines Project Example Drawings
E&C Design Guidelines Standard Details
E&C Design Guidelines Technical Specification

Arizona Water Company

Farm Environmental on 7/23/15 gw
7/23/15
95

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
CERTIFICATE OF APPROVAL TO CONSTRUCT
WATER FACILITIES

ADEQ File No: 20150178 **LTF No:** 62763

System Name: Pinal Valley **System Number:** 11-009

Project Owner: Arizona Water Company

Address: P O Box 29006, Phoenix , AZ 85038

Project Location: Casa Grande **County :** Pinal

Description: AZ WATER CO.1-5304 PINAL VALLEY WELL NO. 27 REDUNDANT PUMP. INSTALL ONE 60 HP, 500 GPM BOOSTER PUMP AT THE PINAL VALLEY WELL NO.27 BOOSTER PUMP STATION IN CASA GRANDE.

Approval to construct the above-described facilities as represented in the approved documents on file with the Arizona Department of Environmental Quality is hereby given subject to provisions 1 through 5 continued on page 2 through 2

1. This project must be constructed in accordance with all applicable laws, including Title 49, Chapter 2, Article 9 of the Arizona Revised Statutes and Title 18, Chapter 5, Article 5 of the Arizona Administrative Code.
2. Upon completion of construction, the engineer shall fill out the Engineer's Certificate of Completion and forward it to the Central Regional Office located in Phoenix. If all requirements have been completed, that unit will issue a Certificate of Approval of Construction. R18-5-507(B), Ariz. Admin.Code. At the project owner's request, the Department **may** conduct the final inspection required pursuant to R18-5-507(B); such a request must be made in writing in accordance with the time requirements of R18-5-507(C), Ariz. Admin. Code.
3. This certificate will be void if construction has not started within one year after the Certificate of Approval to Construct is issued, there is a halt in construction of more than one year, or construction is not completed within three years of the approval date. Upon receipt of a written request for an extension of time, the Department may grant an extension of time; an extension of time must be in writing. R18-5-505(E), Ariz. Admin. Code.
4. Operation of a newly constructed facility shall not begin until a Certificate of Approval of Construction has been issued by the Department. R18-5-507(A), Ariz. Admin. Code.

Reviewed by: SA3

By: _____ 7/29/15
David Burchard Unit Manager Date
Water Quality Division

cc: File No : 20150178
Regional Office: Central
Owner: Arizona Water Company
County Health Department: Pinal
Engineer: Arizona Water Company
Planning and Zoning/Az Corp. Commission
Engineering Review Database - Etr021

The Arizona Department of Environmental Quality's review of this application was subject to the requirements of the licensing time frames ("LTF") statute under Arizona Revised Statutes ("A.R.S.") § 41-1072 through § 41-1079 and the LTF rules under Arizona Administrative Code ("A.A.C.") R18-1-501 through R18-1-525. This Notice is being issued within the overall time frame for your application.

ADEQ hereby approves your application for Approve to Construct Drinking Water Facilities under A.R.S. § 49-351. Your copy is enclosed.

This decision is an appealable agency action under A.R.S. § 41-1092. You have a right to request a hearing and file an appeal under A.R.S. § 41-1092.03(B). You must file a written Request for Hearing or Notice of Appeal within **30 days** of your receipt of this Notice. A Request for Hearing or Notice of Appeal is filed when it is received by ADEQ's Hearing Administrator as follows:

Office of Administrative Counsel
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007

The Request for Hearing or Notice of Appeal shall identify the party, the party's address, the agency and the action being appealed and shall contain a concise statement of the reasons for the appeal. Upon proper filing of a Request for Hearing or Notice of Appeal, ADEQ will serve a Notice of Hearing on all parties to the appeal. If you file a timely Request for Hearing or Notice of Appeal you have a right to request an informal settlement conference with ADEQ under A.R.S. § 41-1092.06. This request must be made in writing no later than **20 days** before a scheduled hearing and must be filed with the Hearing Administrator at the above address.

Please contact Sujana Attaluri at (602) 771-4391 or sa3@azdeq.gov if you have questions regarding this Notice or the Certificate of Approved to Construct

Western Group Rate Case

Exhibit FKS-1

5307 Coolidge 9 & 10 Strainer

ARIZONA WATER COMPANY
WORK AUTHORIZATION

W.A. NUMBER: 1-5307
P.E. NUMBER:
BUDGET ITEM NO.: 1-5307
SHEET NO.: 1 of 2

SYSTEM:	PINAL VALLEY	RETENTION REQUIRED:	☑ YES ☐ NO
DIVISION:	CASA GRANDE	WORK TO START BY:	UPON AUTHORIZATION
RESPONSIBLE PERSON:	RAY MURRIETA	WORK TO BE FINISHED BY:	WITHIN 120 DAYS
TAX CODE:	2102		

DESCRIPTION OF WORK:

Construct a third auto strainer at Coolidge wells No. 9 and 10.

FACTORS JUSTIFYING WORK:

APPROVED 2015 BUDGET ITEM ($40,000)
Well Nos. 9 and 10 produce a large amount of sand. In 2013, the Company installed two 80-micron automatic strainers with provisions for a third strainer in the event that additional strainer capacity is needed. Company operators have determined that the amount of sand produced from Well Nos. 9 and 10 exceeds the capacity of the existing strainers resulting in plugging and damage to the strainer screens. Company operators are required to disassemble and clean the strainers approximately twice a week typically requiring overtime. The additional capacity provided by the third automatic strainer will enable company operators to schedule regular monthly cleanings during normal working hours, eliminate high differential pressure alarms outside of normal working hours and resulting damage to the strainer screens.

COST ESTIMATE		AUTHORIZATION	DATE
COST OF WORK:		PREPARED BY: James Wilson JW 4/20/15	4/13/15
MATERIAL	28,915	REVIEWED FOR ESMT/ROW VERIFICATION: Charles Briggs CB 04-20-2015	04-13-2015
LABOR	3,300		
CONTRACT PORTION	3,500		
OVERHEAD	4,300	REVIEWED BY: Mario Mendez MM 4/20/15	4/13/15
TOTAL AUTHORIZED EXPENDITURES CHARGEABLE TO THIS W.A.	$ 40,015	APPROVED BY ENGINEERING: Fredrick Schneider FS 4-20-15	4-14-2015
FUNDS RECEIVED:		APPROVED BY FINANCE: Joseph Harris	4/14/15
CONTRIBUTIONS RECEIVED	0	AUTHORIZED BY PRESIDENT: William Garfield	4-15-15
REFUNDABLE ADVANCES RECEIVED	0		
TOTAL CONTRIBUTIONS/ADVANCES	0		
NET COMPANY CASH REQUIRED	$ 40,015		

COMMENTS:

CONSTRUCTION RELEASE:

RELEASED TO CONSTRUCTION
Authorized by FRED SCHNEIDER
Date 4/20/15

2015 BUDGET

AFH

AJH 03/26/08| JTW:afh | WA XLS

ARIZONA WATER COMPANY

WORK AUTHORIZATION - DETAIL SHEET

W.A. NUMBER: 1-5307
P.E. NUMBER:
BUDGET ITEM NO.: 1-5307
SHEET NO.: 2 of 2

RETIREMENT PROPERTY UNITS	PLANT PROPERTY ACCOUNT	UNIT DESCRIPTION	QUANTITY	YEAR INSTALLED AND W.A. NUMBER

PROJECT DESCRIPTION

Construct a third auto strainer at Coolidge wells No. 9 and 10.

	DESCRIPTION	PLANT PROP ACCT	QUANTITY	UNIT COST	TOTAL
CONTRACT WORK	Tie in electrical controls and alarms	332	1	$ 3,500.00	$ 3,500
	SERVICE CONNECTIONS COMPLETE: DOUBLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-SHORT	345			
TOTAL CONTRACT WORK					$ 3,500
MATERIALS	V-1500-8 automatic strainer	332	1	$ 15,154.15	$ 15,154
	V1500-080 80 Micron Screen	332	2	1,209.45	2,419
	2-inch Flush Valve With Actuator	332	2	1,666.50	3,333
	Basic Parts Kit	332	1	508.75	509
	Onsite Training	332	1	2,500.00	2,500
	Shipping	332	1	500.00	500
	Misc. fittings and valves	332	1	4,500.00	4,500
	SERVICE CONNECTIONS: DOUBLE-LONG	345			
	SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS: SINGLE-LONG	345			
	SERVICE CONNECTIONS: SINGLE-SHORT	345			
	METERS	346			
TOTAL MATERIALS					$ 28,915
LABOR	Engineering management and Design	343	20	$ 55.00	$ 1,100
	TESTING FEE	343			
	PERMIT FEE	343			
	SURVEY FEE	343			
	FIELD INSPECTION	343	40	55.00	2,200
	INSTALL SERVICE CONNECTIONS: DOUBLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-SHORT	345			
TOTAL LABOR					$ 3,300
SUBTOTAL - CONTRACT WORK, MATERIALS, AND LABOR					$ 35,715
OVERHEAD					4,300
TOTAL	REFUNDABLE PORTION ☐	NON-REFUNDABLE PORTION ☐		**COST ESTIMATE**	$ 40,015

AFH

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

June 12, 2015

Mr. Cody Eslick
Keller Electrical Industries, Inc.
1881 E. University Drive
Phoenix, AZ 85034

Re: Coolidge Well Nos 9 and 10

PROJECT: Automatic strainer valve	
SYSTEM: Pinal Valley	
CONTRACT NO.:	
P.E. NO.	W.A. NO.: 1-5307

Dear Mr. Eslick:

Enclosed is your copy of the Proposal/Contract for the above-referenced project, which has been accepted by Arizona Water Company (the "Company"). The project shall be constructed in accordance with the Company's *General Conditions of Contract, the Specifications and the Drawings* which were included with the Company's previously provided Proposal/Contract, copies of which are being provided again and attached herewith.

Also enclosed are two copies of the Commencement Notice for the above-referenced project. Please sign one of the copies and return it to my attention retaining the other for your records.

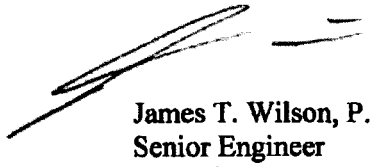
As provided in paragraph 4 of the Company's Proposal/Contract executed by the Company on June 16, 2015, Keller Electrical Industries, Inc. acknowledged that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work. In addition, as provided in paragraph 44 of the Company's General Conditions of Contract, the 100% Performance and Payment Bonds must be provided within ten (10) calendar days of the date of the Commencement Notice. Failure to provide an acceptable 100% Performance and Payment Bond does not limit the Company's

ability to terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur.

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting. In addition, please provide the required Performance and Payment Bonds to the Company promptly so that the contracted work can be completed within the contract's timeline.

If you have any questions, please call me at this office.

Very truly yours,



James T. Wilson, P. E.
Senior Engineer
jwilson@azwater.com

afh
Enclosure

ARIZONA WATER COMPANY

Casa Grande - Pinal Valley
220 E. 2nd Street
Casa Grande, AZ 85122 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: KELLER ELECTRICAL INDUSTRIES, INC.	SYSTEM: PINAL VALLEY
ADDRESS: 1881 E. UNIVERSITY DRIVE	W A No(s): 1-5307
CITY ST ZIP: PHOENIX, AZ 85034	BID DUE DATE: June 5, 2015

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1 Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings

2 Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract

3 Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person

4 Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work

5 Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project The materials list will include the manufacturer, part number price and quantity included in this Proposal/Contract

6 Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A R S ") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S §42-5061 B.6), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax

7 Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project Such records will include all supporting original vendor invoices for all materials purchased Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility

8 The Estimated Total Cost of the Project, shown on Page 2, is based on estimated labor and material quantities to be furnished It includes an estimate of the Contracting Tax and the cost of the required Performance and Payment Bonds Contractor will not cancel, modify or withdraw this Proposal/Contract during a ninety-day (90) period commencing on the Bid Due Date The Company may accept this Proposal/Contract by signing and mailing, or otherwise delivering, a copy hereof to Contractor during such ninety-day (90) period If the Company does not accept this Proposal/Contract during such ninety-day (90) period, Contractor may cancel this Proposal/Contract by giving written notice of cancellation to the Company

9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project Invoicing Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly

10 Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice Contractor will complete the Project within 90 calendar days after the Commencement Notice is issued

11 Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities

12 The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract

SPECIAL CONDITIONS:

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
KELLER ELECTRICAL INDUSTRIES, INC.	ARIZONA WATER COMPANY
By: Daniel Lamm	By: Fredrick K. Schneider
Print Name: Daniel Lamm	Print Name: Fredrick K. Schneider, PE
Title: Project Manager	Title: Vice President - Engineering
Date: 6/4/2015	Date: 6-16-2015

AFH

ARIZONA WATER COMPANY

Casa Grande - Pinal Valley
220 E. 2nd Street
Casa Grande, AZ 85122 PH: 520-836-8786

PROPOSAL/CONTRACT

CONTRACTOR: KELLER ELECTRICAL INDUSTRIES, INC.	SYSTEM: PINAL VALLEY
AZ CONTRACTOR LICENSE NO: 076007 CLASSIFICATION: C-11	W A No(s): 1-5307
ADDRESS: 1881 E. UNIVERSITY DRIVE	BID DUE DATE: June 5, 2015
CITY ST ZIP PHOENIX, AZ 85034	BID BOND REQUIRED: √ Yes ☐ No

DESCRIPTION OF PROJECT: Install control wires for a new automatic strainer valve at Coolidge Well Nos. 9 and 10.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6)	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
				1	2
3. Total Labor to Install Exempt Materials (add the amounts in column 1)				3	
4. Total Exempt Materials (add the amounts in column 2)					4

5-6. NON-EXEMPT MATERIALS	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
Furnish and Install ne J-box, conduit and wire for new filter valve (valve				640.00	452.31
installed by others)	1			320.00	
Wire new valve into existing controller	1				
				5	6
7 Total Labor to Install Non-Exempt Materials (add the amounts in column 5)				7 960.00	
8. Total Non-Exempt Materials (add the amounts in column 6)					8 452.31
9. Subtotal A (add lines 3, 7 and 8)				918.00	9 1412.31
10. Contracting Tax Base (multiply the amount on line 9 by 0 65)				10	
11. Applicable Contracting Tax Rate				11 .107	
12. Contracting Tax (multiply the amount on line 10 by line 11)					12 98.23
13. Subtotal B (add lines 4, 9 and 12)					13 1510.54
14. 100% Performance and Payment Bonds Cost					14 250.00
15. Estimated Total Cost (add lines 13 and 14)					15 1,760.54

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal, and traffic control necessary for the Project.

ARIZONA WATER COMPANY

COMMENCEMENT NOTICE

CONTRACTOR:

Mr. Cody Eslick
Keller Electrical Industries, Inc.
1881 E. University Drive
Phoenix, AZ 85034

DATE: 6-16-15
DIVISION: CASA GRANDE
SYSTEM: PINAL VALLEY
W.A.: 1-5307

THIS IS YOUR NOTICE TO PROCEED WITH THE FOLLOWING PROJECT(S):

DESCRIPTION OF WORK:

Install control wires for a new automatic strainer valve at Coolidge Well Nos. 9 and 10 in Casa Grande, AZ.

PERFORMANCE AND PAYMENT BONDS REQUIRED: [X] Yes [ ] No

TOTAL DAYS ALLOWED: 100

COMPLETION DATE: 9-24-15

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting.

ARIZONA WATER COMPANY	***KELLER ELECTRICAL INDUSTRIES, INC.***
Company	Contractor *(type name)*
By [signature]	By
Title Vice President - Engineering	Title

AFH

ATH

ARIZONA WATER COMPANY

SPECIFICATIONS

GENERAL CONDITIONS OF CONTRACT: E-4-1

CONSTRUCTION SPECIFICATIONS: E-8-1

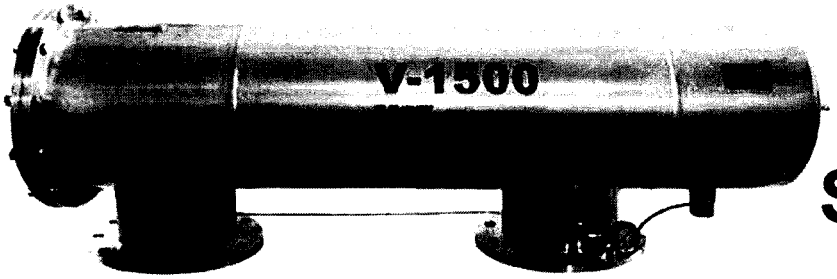
STANDARD SPECIFICATION DRAWINGS: E-9-1

gw 6/1/15

2007 EDITION WITH **2010** REVISIONS;
2012 GENERAL CONDITIONS OF CONTRACT

A copy of this entire Spec Book was sent out with Keller Electrical invitation to bid package for 1-5307 Third Auto Strainer @ Coolidge 9-10 on 6/1/15 AH

VAF FILTRATION SYSTEMS



V-1500 Automatic Screen Filter

General Information

The V-Series™ design is the most recent, state-of-the-art self-cleaning screen filtration technology available today. The complexity and cleaning efficiency of any self-cleaning screen filter is in the mechanical system that drives the cleaning process. The V-Series patented Bi-directional Hydrodynamic Drive (BHD) mechanism is the simplest and most efficient in design resulting in:

- fewer moving parts (no limit switches or pistons reversing the cleaning mechanism),
- simpler controls,
- lowest flush flow available,
- greater cleaning efficiency, and
- lower maintenance requirements.

The V-Series' 12 to 15 second flush cycle is automatically initiated when a pressure differential across the screen increases to 0.5 bar (7 psi). The filter remains on-line and the filtration process remains uninterrupted during the brief cleaning process. The flush discharge is the lowest available resulting in minimal waste.

The V-Series filters are available in ASME code and are manufactured in an ASME facility. The filters are available in a broad range of materials, pressure ratings, and temperature ratings to suit any need. VAF custom manufactures filters and skids that simplify installation and meet specific requirements.

For more information contact VAF Filtration Systems! *Wherever Water Flows...*

V-1500 Specifications

Materials	
Filter body	• 8" - 10" inlet/outlet, 316 SS
Screens	• 316L SS sintered **
Flanges	• AWWA Class D **
Seals	• nitrile, viton, silicone **
Filtration Range	• 10 to 1500 micron **
Flow Range	• 20 to 561 m^3/hr (90 to 2470 gpm) per filter *
Max Pressure	• 10.3 bar (150 psi) **
Min Pressure	• 2 bar (30 psi) **
Max Temp	• 80° C (176° F) **
Flush Cycle	• 12 to 15 seconds
Controller	• MicroFlush - up to 4 filters

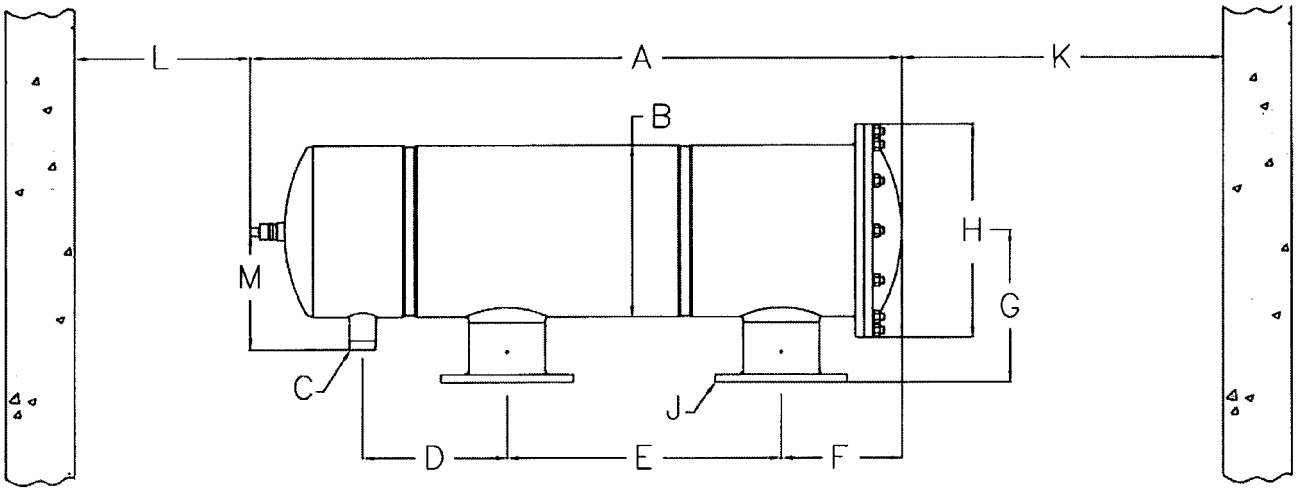
* Varies depending on micron level.

** Other options are available on request.

VAF Filtration Systems
5270 Marshall Street, Arvada, CO 80002 USA
Phone +1 303 425 4242 Fax +1 303 425 0112
www.vafusa.com
sales@vafusa.com

07/2013

Dimensions



Model	Dimensions - cm												screen area	nominal flow (m^3/hr) Micron			flush flow	# of nozzles
	A	B	C	D	E	F	G	H	J	K	L	M						
	length	body dia.	flush line						flange	clearance			cm^2	100	200	300	liters	
V-250-3	97.0	25.7	3.8	19.3	29.2	22.4	23.3	34.3	7.6	88.9	30.5	19.3	1445	63	84	92	30	2
V-250-4							23.6		10.2									
V-500-4	122.6	25.7	3.8	21.9	54.6	22.6	23.3	34.3	10.2	114.3	30.5	19.3	2890	125	168	184	57	4
V-500-6	127.7					25.1	27.8		15.2									
V-1000-6	154.0	38.5	5.1	34.6	61.0	28.8	33.2	47.8	15.2	152.4	30.5	26.9	5594	24	325	356	57	4
V-1000-8							33.5		20.3									
V-1500-8	184.7	38.5	5.1	34.6	91.4	28.8	32.0	47.8	20.3	177.8	30.5	26.9	8387	363	487	534	87	6
V-1500-10	183.9	38.8				31.7	34.0		25.4			26.7						
V-2000-X	208.6	51.7	5.1	45.7	91.4	44.3	42.9	69.9	25.4-30.5-35.6	177.8	30.5	32.9	10942	474	636	697	87	6
V-3500-X	317.2	61.0	7.6	93.3	127.0	55.0	51.1	81.3	35.6-40.6-50.8	269.2	30.5	41.7	19742	855	1147	1258	167	8

Model	Dimensions - inches												screen area	nominal flow (gpm) Micron			flush flow	# of nozzles
	A	B	C	D	E	F	G	H	J	K	L	M						
	length	body dia.	flush line						flange	clearance			in^2	100	200	300	gallons	
V-250-3	38.2	10.1	1.5" NPT	7.6	11.5	8.8	9.2	13.5	3	35.0	12.0	7.6	224	276	370	405	8	2
V-250-4							9.3		4	35.0	12.0							
V-500-4	48.3	10.1	1.5" NPT	8.6	21.5	8.9	9.2	13.5	4	45.0	12.0	7.6	448	551	739	811	15	4
V-500-6	50.3					9.9	11.0		6									
V-1000-6	60.6	15.2	2" NPT	13.6	24.0	11.3	13.1	18.8	6	60.0	12.0	10.6	867	1066	1431	1569	15	4
V-1000-8							13.2		8									
V-1500-8	72.7	15.2	2" NPT	13.6	36.0	11.3	12.6	18.8	8	70.0	12.0	10.6	1300	1599	2145	2353	23	6
V-1500-10	72.4	15.3				12.5	13.4		10			10.5						
V-2000-X	82.1	20.3	2" NPT	18.0	36.0	17.4	16.9	27.5	10-12-14	70.0	12.0	12.9	1696	2086	2798	3070	23	6
V-3500-X	124.9	24.0	3" FLG	36.7	50.0	21.7	20.1	32.0	14-16-20	106.0	12.0	16.4	3060	3764	5049	5539	44	8

Note: VAF "nominal flow" rates shown are for 100, 200 and 300 micron filtration ratings for demonstration purposes only. Larger micron ratings result in higher allowable flow rates. Smaller micron ratings result in lower allowable flow rates.

Nominal Flow rate in m^3/hr or gpm shown for each model is the maximum flow rate for that model with 100, 200 and 300 micron screens.

Flush Flow volume shown for each model is the volume of water used for that model when the pressure available to the filter is 2.4 bar (35 psi) during a 15 second flush cycle.

VAF Filtration Systems

5270 Marshall Street, Arvada, CO 80002 USA
Phone +1 303 425 4242 Fax +1 303 425 0112
www.vafusa.com
sales@vafusa.com

07/2013

VAF FILTRATION SYSTEMS

VAF Stainless Steel Electric Ball Valve

General Information

The VAF Stainless Steel 3-Piece, 2-Way Ball Valves are engineered for actuation and designed to work with VAF Valve Actuators. These reliable valves are proven performers season after season.

Ball Valve Specifications:

Valve Body	• CF8M stainless steel
Ball	• 316 stainless steel
Stem	• Virgin PTFE
Stem Packing	• PTFE and VITON

- **1/2" to 2" stainless steel 3-piece swing out style, 2-way ball valves**
- **UV modified glass-filled nylon housing** is durable, impact resistant and provides for a long life and lower maintenance cost.
- **Waterproof actuator housing is rated NEMA 6P** to protect internal components from corrosion and extend actuator life.
- **Actuator housing is igniton safe** (Rated NEMA 7D and meets the USCG Electrical Systems Standard) to support user and environment protection.
- **Electrical**

VOLT	AMPS RUN / STALL
24 VAC	0.8 / 2
24 VDC	0.8 / 2
12 VDC	1.5 / 4

VAF Filtration Systems

5270 Marshall Street, Arvada, CO 80002 USA
Phone +1 303 425 4242 Fax +1 303 425 0112
www.vafusa.com
sales@vafusa.com

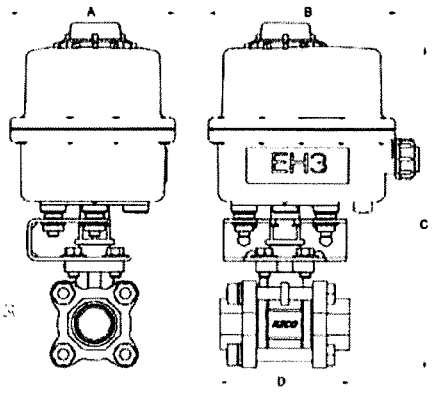
11/2012

1/2" Stainless Steel 3-Piece, 2-Way Ball Valves

Full port, stainless steel ball, FNPT, ball valve, 12 volt DC motor. Maximum PSI: 1,000 psi at 70° F

Part #	Size	Control		Flow GPM*	A	B	C	D
KZ89DM	1/2"	On/Off	0.8 sec.	30	4.0"	5.1"	8.3"	3.0"
KZ89DPR	1/2"	Regulating	2.5 sec.	30	4.0"	5.1"	8.3"	3.0"
KZ89DQR	1/2"	Regulating	7.0 sec.	30	4.0"	5.1"	8.3"	3.0"

* GPM at 1 PSI drop, water

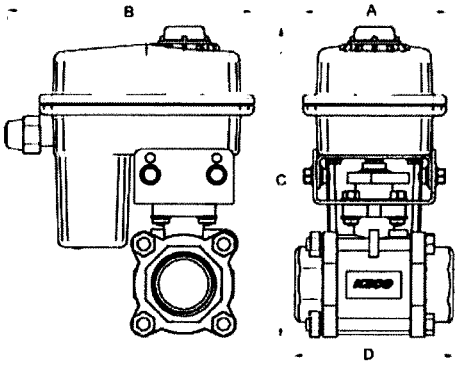


3/4", 1", 1 1/4" and 1 1/2" Stainless Steel 3-Piece, 2-Way Ball Valves

Full port, stainless steel ball, FNPT, ball valve, 12 volt DC motor. Maximum PSI: 1,000 psi at 70° F

Part #	Size	Control		Flow GPM*	A	B	C	D
KZ89EY	3/4"	On/Off	1.5 sec.	51	4.3"	7.1"	8.0"	3.2"
KZ89EWR	3/4"	Regulating	3.0 sec.	51	4.3"	7.1"	8.0"	3.2"
KZ89EUR	3/4"	Regulating	7.0 sec.	51	4.3"	7.1"	8.0"	3.2"
KZ89FY	1"	On/Off	1.5 sec.	68	4.3"	7.1"	8.4"	3.6"
KZ89FWR	1"	Regulating	7.0 sec.	68	4.3"	7.1"	8.4"	3.6"
KZ89FUR	1"	Regulating	7.0 sec.	68	4.3"	7.1"	8.4"	3.6"
KZ89GY	1 1/4"	On/Off	1.5 sec.	112	4.3"	7.1"	8.8"	4.3"
KZ89GWR	1 1/4"	Regulating	3.0 sec.	112	4.3"	7.1"	8.8"	4.3"
KZ89GUR	1 1/4"	Regulating	7.0 sec.	112	4.3"	7.1"	8.8"	4.3"
KZ89HY	1 1/2"	On/Off	1.5 sec.	170	4.3"	7.1"	9.4"	4.8"
KZ89HWR	1 1/2"	Regulating	3.0 sec.	170	4.3"	7.1"	9.4"	4.8"
KZ89HUR	1 1/2"	Regulating	7.0 sec.	170	4.3"	7.1"	9.4"	4.8"

* GPM at 1 PSI drop, water

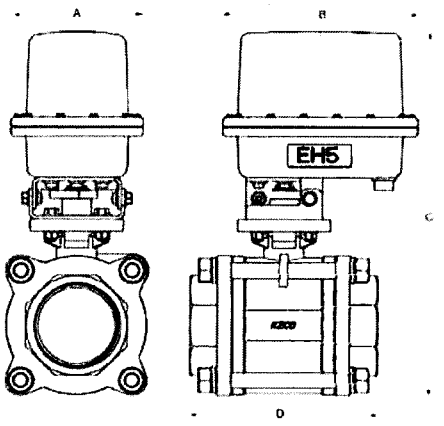


2" Stainless Steel 3-Piece, 2-Way Ball Valves

Full port, stainless steel ball, FNPT, ball valve, 12 volt DC motor. Maximum PSI: 1,000 psi at 70° F

Part #	Size	Control		Flow GPM*	A	B	C	D
KZ89I3	2"	On/Off	3.0 sec.	376	5.2"	7.7"	11.1"	4.4"
KZ89I7R	2"	Regulating	7.0 sec.	376	5.2"	7.7"	11.1"	4.4"
KZ89IAR	2"	Regulating	10.0 sec.	376	5.2"	7.7"	11.1"	4.4"

* GPM at 1 PSI drop, water



VAF Filtration Systems

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V-1500

V-1500

V-1500

ARIZONA WATER COMPANY

CONSTRUCTION PLACED IN SERVICE NOTICE

WORK AUTHORIZATION NO.: 1-5307

DIVISION: PV/CG

DATE PLACED IN SERVICE: 7 | 1 | 2015

CONTRACT NO:

FOR PURPOSES OF *MODIFIED ACCELERATED COST RECOVERY SYSTEM*, AN ASSET IS "PLACED IN SERVICE" WHEN IT IS IN A CONDITION OR STATE OF READINESS AND AVAILABILITY FOR A SPECIFICALLY ASSIGNED FUNCTION, WHETHER IT BE FOR USE IN A TRADE OR BUSINESS, OR FOR THE PRODUCTION OF INCOME.

I CERTIFY THAT THE ASSET(S) CONSTRUCTED PURSUANT TO THE PROVISIONS OF THE ABOVE-REFERENCED WORK AUTHORIZATION ARE READY FOR SERVICE AS OF THE DATE SHOWN ABOVE.

Division Manager or Operations Superintendent
(signature)

7-24-2015
Date

SUBMIT ORIGINAL TO ACCOUNTING DEPARTMENT

A-1-3-1
FKS 11/24/11

Western Group Rate Case

Exhibit FKS-1

5329 Cameron & Morrison

ARIZONA WATER COMPANY
WORK AUTHORIZATION

W.A. NUMBER: 1-5329
P.E. NUMBER:
BUDGET ITEM NO.: Special No. 2
SHEET NO.: 1 of 2

SYSTEM:	PINAL VALLEY	RETENTION REQUIRED:	☐ YES ☑ NO
DIVISION:	CASA GRANDE	WORK TO START BY:	UPON AUTHORIZATION
RESPONSIBLE PERSON:	RAY MURRIETA	WORK TO BE FINISHED BY:	WITHIN 30 DAYS
TAX CODE:	0402		

DESCRIPTION OF WORK:

Construct 85 LF of 4-inch DIP to replace 85 LF of 4-inch CI and replace three 4-inch gate valves, two 4-inch tees, and one 6-inch fire hydrant on 4th Street between Cameron and Morrison Ave in Casa Grande, AZ.

FACTORS JUSTIFYING WORK:

Company Servicemen responded to a water main break on a vintage 1929 4-inch CI water main in 4th Street east of Cameron Street. The leak saturated the surrounding City of Casa Grande asphalt subbase and soil, requiring emergency water main repair. The Company must repair the water main to prevent further damage. This water main is critical for providing drinking water service to this area of the Pinal Valley water system. A large section of asphalt requires saw cut, removal, and replacement in accordance with the City's right-of-way permit requirements and specifications which includes slurry backfill. Company engineers worked with the Company's General Counsel to submit an insurance claim to the Company's Insurance Carrier for the roadway damage.

COST ESTIMATE		AUTHORIZATION	DATE
COST OF WORK:		PREPARED BY: James Wilson JW 1/26/15	1/14/15
MATERIAL	5,396		
LABOR	3,140	REVIEWED FOR ESMT/ROW VERIFICATION: Charles Briggs CB 01-26-2015	01-14-2015
CONTRACT PORTION	13,084		
OVERHEAD	2,600	REVIEWED BY: Mario Mendez MM 1/28/15	1/14/15
TOTAL AUTHORIZED EXPENDITURES CHARGEABLE TO THIS W.A.	$ 24,220		
FUNDS RECEIVED:		APPROVED BY ENGINEERING: Fredrick Schneider FS 1-29-15	1-21-2015
CONTRIBUTIONS RECEIVED	0		
REFUNDABLE ADVANCES RECEIVED	0	APPROVED BY FINANCE: Joseph Harris	1/21/15
TOTAL CONTRIBUTIONS/ADVANCES	0		
NET COMPANY CASH REQUIRED	$ 24,220	SPECIAL ITEM EXCEEDING $10,000; AUTHORIZED BY PRESIDENT: William M Garfield William Garfield	1-22-2015
		SPECIAL ITEM EXCEEDING $10,000; AUTHORIZED BY CHAIRMAN: APPROVED VIA FAX M. L. Whitehead	1/23/2015

COMMENTS:

Transfer $24,220 from 2015 Contingency to fund this project.

CONSTRUCTION RELEASE:

RELEASED TO CONSTRUCTION
Authorized by FRED SCHNEIDER
Date 1/26/15

AFH

ARIZONA WATER COMPANY

WORK AUTHORIZATION - DETAIL SHEET

W.A. NUMBER:
P.E. NUMBER:
BUDGET ITEM NO.:
SHEET NO.:

RETIREMENT PROPERTY UNITS	PLANT PROPERTY ACCOUNT	UNIT DESCRIPTION	QUANTITY	YEAR INSTALLED AND W.A. NUMBER
	343	4-inch cast iron pipe	85	1929
	343	4-inch gate valve	3	1929
	343	4-inch tee	2	1929
	348	6-inch fire hydrant	1	1929

PROJECT DESCRIPTION

Construct 85 LF of 4-inch DIP to replace 85 LF of 4-inch CI and replace three 4-inch gate valves, two 4-inch tees, and one 6-inch fire hydrant on 4th Street between Cameron and Morrison Ave in Casa Grande, AZ.

	DESCRIPTION	PLANT PROP ACCT	QUANTITY	UNIT COST	TOTAL
CONTRACT WORK	Remove and replace 4-inch CI with 4-inch DIP, two 4-inch gate valves, two 4-inch tees	343	1	4,800.00	4,800
	Remove and replace one 6-inch fire hydrant	348	1	2,060.00	2,060
	Remove and replace asphalt	343	1	5,200.00	5,200
	Contracting Tax	343	1	839.00	839
	Performance and Payment Bond	343	1	185.00	185
	SERVICE CONNECTIONS COMPLETE: DOUBLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-SHORT	345			
TOTAL CONTRACT WORK					$ 13,084
MATERIALS	4-inch DIP	343	85	$ 21.54	$ 1,831
	4-inch MGXFL tee	343	2	140.00	280
	4-inch MJxFL gate valve	343	3	411.75	1,235
	4-inch Foster adapter	343	2	150.00	300
	4"x6" MJ reducer	343	1	150.00	150
	6-inch fire hydrant	348	1	1,600.00	1,600
	SERVICE CONNECTIONS: SINGLE-LONG	345			
	SERVICE CONNECTIONS: SINGLE-SHORT	345			
	METERS	346			
TOTAL MATERIALS					$ 5,396
LABOR	Project management	343	8	$ 55.00	$ 440
	TESTING FEE				
	PERMIT FEE	343	1	500.00	500
	SURVEY FEE				
	FIELD INSPECTION	343	40	55.00	2,200
	INSTALL SERVICE CONNECTIONS: DOUBLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-SHORT	345			
TOTAL LABOR					$ 3,140
SUBTOTAL - CONTRACT WORK, MATERIALS, AND LABOR					$ 21,620
OVERHEAD					2,600
TOTAL	REFUNDABLE PORTION ☐	NON-REFUNDABLE PORTION ☐		COST ESTIMATE	$ 24,220

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

January 14, 2015

Mr. Devin Anderson
DWA Construction Company, LLC
P. O. Box 12788
Casa Grande, AZ 85130

Re: WA 1-5329 Sp. No. 2 4TH Street and Cameron Replacement

PROJECT: 4th Street and Cameron	
SYSTEM: Pinal Valley	
CONTRACT NO.:	
P.E. NO.:	W.A. NO.: 1-5329

Dear Mr. Anderson:

Enclosed is your copy of the Proposal/Contract for the above-referenced project, which has been accepted by Arizona Water Company (the "Company"). The project shall be constructed in accordance with the Company's *General Conditions of Contract, the Specifications and the Drawings* which were included with the Company's previously provided Proposal/Contract, copies of which are being provided again and attached herewith.

Also enclosed are two copies of the Commencement Notice for the above-referenced project. Please sign one of the copies and return it to my attention retaining the other for your records.

As provided in paragraph 4 of the Company's Proposal/Contract executed by the Company on January 29, 2015, DWA Construction Company, LLC acknowledged that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work. In addition, as provided in paragraph 44 of the Company's General Conditions of Contract, the 100% Performance and Payment Bonds must be provided within ten (10) calendar days of the date of the Commencement Notice. Failure to provide an acceptable 100% Performance and Payment Bond does not limit the Company's

ability to terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur.

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting. In addition, please provide the required Performance and Payment Bonds to the Company promptly so that the contracted work can be completed within the contract's timeline.

If you have any questions, please call me at this office.

Very truly yours,

James T. Wilson, P. E.
Senior Engineer
jwilson@azwater.com

afh
Enclosure

ARIZONA WATER COMPANY

INPUT DIVISION INFORMATION
DIVISION ADDRESS
DIVISION PHONE NUMBERS

PROPOSAL/CONTRACT

CONTRACTOR: D.W.A. Construction Co. LLC	SYSTEM: Pinal Valley
ADDRESS: P.O. Box 12788	W.A. No(s): 1-5329 Sp Nr 7
CITY ST ZIP: Casa Grande, AZ 85130-2788	BID DUE DATE: December 31, 2014

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1. Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto. Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto. The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract. Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings.
2. Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract.
3. Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person.
4. Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work.
5. Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project. The materials list will include the manufacturer, part number, price and quantity included in this Proposal/Contract.
6. Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings. No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax. Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company. The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A.R.S.") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S. §42-5061 B.6.), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed. Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax.
7. Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project. Such records will include all supporting original vendor invoices for all materials purchased. Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof. The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility.
8. The Estimated Total Cost of the Project, shown on Page 2, is based on estimated labor and material quantities to be furnished. It includes an estimate of the Contracting Tax and the cost of the required Performance and Payment Bonds. Contractor will not cancel, modify or withdraw this Proposal/Contract during a ninety-day (90) period commencing on the Bid Due Date. The Company may accept this Proposal/Contract by signing and mailing, or otherwise delivering, a copy hereof to Contractor during such ninety-day (90) period. If the Company does not accept this Proposal/Contract during such ninety-day (90) period, Contractor may cancel this Proposal/Contract by giving written notice of cancellation to the Company.
9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project invoicing. Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly.
10. Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice. Contractor will complete the Project within 90 calendar days after the Commencement Notice is issued.
11. Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities.
12. The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice. This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract.

SPECIAL CONDITIONS:

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
D.W.A. Construction Co. LLC	ARIZONA WATER COMPANY
By: Devin Anderson	By: Fredrick K. Schneider
Print Name: Devin Anderson	Print Name: Fredrick K. Schneider, PE
Title: Manager	Title: Vice President - Engineering
Date: 12-31-14	Date: 1-29-2015

ARIZONA WATER COMPANY

INPUT DIVISION INFORMATION
DIVISION ADDRESS
DIVISION PHONE NUMBERS

PROPOSAL/CONTRACT

CONTRACTOR: D.W.A. Construction Co. LLC	SYSTEM: Pinal Valley
AZ CONTRACTOR LICENSE NO: 227278 CLASSIFICATION: A	W.A. No(s): 1-5329 Sht 2
ADDRESS: PO Box 12788	BID DUE DATE: December 31, 2014
CITY ST ZIP Casa Grande AZ 85130	BID BOND REQUIRED ☑ Yes ☐ No

DESCRIPTION OF PROJECT: Replace approximately 85LF of 4" CI with 4" DIP and related fittings crossing 4th Street, in alley between Cameron and Morrison.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
Remove and replace 4" CI with 4" DIP, replace two 4" GV's, replace two	1	######	XXXXXXXXX	$ 6,860	XXXXXXXXX
4" tees and 1-6" fire hydrant w/GV					
Remove, replace and haul off asphalt/concrete	1	######	XXXXXXXXX	5,200	XXXXXXXXX
				1	2
3. Total Labor to Install Exempt Materials (add the amounts in column 1)				3 12,060	
4. Total Exempt Materials (add the amounts in column 2)					4 0

5-6. NON-EXEMPT MATERIALS	QUANTITY	LABOR	MATERIALS	LABOR	MATERIALS
				5	6
7. Total Labor to Install Non-Exempt Materials (add the amounts in column 5)				7 0	
8. Total Non-Exempt Materials (add the amounts in column 6)					8 -
9. Subtotal A (add lines 3, 7 and 8)					9 $ 12,060
10. Contracting Tax Base (multiply the amount on line 9 by 0.65)				10 7839	
11. Applicable Contracting Tax Rate				11 10.7	
12. Contracting Tax (multiply the amount on line 10 by line 11)					12 839.00
13. Subtotal B (add lines 4, 9 and 12)					13 12,899
14. 100% Performance and Payment Bonds Cost					14 185
15. Estimated Total Cost (add lines 13 and 14)					15 13,084

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal,

ARIZONA WATER COMPANY

COMMENCEMENT NOTICE

CONTRACTOR:

Mr. Devin Anderson
DWA Construction Company, LLC
P. O. Box 12788
Casa Grande, AZ 85130

DATE: 1/29/15
DIVISION: CASA GRANDE
SYSTEM: PINAL VALLEY
W.A.: 1-5329 Sp. No. 2

THIS IS YOUR NOTICE TO PROCEED WITH THE FOLLOWING PROJECT(S):

DESCRIPTION OF WORK:

Replace approximately 85 LF of 4-inch CI with 4-inch DIP and related fittings crossing 4th Street in alley between Cameron and Morrison.

PERFORMANCE AND PAYMENT BONDS REQUIRED: [X] Yes [ ] No

TOTAL DAYS ALLOWED: 30

COMPLETION DATE:

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting.

ARIZONA WATER COMPANY	***DWA CONSTRUCTION COMPANY, LLC***
Company	Contractor *(type name)*
By [signature]	By
Title Vice President – Engineering	Title

AFH

W:\PROJECTS\CG\PV\INS\DEWA\2015-1-5329 SPECIAL #2 4TH ST AND CAMERON\AGREEMENTS\CONTRACTS\E-3-18-2 DWA COMMENCEMENT NOTICE LTR 1-5329 CAMERON & MORRISON.DOCX 1/15/09 | FKS:afh | E-3-18-

ARIZONA WATER COMPANY

SPECIFICATIONS

GENERAL CONDITIONS OF CONTRACT: E-4-1

CONSTRUCTION SPECIFICATIONS: E-8-1

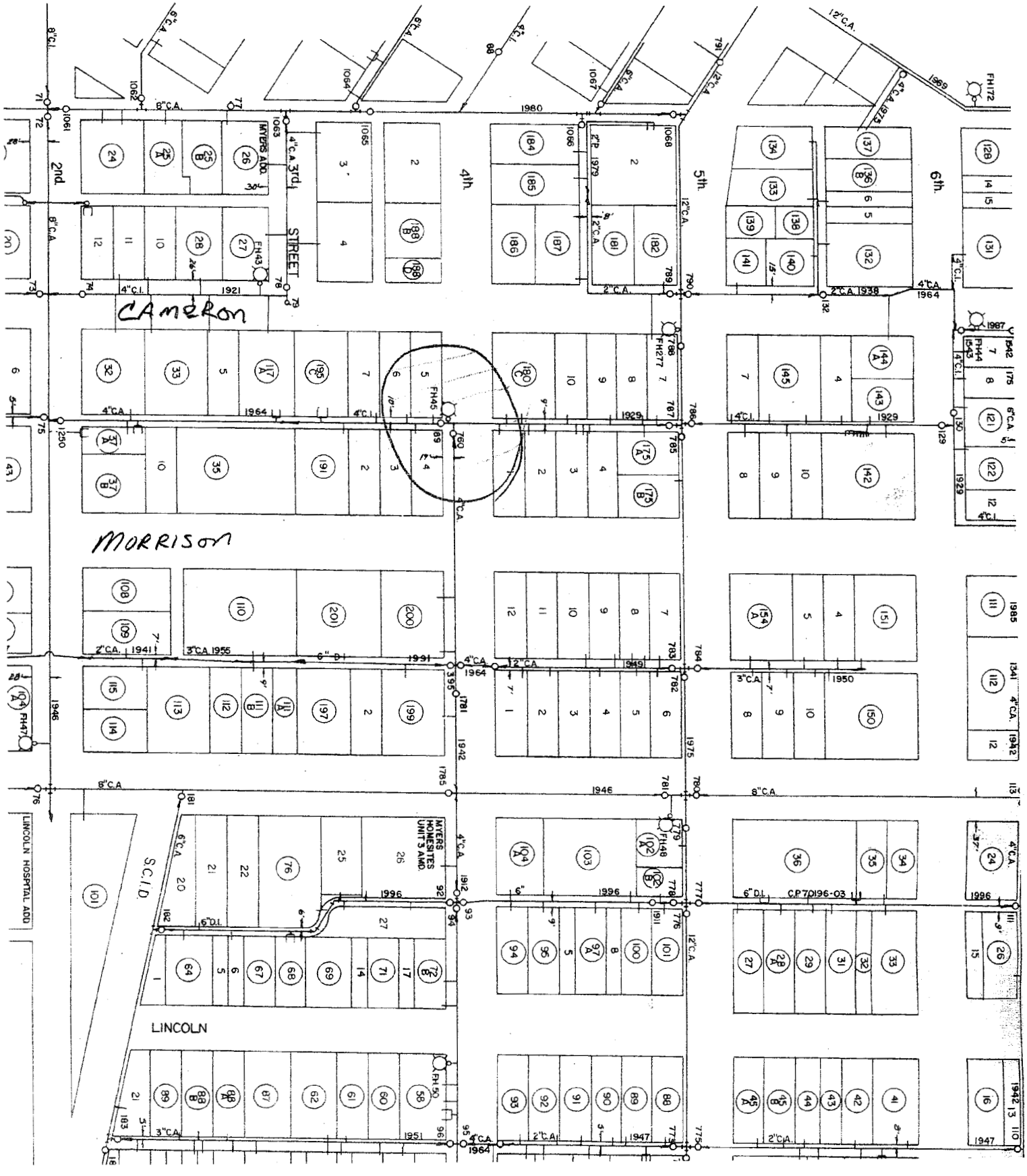
STANDARD SPECIFICATION DRAWINGS: E-9-1

JW 1/9/15

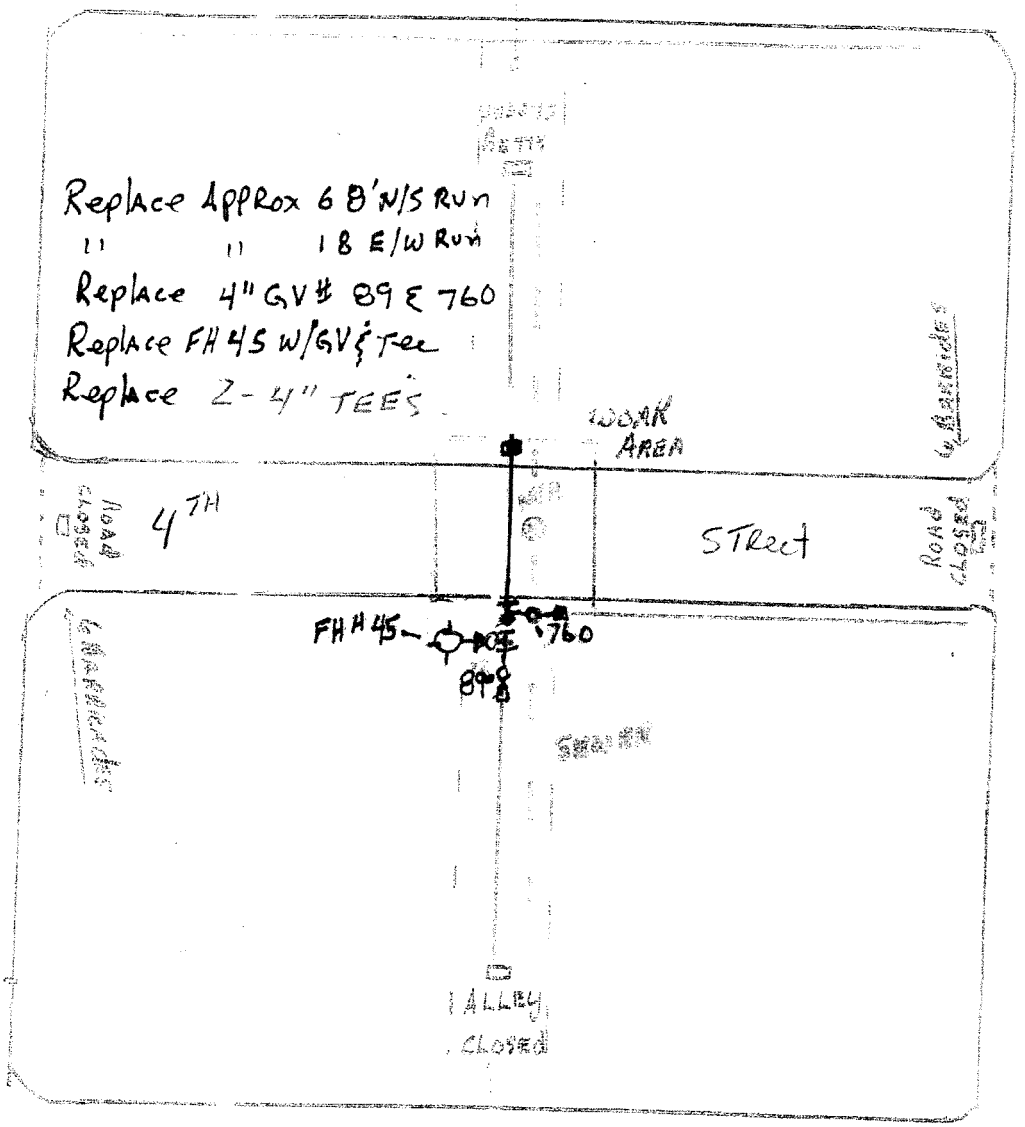
2007 EDITION WITH **2010** REVISIONS;
2012 GENERAL CONDITIONS OF CONTRACT

A copy of this entire Spec Book was sent out with DWA Construction Proposal package for 1-5330 Sp#2 Cameron & Morrison Replacement on 1/29/15

NE¼ SEC 29. T.6S. R86



NE 1/4 Sec 29 T. 6S., R. 6E



11

CDP- 15-00128

CDP-15-00128

City of Casa Grande, Planning & Development Dept., 510 E. Florence Blvd, Casa Grande, AZ 85122

Aban 301 E. Ash Ave. CDP-15-00290

RIGHT OF WAY USE PERMIT APPLICATION

(Electronic Version Available at: www.casagrandeaz.gov/web/guest/devforms email applications to DCPermits@casagrandeaz.gov)

Please indicate the type of Right of Way work being permitted:

☒ Utility Repair ☒ Emergency Utility Repair Work ☐ Utility New Construction ☐ Other:_____

Utility Franchise ☒ Yes ☐ No

Road Closure required ☒ Yes Dates: 1-29-2015 ☐ No THRU 2-10-2015

1. **PROJECT LOCATION:** 4TH STREET BETWEEN MORRISON & CAMERON
(Indicate closest intersecting streets or alleys)

2. **DESCRIPTION OF WORK:** REPLACE 90' OF 4" C.I. MAIN & VALVES W/RELATED FITTINGS 4" CAST IRON IS DETERIORATING

3. **APPLICANT/CLIENT INFORMATION:**

Name ARIZONA WATRER COMPANY

Address 220 E 2ND STREET City CASA GRANDE State AZ Zip Code 85122

Phone 520 836 8785, Fax 520 836 2850 Email Address RFREEMAN@AZWATER.COM

4. **CONTRACTOR PERFORMING WORK:**

Name ARIZONA WATER CREW CONTACT PRESON: KIM BOUCHER 520 709 5868

Address _____ City _____ State _____ Zip Code _____

Phone _____ Fax _____ Email Address _____

(Permit will be emailed to this address)

CITY INTAKE:

Date Accepted & Logged In: 1/23/15 Intake Staff: LH

Fee Receipt # _____ Expiration Date: 3/31/15

Assigned DC Engineer: Larry Peterson Assigned PW Inspector: _____

Engineer's Approval: Larry E. Peterson Date: 1/26/15

Inspected & Accepted by: _____ Date: 03/12/2015

ADEQ Arizona Department of Environmental Quality

ENGINEERING REVIEW SECTION
DATA REQUIRED WITH ECC

INSTRUCTIONS

Please complete the test data and submit this form with the Engineers Certificate of Completion. An Approval of Construction cannot be issued without the data identified below in accordance with Arizona Administrative Code (A.A.C.) R18-5-508(C). Please attach all supplemental information and calculations to this form.

DATA

1.

PRESSURE TEST DATA				
Indicate Segment Tested	NA			
Pressure and Leakage Test Results (Pass/Fail)				
Date Tested				
Time Started				
Time Finished				
Pipe Diameter				
Footage Tested				
Allowable Leakage				
Leakage Observed				
Pressure at Test Point				
Employee Observing the Test (Please Print Legibly)				
Signature of Employee Observing the Test	KA			

2.

DISINFECTION SAMPLING					
Initial Sampling (Minimum 50 ppm available chlorine)	Date	2-12-15			
	Time	9:10AM			
	ppm Cl_2	100ppm			
After 24 Hours Detention Time (Minimum 10 ppm free chlorine)	Date	2-12-15			
	Time	4:30PM			
	ppm Cl_2	50ppm			
After Sufficient Flushing (Water is clear and system Cl_2 residual is measured)	Date	2-12-15			
	Time	4:50PM			
	ppm Cl_2	.8			
Bacteriological Sampling(s):	Date	2-17-15			
	Time	10:20AM			
	Attached (Y/N)	Yes			
		(Yes)/No	Yes/No	Yes/No	Yes/No

3.

Certification

I, Kim Boucher, certify that I have inspected the work performed and have found it to be satisfactory and in accordance with Arizona Administrative Code, Arizona Engineering Bulletins, and the approved specifications.

Kim Boucher — Authorized Persons Signature

3-16-2015 — Date

Professional Seal
As per A.A.C. R18-5-507(B)(1)

2015 3 9

6 3 2015

ARIZONA WATER COMPANY

CONSTRUCTION PLACED IN SERVICE NOTICE

WORK AUTHORIZATION NO.: 041-34301-5329

DIVISION: CASA GRANDE

DATE READY FOR SERVICE: 2 | 12 | 2015

FOR PURPOSES OF *MODIFIED ACCELERATED COST RECOVERY SYSTEM*, AN ASSET IS "PLACED IN SERVICE" WHEN IT IS IN A CONDITION OR STATE OF READINESS AND AVAILABILITY FOR A SPECIFICALLY ASSIGNED FUNCTION, WHETHER IT BE FOR USE IN A TRADE OR BUSINESS, OR FOR THE PRODUCTION OF INCOME.

I CERTIFY THAT THE ASSET(S) CONSTRUCTED PURSUANT TO THE PROVISIONS OF THE ABOVE-REFERENCED WORK AUTHORIZATION ARE READY FOR SERVICE AS OF THE DATE SHOWN ABOVE.

~~Division Manager~~ or Operations Superintendent *(signature)*	Date of Notice
	3-16-15

SUBMIT ORIGINAL TO ACCOUNTING DEPARTMENT

A-1-3-1

Western Group Rate Case

Exhibit FKS-1

5332 CG Mountain

ARIZONA WATER COMPANY
WORK AUTHORIZATION

W.A. NUMBER: 1-5332
P.E. NUMBER:
BUDGET ITEM NO.: Special No. 5
SHEET NO.: 1 of 2

SYSTEM:	PINAL VALLEY	RETENTION REQUIRED:	☑ YES ☐ NO
DIVISION:	CASA GRANDE	WORK TO START BY:	UPON AUTHORIZATION
RESPONSIBLE PERSON:	RAY MURRIETA	WORK TO BE FINISHED BY:	WITHIN 30 DAYS
TAX CODE:	0422		

DESCRIPTION OF WORK:

Construct 60 LF of 36-inch DIP to replace 60 LF of failed 36-inch CLC transmission main on Casa Grande Mountain located south of Interstate 8 at Peart Road.

FACTORS JUSTIFYING WORK:

The Casa Grande Mountain transmission main failed and requires emergency replacement of a 60 foot section of transmission main with cracks in the exterior concrete coating and a 10-inch diameter hole. The water main was installed in 1978 and has experienced a second leak over the past nine years. The transmission main is the primary feed into and out of the the 5MG storage tank on Casa Grande Mountain which represents approximately 30% of the total storage in the Pinal Valley Water system. The transmission main is necessary to provide safe, adequate and reliable service to the Pinal Valley Water System.

COST ESTIMATE		AUTHORIZATION	DATE
COST OF WORK:		PREPARED BY: James Wilson JW 2/9/15	2/5/15
MATERIAL	0	REVIEWED FOR ESMT/ROW VERIFICATION: Charles Briggs CB 02-09-2015	02-05-2015
LABOR	6,800	REVIEWED BY: Andy Haas AH 2-9-15	2-5-15
CONTRACT PORTION	126,669	APPROVED BY ENGINEERING: Fredrick Schneider FS 2-9-15	2-5-2015
OVERHEAD	16,000	APPROVED BY FINANCE: Joseph Harris	2/5/15
TOTAL AUTHORIZED EXPENDITURES CHARGEABLE TO THIS W.A.	$ 149,469	SPECIAL ITEM EXCEEDING $10,000; AUTHORIZED BY PRESIDENT: William Garfield	2-19-2015
FUNDS RECEIVED:		SPECIAL ITEM EXCEEDING $10,000; AUTHORIZED BY CHAIRMAN: APPROVED VAI FAX M. L. Whitehead	2/9/2015
CONTRIBUTIONS RECEIVED	0		
REFUNDABLE ADVANCES RECEIVED	0		
TOTAL CONTRIBUTIONS/ADVANCES	0		
NET COMPANY CASH REQUIRED	$ 149,469		

COMMENTS:

TRANSFER $149,469 FROM THE 2015 CONSTRUCTION CONTINGENCY BUDGET. AH

CONSTRUCTION RELEASE:

RELEASED TO CONSTRUCTION
Authorized by FRED SCHNEIDER
Date 2/9/15

AFH

ARIZONA WATER COMPANY

WORK AUTHORIZATION - DETAIL SHEET

W.A. NUMBER: 1-5332
P.E. NUMBER:
BUDGET ITEM NO.: Special No. 5
SHEET NO.: 2 of 2

RETIREMENT PROPERTY UNITS	PLANT PROPERTY ACCOUNT	UNIT DESCRIPTION	QUANTITY	YEAR INSTALLED AND W.A. NUMBER
	343	36-inch CLC pipe	60	1978 WA 1-8010

PROJECT DESCRIPTION

Construct 60 LF of 36-inch DIP to replace 60 LF of failed 36-inch CLC transmission main on Casa Grande Mountain located south of Interstate 8 at Peart Road.

	DESCRIPTION	PLANT PROP ACCT	QUANTITY	UNIT COST	TOTAL
CONTRACT WORK	Construct 36-inch DIP with polywrap and related fittings	343	60	$ 1,836.00	$ 110,160
	Contracting Tax	343	1	9,271.00	9,271
	Performance and Payment Bond	343	1	1,206.00	1,206
	Contingency (5%)	343	1	6,031.85	6,032
	SERVICE CONNECTIONS COMPLETE: DOUBLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-SHORT	345			
TOTAL CONTRACT WORK					$ 126,669
MATERIALS					
	SERVICE CONNECTIONS: DOUBLE-LONG	345			
	SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS: SINGLE-LONG	345			
	SERVICE CONNECTIONS: SINGLE-SHORT	345			
	METERS	346			
TOTAL MATERIALS					$ -
LABOR	Project Engineering and Management	343	40	$ 65.00	$ 2,600
	TESTING FEE	343	1	$ 500.00	500
	PERMIT FEE	343			
	SURVEY FEE	343	1	1,500.00	1,500
	FIELD INSPECTION	343	40	55.00	2,200
	INSTALL SERVICE CONNECTIONS: DOUBLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-SHORT	345			
TOTAL LABOR					$ 6,800
SUBTOTAL - CONTRACT WORK, MATERIALS, AND LABOR					$ 133,469
OVERHEAD					16,000
TOTAL	REFUNDABLE PORTION ☐	NON-REFUNDABLE PORTION ☐		**COST ESTIMATE**	$ 149,469

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

February 10, 2015

Mr. Nick Patterson
MGC Contractors, Inc.
4110 E. Elwood Street
Phoenix, AZ 85040

Re: Casa Grande Mountain CLC Transmission Main

PROJECT: CG Mountain Main	
SYSTEM: Pinal Valley	
CONTRACT NO.:	
P.E. NO.:	W.A. NO.: 1-5332

Dear Mr. Patterson:

Enclosed is your copy of the Proposal/Contract for the above-referenced project, which has been accepted by Arizona Water Company (the "Company"). The project shall be constructed in accordance with the Company's *General Conditions of Contract, the Specifications and the Drawings* which were included with the Company's previously provided Proposal/Contract, copies of which are being provided again and attached herewith.

Also enclosed are two copies of the Commencement Notice for the above-referenced project. Please sign one of the copies and return it to my attention retaining the other for your records.

As provided in paragraph 4 of the Company's Proposal/Contract executed by the Company on February 17, 2015 MGC Contractors, Inc. acknowledged that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work. In addition, as provided in paragraph 44 of the Company's General Conditions of Contract, the 100% Performance and Payment Bonds must be provided within ten (10) calendar days of the date of the Commencement Notice. Failure to provide an acceptable 100% Performance and Payment Bond does not limit the Company's ability to

terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur.

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting. Prior to the pre-construction meeting, the Contractor must provide proof of insurance of no less than the minimum amounts provided in paragraph 5 of the Company's General Conditions of Contract. Failure to provide acceptable proof of insurance does not limit the Company's ability to terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur. In addition, please provide the required Performance and Payment Bonds to the Company promptly so that the contracted work can be completed within the contract's timeline.

If you have any questions, please call me at this office.

Very truly yours,

James T. Wilson, P. E.
Senior Engineer
engineering@azwater.com

afh
Enclosure

ARIZONA WATER COMPANY

Casa Grande - Pinal Valley
220 E. 2nd Street
Casa Grande, AZ 85122 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: MGC CONTRACTORS, INC	SYSTEM: PINAL VALLEY
ADDRESS: 4110 E. ELWOOD STREET	W.A No(s): 1-5332
CITY ST ZIP: PHOENIX, AZ 85040	BID DUE DATE: February 13, 2015

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1. Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto. Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto. The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract. Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings.
2. Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract.
3. Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person.
4. Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work.
5. Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project. The materials list will include the manufacturer, part number, price and quantity included in this Proposal/Contract.
6. Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings. No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax. Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company. The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A.R.S.") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S. §42-5061 B,6,), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed. Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax.
7. Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project. Such records will include all supporting original vendor invoices for all materials purchased. Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof. The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility.
8. The Estimated Total Cost of the Project, shown on Page 2, is based on estimated labor and material quantities to be furnished. It includes an estimate of the Contracting Tax and the cost of the required Performance and Payment Bonds. Contractor will not cancel, modify or withdraw this Proposal/Contract during a ninety-day (90) period commencing on the Bid Due Date. The Company may accept this Proposal/Contract by signing and mailing, or otherwise delivering, a copy hereof to Contractor during such ninety-day (90) period. If the Company does not accept this Proposal/Contract during such ninety-day (90) period, Contractor may cancel this Proposal/Contract by giving written notice of cancellation to the Company.
9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project invoicing. Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly.
10. Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice. Contractor will complete the Project within 30 calendar days after the Commencement Notice is issued.
11. Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities.
12. The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice. This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract.

SPECIAL CONDITIONS:

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
MGC CONTRACTORS, INC.	ARIZONA WATER COMPANY
By: [signature]	By: [signature]
Print Name: Nicholas Patterson	Print Name: Fredrick K. Schneider, PE
Title: Project Manager	Title: Vice President - Engineering
Date: 2/10/15	Date: 2-17-2015

AFH

ARIZONA WATER COMPANY

Casa Grande - Pinal Valley
220 E. 2nd Street
Casa Grande, AZ 85122 PH: 520-836-8785

PROPOSAL/CONTRACT

CONTRACTOR: MGC CONTRACTORS, INC.	SYSTEM: PINAL VALLEY
AZ CONTRACTOR LICENSE NO: CLASSIFICATION:	W.A. No(s): 1-5332
ADDRESS: 4110 E. ELWOOD STREET	BID DUE DATE: February 9, 2015
CITY ST ZIP PHOENIX, AZ 85040	BID BOND REQUIRED ☐ Yes ☑ No

DESCRIPTION OF PROJECT: Construct 60 LF of 36-inch DIP to replace 60 LF of failed 36-inch CLC transmission main on Casa Grande Mountain located south of Interstate 8 at Peart Road.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6)	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR	TOTAL COST MATERIALS
Construct 36-inch DIP with polywrap and related fittings	60 LF		$34,807.00		$34,807.00
3. Total Labor to Install Exempt Materials (add the amounts in column 1)				3	
4. Total Exempt Materials (add the amounts in column 2)					4 $34,807.00

5-6. NON-EXEMPT MATERIALS	QUANTITY	LABOR	MATERIALS	LABOR	MATERIALS
Transport any CLC pipe removed from service to Company yard	1	$841.00	$1,314.00	$841.00	$1,314.00
Repair tank access road	1	$1,533	$3,016.00	$1,533.00	$3,016.00
Construct 36-inch DIP with Polywrap and related fittings	1	$32,250	$37,449.00	$32,250.00	$37,449.00
7. Total Labor to Install Non-Exempt Materials (add the amounts in column 5)				7 $34,624.00	
8. Total Non-Exempt Materials (add the amounts in column 6)					8 $41,779.00
9. Subtotal A (add lines 3, 7 and 8)					9 $76,403.00
10. Contracting Tax Base (multiply the amount on line 9 by 0.65)				10 $49,662.95	
11. Applicable Contracting Tax Rate				11 0.0700	
12. Contracting Tax (multiply the amount on line 10 by line 11)					12 $3,476.83
13. Subtotal B (add lines 4, 9 and 12)					13 $116,523.83
14. 100% Performance and Payment Bonds Cost					14 $1,177.00
15. Estimated Total Cost (add lines 13 and 14)					15 $117,700.83

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal, and traffic control necessary for the Project.

ARIZONA WATER COMPANY

COMMENCEMENT NOTICE

CONTRACTOR:

Mr. Nick Patterson
MGC Contractors, Inc.
4110 E. Elwood Street
Phoenix, AZ 85040

DATE: 2/18/15
DIVISION: CASA GRANDE
SYSTEM: PINAL VALLEY
W.A.: 1-5332

THIS IS YOUR NOTICE TO PROCEED WITH THE FOLLOWING PROJECT(S):

DESCRIPTION OF WORK:

Construct 60 LF of 36-inch DIP to replace 60 LF of failed 36-inch CLC transmission main on Casa Grande Mountain located south of Interstate 8 at Peart Road.

PERFORMANCE AND PAYMENT BONDS REQUIRED: [X] Yes [ ] No

TOTAL DAYS ALLOWED: 40

COMPLETION DATE: 3/30/15

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting.

Prior to the pre-construction meeting, the Contractor must provide proof of insurance of no less than the minimum amounts provided in paragraph 5 of the Company's General Conditions of Contract. Failure to provide acceptable proof of insurance does not limit the Company's ability to terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur.

ARIZONA WATER COMPANY	***MGC CONTRACTORS, INC.***
Company	Contractor *(type name)*
By [signature]	By
Title Vice President - Engineering	Title

AFH

ARIZONA WATER COMPANY

SPECIFICATIONS

GENERAL CONDITIONS OF CONTRACT: E-4-1

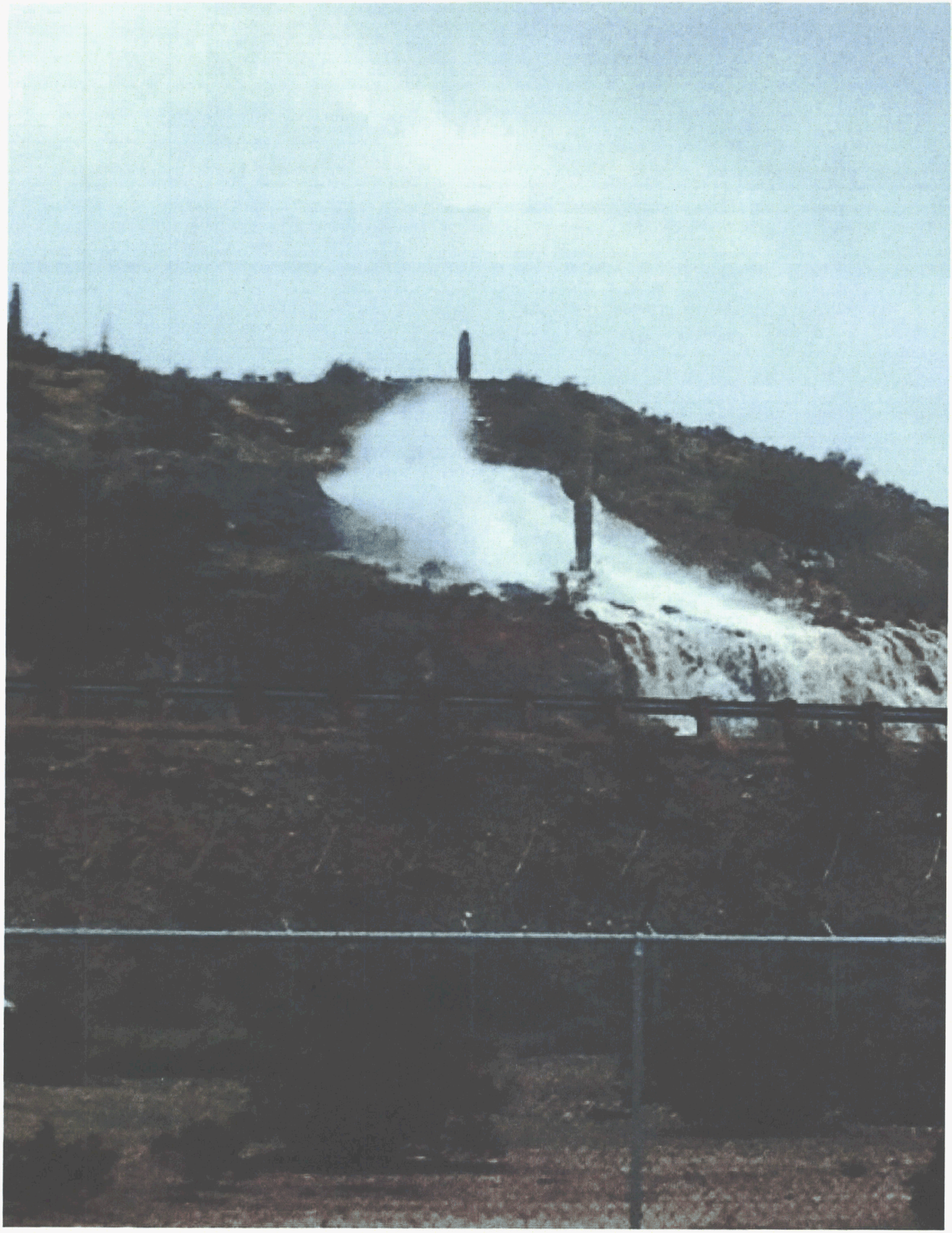
CONSTRUCTION SPECIFICATIONS: E-8-1

STANDARD SPECIFICATION DRAWINGS: E-9-1

gw 2/10/15

2007 EDITION WITH **2010** REVISIONS;
2012 GENERAL CONDITIONS OF CONTRACT

A copy of this entire Spec Book was sent out with MGC Contractors Proposal package for WA 1-5332 Casa Grande Mountain Main on 2/18/15 GW

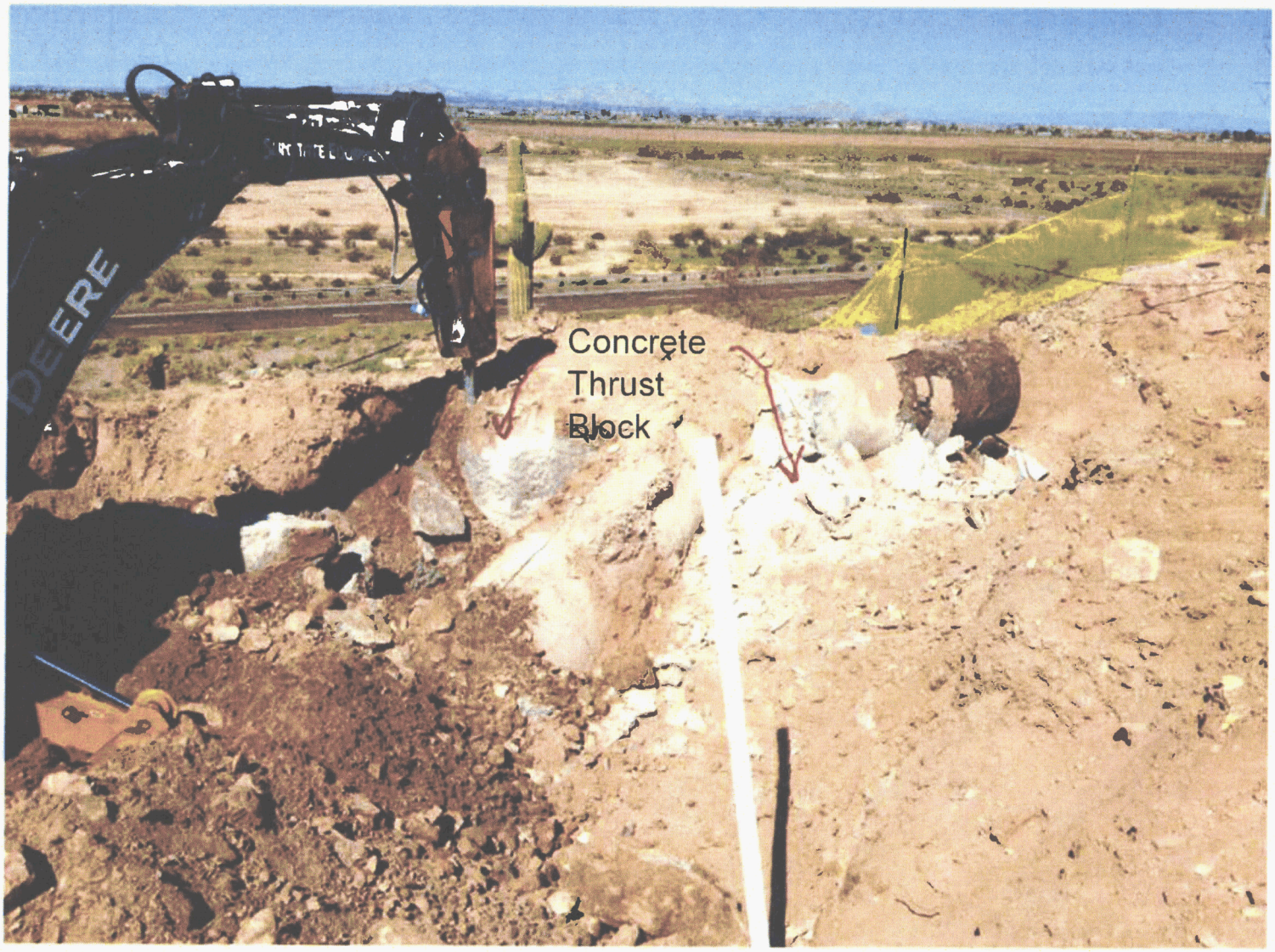


CG Mountain 2-23-15
Closeup of Blowout

CG Mountain 2-23-15
Blowout

CG Mountain 2-23-15
Exposed Joint with Pipe Marking

CG Mountain 2-24-15
Connection Pipe Between 36" DIP-CCP Removed



CG Mountain 3-3-15
Ameron Piece #26
With Thrust Block Being Removed

CG Mountain 3-5-15
Ameron Piece #26
(35 degree bend with 11 degree slope down)
Remnants of Thrust Block in Foreground

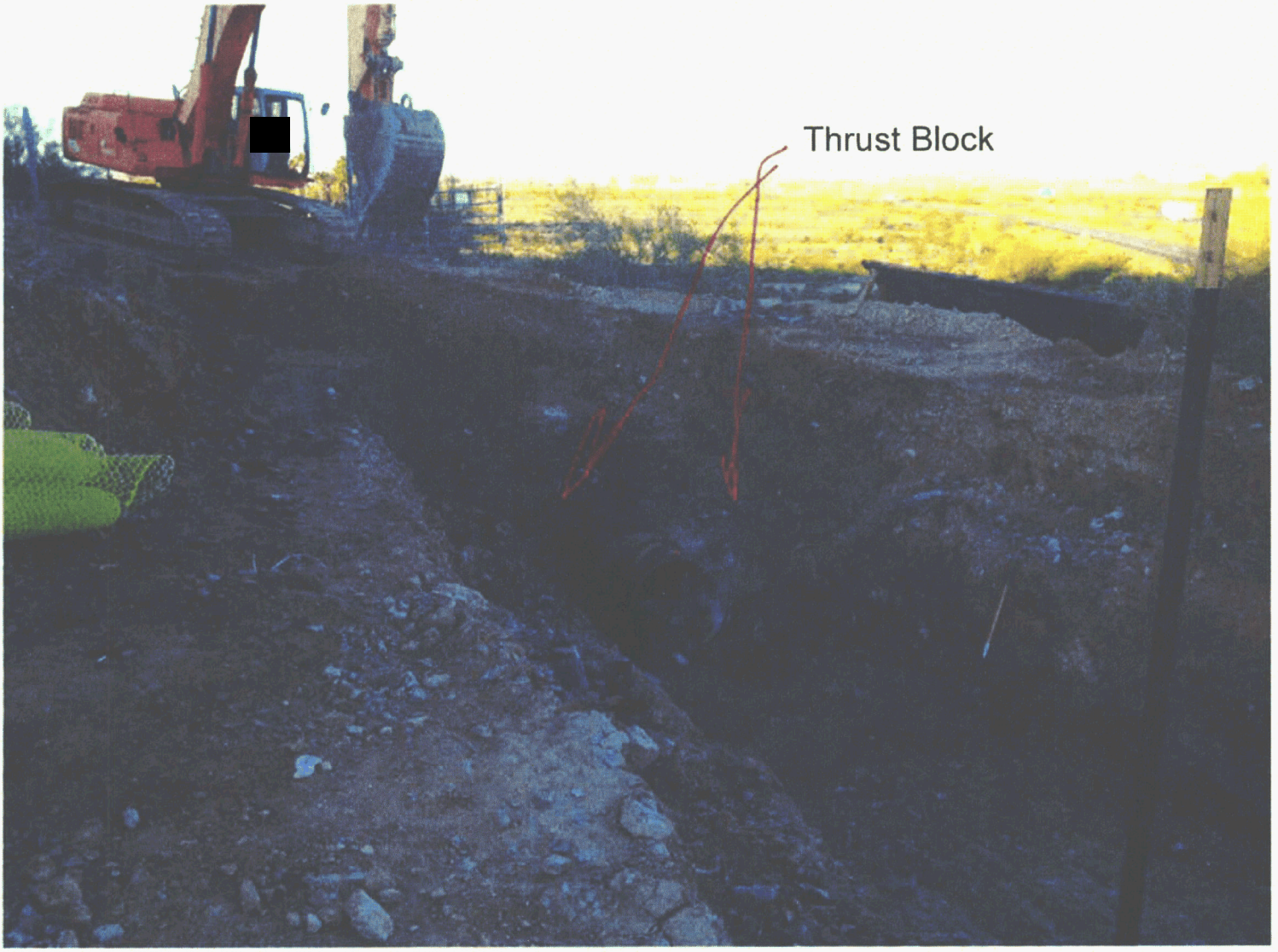
CG Mountain 3-5-15
Ameron Piece #26
Looking West away from Thrust Block
Hole made by contractor

CG Mountain 3-11-15
Old Ameron Pipe
Stored at Tank Site

CG Mountain 3-13-15
3/16-inch pinhole
(One of two pinholes in area)

CG Mountain 3-13-15
Areas Where Metal Thickness 0.060 to 0.070

CG Mountain 3-13-15
Ameron Pipe Cleaned of Rust
For Butt Strap



CG Mountain 3-13-15
Ameron Piece #28

CG Mountain 3-19-15
New 36" DI Pipe (approx. 60-feet)

CG Mountain 3-19-15
Completed welded attachment to Ameron Pipe

CG Mountain 3-19-15
Welded connection at bottom of Ameron Pipe

CG Mountain 3-19-15
Welded Connection at top of Ameron Pipe

CG Mountain 3-19-15
Completed Welded Connection to Ameron Pipe

CG Mountain 3-23-15
New 36" DIP looking uphill from Ameron Pipe Connection

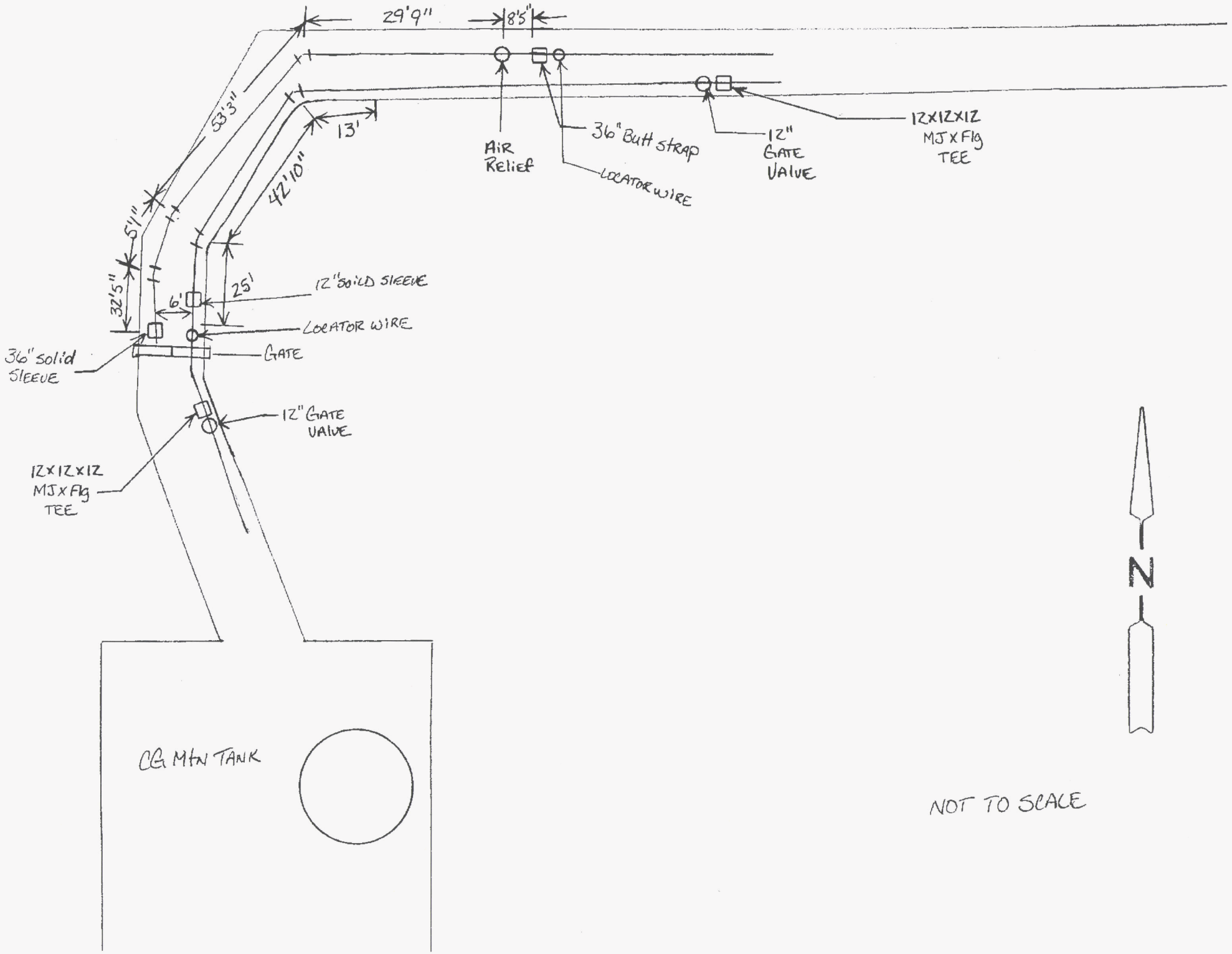
CG Mountain 3-27-15
New 36" DI Pipe
Looking uphill toward tank

CG Mountain 3-27-15
New 36" DIP partially compacted
Pipe bedding
Looking toward connection to Ameron Pipe

CG Mountain 3-27-15
Connection to Ameron Pipe
After Slurry Installed

CG Mountain 4-7-15
Re-installing 12" DI pipe
Workers making final connections

CG Mountain 4-7-15
Re-installing 12" DI Pipe
That interfered with removal of Ameron Pipe


29'9"
8'5"
53'3"
13'
42'10"
5'1"
32'5"
6'
25'
AIR RELIEF
36" BUTT STRAP
LOCATOR WIRE
12" GATE VALVE
12X12X12 MJ X FLG TEE
12" SOLID SLEEVE
LOCATOR WIRE
GATE
36" SOLID SLEEVE
12" GATE VALVE
12X12X12 MJ X FLG TEE
CG MTN TANK
N
NOT TO SCALE

ARIZONA WATER COMPANY

CONSTRUCTION PLACED IN SERVICE NOTICE

WORK AUTHORIZATION NO.: 1-5332

DIVISION: CG/PV

DATE PLACED IN SERVICE: 5 | 5 | 15

CONTRACT NO:

FOR PURPOSES OF *MODIFIED ACCELERATED COST RECOVERY SYSTEM*, AN ASSET IS "PLACED IN SERVICE" WHEN IT IS IN A CONDITION OR STATE OF READINESS AND AVAILABILITY FOR A SPECIFICALLY ASSIGNED FUNCTION, WHETHER IT BE FOR USE IN A TRADE OR BUSINESS, OR FOR THE PRODUCTION OF INCOME.

I CERTIFY THAT THE ASSET(S) CONSTRUCTED PURSUANT TO THE PROVISIONS OF THE ABOVE-REFERENCED WORK AUTHORIZATION ARE READY FOR SERVICE AS OF THE DATE SHOWN ABOVE.

Dan P

Division Manager or Operations Superintendent
(signature)

6-16-15

Date

SUBMIT ORIGINAL TO ACCOUNTING DEPARTMENT

A-1-3-1
FKS 11/24/11

Western Group Rate Case

Exhibit FKS-1

5339 SR 87 & AZ Blvd Asphalt

ARIZONA WATER COMPANY
WORK AUTHORIZATION

W.A. NUMBER: 1-5339
P.E. NUMBER:
BUDGET ITEM NO.: Special No. 9
SHEET NO.: 1 OF 2

SYSTEM:	PINAL VALLEY
DIVISION:	CASA GRANDE
RESPONSIBLE PERSON:	RAY MURIETTA
TAX CODE: 2108	

RETENTION REQUIRED:	☑ YES ☐ NO
WORK TO START BY:	UPON AUTHORIZATION
WORK TO BE FINISHED BY:	WITHIN 55 DAYS

DESCRIPTION OF WORK:

Replace leaking water service line and construct 110 ft.x11 ft. permanent asphalt patch to replace temporary asphalt patch on Arizona Boulevard (ADOT SR-87) south of Verde Lane in Coolidge, Arizona.

FACTORS JUSTIFYING WORK:

A water service line leak damaged a portion of asphalt on Arizona Boulevard (ADOT SR-87) south of Verde Lane. Company servicemen replaced the water service line and constructed a temporary asphalt patch to replace the damaged asphalt. ADOT requires the Company to replace the temporary asphalt patch with a full lane width, 2-inch deep mill and overlay for 50-feet each side of the water service line replacement in accordance with the ADOT highway encroachment permit. Company Engineers worked with the Company's General Counsel to submit an insurance claim to the Company's insurance carrier to cover the cost of the asphalt replacement.

COST ESTIMATE		AUTHORIZATION	DATE
COST OF WORK:		PREPARED BY: John Knobbe 5-1-2015	4-1-2015
MATERIAL	300		
LABOR	4,601	REVIEWED FOR ESMT/ROW VERIFICATION: Charles Briggs CB 05-01-2015	04-01-2015
CONTRACT PORTION	50,738		
OVERHEAD	6,700	REVIEWED BY: James Wilson	4/1/15
TOTAL AUTHORIZED EXPENDITURES CHARGEABLE TO THIS W.A.	$ 62,339		
FUNDS RECEIVED:		APPROVED BY ENGINEERING: Fredrick Schneider 5-1-15	4-6-2015
CONTRIBUTIONS RECEIVED	0		
REFUNDABLE ADVANCES RECEIVED	0	APPROVED BY FINANCE: Joseph Harris	4/7/15
TOTAL CONTRIBUTIONS/ADVANCES	0		
NET COMPANY CASH REQUIRED	$ 62,339	SPECIAL ITEM EXCEEDING $10,000; AUTHORIZED BY PRESIDENT: William Garfield	4-7-2015
		SPECIAL ITEM EXCEEDING $10,000; AUTHORIZED BY CHAIRMAN: Approved via Fax M. L. Whitehead	4/29/15

COMMENTS:

Transfer required funds from the 2015 Construction Contingency Budget to fund this project.

CONSTRUCTION RELEASE:

RELEASED TO CONSTRUCTION
Authorized by FRED SCHNEIDER
Date 5/1/15

AFH

ARIZONA WATER COMPANY

WORK AUTHORIZATION - DETAIL SHEET

W.A. NUMBER: 1-5339
P.E. NUMBER:
BUDGET ITEM NO.: Special No. 9
SHEET NO.: 2 of 2

RETIREMENT PROPERTY UNITS	PLANT PROPERTY ACCOUNT	UNIT DESCRIPTION	QUANTITY	YEAR INSTALLED AND W.A. NUMBER

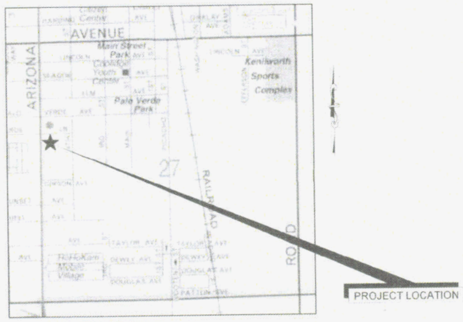
PROJECT DESCRIPTION:

Replace leaking water service line and construct 110 ft.x11 ft. permanent asphalt patch to replace temporary asphalt patch on Arizona Boulevard (ADOT SR-87) south of Verde Lane in Coolidge, Arizona.

	DESCRIPTION	PLANT PROP ACCT	QUANTITY	UNIT COST	TOTAL
CONTRACT WORK	Remove temporary asphalt patch and construct permanent				
	asphalt patch	345	1	46,550.00	46,550
	Contracting Tax	345	1	3,238.00	3,238
	100% Performance and Payment Bonds	345	1	950.00	950
	SERVICE CONNECTIONS COMPLETE: DOUBLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-LONG	345			
	SERVICE CONNECTIONS COMPLETE: SINGLE-SHORT	345			
TOTAL CONTRACT WORK					$ 50,738
MATERIALS	Construct temporary asphalt patch	345	1	$ 300.00	$ 300
	SERVICE CONNECTIONS: DOUBLE-LONG	345			
	SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	SERVICE CONNECTIONS: SINGLE-LONG	345			
	SERVICE CONNECTIONS: SINGLE-SHORT	345			
	METERS	346			
TOTAL MATERIALS					$ 300
LABOR	Engineering design and project management	345	24	$ 65.00	$ 1,560
	Construct temporary asphalt patch	345	1	1,661.00	1,661
	TESTING FEE		1	$ 500.00	500
	PERMIT FEE				
	SURVEY FEE				
	FIELD INSPECTION	345	16	55.00	880
	INSTALL SERVICE CONNECTIONS: DOUBLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: DOUBLE-SHORT	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-LONG	345			
	INSTALL SERVICE CONNECTIONS: SINGLE-SHORT	345			
TOTAL LABOR					$ 4,601
SUBTOTAL - CONTRACT WORK, MATERIALS, AND LABOR					$ 55,639
OVERHEAD					6,700
TOTAL	REFUNDABLE PORTION ☐	NON-REFUNDABLE PORTION ☐		**COST ESTIMATE**	$ 62,339

AFH

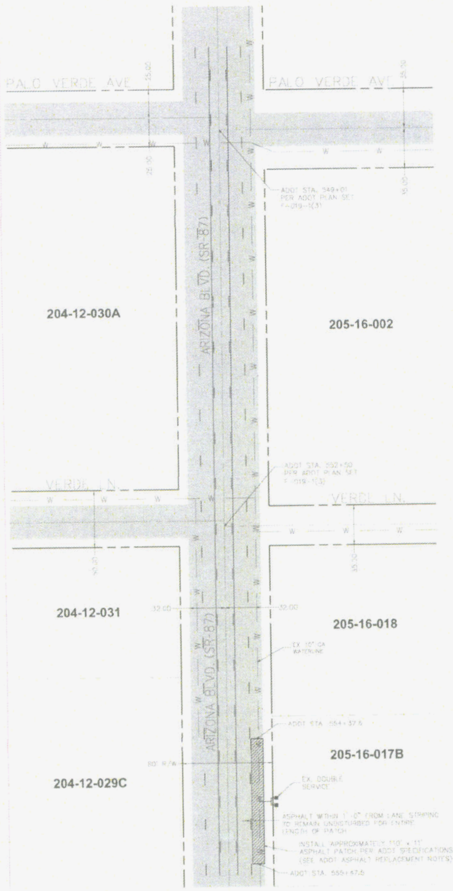
REPLACE TEMPORARY ASPHALT PATCH WITH APPROXIMATELY 110' X 11' PERMANENT ASPHALT PATCH ALONG ARIZONA BLVD.
NW 1/4 SEC. 27, T. 5 S., R. 8 E. OF THE G. & S. R. B. & M.



VICINITY MAP

GENERAL NOTES

1. All work and materials shall conform to current County Health Department Standards and Revisions, Arizona Water Company Standard Specifications and Details, and Arizona Department of Health Services Engineering Bulletin No. 10.
2. Permits required will be secured from the appropriate agency, if county permit in county right of way.
3. Prior to construction, the appropriate agency(ies) will be notified as required by the permit(s).
4. All backfill, compaction, and testing shall be per current County, City, State, ADOT, and Arizona Water Company standards and specifications.
5. All water lines 8" and less are to have a minimum cover of 36 inches & all water lines 12" and greater are to have 48" of minimum cover over the top of pipe to finished grade, unless otherwise specified on the construction drawings.
6. All frames, covers, valve boxes, etc. shall be adjusted to finished grade prior to placing of asphaltic concrete surface course by the contractor (where applicable).
7. All water lines shall be pressure and leakage tested in accordance with AWWA C-600 or MAG 610.14.
8. All water lines are to be disinfected per ADEQ Engineering Bulletin No 8 and AWWA C651-92.
9. Air release valves are required at water system high points per Arizona Water Company standard details.
10. Water/sewer separation shall be per current Arizona Water Company standards and ADEQ AAC R18-5-502 C.
11. It shall be the contractors responsibility to uncover all existing water lines being connected to, and to verify the location, depth and size of pipe before any construction begins.
12. Any construction performed without the knowledge of the inspector or his representative is liable for removal and replacement at the contractor's expense.
13. In accordance with AAC R18-4-213, all materials added after January 1, 1993 which may come in contact with drinking water, shall conform to National Sanitation Foundation Standards 60 and 61.
14. All water services shall be set a minimum of 2 Feet on the customers property and NOT within right-of-way.
15. Unless otherwise specified on the construction drawings, all water mains are to be installed 5 Feet from the property line inside the right-of-way or easement.
16. Water valves shall be spaced not more than 500 Feet in commercial districts and not more than 800 Feet in other districts. Variations may be required for transmission mains or special applications. Sufficient valving is required where water lines cross streams, railroads and major highways.
17. Maximum Joint Deflection For 6" Mechanical Joint Ductile Iron Pipe is 7° 7' Or 27" For 18 Foot Length Pipe, For A Maximum Curve Of 145 Feet.
18. Maximum Joint Deflection For 6", 8", & 12" Push On Joint Ductile Iron Pipe is 5° Or 19" For 18 Foot Length Pipe, For A Maximum Curve Of 205 Feet.
19. Maximum Joint Deflection For 8" & 12" Mechanical Joint Ductile Iron Pipe is 5° 21' Or 20" For 18 Foot Length Pipe, For A Maximum Curve Of 185 Feet.



LEGEND

- STREET CENTERLINE/MONUMENT LINE
- RIGHT OF WAY LINE
- PROPERTY LINE
- EX. WATER LINE
- ASPHALT PATCH
- EX. ASPHALT AREA

ADOT ASPHALT REPLACEMENT NOTES

1. Existing pavement shall be saw cut full depth for the trench prior to any excavation.

2. Cement treated slurry backfill meeting ADOT Standard Specifications **501-3.02** and **501-3.04** shall be used in the trench crossing the roadway. Slurry shall be placed full depth of the trench up to the bottom of the existing asphaltic concrete (AC). Steel plates meeting traffic loading requirements shall be placed over the trench and slurry allowed setting a minimum of 24 hours without disturbance. Four feet wide cold mix AC wedges shall be used to hold steel plates in place.

3. Once the slurry is set, AC meeting the requirements of ADOT Standard Specification Section **409** shall be placed in the trench in lifts and properly compacted to the surface of the existing pavement. The thickness of replacement asphalt concrete shall match the existing thickness.

4. In the event the roadway is paved with **Rubberized Asphalt Concrete Friction Course (AR-ACFC), it shall be replaced in kind.**

5. Once the AC patch is completed, all affected travel lanes and shoulders where the patch was placed shall be milled in compliance with ADOT Standard Specification **202-3.03(C)** to a depth of two inches for a length of one hundred feet (fifty feet each side of patch). If the roadway is overlaid with AR-ACFC, the mill depth shall be two and one half (2-½) inches. The milled trench shall be properly cleaned and a Tack Coat placed on all surfaces, including the edges, which meet the requirements of ADOT Standard Specification **404-3.12**. The entire milled surface is then overlaid with two inches of AC meeting the requirements of ADOT Standard Specification Sections **409** and one half inch of AR-ACFC (if present) meeting the requirements of Standard Specification Section **414**.

FOR BIDDING PURPOSES ONLY
DEC 11 2014
Engineering Dept.

50' 25' 0' 50' 100'

The installation shown is to be installed in accordance with the Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality

263-1100
1-800-STAKE-IT

SYSTEM	PINAL VALLEY
LEGAL DESC.	NW 1/4 SEC. 27, T. 5 S., R. 8 E.
MAP	2108
DATE	6/11/2014
SCALE	AS SHOWN
DRAWN BY	BWP

ARIZONA WATER COMPANY
3805 N BLACK CANYON HWY POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6860

REPLACE TEMPORARY ASPHALT PATCH WITH APPROXIMATELY 110' X 11' PERMANENT ASPHALT PATCH ALONG ARIZONA BLVD.

COVER SHEET

SHEET 1 OF 1

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

April 30, 2015

Mr. Devin Anderson
DWA Construction Company, Inc.
P. O. Box 12788
Casa Grande, AZ 85130

Re: Arizona Boulevard Asphalt Replacement

PROJECT: AZ Blvd Asphalt Replacement	
SYSTEM: Pinal Valley	
CONTRACT NO.:	
P.E. NO.:	W.A. NO.: 1-5339

Dear Mr. Anderson:

Enclosed is your copy of the Proposal/Contract for the above-referenced project, which has been accepted by Arizona Water Company (the "Company"). The project shall be constructed in accordance with the Company's *General Conditions of Contract, the Specifications and the Drawings* which were included with the Company's previously provided Proposal/Contract, copies of which are being provided again and attached herewith.

Also enclosed are two copies of the Commencement Notice for the above-referenced project. Please sign one of the copies and return it to my attention retaining the other for your records.

As provided in paragraph 4 of the Company's Proposal/Contract executed by the Company on MAY 1, 2015, DWA Construction Company, LLC acknowledged that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work. In addition, as provided in paragraph 44 of the Company's General Conditions of Contract, the 100% Performance and Payment Bonds must be provided within ten (10) calendar days of the date of the Commencement Notice. Failure to provide an acceptable 100% Performance and Payment Bond does not limit the Company's

ability to terminate the Proposal/Contract or seek restitution for damages that the Company may have or will incur.

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting. In addition, please provide the required Performance and Payment Bonds to the Company promptly so that the contracted work can be completed within the contract's timeline.

If you have any questions, please call me at this office.

Very truly yours,

John P. Knobbe
Lead Designer
jknobbe@azwater.com

afh
Enclosure

ARIZONA WATER COMPANY

Casa Grande / Pinal Valley
220 E 2nd Street Casa Grande Az 85122
O- 520-836-8785 F- 520-836-2650

PROPOSAL/CONTRACT

CONTRACTOR: DWA Construction Co LLC	SYSTEM: 041
ADDRESS: PO Box 12788	W.A. No(s): 1-5339
CITY ST ZIP: Casa Grant Az 85130	BID DUE DATE: January 16, 2015

CONTRACTOR SUBMITS this PROPOSAL/CONTRACT to ARIZONA WATER COMPANY, an Arizona corporation (the "Company"), to perform the work and complete the project described on Page 2 (the "Project"), as an independent prime contractor.

1. Contractor certifies that it has a complete copy of, and has read, understands and accepts, the Company's General Conditions of Contract, and the Company's Construction Specifications and Standard Specification Drawings, (the "Specifications"), all of which are attached hereto. Contractor has examined the specific plans and related construction drawings for the Project (the "Drawings"), copies of which are also attached hereto. The General Conditions of Contract, Specifications and Drawings are incorporated into this Proposal/Contract. Contractor affirms that all work and materials to be furnished or purchased for the Project will be in strict conformance with the General Conditions of Contract, Specifications and Drawings.
2. Contractor represents and warrants that it has satisfied and complied with the provisions of Section 6, Contractor Understands Work and Working Conditions, of the General Conditions of Contract prior to submitting this Proposal/Contract.
3. Contractor represents that this Proposal/Contract is fair and honest in all respects, is submitted in good faith and is not submitted in collusion with any other company, entity or person.
4. Contractor acknowledges that one hundred percent (100%) Performance and Payment Bonds are required and must be provided to the Company prior to the commencement of work.
5. Prior to the commencement of work, Contractor will submit to the Company a list of all materials to be used in the Project. The materials list will include the manufacturer, part number, price and quantity included in this Proposal/Contract.
6. Contractor will furnish all labor, tools, equipment and materials required to complete the Project according to the General Conditions of Contract, Specifications and Drawings. No materials purchased by Contractor to be incorporated into the Project are subject to tax at the time of purchase and Contractor will not charge the Company for any such tax. Contractor will pay the applicable transaction privilege tax (the "Contracting Tax") on the Project after Contractor receives payment of the final Project invoice from the Company. The cost of materials incorporated into the Project which are exempt by Arizona Revised State Statues ("A.R.S.") from the Contracting Tax, for example, pipes or valves having a diameter of four (4) inches or larger, including equipment, fittings and any other related part that is used in operating the pipes or valves (A.R.S. §42-5061 B.6.), will not be included in the total cost of the labor and materials upon which the Contracting Tax is computed. Contractor retains full liability and obligation to pay the Contracting Tax and will defend and indemnify the Company against any demand or obligation to pay the Contracting Tax.
7. Contractor will maintain detailed accounting records of all materials purchased and incorporated into the Project. Such records will include all supporting original vendor invoices for all materials purchased. Following completion of the Project, Contractor will submit an itemized accounting to the Company which will include all supporting original vendor invoices and satisfactory evidence of payment thereof. The Company will not pay Contractor for materials not actually incorporated into the Project, and the disposition of such materials will remain Contractor's responsibility.
8. The Estimated Total Cost of the Project, shown on Page 2, is based on estimated labor and material quantities to be furnished. It includes an estimate of the Contracting Tax and the cost of the required Performance and Payment Bonds. Contractor will not cancel, modify or withdraw this Proposal/Contract during a ninety-day (90) period commencing on the Bid Due Date. The Company may accept this Proposal/Contract by signing and mailing, or otherwise delivering, a copy hereof to Contractor during such ninety-day (90) period. If the Company does not accept this Proposal/Contract during such ninety-day (90) period, Contractor may cancel this Proposal/Contract by giving written notice of cancellation to the Company.
9. Prior to the commencement of work, Contractor will provide the Company with a detailed construction schedule, in either Gantt or CPM form, identifying all tasks to be performed from the date of the written Commencement Notice through completion of the Project, including testing, training of Company Personnel and final Project invoicing. Contractor will provide the Company with a copy of such construction schedule documenting the progress of work on the Project at least monthly.
10. Contractor will not commence work on the Project until the Company gives Contractor a written Commencement Notice. Contractor will complete the Project within 45 calendar days after the Commencement Notice is issued.
11. Following the Company's written notice of satisfactory completion of the Project, and upon receipt of the final Project invoice from Contractor, the Company shall pay Contractor the actual total cost of the Project, which will be calculated as shown on Page 2, except that actual labor and material quantities installed/constructed will be substituted for the estimated labor and materials quantities and the Contracting Tax will be recalculated based on such actual labor and materials quantities.
12. The amount of applicable liquidated damages for Contractor's failure to deliver or perform within the time limit shown in Paragraph 10 may be deducted from the Company's payment of the final Project invoice. This provision shall not limit the Company's ability to terminate this Proposal/Contract for Contractor's unsatisfactory performance or failure to perform as provided in the General Conditions of Contract, Specifications or Drawings, or in this Proposal/Contract.

SPECIAL CONDITIONS:

Pollution insurance not required per email from Fred Schneider dated 12-18-2014

CONTRACTOR	PROPOSAL/CONTRACT ACCEPTED:
DWA Construction Co LLC	ARIZONA WATER COMPANY
By: Devin Anderson	By: Fredrick K Schneider
Print Name: Devin Anderson	Print Name: Fredrick K. Schneider, PE
Title: Manager	Title: Vice President - Engineering
Date: 2-18-15	Date: 5-1-2015

ARIZONA WATER COMPANY

Casa Grande / Pinal Valley
220 E 2nd Street Casa Grande Az 85122
O- 520-836-8785 F- 520-836-2850

PROPOSAL/CONTRACT

CONTRACTOR: DWA Construction Co LLC	SYSTEM: 041
AZ CONTRACTOR LICENSE NO: 227278 CLASSIFICATION: A	W.A. No(s): 1-5339
ADDRESS: PO Box 12788	BID DUE DATE: January 16, 2015
CITY ST ZIP Casa Grande Az 85130	BID BOND REQUIRED: √ Yes ☐ No

DESCRIPTION OF PROJECT: Replace temporary asphalt patch with approx. 110' X 11' permanent asphalt patch per ADOT and AWC specs. On Arizona Blvd in Coolidge AZ.

1-2. MATERIALS EXEMPT FROM CONTRACTING TAX (per Paragraph 6	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR (1)	TOTAL COST MATERIALS (2)

3. Total Labor to Install Exempt Materials (add the amounts in column 1)	3	
4. Total Exempt Materials (add the amounts in column 2)		4

5-6. NON-EXEMPT MATERIALS	QUANTITY	UNIT PRICE LABOR	UNIT PRICE MATERIALS	TOTAL COST LABOR (5)	TOTAL COST MATERIALS (6)
Replace temporary asphalt patch with permanent asphalt patch	1 Lot	11,800	34,750	11,800	34,750

7. Total Labor to Install Non-Exempt Materials (add the amounts in column 5)	7	11,800	
8. Total Non-Exempt Materials (add the amounts in column 6)			8 34,750
9. Subtotal A (add lines 3, 7 and 8)			9 46,550
10. Contracting Tax Base (multiply the amount on line 9 by 0.65)	10	30,258	
11. Applicable Contracting Tax Rate	11	10.7	
12. Contracting Tax (multiply the amount on line 10 by line 11)			12 3238
13. Subtotal B (add lines 4, 9 and 12)			13 49,788
14. 100% Performance and Payment Bonds Cost			14 950
15. Estimated Total Cost (add lines 13 and 14)			15 50,738

NOTE: The Estimated Total Cost includes all labor and materials for backfill, pavement replacement, chip seal, and traffic control necessary for the Project.

ARIZONA WATER COMPANY

COMMENCEMENT NOTICE

CONTRACTOR:

Mr. Devin Anderson
DWA Construction Company, Inc.
P. O. 12788
Casa Grande, AZ 85130

DATE: 5/4/15
DIVISION: CASA GRANDE
SYSTEM: PINAL VALLEY
W.A.: 1-5339

THIS IS YOUR NOTICE TO PROCEED WITH THE FOLLOWING PROJECT(S):

DESCRIPTION OF WORK:

Replace temporary asphalt patch with approx. 110'x 11' permanent asphalt patch per ADOT and AWC specs on Arizona Boulevard in Coolidge, AZ.

PERFORMANCE AND PAYMENT BONDS REQUIRED: [X] Yes [ ] No

TOTAL DAYS ALLOWED: 55

COMPLETION DATE: 6/28/15

Prior to the start of construction, please call Ray Murrieta, Division Manager at 520-836-8785 to schedule a pre-construction meeting.

ARIZONA WATER COMPANY
Company

By _____
Title Vice President - Engineering

DWA CONSTRUCTION COMPANY, LLC
Contractor *(type name)*

By _____
Title _____

ARIZONA WATER COMPANY

SPECIFICATIONS

GENERAL CONDITIONS OF CONTRACT: E-4-1

CONSTRUCTION SPECIFICATIONS: E-8-1

STANDARD SPECIFICATION DRAWINGS: E-9-1

5-1-2015

2007 EDITION WITH **2010** REVISIONS;
2012 GENERAL CONDITIONS OF CONTRACT

A copy of this entire Spec Book was sent out with DWA Construction Proposal package for 1-5339 Arizona Blvd Asphalt Replacement on 5/4/15
AA

Douglas A. Ducey, Governor
John S. Halikowski, Director
Dallas Hammit, State Engineer
Steve Boschen, Division Director

Ray Murietta
ARIZONA WATER COMPANY
P.O.Box29006
Phoenix, AZ 85038

Re: Permit No. 1213899

Dear Ray Murietta:

Your Permit to use State Highway Right of Way has been approved and a copy of the permit is attached for your records. Please read the specifications and standards which are part of your approved permit.

To schedule a pre-construction meeting, please contact Mr. Jason Ricketts, Permit Inspector, at (520) 850-0469 five days prior to performing any work. If Mr. Ricketts is unavailable, please contact Mr. Jim Soliz, Highway Operations Supervisor, at (520) 349-9849.

If at any time during the performance of your work, you determine it will not be possible to complete the permitted work by the expiration date on your permit, please submit a written request for a time extension. Your request should contain the reason for the delay and the additional time needed. Please submit your request to Mr. Ricketts for approval and processing.

The safety of your workers and the users of the State Highway is of great concern to us. Prior to beginning work please ensure you are in compliance with the Traffic Control requirements of your permit.

Best wishes in the execution of your work.

Sincerely,

Steve Mishler
Tucson District Development Engineer
1221 S. 2nd Avenue
Tucson, AZ 85713
(520) 429-4993

SM:aa

Enclosures

c: ADOT Maintenance Permits
Mr. Soliz and Mr. Ricketts, ADOT Maintenance

7-103902

TUCSON DISTRICT PERMITS

RECEIVED
SEP 23 2014

AP

RECEIVED
PERMITS
JUL 03 2014
2140 WEST HILTON AVENUE
PHOENIX, ARIZONA 85009

ADOT

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
Highway Encroachment Permit Application
(Application for Permission to Use State Highway Right-of-Way)

FOR ADOT USE ADOT Agreement Number: _____ ☐ ECS ☐ JPA ☐ Other _____

PERMIT NUMBER: 1213899 ROUTE: SR-87 MILEPOST: 132.11

ADOT PROJECT NUMBER: F-019-1 (3) ADOT ENGINEERING STATION: 554+37 to 555+47

Name of Encroachment Owner:	Name of Authorized Agent / Applicant (*If other than the Encroachment Owner*):
Arizona Water Company	Andrew J. Haas
Mailing Address of Owner:	Mailing Address:
P. O. Box 29006	P. O. Box 29006
City:	City:
Phoenix	Phoenix
State: AZ Zip: 85038-9006	State: AZ Zip: 85038-9006
Phone: 602-240-6860	Phone: 602-240-6860
E-mail address: engineering@azwater.com	Legal Relationship to Owner: ☐ Contractor ☐ Sub Contractor ☑ Authorized Employee ☐ Engineer ☐ Attorney ☐ Other:
Name of Local Point of Contact: Ray Murietta	
Phone Number for Local Point of Contact: 520-836-8785	E-mail Address: engineering@azwater.com

City (in or near) Coolidge Side of Highway: ☐ N ☐ S ☐ E ☐ W (check one)

Highway Route # 87 Approximately 500 Feet ☑ N ☐ S ☐ E ☐ W (check one) of Milepost # 132

Encroachment Owner's Project # or Property Parcel #: 205-16-017B Project Duration : _____

Description of the proposed work or activity in the right-of-way: Replace temporary asphalt patch with permanent patch approximately 110' x 11.8'. 1031 S. Arizona Blvd

The Encroachment Owner will be the Permittee. By signing this application, the Encroachment Owner and the Owner's Agent acknowledge that the information given and statements made in this application are true and correct to the best of his/her knowledge. The Encroachment Owner agrees as the Permittee to accept the following General Obligations and Responsibilities as described on page 2 of the application. By accepting an approved encroachment permit, the Permittee agrees to the requirements described in the permit, to be responsible for all permit requirements, and to comply with ADOT's requirements as set out in the permit. An approved permit consists of but is not limited to this application and final supporting documentation approved by ADOT, and any requirements set by ADOT. NO WORK SHALL TAKE PLACE INSIDE THE RIGHT OF WAY WITHOUT AN APPROVED PERMIT ON SITE.

Andrew J. Haas, P. E. Andrew J. Haas 6-16-14
Encroachment Owner (*Print Name and Sign*) **Date**

Andrew J. Haas, P. E. Andrew J. Haas 6-16-14
Authorized Agent or Applicant: *If other than the Encroachment Owner (Print Name and Sign)* **Date**

FOR ADOT USE
PERMIT TO USE STATE HIGHWAY RIGHT-OF-WAY

This application is approved as a permit and a permit is issued to the Permittee. Construction is authorized only for the period indicated below.

Steve Mishler
Authorized ADOT Name and Signature

Authorized ADOT Name and Signature

Steve Mishler, Dev. Engineer

Issue Date January 8, 2015 Permit work to be completed by: April 8, 2015

№ 12138 99

GENERAL OBLIGATIONS AND RESPONSIBLITIES

THE PERMITTEE SHALL:

1. Assume all legal liability and financial responsibility for the encroachment activity for the duration of the encroachment, including indemnify, defend, and save harmless ADOT and the State of Arizona and any of it's agents, directors, officers, employees from and against any and all claims, demands, suits, actions, proceedings, loss, costs, damages of every kind, or expenses, including court costs, reasonable attorney's fees and/or litigation expenses, and costs of claim processing and investigation, arising out of bodily injury or death of any person, or tangible or intangible property damage, caused, or alleged to be caused, in whole or in part, by the negligent or willful acts, or omissions of the Permittee, any of its directors, officers, agents, employees, or volunteers, or its contractor or subcontractors. This indemnity includes any claim or amount arising out of or recovered under the Workers' Compensation Law or arising out of the contractor's failure to conform to any federal, state or local law, statute, ordinance, rule, regulation or court decree. Permittee agrees to provide ADOT with a certificate(s) of insurance consistent with the requirements stated in the ADOT Permit Insurance Matrix. Permittee is also obligated to provide certificates for its contractor(s), if any. The required insurance shall be kept in force by the permittee and its contractors for the term of the permit and shall not expire, be cancelled or materially changed to affect coverage available to the State without thirty (30) days written notice to the State. Automobile and worker's compensation coverage requirements are dependent upon the use of employees and autos for the encroachment activity. Please refer to the Matrix to determine requirements for coverage, limits, language and other insurance related items specific to each permit. Contractor's certificates shall include all subcontractors assureds under its policies, or Contractor shall collect from each of its subcontractors a certificate that meets or exceeds the requirements for a Contractor as outlined in the Matrix. Contractor agrees to maintain and make available to ADOT all subcontractors' certificates upon demand. ADOT reserves the right to require an increase or allow a decrease in insurance limits or coverage based on the risks and financial exposure arising out of the event or activity proposed in the permit application. The Encroachment Permit is issued upon the expressed condition that ADOT and The State of Arizona does not protect or insure against loss of personal property or improvements owned by Permittee. Permittee waives the right to claim damages from ADOT and the State of Arizona for any damage resulting to said property in the event that property is damaged or destroyed by fire or any other perils that is not the direct result of negligence by ADOT or the State of Arizona.
2. Comply with Environmental Laws.
   A. Environmental Laws refers collectively to any and all federal, state, or local statute, law, ordinance, code, rule, regulation, permit, order, or decree regulating, relating to, or imposing liability or standards of conduct on a person discharging, releasing or threatening to discharge or release or causing the discharge or release of any hazardous or solid waste or any hazardous substance, pollutant, contaminant, water, wastewater or storm water, and specifically includes, but is not limited to: The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act; the Comprehensive Environmental Response, Compensation and Liability Act, as amended; the Toxic Substances Control Act; the Clean Water Act (CWA); the Clean Air Act; the Occupational Safety and Health Act; the Arizona Water Quality Act Revolving Fund Act, the Arizona Hazardous Waste Management Act, any applicable National Pollutant Discharge Elimination System (NPDES) or Arizona Pollution Discharge Elimination System (AZPDES) permit, any applicable CWA Section 404 permit, or any local pretreatment or environmental nuisance ordinance.
   B. Specifically agree that in the course of performing any activity for which this Permit is necessary:
      i. To comply with any and all Environmental Laws;
      ii. To ensure that no activity under this Permit shall cause ADOT to be in violation of any Environmental Laws;
      iii. That if the Permittee fails or refuses to comply with any Environmental Laws, or causes ADOT to be in violation of any Environmental Laws, ADOT may at its sole and unreviewable discretion, (1) revoke this Permit; (2) require the Permittee to undertake corrective or remedial action to address any release or threatened release or discharge of the hazardous substance, pollutant or contaminant, water, wastewater or storm water; and (3) expressly consents to entry of injunctive relief to enforce any listed remedies.
      iv. To indemnify ADOT for any losses, damages, expenses, penalties, liabilities or claims of any nature whatsoever suffered by or asserted against ADOT as a direct or indirect result of the disposal, escape, seepage, leakage, spillage, discharge, emission, or release of any hazardous waste, solid waste, hazardous substance, pollutant or contaminant, water, wastewater or storm water and losses, damages, expenses, penalties, liabilities and claims asserted or arising under the Environmental Laws, or for ADOT's costs in undertaking corrective action pursuant to an order of or settlement with a duly authorized regulatory agency or injured third party or for any penalties associated with Permittee's activities;
3. Be responsible for any repair or maintenance work and repair any aspect or condition of the encroachment that causes danger or hazard to the traveling public, for the duration of the encroachment and must perform such work under the appropriate encroachment permit authorization;
4. Comply with ADOT's traffic control standards with an ADOT approved traffic control plan;
5. Obtain written approval from the abutting property owner (and/or underlying fee owner where ADOT owns its right of way by easement) if the encroachment encroaches on abutting property owned by someone other than the permittee (and/or on underlying fee land owned by someone other than the permittee where ADOT owns its right of way by easement). In any case and at the Department's discretion; ADOT may require written approval from the abutting property owner prior to issuance of the encroachment permit.
6. ADOT reserves the right to require the permittee to perform any repairs necessary to the encroachment throughout the life of the encroachment;
7. Remove the encroachment and restore the right-of-way to its original or better condition if ADOT cancels the encroachment permit, and terminates all rights under the permit, or if the project terminates for any reason beyond ADOT's control;
8. Reimburse ADOT for costs incurred or deposit with ADOT money necessary to cover all costs incurred for activities related to the encroachment, such as inspections, restoring the right-of-way to its original or better condition, removing the encroachment, or repair encroachment to originally permitted condition and comply with ADOT's bond policy as applicable;
9. Notify a new owner to apply for an encroachment permit, as required by Arizona Administrative Rule R17-3-502(D);
10. Apply for a new encroachment permit if the use of the permitted encroachment or the use of adjoining property changes;
11. Keep a copy of the encroachment permit at the work site or site of encroachment activity;
12. Construct the encroachment according to attached Specifications, Standards and the plans approved by ADOT as part of the final permit; any changes shall be approved by ADOT prior to implementation;
13. Obtain all required permits from other government agencies or political subdivisions;
14. Remove any defective materials, or materials that fail to pass ADOT's final inspection, and replace with materials ADOT specifies.
15. Have the right to a hearing as prescribed in Arizona Administrative Code, R17-3-509 if the permit application is denied;
16. Understand that once issued, the permit is revocable and subject to modification or abrogation by ADOT at any time, without prejudice.

By accepting an approved encroachment permit, the Permittee agrees to the requirements described in the permit, to be responsible for all permit requirements, and to comply with ADOT's requirements as set out in the permit. NO WORK SHALL TAKE PLACE INSIDE THE RIGHT OF WAY WITHOUT AN APPROVED PERMIT ON SITE. I have read and understand the above requirements: Initial AH Date 6/16/14

Specifications for Permit No. 1213899

GENERAL REQUIREMENTS

GR-1 All work shall be done in accordance with current Arizona Department of Transportation Standards, Specifications, and approved plans, and administered by Mr. Barclay, Highway Operations Supervisor in Tucson.

GR-1A THE PERMITTEE SHALL NOT DEVIATE FROM THIS PERMIT OR THE APPROVED PLANS WITHOUT PRIOR WRITTEN APPROVAL FROM THE PERMITS OFFICE.

GR-2 NO WORK SHALL BEGIN PRIOR TO NOTIFICATION OF PROPER AUTHORITIES. TO SCHEDULE A PRE-CONSTRUCTION MEETING, CONTACT MR. JASON RICKETTS, PERMIT INSPECTOR AT 520-850-0469 A MIMIMUM OF 5 WORKING DAYS PRIOR TO START OF WORK AND WITHIN 3 DAYS AFTER COMPLETION FOR FINAL INSPECTION. IF MR. URBINA IS UNAVAILABLE, CONTACT MR. JIM SOLIZ, HIGHWAY OPERATIONS SUPERVISOR AT PHONE (520) 349-9849 IN TUCSON. *Failure to comply with this requirement will result in work stoppage.*

GR-3 It is the permittee's responsibility to obey all local ordinances, obtain all licenses, pay all charges, fees, and taxes and give notices necessary and incidental to the due and lawful prosecution of the work. If the permit work includes excavation, see attachment A.

GR-3a THE PERMITTEE IS RESPONSIBLE FOR COMPLIANCE WITH SECTION 404 OF THE FEDERAL CLEAN WATER ACT. OBTAINING ALL 404 PERMITS AND ANY REQUIRED STATE 401 SECTION CERTIFICATIONS IS THE RESPONSIBILITY OF THE PERMITTEE. These programs are administered by the Corps of Engineers and the Arizona Department of Environmental Quality (ADEQ) respectively. FURTHER, THE PERMITTEE IS RESPONSIBLE FOR OBTAINING AND COMPLIANCE WITH THE NECESSARY ARIZONA POLLUTION DISCHARGE ELIMINATION SYSTEM (AZPDES) PERMIT AND REQUIRED STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND APPROVALS. This program is administered by ADEQ.

Traffic shall be protected in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition, the Arizona Supplement to the MUTCD 2009 Edition, and the ADOT Traffic Control Design Guidelines. All signs, placement of signs and the necessity of flag persons are the responsibility of the Permittee. All flag persons shall be Arizona certified. The Arizona Supplement to the MUTCD 2009 Edition and the ADOT Traffic Control Design Guidelines are available on the Internet or from:

Arizona Department of Transportation
Engineering Records
1655 W. Jackson, Room 112F
Phoenix, Arizona 85007
Phone (602) 712-7498

GR-4a **APPROVED TCP ATTACHED HERETO AND A PART OF THIS PERMIT.**

NO WORK SHALL BEGIN UNTIL AN APPROVED TRAFFIC CONTROL PLAN STAMPED BY ADOT REGIONAL TRAFFIC ENGINEERING IS ON SITE.

GR-5 Prior to final inspection by the Highway Operations Supervisor, all surplus material shall be removed from the right-of-way, and the right-of-way left in a neat and natural state. Any existing ADOT or permitted features (i.e. fence, pipes, posts, signs, landscaping, etc.) damaged during permit work shall be repaired by the Permittee.

GR-6 The Permittee agrees to comply with state law for Underground and Overhead facilities. The Permittee shall assume full responsibility in attaining clearances from utility companies and will be responsible

for damage to any utility line. Permittee shall call BLUE STAKE AT **1-800-STAKE-IT** two (2) working days prior to any excavation. If Blue Stake is not available, the Permittee shall be responsible for contacting all utilities directly, two working days prior to any excavation. **Please provide your ADOT permit number to the blue stake operator.**

GR-7 All work shall be conducted during daylight hours unless approved by ADOT.

GR-8 The application of water to control dust shall be as deemed necessary by the inspector.

GR-9 If at any time during the performance of the work, it is determined that it will not be possible to complete the Permitted work by the expiration date, the Permittee or their representative shall submit a written request for a time extension. The request shall be submitted to the ADOT Inspector and will contain the reason for the delay and the amount of time needed.

GR-10 In case of discrepancy or conflict with documents issued with this Permit, the following are listed in the order in which they govern:

1. Permit Specifications
2. Special Provisions (when incorporated as part of the permit)
3. Project Plans
4. Standard Drawings
5. Standard Specifications

INSURANCE REQUIREMENTS

IF SUBCONTRACTORS WILL BE UTILIZED FOR WORK PERFORMED PURSUANT TO A PERMIT, IT IS THE RESPONSIBILITY OF THE ENCROACHMENT OWNER (PERMITTEE) AND THE PRIME CONTRACTOR TO VERIFY THAT EACH AND EVERY SUBCONTRACTOR WORKING PURSUANT TO THEIR PERMIT MAINTAINS VALID AND COLLECTIBLE INSURANCE CONSISTENT WITH THE REQUIREMENTS DESCRIBED IN THE CURRENT ADOT INSURANCE MATRIX ATTACHED HERETO.

MILLING ASPHALTIC CONCRETE

MA-1 Pavement milling operations shall conform to ADOT Standard Specification **202-3.03 (C).**

MA-2 Prior to placement of asphalt concrete material, the Permittee shall clean the trench of all loose material and a light coat of bituminous tack coat meeting ADOT Standard Specification **404-3.12** shall be applied to the entire milled trench including edges and vertical surfaces against which asphaltic concrete is to be placed.

PAVEMENT REPLACEMENT FOR UTILITY TRENCH

****WORK DONE UNDER THIS CATEGORY SHALL BE COORDINATED WITH THE PERMITS INSPECTOR.**

PR-1 Existing pavement shall be saw cut full depth for the trench prior to any excavation.

PR-2 Cement treated slurry backfill meeting ADOT Standard Specifications **501-3.02** and **501-3.04** shall be used in the trench crossing the roadway. Slurry shall be placed full depth of the trench up to the bottom of the existing asphaltic concrete (AC). Steel plates meeting traffic loading requirements shall be placed over the

trench and slurry allowed setting a minimum of 24 hours without disturbance. Four feet wide cold mix AC wedges shall be used to hold steel plates in place.

PR-3 Once the slurry is set, AC meeting the requirements of ADOT Standard Specification Section **409** shall be placed in the trench in lifts and properly compacted to the surface of the existing pavement. The thickness of replacement asphalt concrete shall match the existing thickness.

PR-5 Once the AC patch is completed, all affected travel lanes and shoulders where the patch was placed shall be milled in compliance with ADOT Standard Specification **202-3.03(C)** to a depth of two inches for a length of one hundred feet (fifty feet each side of patch). If the roadway is overlaid with AR-ACFC, the mill depth shall be two and one half (2-½) inches. The milled trench shall be properly cleaned and a Tack Coat placed on all surfaces, including the edges, which meet the requirements of ADOT Standard Specification **404-3.12**. The entire milled surface is then overlaid with two inches of AC meeting the requirements of ADOT Standard Specification Sections **409** and one half inch of AR-ACFC (if present) meeting the requirements of Standard Specification Section **414**.

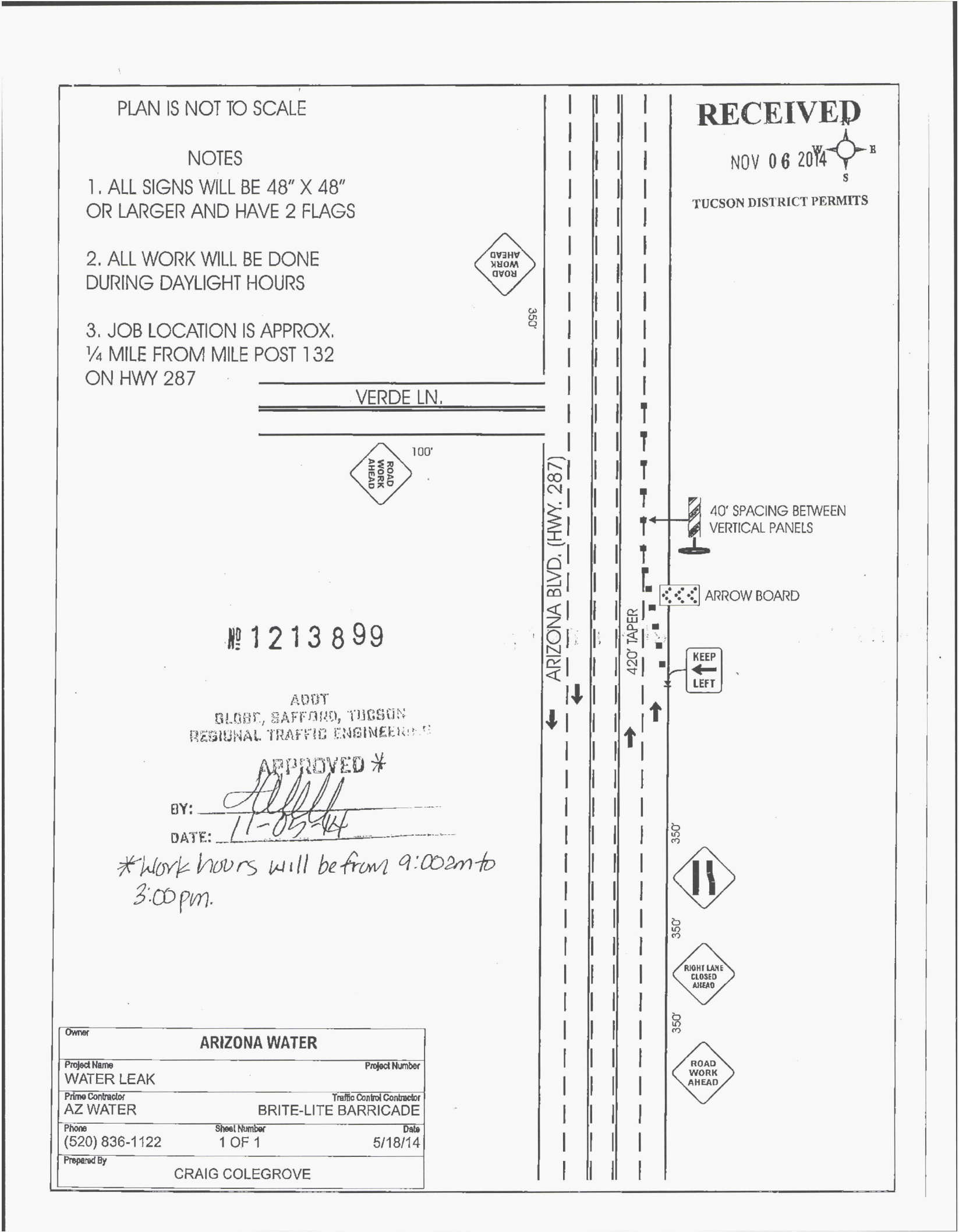
PLAN IS NOT TO SCALE

NOTES

1. ALL SIGNS WILL BE 48" X 48" OR LARGER AND HAVE 2 FLAGS

2. ALL WORK WILL BE DONE DURING DAYLIGHT HOURS

3. JOB LOCATION IS APPROX. ¼ MILE FROM MILE POST 132 ON HWY 287



RECEIVED
NOV 06 2014
TUCSON DISTRICT PERMITS

№ 1213899

ADOT
GLOBE, SAFFORD, TUCSON
REGIONAL TRAFFIC ENGINEERING

APPROVED *
BY:
DATE: 11-05-14

*Work hours will be from 9:00am to 3:00 pm.

Owner: ARIZONA WATER		
Project Name: WATER LEAK		Project Number:
Prime Contractor: AZ WATER		Traffic Control Contractor: BRITE-LITE BARRICADE
Phone: (520) 836-1122	Sheet Number: 1 OF 1	Date: 5/18/14
Prepared By: CRAIG COLEGROVE		

CERTIFICATE OF LIABILITY INSURANCE

1/1/2016

DATE (MM/DD/YYYY) 12/29/2014

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 Lockton Insurance Brokers, LLC 725 S. Figueroa Street, 35th Fl. CA License #0F15767 Los Angeles CA 90017 (213) 689-0065	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : SCF Indemnity Insurance Company	13928
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
1348151
Arizona Water Company
PO BOX 29006
Phoenix AZ 85038

COVERAGES ARIWA01 CERTIFICATE NUMBER: 11579320 REVISION NUMBER: XXXXXXX

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	
	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY PRO-JECT LOC OTHER			NOT APPLICABLE			EACH OCCURRENCE	$ XXXXXXX
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$ XXXXXXX
							MED EXP (Any one person)	$ XXXXXXX
							PERSONAL & ADV INJURY	$ XXXXXXX
							GENERAL AGGREGATE	$ XXXXXXX
							PRODUCTS - COMP/OP AGG	$ XXXXXXX
								$
	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS			NOT APPLICABLE			COMBINED SINGLE LIMIT (Ea accident)	$ XXXXXXX
							BODILY INJURY (Per person)	$ XXXXXXX
							BODILY INJURY (Per accident)	$ XXXXXXX
							PROPERTY DAMAGE (Per accident)	$ XXXXXXX
								$
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $			NOT APPLICABLE			EACH OCCURRENCE	$ XXXXXXX
							AGGREGATE	$ XXXXXXX
								$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [Y] N/A If yes, describe under DESCRIPTION OF OPERATIONS below		Y	1009629	1/1/2015	1/1/2016	X 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

APPROVED
MAR 11 2015
ADOT - ASD
RISK MANAGEMENT

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
State of Arizona, its departments (ADOT), agencies, boards, commissions, universities and its officers, officials, agents and employees shall be named as additional insured's with respect to liability arising out of activities performed by or on behalf of the permittee or contractor, waiver of subrogation applies.

CERTIFICATE HOLDER

11579320

Arizona Department of Transportation
1221 South 2nd Ave
Tucson AZ 85713

CANCELLATION See Attachment

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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Client#: 4741 SANGABRI

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 2/27/2015

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
Edgewood Partners Ins Center
#0B29370 (909) 919-7880
3633 Inland Empire Blvd. #640
Ontario, CA 91764

CONTACT NAME: Liam Russell
PHONE (A/C, No, Ext): 949-417-9161 FAX (A/C, No): 949-263-0906
E-MAIL ADDRESS: liam.russell@epicbrokers.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: Arch Insurance Company	11150
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	
INSURER F:	

INSURED
Arizona Water Company
P.O. Box 29006
Phoenix, AZ 85038-9006

COVERAGES CERTIFICATE NUMBER: 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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY	X	X	GWPKG0092608	03/01/2015	03/01/2016	EACH OCCURRENCE	$1,000,000
	[X] COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$100,000
	[ ] CLAIMS-MADE [X] OCCUR						MED EXP (Any one person)	$10,000
							PERSONAL & ADV INJURY	$3,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$3,000,000
	[ ] POLICY [ ] PRO-JECT [X] LOC						PRODUCTS - COMP/OP AGG	$3,000,000
								$
A	AUTOMOBILE LIABILITY	X	X	GWPKG0092608	03/01/2015	03/01/2016	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	[X] ANY AUTO						BODILY INJURY (Per person)	$
	[ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	[X] HIRED AUTOS [X] NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
A	[ ] UMBRELLA LIAB [X] OCCUR			GWFXS0092604	03/01/2015	03/01/2016	EACH OCCURRENCE	$10,000,000
	[X] EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$10,000,000
	[ ] DED [ ] RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						WC STATU-TORY LIMITS [ ] OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] N/A						E.L. EACH ACCIDENT	$
	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

APPROVED
MAR 04 2015
ADOT - ASD
RISK MANAGEMENT

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
State of Arizona, its departments (ADOT), agencies, boards, commissions, universities and its officers, officials, agents and employees shall be named as additional insured's with respect to liability arising out of activities performed by or on behalf of the permittee or contractor. Waiver of subrogation applies.

CERTIFICATE HOLDER
Arizona Dept. of Transportation
& The State of Arizona
2082 E. Highway 70
Safford, AZ 85546

CANCELLATION
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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1213899

ELLIS-4 OP ID: ME

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 12/30/14

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.

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PRODUCER Hill & Usher LLC Insurance. Bonds. Benefits. 3033 North 44th Street, #300 Phoenix, AZ 85018 Richard B. Usher Phone: 602-956-4220 Fax: 602-956-4418	CONTACT NAME: Commercial Service Team PHONE (A/C, No, Ext): 800-956-4220 FAX (A/C, No): 602-956-4418 E-MAIL ADDRESS: doccontrol@hillusher.com
INSURED Ellison Mills Contracting, LLC 3152 North Lear #2 Casa Grande, AZ 85122-8146	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: Travelers Property Casualty Co — 25674 INSURER B: — 25615 INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** **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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC	X	X	DTCO3782X324-TIL-14	12/31/14	12/31/15	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [X] HIRED AUTOS [X] NON-OWNED AUTOS	X	X	DT8103079X038-TIL-14	12/31/14	12/31/15	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
	[ ] UMBRELLA LIAB [ ] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $						EACH OCCURRENCE AGGREGATE	$ $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [N] If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	X	DTJUB3079X038-14	12/31/14	12/31/15	[X] WC STATU-TORY LIMITS [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
B	Equipment Floater			QT6606096X643	12/31/14	12/31/15	LSD/RNT DED	1,000,000 2,500

APPROVED
JAN 09 2015
ADOT - ASD
RISK MANAGEMENT

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

RE: PERMIT. ADDITIONAL INSURED FORMS CG D247 & CA T301. WAIVER OF SUBROGATION FORMS CG D316, CA T353 & WC 000313 ATTACHED.

CERTIFICATE HOLDER

AZDEPA1

ARIZONA DEPT OF TRANSPORTATION
1221 S 2ND AVE MAIL DROP T100
TUCSON, AZ 85713-1602

CANCELLATION

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

Richard B. Usher

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Attachment "A"

Archaeological Clearance Notification

Cultural survey specifications and responsibilities:
In accordance with the Arizona State Historic Preservation Act, ADOT must consider the effects of its actions, including the issuance of permits, on historic properties. It is the Permittee's responsibility to obtain documents indicating that the proposed permit would not affect historic properties or, if it would affect such properties, to provide documentation attesting to the mitigation of those effects, prior to beginning excavation work within ADOT Rights of Ways. Such documentation may include concurrence on the effect from the State Historic Preservation Office or a data recovery plan approved by the Arizona State Museum (in the case of mitigative data recovery).

Archaeological Features:
The attention of the Permittee is directed to the Arizona Revised Statutes §41-841 through 846 and §41-861 through 865. Violation of A.R.S §41-841 through 845 is a Class 2 misdemeanor. Violation of A.R.S. §41-861 through 865 can be classified as either a Class 1 misdemeanor or a Class 5 felony.

Section 6(a) of the Federal Archaeological Resources Protection Act of 1979 specifies that no person may excavate, remove, damage or otherwise alter or deface any archaeological resource located on public (Federal) lands or Indian lands unless such activity is pursuant to a permit issued under Section 4 of the Act. Violations of this act are considered a felony, and are punishable by fine and imprisonment.

Although the permittee will be responsible to make every effort prior to construction to identify all cultural resources in a permit area, previously unidentified archaeological materials could be found during the construction of the permit. When historic or archaeological features are encountered or discovered during any activity related to construction of the permit, the permittee shall stop work immediately at that location, and shall take all reasonable steps to secure the preservation of those features.

The permittee shall immediately contact ADOT's Historic Preservation Team, listed below and the ADOT District Permits Office that issued the permit and make arrangements for the proper treatment of such resources. The permittee shall not resume work until he/she is so directed by the Arizona Department of Transportation.

Environmental Planning Group
Linda Davis, Historic Preservation Team Leader
1611 W. Jackson St. EM02
Phoenix, AZ 85003
Telephone 602-712-8636 (voice)
602-712-3066 (FAX)
ldavis2@azdot.gov

202-3.03 Removal of Pavement:
(A) Portland Cement Concrete Pavement:
Unless otherwise specified in the Special Provisions, concrete pavement designated on the project plans to be removed shall either be removed from the job site and disposed of at a site secured by the contractor or buried in embankment areas. If the contractor elects to bury the concrete in embankment areas, the concrete shall be broken into pieces and placed in the embankment in accordance with the requirements of Subsection 203-10.03(A). Where new construction is to join the existing concrete pavement, the pavement shall be saw cut to a true line perpendicular to the centerline of the pavement with straight vertical edges free from irregularities.

SECTION 202 REMOVAL OF STRUCTURES AND OBSTRUCTION:

(B) Bituminous Pavement:
Unless milling is specified in the Special Provisions, all bituminous pavement designated on the project plans to be removed, shall be completely removed down to the underlying base course or subgrade. The pavement material shall be removed and disposed of as specified in the Special Provisions. Where new construction is to join existing bituminous pavement, the existing pavement shall be cut to a true line perpendicular to the centerline of the pavement with straight vertical edges free from irregularities. The removal of asphaltic concrete at the approaches to structures shall be accomplished in a manner approved by the Engineer.

(C) Bituminous Pavement Removal By Milling:
When milling is specified, the existing asphaltic concrete shall be removed in accordance with the details shown on the project plans with equipment specifically designed to remove such material by means of grinding or chipping to a controlled line and grade. The equipment used shall be capable of removing the existing asphaltic concrete within 0.01 feet of the specified removal depth. The removal shall be accomplished in a manner which does not destroy the integrity of any asphaltic concrete pavement that remains and which does not result in a contamination of the milled asphaltic concrete with the underlying base material. The milled material shall be removed and disposed of as specified in the Special Provisions. Under no circumstance shall the removal of existing asphaltic concrete begin until the mix design for replacement asphaltic concrete has been approved by the Engineer. The extent of removal of existing asphaltic concrete must be in keeping with the contractor's ability to produce, haul, place and compact replacement asphaltic concrete so that at all times the length of open "trench" is at a minimum. If the contractor's production of replacement asphaltic concrete is stopped for any reason, the removal of asphaltic concrete shall either cease or shall be reduced. The Engineer will be the sole judge as to whether the removal shall cease or be reduced. The Engineer's decision will be based on the reason for the stoppage in asphaltic concrete production, the expected length of the stoppage, the type and depth of the material being removed, and the time of day. Replacement asphaltic concrete shall be placed as soon as possible after the "trench" has been opened up. The surface on which the material is to be placed shall be uniform and free of loose material. Any exposed base material shall be compacted to the extent required by the Engineer. The "trench" in which asphaltic concrete is being placed shall be filled before the end of each day's work and the lane shall be opened to

traffic. The length of open "trench" at any one time shall not exceed two miles or half the length of the work, whichever is the lesser. In the event of circumstances beyond the control of the contractor, such as equipment breakdown, or if the production of the replacement asphaltic concrete has been stopped by the Engineer and the contractor is unable to comply with the requirements in the preceding paragraph, the contractor shall provide and maintain such traffic control devices that the Engineer deems necessary under the circumstances in order to provide safe and efficient passage through the work zone. If the Engineer deems it to be warranted, the Engineer will require that the contractor provide for the surface drainage of areas where the pavement surface has temporarily been removed. Pavement, to be removed by milling, adjacent to manholes, valve boxes, small radius curbs and other fixed objects that produce confined areas shall be removed with milling equipment specifically designed to operate in restricted areas and capable of removing asphaltic concrete of the specified thickness without damage or displacement of the adjacent object. On projects with existing curb and gutter, any asphaltic concrete buildup in the gutter designated to be removed, shall be removed prior to the pavement removal operation by equipment and methods approved by the Engineer. The equipment and methods used shall be capable of removing the asphaltic concrete buildup without causing damage to the curb and gutter.

404-3.12 Tack Coat:

Tack coat shall be applied prior to placing a bituminous mixture on a primed surface, an existing bituminous surface, or an existing Port land cement concrete pavement surface. Tack coat shall also be applied between layers of bituminous mixtures.
The material to be used for bituminous tack coat will be specified by the Engineer and shall conform to the requirements of Sect ion 1005.

The type, grade or designation, and the rate of application for the specific usage will be specified by the Engineer. The following table shows the various types of material from which the Engineer may select the tack coat and the approximate application rates:

Type, Grade or Designation	**Approximate Application Rates: Gallons / Square Yard**		**Payment Factor**
	Prior to Placing ACFC, AR-ACFC, or AR-AC	**All Other Tack Coats**	
Emulsified Asphalt (Special Type)		0.12	0.7
Emulsified Asphalt (Other than Special Type)		0.08	1.0
Asphalt Cement (Grade Specified by Engineer)	0.06 to 0.08	0.06	1.0

If emulsified asphalt of any designation or type is used, it shall have broken before asphaltic concrete is placed. If emulsified asphalt of any designation or type is held over night, it shall be reheated and agitated prior to further application.

The Engineer may either reduce the rate to be applied or, except as specified below, eliminate the use of tack coat in any part of the work if, in the Engineer's judgment, the bituminous mixture to be placed will be effectively bonded to the underlying surface. For asphaltic concrete friction course, asphaltic concrete friction course (asphalt - rubber), or asphaltic concrete (asphalt - rubber), application of asphalt cement tack coat immediately prior to placing such pavements shall not be eliminated, although the Engineer may adjust the application rate within the above stated limits.

Bituminous material shall be applied only as far in advance of the placement of the bituminous mixed materials as is necessary to obtain the proper condition of tackiness. In no event shall more bituminous material be applied in one day than will be covered by bituminous mixed materials during that same day.

501-3.02 Bedding:

(A) Bedding Material:

(1) General:

Bedding material for all pipe shall conform to the following aggregate gradation:

Sieve Size	Percent Passing
1-1/2 inch	100
1 inch	90 - 100
No. 8	35 – 80
No. 200	0 - 8.0

The plasticity index of the bedding material for all pipe shall not exceed 8 when tested in accordance with the requirements of AASHTO T 90.

Bedding material for all pipe shall have a value of resistivity not less than 2,000 ohm-centimeters unless otherwise specified or approved by the Engineer. Bedding material shall have a pH value between 6.0 and 10.0, inclusive, for all metal pipe installations except aluminum. Bedding material for aluminum pipe installations shall have a pH value between 6.0 and 9.0, inclusive. Bedding material shall have a pH value between 6.0 and 12.0, inclusive, for all concrete or plastic pipe installations. Tests for pH and resistivity shall be in accordance with the requirements of Arizona Test Method 236.

(2) Standard Aggregate Bedding Material:

Standard bedding material shall conform to the aggregate requirements here-in-before specified and may be compacted, jetted or placed as an aggregate slurry as herein specified.

The maximum water content in an aggregate slurry mixture shall be 35 gallons of water per ton of bedding material. Unless otherwise approved by the Engineer, the slurry shall be compacted with internal vibrators in accordance with the requirements of Subsection 601-3.03(D). Aggregate slurry shall be thoroughly mixed in a mixer approved by the Engineer.

(3) Cement-Treated Slurry Bedding Material:

When pipe culverts or storm drains 36 inches in diameter or larger are placed in a trench, the bedding material from bottom of pipe to springline shall be a cement-treated slurry. Cement-treated slurry bedding material shall conform to the gradation specified for bedding material under Subsection 501-3.02(A)(1) and additionally shall have a cement content of one sack per cubic yard. Cement-treated slurry shall be thoroughly mixed in a mixer or at a central batch plant as approved by the Engineer and shall have a slump of eight to 11 inches.

(B) Placement of Bedding Material:

(1) General:

All trash, forms, sheeting, bracing, and loose rock or loose earth shall be removed from the area into which bedding material is to be placed. Bedding material shall be placed under and around the pipe to the elevation at the point of maximum width of the pipe (springline), as shown on the plans. At the contractor's option, bedding material may be placed above the springline of the pipe.

Bedding material shall be placed in a manner which will prevent distortion, damage to, or displacement of the pipe from its intended location. Bedding material shall also be placed so that adequate support will be provided in the haunch support areas for the pipe. Voids or loose soils which are found to occur due to improper placement or compaction of bedding materials will result in rejection of that portion of the pipe installation. Replacement of the pipe will be at no additional cost to the Department.

(2) Standard Aggregate Bedding Material:

Standard aggregate bedding material shall be placed either in uniform horizontal layers not exceeding eight inches in depth before compaction or in uniform horizontal layers not exceeding four feet in depth when placed as a slurry. Bedding material may also be placed in uniform horizontal layers not exceeding four feet in depth when compaction is done by jetting.

(3) Cement-Treated Slurry Bedding Material:

Cement-treated slurry bedding material shall be placed in a uniform manner that will prevent voids in, or segregation of, the bedding material, and will not float or shift the culvert or pipe. Cement-treated slurry bedding material shall be placed from bottom of pipe to pipe springline. No backfilling above the cement-treated slurry shall be commenced until 24 hours after the cement-treated slurry has been placed.

(C) Compaction of Bedding Material:

(1) General:

Compaction of bedding material shall be performed without damage to the pipe and surrounding in-place material. Special care shall be taken in placing, shaping and compacting all bedding material under haunches of pipe to prevent moving the pipe or raising it from its bedding.

(2) Standard Aggregate Bedding Materials:

Standard aggregate bedding material shall be compacted to at least 95 percent of the maximum density determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

When standard aggregate bedding material is placed as an aggregate slurry or compacted by jetting, the material placed below the springline of the pipe shall be compacted prior to placement of material above the springline of the pipe.

Jetting shall not be used for any material placed more than one foot above the top of the pipe.

Ponding will not be permitted in any case.

Jetting shall be done in such a manner that water will not be impounded. Jetting methods shall be supplemented by the use of vibratory or other compaction equipment when necessary to obtain the required compaction. Bedding material compacted by jetting shall use the least amount of water that will properly consolidate the material and move the material under the pipe to eliminate voids. A jetting probe shall be inserted into the material. It shall be of such length as to reach the material under the pipe. Water shall be provided to the jetting probe at a minimum pressure of 30 pounds per square inch. The jetting probe shall be inserted at uniformly spaced intervals on both sides of the pipe, a maximum spacing of three feet.

The contractor shall excavate holes in the compacted aggregate slurry or jetted beddingmaterial to the depths and at the locations designated by the Engineer. These holes shallbe of such size as to allow the required density testing to be performed in a safe manner. Upon completion of the tests, the contractor shall refill the excavated areas and compact the material to the required density in a manner satisfactory to the Engineer.

(3) Cement-Treated Slurry Bedding Material:

Cement-treated slurry bedding material shall not require additional compaction after placement up to pipe springline if it meets the material requirements of Subsection 501-3.02(A) and is placed as outlined in Subsection 501-3.02(B). The Engineer may require the use of vibrators with cement-treated slurry bedding if the fluidity of the mixture is not sufficient to fill all voids. No density tests will be required in the cement-treated slurry bedding material as placed up to pipe springline.

501-3.04 Backfilling and Compacting:

(A) Backfill Material:

(1) Pipe Backfill:

Pipe backfill material shall be selected from excavation or from a source selected by the contractor. It shall not contain frozen lumps, stones larger than three inches in diameter, chunks of clay or other objectionable material. Backfill material to be used for pipes, pipe-arches or arches made of metal shall have a value of resistivity not less than 2,000 ohm-centimeters or the value shown on the project plans. When resistivity is not shown on the plans, the backfill material shall have a value of resistivity not less than that of the existing in-place material or 2,000 ohm-centimeters, whichever is less. Backfill material shall have a pH value between 6.0 and 10.0, inclusive, for all metal pipe installations, except aluminum. Backfill material for aluminum pipe installations shall have a pH value between 6.0 and 9.0, inclusive. Backfill material shall have a pH value between 6.0 and 12.0, inclusive, for all concrete or plastic pipe installations. Tests for pH and resistivity shall be in accordance with the requirements of Arizona Test Method 236.

Pipe backfill material shall conform to the following gradation:

Sieve Size	Percent Passing
3 inch	100
3/4 inch	60 - 100
No. 8	35 - 80
No. 200	0 - 12.0

The plasticity index shall not exceed 12 when tested in accordance with the requirements of AASHTO T 90.

As an alternate, pipe backfill may conform to the material requirements listed for bedding material as specified in Subsection 501-3.02(A), for standard aggregate bedding material or cement-treated slurry bedding material.

(2) Trench Backfill:

Trench backfill material shall not contain organic material, rubbish, debris and other deleterious material and shall not contain solid material which exceeds eight inches in greatest dimension and shall be soil selected from excavation or from a source selected by the contractor.

As an alternate, trench backfill may conform to the material requirements listed for bedding material as specified in Subsection 501-3.02(A) for standard aggregate bedding material or cement-treated slurry bedding material.

(3) Slope Plating:

The roadway slope at the inlet ends of pipe culverts shall be plated with an impervious material. The plating material shall be a fine-grained, cohesive material with at least 50 percent of it passing the No. 40 sieve and with a plasticity index of at least 10 and shall be placed as shown on the plans. The plasticity index will be determined in accordance with the requirements of AASHTO T 90.

(B) Placement of Backfill Material:

(1) General:

All trash, forms, sheeting, bracing, and loose rock or loose earth shall be removed from the areas to be backfilled before backfill material is placed.

Backfill compacted by pneumatic or mechanical tamping devices, shall be placed in layers not more than eight inches in depth before compaction.

Pipe backfill shall be brought up evenly on both sides of the pipe for the full length to an elevation one foot above the top of the pipe.

Trench backfill shall be placed from one foot above the top of the pipe to the elevation at which base or surfacing materials are to be placed or to the top of the trench. Backfill material shall be placed around and over arches in accordance with the requirements of Section 502.

(2) Standard Aggregate Slurry:

Pipe backfill or trench backfill mixed as a standard aggregate slurry shall be placed in uniform horizontal layers not exceeding four feet in depth. The slurry shall be compacted with internal vibrators in accordance with the requirements of Subsection 601-3.03(D).

(3) Cement-Treated Slurry:

Cement-treated slurry pipe backfill placement above springline shall not commence within 24 hours of the placement of the underlying cement-treated bedding material below springline. Cement-treated pipe backfill shall be placed in a uniform manner that will prevent voids in or segregation of the backfill to an elevation one foot above the top of the pipe. No backfilling above the cement-treated slurry pipe backfill shall be commenced until 24 hours after the cement-treated slurry has been placed.

If cement-treated slurry bedding material is used for trench backfill, it shall not be disturbed or loaded in any manner within 24 hours of placement as above.

(C) Compaction of Backfill Material:

Backfill material shall be compacted to at least 95 percent of the maximum density determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

Jetting shall not be used to compact pipe backfill, trench backfill or any material placed more than one foot above the top of the pipe.

Ponding will not be allowed in any case.

If trench backfill or pipe backfill is placed as an aggregate slurry, the contractor shall excavate holes in the compacted slurry to the depths and at the locations designated by the Engineer. These holes shall be of such size as to allow the required density tests to be performed in a safe manner. Upon completion of the tests, the contractor shall refill the excavated areas and compact the material to the required density in a manner satisfactory to the Engineer.

Cement-treated slurry bedding material for pipe backfill shall not require additional compaction after placement up to an elevation one foot above the top of pipe if it meets the material requirements of Subsection 501-3.02(A) and is placed and compacted as outlined in Subsection 501-3.04(B) and (C). No density tests will be required in the cement-treated slurry bedding material when it is utilized for pipe backfill to an elevation one foot above the top of pipe.

Cement-treated slurry bedding material used for trench backfill shall meet the requirements listed above for pipe backfill up to the elevation which it is placed.

SECTION 409 ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL):

409-1 Description:

Asphaltic concrete shall consist of furnishing all materials, mixing, hauling, and placing a mixture of aggregates, mineral admixture, and bituminous material to form a pavement course or to be used for other specified purposes, in accordance with the details shown on the project plans and as directed by the Engineer.

The contractor may propose the use of a mix design that has been developed for a previous project. The contractor shall provide evidence that the asphalt cement and mineral admixture type and source of supply, and the source and methods of producing mineral aggregate, have not changed since the formulation of the previous mix design. The contractor shall also provide cur rent test results for all specified characteristics of the mineral aggregate proposed for use. The Engineer will determine if t he previously used mix design is suitable for the intended use. The Engineer will either approve or disapprove the proposed mix design. Should the Engineer disapprove the use of the previously used mix design, the contractor shall prepare and submit a new mix design proposal in accordance with the requirements of these specifications.

A previously used mix design older than two years from the date it was formulated, sealed, signed, and dated shall not be allowed for use. Any previously used mix design that is older than one year, but less than two years, shall not be allowed for use unless the contractor provides verification testing results. Such testing shall be a one-point verification at the design asphalt content utilizing the proposed mineral aggregate, asphalt cement, and mineral admixture. Once approved for use on a project, a mix design may be used for the duration of the project.

409-2 Materials:

409-2.01 Mineral Aggregate:

Mineral aggregate shall conform to the following requirements when tested in accordance with the applicable test methods.

Mineral Aggregate Characteristics	Test Method	Requirement
Combined Bulk Oven Dry Specific Gravity	Arizona Test Method 251	2.350 - 2.850
Combined Water Absorption	Arizona Test Method 251	0 - 2.5%
Abrasion	AASHTO T 96	100 Rev., Max 9% 500 Rev., Max 40%
Sand Equivalent	AASHTO T 176 (After thoroughly sieving the sample, no additional cleaning of the fines from the plus No. 4 material is required.)	Minimum 55
Fractured Coarse Aggregate Particles	Arizona Test Method 212	Minimum 70% (plus No. 4 material)

The gradation will be determined in accordance with Arizona Test Method 201, and shall conform to the requirements given below.

Mix Design Grading Limits				
	Percent Passing			
Sieve Size	Lift Thickness Less Than or Equal to Two Inches		Lift Thickness Greater Than Two Inches	
	Without Admixture	With Admixture	Without Admixture	With Admixture
1 Inch			100	100
3/4 Inch	100	100	90 - 100	90 - 100
1/2 Inch	90 – 100	90 - 100 -- -	---	---
3/8 Inch	70 – 85	70 - 85	70 - 85	70 - 85
No. 8	41 – 51	42 - 52	41 - 51	42 - 52
No. 200	2.0 - 5.0	3.0 - 6.5	2.0 - 5.0	3.0 - 6.5

409-2.02 Bituminous Material:
Asphalt cement shall be a performance grade (PG) asphalt binder conforming to the requirements of Section 1005. The type of asphalt binder shall be as shown in the Special Provisions.

The percent of asphalt cement used shall be based on the weight of total mix (asphalt cement, mineral aggregate, and mineral admixture).

The contractor shall provide the laboratory mixing and compaction temperature ranges to the mix design laboratory for each PG asphalt binder used for mix design purposes. The laboratory mixing temperature range is defined as the range

of temperatures where the un-aged asphalt binder has a rotational viscosity of 0.17 ± 0.02 Pascal ·seconds, measured in accordance with AASHTO T 316. The laboratory compaction temperature range is defined as the range of temperatures where the un-aged asphalt binder has a rotational viscosity of 0.28 ± 0.03 Pascal ·seconds, measured in accordance with AASHTO T 316. The testing required in AASHTO T 316 shall be performed at 275 degrees F and 350 degrees F, and a viscosity- temperature curve developed in accordance with ASTM D 2493. The viscosity- temperature curve shall be included in the mix design report. For PG asphalt binders that have a maximum laboratory mixing temperature exceeding 325 degrees F or a maximum laboratory compaction temperature exceeding 300 degrees F, the laboratory mixing and compaction temperature ranges shall be specified in writing by the asphalt binder supplier . The laboratory mixing and compaction temperature ranges, as well as the actual laboratory mixing and compaction temperatures used, shall be reported on the mix design. The contractor shall ensure that the asphalt binder supplier information required in this paragraph is provided to all appropriate parties in a timely manner, and that copies are included in the mix design report. The laboratory mixing and compaction temperatures are for mix design purposes only. Field mixing and compaction temperatures are specified in Subsection 409-3.

409-2.03 Mineral Admixture:

Mineral admixture shall be either Portland cement, blended hydraulic cement, or hydrated lime conforming to the following requirements:

Material	Requirement
Port land Cement, Type I or II	ASTM C 150
Blended Hydraulic Cement,	ASTM C 595

Type IP	
Hydrated Lime	ASTM C 1097

The mineral admixture content shall be 2.0 percent, by weight, of the mineral aggregate. However, a minimum of 1.0 percent mineral admixture may be used if the contractor submits test information showing a lowered percentage of mineral admixture produces mix design results for Index of Retained Strength of at least 60 percent and a Minimum Wet Strength of 150 psi when tested in accordance with Arizona Test Method 802.

A Certificate of Analysis conforming to the requirements of Subsection 106.05 of the Standard Specifications shall be submitted.

409-2.04 Mix Design:

Utilizing mineral aggregate which has been crushed, processed, separated and stockpiled, a mix design shall be formulated and submitted by the contractor to the Engineer. The mineral aggregate samples used for mix design purposes shall be representative of aggregate materials to be used during production.

The mix design shall be based on the mix design criteria and other requirements specified herein, utilizing asphalt cement and mineral admixture of the type and from the sources proposed for use in the production of asphaltic concrete.

The mix design shall be prepared under the direct supervision of a professional engineer experienced in the development of mix designs and mix design testing. The mix design shall be provided in a format that clearly indicates all the mix design requirements and shall be sealed, signed, and dated by the mix design engineer.

The mix design shall be prepared by a mix design laboratory that has met the requirements of the Department's "System for the Evaluation of Testing Laboratories". The requirements may be obtained from ADOT Materials Group, 1221 North 21st Avenue, Phoenix, Arizona 85009.

Test results used in the formulation of the mix design must be from testing performed no earlier than 45 days prior to the date the mix design is signed by

the mix design engineer. Historical abrasion values may be supplied on sources provided the testing was conducted within the past two years.

The mix design shall be submitted to the Engineer under a cover letter signed by an authorized representative of the contractor.

The mix design shall be submitted to the Engineer for review a minimum of five working days prior to the start of production.

The mix design shall meet the following criteria when tested in accordance with the requirements of the following test methods:

Criteria	Requirement	Arizona Test Method
1. Voids in Mineral Aggregate: %, Range	14.5 - 18.5	815
2. Effective Voids: %, Range	5.5 - 6.5	815
3. Absorbed Asphalt : %, Range	0-1.0	815

The Engineer reserves the right to adjust the asphalt content during production from the mix design value without additional compensation to the contractor in order to obtain desirable effective voids. The Engineer may waive the requirements for a mix design if the intended use of the material is temporary in nature.

409-2.05 Sampling and Testing:

Sampling and testing the materials or mixture for quality control purposes shall be the contractor's responsibility. The Engineer reserves the right to sample and test the materials and mixture when necessary to determine that they reasonably conform to the requirements specified herein.

409-3 Construction Requirements:

409-3.01 General:

All courses of asphaltic concrete shall be compacted as required, smooth and true to the required lines, grades, and dimensions. The following smoothness requirements shall be met:

(1) The surface of the final lift of asphaltic concrete placed under this section of the specifications shall be tested and shall not vary by more than 1/8 inch from the lower edge of a ten-foot straightedge when it is placed in the longitudinal direction (including across transverse joints), and when it is placed in the transverse direction across longitudinal joints.

(2) The surface of any lift of asphaltic concrete placed under this section of the specifications, other than the final lift, shall be tested and shall not vary by more than 1/4 inch from the lower edge of a ten-foot straightedge when it is placed in the longitudinal direction (including across transverse joints), and when it is placed in the transverse direction across longitudinal joints.

(3) All deviations exceeding the specified tolerances above shall be corrected by the contractor, to the satisfaction of the Engineer.

The asphaltic concrete hot plant shall conform to the requirements of Section 403 of the Specifications.

No fine material which has been collected in the dust collection system shall be returned to the mixture unless the collected fines are accurately and uniformly metered into the mixture.

The temperature of asphaltic concrete or mineral aggregate upon discharge from the drier shall not exceed 325 degrees F, unless a higher temperature is recommended in writing by the asphalt binder supplier and approved by the Engineer.

The moisture content of the asphaltic concrete immediately behind the paver shall not exceed 0.5 percent. The moisture content will be determined in accordance with the requirements of Arizona Test Method 406.

Asphaltic concrete shall be placed only when the temperature of the surface on which the asphaltic concrete is to be placed is at least 65 degrees F.

At any time, the Engineer may require that the work cease or that the work day be reduced in the event that weather conditions, either existing or expected, are anticipated to have an adverse effect upon the asphaltic concrete.

All wheels and tires of compactors and other equipment surfaces shall be treated when necessary with a product approved by the Engineer in order to prevent the sticking of asphaltic concrete.

Asphaltic concrete immediately behind the laydown machine shall be a minimum of 250 degrees F.

Just prior to being placed, the asphaltic concrete shall be in a thoroughly mixed condition, free of lumps and crusts and at such a temperature as to be in a free flowing, workable condition. All courses of asphaltic concrete shall be placed and finished by means of self -propelled paving machines except under certain conditions or at certain locations where the Engineer deems the use of self – propelled paving machines impractical.

Pavers shall be equipped with a screed for the full width being paved, heated if necessary, and capable of spreading and finishing all courses of asphaltic concrete.

Pavers shall be equipped with automatic screed controls with sensors for either or both sides of the paver, capable of sensing grade from an outside reference line, sensing the transverse slope of the screed, and providing the automatic signals which operate the screed to maintain the desired grade and transverse slope.

Failure of the control system to function properly shall be cause for the suspension of the placing of asphaltic concrete.

The base or subgrade upon which asphaltic concrete is to be placed shall be prepared and maintained in a firm condition until asphaltic concrete is placed. It shall not be frozen or excessively wet. Before asphaltic concrete is placed, the surface to be paved shall be cleaned of objectionable material and tacked in accordance with the requirements of Subsection 404-3.12.

Longitudinal joints of each course shall be staggered a minimum of one foot with relation to the longitudinal joint of any immediate underlying course. Longitudinal joints shall be located within one foot of the center of a lane or within one foot of the centerline between two adjacent lanes.

The contractor shall schedule its paving operations to minimize exposed longitudinal edges. Unless otherwise approved by the Engineer, the contractor shall limit the placement of asphaltic concrete courses, in advance of adjacent courses, to one shift of asphaltic concrete production. The contractor shall schedule its paving operations in such a manner to eliminate exposed longitudinal edges over weekends or holidays.

409-3.02 Compaction:

Compaction shall consist of an established sequence of coverage using specified types of compactors. A pass shall be defined as one movement of a compactor in either direction. Coverage shall be the number of passes as are necessary to cover the entire width being paved.

The rolling sequence, the type of compactor to be used and the number of coverages required shall be as follows:

Rolling Sequence	Type of Compactor		Number of Coverages	
	Option No. 1	Option No. 2	Option No. 1	Option No. 2
Initial	Static Steel	Vibrating Steel	1	1
Intermediate	Pneumatic Tired	Vibrating Steel	2 – 6*	2 – 4*

Finish	Static Steel	Static Steel	1 - 3	1 - 3
* Based on the roller pattern which exhibits the best performance.				

The Engineer shall select the option for compaction and, when pneumatic- tired compactors are used, will designate the tire pressure.

Steel wheel compactors shall not be used in the vibratory mode for courses of one inch or less in nominal thickness nor when the temperature of the asphaltic concrete falls below 180 degrees F. Steel wheel compactors shall weigh not less than eight tons.

Initial and intermediate compaction shall be completed before the temperature of the asphaltic concrete falls below 200 degrees F. All edges shall be rolled with a pneumatic tired compactor, or other methods approved by the Engineer, while the mixture is still hot.

Compaction will be deemed to be acceptable on the condition that the asphaltic concrete is compacted using the type of compactors specified, ballasted and operated as specified and with the number of coverages of the compactors as specified.

409-3.03 Acceptance:

Asphaltic concrete will be accepted complete in place, if, in the judgment of the Engineer, the asphaltic concrete reasonably conforms to the requirements specified herein. Asphaltic concrete that is not acceptable and is rejected shall be replaced to the satisfaction of the Engineer and at no expense to the Department.

SECTION 409 ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL):

409-1 Description:

Asphaltic concrete shall consist of furnishing all materials, mixing, hauling, and placing a mixture of aggregates, mineral admixture, and bituminous material to form a pavement course or to be used for other specified purposes, in accordance with the details shown on the project plans and as directed by the Engineer.

The contractor may propose the use of a mix design that has been developed for a previous project. The contractor shall provide evidence that the asphalt cement and mineral admixture type and source of supply, and the source and methods of producing mineral aggregate, have not changed since the formulation of the previous mix design. The contractor shall also provide cur rent test results for all specified characteristics of the mineral aggregate proposed for use. The Engineer will determine if t he previously used mix design is suitable for the intended use. The Engineer will either approve or disapprove the proposed mix design. Should the Engineer disapprove the use of the previously used mix design, the contractor shall prepare and submit a new mix design proposal in accordance with the requirements of these specifications.

A previously used mix design older than two years from the date it was formulated, sealed, signed, and dated shall not be allowed for use. Any previously used mix design that is older than one year, but less than two years, shall not be allowed for use unless the contractor provides verification testing results. Such testing shall be a one-point verification at the design asphalt content utilizing the proposed mineral aggregate, asphalt cement, and mineral admixture. Once approved for use on a project, a mix design may be used for the duration of the project.

409-2 Materials:

409-2.01 Mineral Aggregate:

Mineral aggregate shall conform to the following requirements when tested in accordance with the applicable test methods.

Mineral Aggregate Characteristics	Test Method	Requirement
Combined Bulk Oven Dry Specific Gravity	Arizona Test Method 251	2.350 - 2.850
Combined Water Absorption	Arizona Test Method 251	0 - 2.5%
Abrasion	AASHTO T 96	100 Rev., Max 9% 500 Rev., Max 40%
Sand Equivalent	AASHTO T 176 (After thoroughly sieving the sample, no additional cleaning of the fines from the plus No. 4 material is required.)	Minimum 55
Fractured Coarse Aggregate Particles	Arizona Test Method 212	Minimum 70% (plus No. 4 material)

The gradation will be determined in accordance with Arizona Test Method 201, and shall conform to the requirements given below.

Mix Design Grading Limits				
	Percent Passing			
Sieve Size	Lift Thickness Less Than or Equal to Two Inches		Lift Thickness Greater Than Two Inches	
	Without Admixture	With Admixture	Without Admixture	With Admixture
1 Inch			100	100
3/4 Inch	100	100	90 - 100	90 - 100
1/2 Inch	90 – 100	90 - 100	---	---
3/8 Inch	70 – 85	70 - 85	70 - 85	70 - 85
No. 8	41 – 51	42 - 52	41 - 51	42 - 52
No. 200	2.0 - 5.0	3.0 - 6.5	2.0 - 5.0	3.0 - 6.5

409-2.02 Bituminous Material:

Asphalt cement shall be a performance grade (PG) asphalt binder conforming to the requirements of Section 1005. The type of asphalt binder shall be as shown in the Special Provisions.

The percent of asphalt cement used shall be based on the weight of total mix (asphalt cement, mineral aggregate, and mineral admixture).

The contractor shall provide the laboratory mixing and compaction temperature ranges to the mix design laboratory for each PG asphalt binder used for mix design purposes. The laboratory mixing temperature range is defined as the range

of temperatures where the un-aged asphalt binder has a rotational viscosity of 0.17 ± 0.02 Pascal ·seconds, measured in accordance with AASHTO T 316. The laboratory compaction temperature range is defined as the range of temperatures where the un-aged asphalt binder has a rotational viscosity of 0.28 ± 0.03 Pascal ·seconds, measured in accordance with AASHTO T 316. The testing required in AASHTO T 316 shall be performed at 275 degrees F and 350 degrees F, and a viscosity- temperature curve developed in accordance with ASTM D 2493. The viscosity- temperature curve shall be included in the mix design report. For PG asphalt binders that have a maximum laboratory mixing temperature exceeding 325 degrees F or a maximum laboratory compaction temperature exceeding 300 degrees F, the laboratory mixing and compaction temperature ranges shall be specified in writing by the asphalt binder supplier . The laboratory mixing and compaction temperature ranges, as well as the actual laboratory mixing and compaction temperatures used, shall be reported on the mix design. The contractor shall ensure that the asphalt binder supplier information required in this paragraph is provided to all appropriate parties in a timely manner, and that copies are included in the mix design report. The laboratory mixing and compaction temperatures are for mix design purposes only. Field mixing and compaction temperatures are specified in Subsection 409-3.

409-2.03 Mineral Admixture:

Mineral admixture shall be either Portland cement, blended hydraulic cement, or hydrated lime conforming to the following requirements:

Material	Requirement
Port land Cement, Type I or II	ASTM C 150
Blended Hydraulic Cement,	ASTM C 595

Type IP	
Hydrated Lime	ASTM C 1097

The mineral admixture content shall be 2.0 percent, by weight, of the mineral aggregate. However, a minimum of 1.0 percent mineral admixture may be used if the contractor submits test information showing a lowered percentage of mineral admixture produces mix design results for Index of Retained Strength of at least 60 percent and a Minimum Wet Strength of 150 psi when tested in accordance with Arizona Test Method 802.

A Certificate of Analysis conforming to the requirements of Subsection 106.05 of the Standard Specifications shall be submitted.

409-2.04 Mix Design:

Utilizing mineral aggregate which has been crushed, processed, separated and stockpiled, a mix design shall be formulated and submitted by the contractor to the Engineer. The mineral aggregate samples used for mix design purposes shall be representative of aggregate materials to be used during production.

The mix design shall be based on the mix design criteria and other requirements specified herein, utilizing asphalt cement and mineral admixture of the type and from the sources proposed for use in the production of asphaltic concrete.

The mix design shall be prepared under the direct supervision of a professional engineer experienced in the development of mix designs and mix design testing. The mix design shall be provided in a format that clearly indicates all the mix design requirements and shall be sealed, signed, and dated by the mix design engineer.

The mix design shall be prepared by a mix design laboratory that has met the requirements of the Department's "System for the Evaluation of Testing Laboratories". The requirements may be obtained from ADOT Materials Group, 1221 North 21st Avenue, Phoenix, Arizona 85009.

Test results used in the formulation of the mix design must be from testing performed no earlier than 45 days prior to the date the mix design is signed by

the mix design engineer. Historical abrasion values may be supplied on sources provided the testing was conducted within the past two years.

The mix design shall be submitted to the Engineer under a cover letter signed by an authorized representative of the contractor.

The mix design shall be submitted to the Engineer for review a minimum of five working days prior to the start of production.

The mix design shall meet the following criteria when tested in accordance with the requirements of the following test methods:

Criteria	Requirement	Arizona Test Method
1. Voids in Mineral Aggregate: %, Range	14.5 - 18.5	815
2. Effective Voids: %, Range	5.5 - 6.5	815
3. Absorbed Asphalt : %, Range	0-1.0	815

The Engineer reserves the right to adjust the asphalt content during production from the mix design value without additional compensation to the contractor in order to obtain desirable effective voids. The Engineer may waive the requirements for a mix design if the intended use of the material is temporary in nature.

409-2.05 Sampling and Testing:

Sampling and testing the materials or mixture for quality control purposes shall be the contractor's responsibility. The Engineer reserves the right to sample and test the materials and mixture when necessary to determine that they reasonably conform to the requirements specified herein.

409-3 Construction Requirements:

409-3.01 General:

All courses of asphaltic concrete shall be compacted as required, smooth and true to the required lines, grades, and dimensions. The following smoothness requirements shall be met:

(1) The surface of the final lift of asphaltic concrete placed under this section of the specifications shall be tested and shall not vary by more than 1/8 inch from the lower edge of a ten-foot straightedge when it is placed in the longitudinal direction (including across transverse joints), and when it is placed in the transverse direction across longitudinal joints.

(2) The surface of any lift of asphaltic concrete placed under this section of the specifications, other than the final lift, shall be tested and shall not vary by more than 1/4 inch from the lower edge of a ten-foot straightedge when it is placed in the longitudinal direction (including across transverse joints), and when it is placed in the transverse direction across longitudinal joints.

(3) All deviations exceeding the specified tolerances above shall be corrected by the contractor, to the satisfaction of the Engineer.

The asphaltic concrete hot plant shall conform to the requirements of Section 403 of the Specifications.

No fine material which has been collected in the dust collection system shall be returned to the mixture unless the collected fines are accurately and uniformly metered into the mixture.

The temperature of asphaltic concrete or mineral aggregate upon discharge from the drier shall not exceed 325 degrees F, unless a higher temperature is recommended in writing by the asphalt binder supplier and approved by the Engineer.

The moisture content of the asphaltic concrete immediately behind the paver shall not exceed 0.5 percent. The moisture content will be determined in accordance with the requirements of Arizona Test Method 406.

Asphaltic concrete shall be placed only when the temperature of the surface on which the asphaltic concrete is to be placed is at least 65 degrees F.

At any time, the Engineer may require that the work cease or that the work day be reduced in the event that weather conditions, either existing or expected, are anticipated to have an adverse effect upon the asphaltic concrete.

All wheels and tires of compactors and other equipment surfaces shall be treated when necessary with a product approved by the Engineer in order to prevent the sticking of asphaltic concrete.

Asphaltic concrete immediately behind the laydown machine shall be a minimum of 250 degrees F.

Just prior to being placed, the asphaltic concrete shall be in a thoroughly mixed condition, free of lumps and crusts and at such a temperature as to be in a free flowing, workable condition. All courses of asphaltic concrete shall be placed and finished by means of self -propelled paving machines except under certain conditions or at certain locations where the Engineer deems the use of self – propelled paving machines impractical.

Pavers shall be equipped with a screed for the full width being paved, heated if necessary, and capable of spreading and finishing all courses of asphaltic concrete.

Pavers shall be equipped with automatic screed controls with sensors for either or both sides of the paver, capable of sensing grade from an outside reference line, sensing the transverse slope of the screed, and providing the automatic signals which operate the screed to maintain the desired grade and transverse slope.

Failure of the control system to function properly shall be cause for the suspension of the placing of asphaltic concrete.

The base or subgrade upon which asphaltic concrete is to be placed shall be prepared and maintained in a firm condition until asphaltic concrete is placed. It shall not be frozen or excessively wet. Before asphaltic concrete is placed, the surface to be paved shall be cleaned of objectionable material and tacked in accordance with the requirements of Subsection 404-3.12.

Longitudinal joints of each course shall be staggered a minimum of one foot with relation to the longitudinal joint of any immediate underlying course. Longitudinal joints shall be located within one foot of the center of a lane or within one foot of the centerline between two adjacent lanes.

The contractor shall schedule its paving operations to minimize exposed longitudinal edges. Unless otherwise approved by the Engineer, the contractor shall limit the placement of asphaltic concrete courses, in advance of adjacent courses, to one shift of asphaltic concrete production. The contractor shall schedule its paving operations in such a manner to eliminate exposed longitudinal edges over weekends or holidays.

409-3.02 Compaction:

Compaction shall consist of an established sequence of coverage using specified types of compactors. A pass shall be defined as one movement of a compactor in either direction. Coverage shall be the number of passes as are necessary to cover the entire width being paved.

The rolling sequence, the type of compactor to be used and the number of coverages required shall be as follows:

Rolling Sequence	Type of Compactor		Number of Coverages	
	Option No. 1	Option No. 2	Option No. 1	Option No. 2
Initial	Static Steel	Vibrating Steel	1	1
Intermediate	Pneumatic Tired	Vibrating Steel	2 – 6*	2 – 4*

Finish	Static Steel	Static Steel	1 - 3	1 - 3
* Based on the roller pattern which exhibits the best performance.				

The Engineer shall select the option for compaction and, when pneumatic- tired compactors are used, will designate the tire pressure.

Steel wheel compactors shall not be used in the vibratory mode for courses of one inch or less in nominal thickness nor when the temperature of the asphaltic concrete falls below 180 degrees F. Steel wheel compactors shall weigh not less than eight tons.

Initial and intermediate compaction shall be completed before the temperature of the asphaltic concrete falls below 200 degrees F. All edges shall be rolled with a pneumatic tired compactor, or other methods approved by the Engineer, while the mixture is still hot.

Compaction will be deemed to be acceptable on the condition that the asphaltic concrete is compacted using the type of compactors specified, ballasted and operated as specified and with the number of coverages of the compactors as specified.

409-3.03 Acceptance:

Asphaltic concrete will be accepted complete in place, if, in the judgment of the Engineer, the asphaltic concrete reasonably conforms to the requirements specified herein. Asphaltic concrete that is not acceptable and is rejected shall be replaced to the satisfaction of the Engineer and at no expense to the Department.

SECTION 414 ASPHALTIC CONCRETE FRICTION COURSE (ASPHALT-RUBBER):

414-1 Description:

Asphaltic Concrete Friction Course (Asphalt-Rubber), hereinafter asphaltic concrete, shall consist of furnishing all materials, mixing at a plant, hauling, and placing a mixture of aggregate materials, mineral admixture, and bituminous material (asphalt-rubber) to form a pavement course or to be used for other specified purposes, in accordance with the details shown on the project plans and the requirements of these specifications, and as directed by the Engineer. The contractor shall be responsible for all adjustments to its equipment necessary to properly accommodate the use of asphalt-rubber as a bituminous material.

414-2 Asphaltic Concrete Mix Design Criteria:

Mix designs will be performed in accordance with Arizona Test Method 814, modified as necessary for Asphaltic Concrete Friction Course (Asphalt-Rubber). The allowable range of percent absorbed asphalt-rubber shall be 0-1.0, when tested in accordance with the applicable section of Arizona Test Method 815.

414-3 Materials:

414-3.01 Mineral Aggregate Source:

There is no Department-furnished source of mineral aggregate. The contractor shall provide a source in accordance with the requirements of Section 1001 of these specifications. When the contractor selects a source or sources, it shall notify the Engineer. The contractor shall be solely responsible for assuring that the mineral aggregate meets all requirements and, when processed, is fully capable of providing asphaltic concrete which meets all the requirements of these specifications.

414-3.02 Mineral Aggregate:

Mineral aggregate shall be separated into at least two stockpiles. No individual stockpile usage shall be less than three percent of the total mineral aggregate. Coarse mineral aggregate shall consist of crushed gravel, crushed rock, or other approved inert materials with similar characteristics, or a combination thereof, conforming to the requirements of these specifications. Fine mineral aggregate or blend material shall consist of natural sand, sand prepared from rock, or other approved inert materials, or a combination thereof, conforming to the requirements of these specifications. Material aggregate furnished for mix designs shall be representative of the source(s) and sampled from the materials stockpiles to be utilized in asphaltic concrete production. Mix designs shall be performed utilizing mineral aggregate which conforms to the grading limits in Table 414-1.

TABLE 414-1
MIX DESIGN GRADING LIMITS FOR MINERAL AGGREGATE
(Without Admixture)

Sieve Size	Percent Passing
3/4 Inch	100
No. 4	30 - 45
No. 8	4 - 8
No. 200	0 - 2.5

Mineral aggregate shall conform to the requirements in Table 414-2 when tested in accordance with the applicable test methods. Tests on aggregates outlined in Table 414-2, other than abrasion, shall be performed on materials furnished for mix design purposes and composited to the mix design gradation. Abrasion shall be performed separately on samples from each source of mineral aggregate. All sources shall meet the requirements for abrasion.

TABLE 414-2
MINERAL AGGREGATE CHARACTERISTICS
Characteristic Test Method Requirement
Combined Bulk
Specific Gravity
Arizona Test
Method 814
2.35 - 2.85
Combined Water
Absorption
Arizona Test
Method 814 0 – 2.5%
Sand Equivalent Arizona Test
Method 242
Minimum 55
Fractured Coarse
Aggregate Particles
Arizona Test
Method 212
Minimum 85% (two
fractured faces)
Flakiness Index Arizona Test
Method 233
Maximum 25

TABLE 414-2
MINERAL AGGREGATE CHARACTERISTICS
Characteristic Test Method Requirement
Carbonates in
Aggregate
Arizona Test
Method 238
Maximum 30%
Abrasion AASHTO T 96 100 Rev., Max. 9%
500 Rev., Max. 40%

414-3.03 Mineral Admixture:
Mineral admixture will be required. The amount shall be 1.0 percent, by weight of the mineral aggregate and shall be either portland cement type II or hydrated lime, conforming to the requirements of Table 414-3.

TABLE 414-3
MINERAL ADMIXTURE
Material Requirement
Portland Cement, Type II ASTM C 150
Hydrated Lime ASTM C 1097
A Certificate of Analysis conforming to the requirements of Subsection 106.05 shall be submitted to the Engineer.

414-3.04 Bituminous Material:
Bituminous material shall be asphalt-rubber conforming to the requirements of Section 1009 of the specifications. The type of asphalt-rubber shall be as shown in the Special Provisions. The crumb rubber gradation shall be Type B conforming to the requirements of Section 1009. In no case shall the asphalt-rubber be diluted with extender oil, kerosene, or other solvents. Any asphalt-rubber so contaminated shall be rejected. Any kerosene or other solvents used in the cleaning of equipment shall be purged from the system prior to any subsequent use of that equipment.

414-4 Mix Design:
Approximately 300 pounds of produced mineral aggregate, in proportion to the anticipated percent usage, shall be obtained by the contractor and witnessed by the Engineer so that both parties are satisfied that samples are representative of the mineral aggregate to be utilized in the asphaltic concrete production. The contractor shall also furnish representative samples of the following materials: a five-pound sample of the crumb rubber proposed for use, one gallon of asphalt cement from the intended supplier, three gallons of the proposed mixture of asphalt and rubber, and a one-gallon can of the mineral admixture to be used in the asphaltic concrete.

Along with the samples furnished for mix design testing, the contractor shall submit a letter explaining in detail its methods of producing mineral aggregate including wasting, washing, blending, proportioning, etc., and any special or limiting conditions it may propose. The contractor's letter shall also state the source(s) of mineral aggregate, the source of asphalt cement and crumb rubber, the asphalt-rubber supplier, and the source and type of mineral admixture. Within 10 working days of receipt of all samples and the contractor's letter in the Central Laboratory, the Department will provide the contractor with the percentage of asphalt-rubber to be used in the mix, the percentage to be used from each of the stockpiles of mineral aggregate, the composite mineral aggregate gradation, the composite mineral aggregate and mineral admixture gradation, and any special or limiting conditions for the use of the mix. The Department will provide the contractor material to be used for calibration of nuclear asphalt content gauges. The material will be fabricated by the Department utilizing asphalt-rubber submitted by the contractor for mix design purposes.

414-5 Mix Design Revisions:
The contractor shall not change its methods of crushing, screening, washing, or stockpiling from those used during production of material used for mix design purposes without approval of the Engineer, or without requesting a new mix design.

During production of asphaltic concrete, the contractor, on the basis of field test results, may request a change to the approved mix design. The Engineer will evaluate the proposed changes and notify the contractor of the Engineer's decision within two working days of the receipt of the request. If, at any time, unapproved changes are made in the source of bituminous material, source(s) of mineral aggregate, production methods, or proportional changes in violation of approved mix design stipulations, production shall cease until a new mix design is developed, or the contractor complies with the approved mix design. At any time after the mix design has been approved, the contractor may request a new mix design. The costs associated with the testing of materials in the developing of mix designs after a mix design acceptable to the Department has been developed shall be borne by the contractor. If, during production, the Engineer on the basis of testing determines that a change in the mix design is necessary, the Engineer will issue a revised mix design. Should these changes require revisions to the contractor's operations which result in additional cost to the contractor, it will be reimbursed for these costs. However, the Engineer reserves the right to modify the asphalt-rubber content without compensation being made to the contractor involving additional operation costs.

414-6 Acceptance of Materials:
414-6.01 General:
If the production of asphaltic concrete is stopped either for failure to meet the requirements specified hereinafter under Subsection 414-6.03, or because changes are made in the mix design, samples will be taken for calculating new consecutive averages either after production resumes or after the changes in the mix design have been made. The acceptance of the mineral aggregate gradation and the bituminous material content will be determined on the basis of the tests as hereinafter specified under Subsection 414-6.03. The Engineer reserves the right to increase the frequency of sampling and testing upon the resumption of asphaltic concrete production.

414-6.02 Mineral Aggregate:
Aggregate shall be free of deleterious materials, clay balls, and adhering films or other material that prevent thorough coating of the aggregate with the bituminous material. During asphaltic concrete production, the Engineer shall obtain and test samples of mineral aggregate for the determination of the sand equivalent, fractured coarse aggregate particles, and flakiness index. The sample shall be obtained either from the cold feed prior to addition of mineral admixture, or from the stockpiles. Should such testing indicate results not meeting the requirements of Table 414-2 for sand equivalent, fractured coarse aggregate particles, and flakiness index, operations shall cease and the contractor shall have the option of requesting a new mix design or correcting deficiencies in the aggregate stockpiles.

414-6.03 Asphaltic Concrete:
(A) Mineral Aggregate Gradation:
For each approximate 500 tons of asphaltic concrete, at least one sample of mineral aggregate will be taken. Samples will be taken in accordance with the requirements of Arizona Test Method 105 on a random basis just prior to the addition of mineral admixture and bituminous material by means of a sampling device which is capable of producing samples which are representative of the mineral aggregate.

The device, which shall be approved by the Engineer, shall be furnished by the contractor. In any shift that the production of asphaltic concrete is less than 500 tons, at least one sample will be taken. Samples will be tested for conformance with the mix design gradation without mineral admixture in accordance with the requirements of Arizona Test Method 201. The gradation of the mineral aggregate will be considered to be acceptable, unless the average of any three consecutive tests or the result of any single test varies from the mix design gradation percentages as follows:

Passing Sieve Number of Tests
3 Consecutive One
No. 4 ± 4 ± 6
No. 8 ± 3 ± 4
No. 200 ± 1.0 ± 1.5
One hundred percent of the material shall pass the largest sieve size shown in Table 414-1. At any time that test results indicate that the gradation of the mineral aggregate does not fall within all of the limits indicated, the production of asphaltic concrete shall cease immediately and shall not begin again until a calibration test indicates that the gradation is within the 3-consecutive test limits indicated.

(B) Asphalt-Rubber Content:
During production of asphaltic concrete, the contractor shall maintain at the plant site a nuclear asphalt content gauge calibrated and operated in accordance with Arizona Test Method 421. The calibration shall be performed using material supplied by the Department as stated in Section 414-4. Under the observation of the Engineer, the contractor shall determine the asphalt-rubber content by means of the nuclear asphalt content gauge a minimum of four times per full shift. The contractor's technicians performing the testing, including the calibration of the nuclear gauge, shall meet the technician requirements given in the Department's System for the Evaluation of Testing Laboratories. The requirements may be obtained from ADOT Materials Group, 1221 North 21st Avenue, Phoenix, AZ 85009. Production of asphaltic concrete shall cease immediately and the plant and/or the nuclear asphalt content gauges re-calibrated if the Engineer determines the percent of asphalt-rubber has varied by an amount greater than ± 0.5 percent from the amount directed by the Engineer.

414-7 Construction Requirements:
414-7.01 Quality Control:
Quality control of mineral aggregate production and asphaltic concrete production shall be the responsibility of the contractor. The contractor shall perform sufficient testing to assure that mineral aggregate and asphaltic concrete are produced which meet all specified requirements. The Engineer reserves the right to obtain samples of any portion of any material at any point of the operations for the Engineer's own use.

414-7.02 Stockpiling:
The contractor will not be allowed to feed the hot plant from stockpiles containing less than two full days of production unless only two days production remain to be done or special conditions exist where the Engineer deems this requirement waived.
Mineral aggregate shall be separated and stockpiled so that segregation is minimized. An approved divider of sufficient size to prevent intermingling of stockpiles shall be provided.

414-7.03 Proportioning:

The contractor shall provide documentation by calibration charts or other approved means that the mineral aggregate, asphalt-rubber, and mineral admixture are being proportioned in accordance with the approved mix design. Unless approved by the Engineer, no individual stockpile usage shall be less than three percent of the total mineral aggregate. Changes in stockpile/hot bin use in excess of five percent from the approved mix design will not be permitted without the approval of the Engineer. Mineral admixture shall be mechanically mixed with the mineral aggregate prior to combining the mineral aggregate and asphalt-rubber. The engineer may direct a spray of water be applied either to control the loss of the mineral admixture or to comply with any mix design requirements for wet mixing of the aggregate and admixture. If a drum mix plant is used, the mineral admixture shall be added and thoroughly mixed by means of a mechanical mixing device prior to the mixture entering the drum drier. The mineral admixture shall be weighed across a weigh belt or an approved alternative weighing system, with a weight totalizer prior to entry into the mechanical mixing device. The mechanical mixing device shall be a pugmill type mixer consisting of at least two motorized shafts with mixing paddles. The mixing device shall be designed such that the mixture of aggregate and admixture is moved in a near horizontal direction by the mixing paddles without the aid of conveyor belts for a distance of at least three feet. Mixing devices which permit the mixture of aggregate and admixture to fall through mixing blades onto a belt or chute are not acceptable. The mixing device's rated capacity in tons per hour shall not be exceeded by the rate of material feed to the mixer. The mixer shall be constructed to prevent the leakage of the contents. The mixer shall be located in the system at a location where the mixed material can be readily inspected on a belt prior to entry into the drum. The mixing device shall be capable of effective mixing in the full range of asphaltic concrete production rates. A positive signal system and a limit switch device shall be installed in the plant at the point of introduction of the admixture. The positive signal system shall be placed between the metering device and the drum drier, and utilized during production whereby the mixing shall automatically be stopped if the admixture is not being introduced into the mixture. If a batch plant is used, the mineral admixture shall be added and thoroughly mixed in the pugmill prior to adding asphalt-rubber. The contractor shall furnish daily documentation to the Engineer that the required amount of mineral admixture has been incorporated into the asphaltic concrete. No fine material which has been collected in the dust collection system shall be returned to the mixture unless the Engineer, on the basis of tests, determines that all or a portion of the collected fines can be utilized. If the Engineer so determines, the Engineer will authorize in writing the utilization of a specific proportion of the fines; however, authorization will not be granted unless the collected fines are uniformly metered into the mixture.

Mineral aggregate, mineral admixture, and asphalt-rubber shall be proportioned by volume, by weight, or by a combination of volume and weight. When mineral aggregate, mineral admixture, and asphalt-rubber are proportioned by weight, all boxes, hoppers, buckets, or similar receptacles used for weighing materials, together with scales of any kind used in batching materials, shall be insulated against the vibration or movement of the rest of the plant due to the operation of any equipment so that the error in weighing with the entire plant operating shall not exceed two percent

for any setting nor 1-1/2 percent for any batch. Bituminous material shall be weighed in a heated, insulated bucket suspended from a springless dial scale system. When mineral aggregate, mineral admixture, and asphalt-rubber are proportioned by volume, the correct portion of each mineral aggregate size introduced into the mixture shall be drawn from the storage bins by an approved type of continuous feeder which will supply the correct amount of mineral aggregate in proportion to the bituminous material and so arranged that the proportion of each mineral aggregate size can be separately adjusted. The continuous feeder for the mineral aggregate shall be mechanically or electrically actuated. The introduction of asphalt-rubber shall be controlled by an automated system fully integrated with the controls for mineral aggregate and mineral admixture.

414-7.04 Drying and Heating:
A recording pyrometer or other approved recording thermometric instrument sensitive to a rate of temperature change not less than 10 degrees F per minute shall be so placed at the discharge chute of the drier in order to record automatically the temperature of the asphaltic concrete or mineral aggregate. A copy of the recording shall be given to the Engineer at the end of each shift. The moisture content of the asphaltic concrete shall not exceed 0.5 percent. The moisture content will be determined in accordance with Arizona Test Method 406. Drying and heating shall be accomplished in such a manner as to preclude the mineral aggregate from becoming coated with fuel oil or carbon.

414-7.05 Mixing:
The production of the plant shall be governed by the rate required to obtain a thorough and uniform mixture of the materials. A positive signal system shall be provided to indicate the low level of mineral aggregate in the bins. The plant will not be permitted to operate unless this signal system is in good working condition. Each bin shall have an overflow chute or a divider to prevent material from spilling into adjacent bins.

The temperature of asphaltic concrete upon discharge from the mixer shall not exceed 350 degrees F. If the asphaltic concrete is discharged from the mixer into a hopper, the hopper shall be constructed so that segregation of the asphaltic concrete will be minimized.

414-7.06 Placing and Finishing:
(A) General Requirements:
The handling of asphaltic concrete shall at all times be such as to minimize segregation. Any asphaltic concrete which displays segregation shall be removed and replaced. Before asphaltic concrete is placed, the surface to be paved shall be cleaned of all objectionable material and tacked with asphalt cement in accordance with the requirements of Section 404 of the specifications. The cleaning of the surface, the tacking of the surface, and the amount and grade of asphalt cement used shall be as directed by and acceptable to the Engineer.
Unless otherwise specified on the project plans, asphaltic concrete shall not be placed on the two-foot widened section where guardrail is to be installed.

(1) Dates and Surface Temperature:
Asphaltic concrete shall be placed between the dates specified in the Special Provisions and only when the temperature of the surface on which the asphaltic concrete is to be placed is at least 85 °F. Despite a surface temperature of 85 °F, the Engineer at any time may require that the work cease or that the work day be reduced in the event of weather conditions either existing or expected which would have an adverse effect upon the asphaltic concrete.

(2) Delivery to Screed Unit:
Asphaltic concrete delivered to the screed unit shall be a free flowing, homogeneous mass in which there is no segregation, crusts, lumps, or migration of the asphalt-rubber. Should any one or more of such conditions be evident in the material delivered to the screed unit, and which cannot be eliminated by one or more of the following methods, the Engineer will order the work to be stopped until conditions are conducive to the delivery of the material in the condition as hereinbefore required:
(a) Covering hauling units with tarpaulins.
(b) Dumping material directly into the paver.
(c) Moving the hot plant nearer to the point of delivery.
Other measures proposed by the contractor which will deliver asphaltic concrete meeting the above requirements will be considered by the Engineer.

(B) Loading Asphaltic Concrete into the Paving Machine:
If the asphaltic concrete is dumped directly into the paving machine from the hauling trucks, care shall be taken to avoid jarring the machine or moving it out of alignment. No vertical load shall be exerted on the paving machine by the trucks. Trucks, while dumping, shall be securely attached to the paving machine. If the asphaltic concrete is dumped upon the surface being paved and subsequently loaded into the paving machine, it shall not be dumped at a distance greater than 150 feet in front of the paving machine. The loading equipment shall be self-supporting and shall not exert any vertical load on the paving machine. Substantially all of the asphaltic concrete shall be picked up and loaded into the paving machine.

(C) Placing and Finishing Asphaltic Concrete by Means of Self-Propelled Paving Machines:
All courses of asphaltic concrete shall be placed and finished by means of self-propelled paving machines except under certain conditions or at certain locations where the Engineer deems the use of self-propelled paving machines impractical. In order to achieve, as far as practical, a continuous operation, the speed of the paving machine shall be coordinated with the production of the plant. If the paving machine is stopped for more than three minutes, or there is a three-minute or longer interval between the completion of delivery by one truck and the beginning of delivery by the next truck, the paving machine shall be pulled away from the mat in order for the rollers to compact this area in accordance with the temperature limitations given hereinafter under Subsection 414-7.08(C). A transverse construction joint shall be made by a method approved by the Engineer. Self-propelled paving machines shall spread the mixture without segregation or tearing within the specified tolerances, true to the line, grade, and crown indicated on the project plans. Pavers shall be equipped with hoppers and augers which will distribute the mixture uniformly in front of adjustable screeds. Screeds shall include any strike-off device operated by tamping or vibrating action which is effective without tearing, shoving or gouging the mixture and which produces a course with a uniform texture and density for the full width being paved.

Screeds shall be adjustable as to height and crown and shall be equipped with a controlled heating device for use when required. Tapered sections not exceeding eight feet in width, or widened sections not exceeding four
feet in width may be placed and finished by other means approved by the Engineer.

(D) Automatically Actuated Control System:

Except under certain conditions or at certain locations where the Engineer deems the use of automatic controls impractical, all courses of asphaltic concrete shall be placed and finished by means of self-propelled paving machines equipped with an automatically actuated control system. The control system shall control the elevation of the screed at each end by controlling the elevation of one end directly and the other end indirectly either through controlling the transverse slope or alternately when directed, by controlling the elevation of each end independently. The control system shall be capable of working with the following devices which shall be furnished with the machine:
Ski-type device at least 30 feet in length, supported throughout its entire length.
Short ski. Failure of the control system to function properly shall be cause for the suspension of the asphaltic concrete operations.

414-7.07 Joints:

If the lift thickness is equal to or greater than one inch, the contractor shall schedule its paving operations to minimize exposed longitudinal edges. Unless otherwise approved by the Engineer, the contractor shall limit the placement of asphaltic concrete courses, in advance of adjacent courses, to one shift of asphaltic concrete production. The contractor shall schedule its paving operations in such a manner to eliminate exposed longitudinal edges over weekends or holidays. Longitudinal joints shall be located within one foot of the centerline between two adjacent lanes. Before a surface course is placed in contact with a cold transverse construction joint, the cold existing asphaltic concrete shall be trimmed to a vertical face by cutting the existing asphaltic concrete back for its full depth and exposing a fresh face. After placement and finishing of the new asphaltic concrete, both sides of the joint shall be dense and the joint shall be well sealed. The surface in the area of the joint shall conform to the requirements hereinafter specified for surface tolerances when tested with the straightedge placed across the joint.

414-7.08 Compaction:

(A) General Requirements:

The temperature of asphaltic concrete just prior to compaction shall be at least 275 degrees F. The wheels of compactors shall be wetted with water, or if necessary soapy water, or a product approved by the Engineer to prevent the asphaltic concrete from sticking to the steel wheels during rolling. The Engineer may change the rolling procedure if in the Engineer's judgment the change is necessary to prevent picking up of the asphaltic concrete.

(B) Equipment:

A minimum of three static steel wheel compactors shall be provided. The drums shall be of sufficient width that when staggered, two compactors can cover the entire width of the ribbon with one pass. The compactors shall weigh not less than eight tons.
The compactors shall be self-propelled and shall be operated with the drive wheel in the forward position. Vibrator rollers may be used in the static mode only.

(C) Rolling Procedure:
Two compactors shall be used for initial breakdown and be maintained no more than 300 feet behind the paving machine. The roller(s) for final compaction shall follow as closely behind the initial breakdown as possible. As many passes as is possible shall be made with the compactors before the temperature of the asphaltic concrete falls below 220 ^{o}F

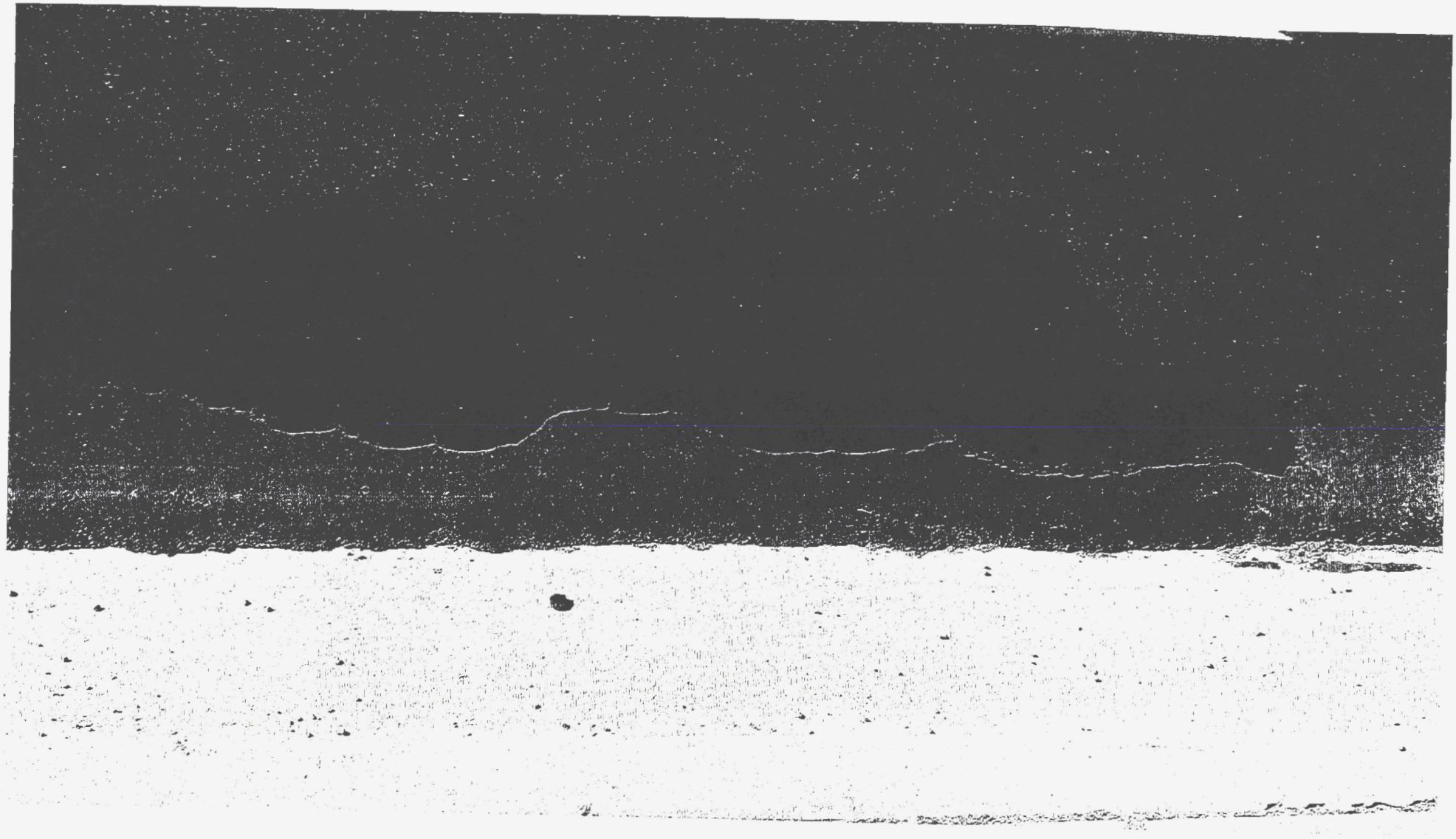
414-7.09 Surface Requirements and Tolerances:
Asphaltic concrete shall be compacted as required, smooth and reasonably true to the required lines, grades, and dimensions. Asphaltic concrete shall not vary more than 1/8 inch from the lower edge of a ten-foot straightedge when the straightedge is placed parallel to the center line of the roadway, or 1/4 inch when placed in the transverse direction across longitudinal joints.

414-7.10 Acceptance:
Asphaltic concrete will be accepted complete in place, if, in the judgment of the Engineer, the asphaltic concrete reasonably conforms to the requirements specified herein. Asphaltic concrete that is not acceptable and is rejected shall be replaced to the satisfaction of the Engineer and at no expense to the Department.

414-8 Method of Measurement:
Asphaltic concrete will be measured by the ton for the mixture actually used, which will include the weight of mineral aggregate, mineral admixture and asphalt-rubber. Measurement will include any weight used in construction of intersections, turnouts, or other miscellaneous items or surfaces. Asphalt-rubber will be measured by the ton. The weight of the asphalt-rubber material shall either be determined by weighing directly enroute from the reaction vessel to the point of delivery or be determined from the weight of the asphalt cement and the weight of the rubber minus wastage. Mineral admixture will be measured by the ton.

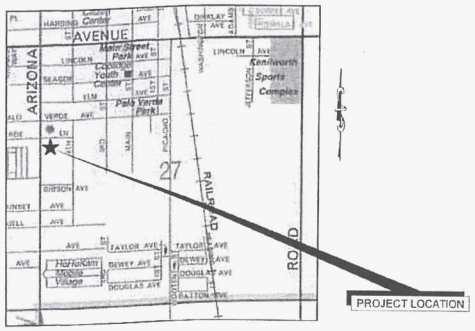
414-9 Basis of Payment:
The accepted quantities of asphaltic concrete, measured as provided above, will be paid for at the contract unit price per ton, which price shall be full compensation for the work, complete in place, as specified herein. Payment for the asphalt-rubber will be made by the ton, including asphalt cement and crumb rubber. The results of a nuclear asphalt content gauge shall not be used to determine the weight of asphalt-rubber material as the basis of payment. Payment for mineral admixture will be made by the ton.

№ 1213899

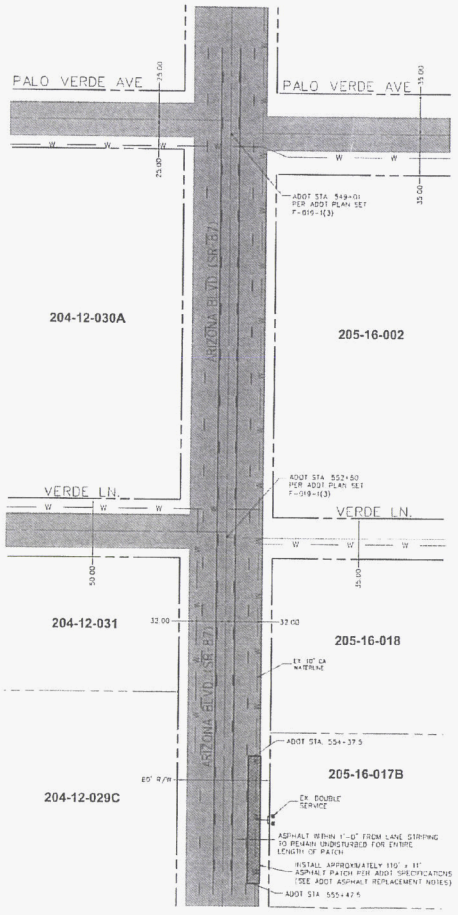


1213899

REPLACE TEMPORARY ASPHALT PATCH WITH APPROXIMATELY 110' X 11' PERMANENT ASPHALT PATCH ALONG ARIZONA BLVD.
NW 1/4 SEC. 27, T. 5 S., R. 8 E.
OF THE G. & S. R. B. & M.



VICINITY MAP
NTS



LEGEND

- STREET CENTERLINE/MONUMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EX. WATER LINE
- ASPHALT PATCH
- EX. ASPHALT AREA

ADOT ASPHALT REPLACEMENT NOTES:

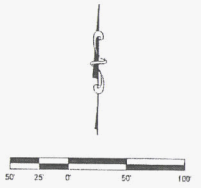
1. Existing pavement shall be saw cut full depth for the trench prior to any excavation.

2. Cement treated slurry backfill meeting ADOT Standard Specifications **501-3.02** and **501-3.04** shall be used in the trench crossing the roadway. Slurry shall be placed full depth of the trench up to the bottom of the existing asphaltic concrete (AC). Steel plates meeting traffic loading requirements shall be placed over the trench and slurry allowed setting a minimum of 24 hours without disturbance. Four feet wide cold mix AC wedges shall be used to hold steel plates in place.

3. Once the slurry is set, AC meeting the requirements of ADOT Standard Specification Section **409** shall be placed in the trench in lifts and properly compacted to the surface of the existing pavement. The thickness of replacement asphalt concrete shall match the existing thickness.

4. In the event the roadway is paved with **Rubberized Asphalt Concrete Friction Course (AR-ACFC), it shall be replaced in kind.**

5. Once the AC patch is completed, all affected travel lanes and shoulders where the patch was placed shall be milled in compliance with ADOT Standard Specification **202-3.03(C)** to a depth of two inches for a length of one hundred feet (fifty feet each side of patch). If the roadway is overlaid with AR-ACFC, the mill depth shall be two and one half (2-½) inches. The milled trench shall be properly cleaned and a Tack Coat placed on all surfaces, including the edges, which meet the requirements of ADOT Standard Specification **404-3.12.** The entire milled surface is then overlaid with two inches of AC meeting the requirements of ADOT Standard Specification Sections **409** and one half inch of AR-ACFC (if present) meeting the requirements of Standard Specification Section **414.**



GENERAL NOTES

1. All work and materials shall conform to current County Health Department Standards and Revisions, Arizona Water Company Standard Specifications and Details, and Arizona Department of Health Services Engineering Bulletin No. 10.
2. Permits required will be secured from the appropriate agency, i.e. county permit in county right-of-way.
3. Prior to construction, the appropriate agency(ies) will be notified as required by the permit(s).
4. All backfill, compaction, and testing shall be per current County, City, State, ADOT, and Arizona Water Company standards and specifications.
5. All water lines 8" and less are to have a minimum cover of 36 inches & all water lines 12" and greater are to have 48" of minimum cover over the top of pipe to finished grade, unless otherwise specified on the construction drawings.
6. All frames, covers, valve boxes, etc. shall be adjusted to finished grade prior to placing of asphaltic concrete surface course by the contractor. (where applicable)
7. All water lines shall be pressure and leakage tested in accordance with AWWA C-600 or MAG 610-14.
8. All water lines are to be disinfected per ADEQ Engineering Bulletin No.8 and AWWA C651-92.
9. Air release valves are required at water system high points per Arizona Water Company standard details.
10. Water/sewer separation shall be per current Arizona Water Company standards and ADEQ AAC R18-5-502-C.
11. It shall be the contractors responsibility to uncover all existing water lines being connected to, and to verify the location, depth and size of pipe before any construction begins.
12. Any construction performed without the knowledge of the inspector or his representative is liable for removal and replacement at the contractor's expense.
13. In accordance with AAC R18-4-213, all materials added after January 1, 1993 which may come in contact with drinking water, shall conform to National Sanitation Foundation Standards 60 and 61.
14. All water services shall be set a minimum of 2 Feet on the customers property and NOT within right-of-way.
15. Unless otherwise specified on the construction drawings, all water mains are to be installed 5 Feet from the property line inside the right-of-way or easement.
16. Water valves shall be spaced not more than 500 Feet in commercial districts and not more than 800 Feet in other districts. Variations may be required for transmission mains or special applications. Sufficient valving is required where water lines cross streams, railroads and major highways.
17. Maximum Joint Deflection For 6" Mechanical Joint Ductile Iron Pipe Is 7°-7' Or 27" For 18 Foot Length Pipe, For A Maximum Curve Of 145 Feet.
18. Maximum Joint Deflection For 6", 8", & 12" Push-On Joint Ductile Iron Pipe Is 5° Or 19" For 18 Foot Length Pipe, For A Maximum Curve Of 205 Feet.
19. Maximum Joint Deflection For 8" & 12" Mechanical Joint Ductile Iron Pipe Is 5°-21' Or 20" For 18 Foot Length Pipe, For A Maximum Curve Of 195 Feet.

REVISIONS

This installation shown is to be installed in accordance with Arizona Water Company standard specifications on file with the Arizona Department of Environmental Quality

APPROVED

DATE

SYSTEM: PINAL VALLEY

LEGAL DESC: NW 1/4 SEC. 27, T. 5 S., R. 8 E.

FILE NO.: 2108

DATE: 8/11/2014

DRAWN BY: BWP

SCALE: AS SHOWN

CHECKED BY:

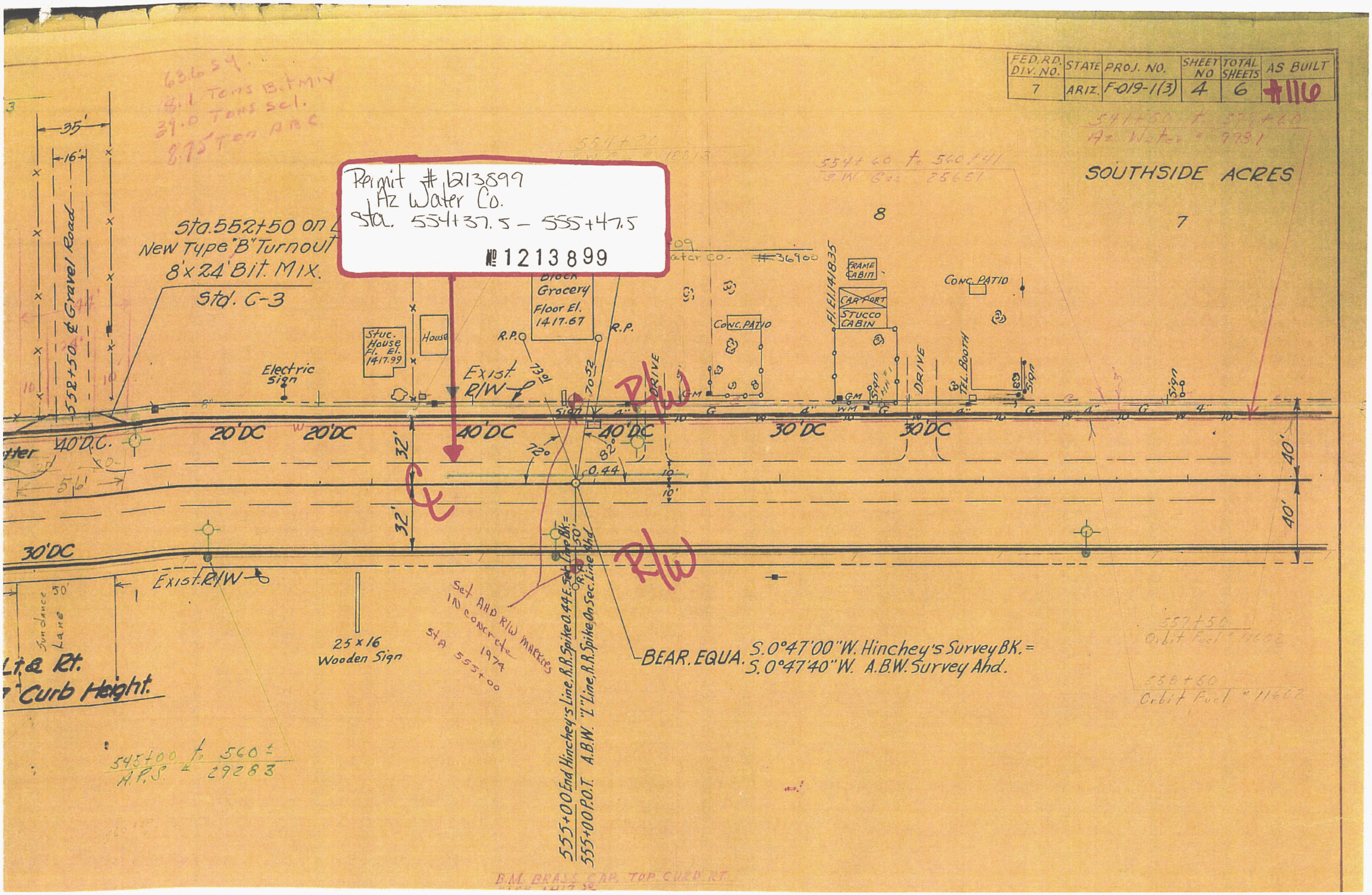
ARIZONA WATER COMPANY
3805 N. BLACK CANYON HWY. POST OFFICE BOX 29006
PHOENIX, ARIZONA 85038-9006
(602) 240-6800

PROJECT DESC.: REPLACE TEMPORARY ASPHALT PATCH WITH APPROXIMATELY 110' X 11' PERMANENT ASPHALT PATCH ALONG ARIZONA BLVD.

PROJECT SHEET TITLE: COVER SHEET

DWG No.:

SHEET 1 OF 1



FED. RD. DIV. NO. 7 | STATE ARIZ. | PROJ. NO. F-019-1(3) | SHEET NO 4 | TOTAL SHEETS 6 | AS BUILT #1116
SOUTHSIDE ACRES
Permit #1213899
Az Water Co.
Sta. 554+37.5 – 555+47.5
№ 1213899
Sta. 552+50 on
New Type "B" Turnout
8'x 24' Bit. Mix.
Std. C-3
552+50 ℄ Gravel Road
Stuc. House Fl. El. 1417.99
House
Block Grocery Floor El. 1417.67
Frame Cabin
Carport
Stucco Cabin
Conc. Patio
Tel. Booth
Drive
Sign
Electric Sign
Exist. R/W
R/W
℄
Set AHD R/W markers in concrete 1974 Sta 555+00
25 x 16 Wooden Sign
Sundance Lane
BEAR. EQUA. S. 0°47'00"W. Hinchey's Survey BK. = S. 0°47'40"W. A.B.W. Survey Ahd.
555+00 End Hinchey's Line, R.R. Spike 0.44 E. Sec. Line Bk. =
555+00 P.O.T. A.B.W. "L" Line, R.R. Spike On Sec. Line Ahd.
20'DC
40'DC
30'DC
Curb Height
63.6 S.Y.
8.1 Tons Bit Mix
37.0 Tons Seal
8.75 Ton ABC
554+60 to 560+41
SW Gas 25651
541+50 to 571+60
Az Water #9731
545+00 to 560±
A.P.S. # 29283
B.M. Brass Cap, Top Curb Rt.

ADOT
Intermodal Transportation

Douglas A. Ducey, Governor
John S. Halikowski, Director
Dallas Hammit, State Engineer
Steve Boschen, Division Director

May 14, 2015

Ray Murietta
ARIZONA WATER COMPANY
P.O.Box29006
Phoenix, AZ 85038

Re: Permit No. 1213899
Extension No. 1

Dear Mr. Ray Murietta:

This letter will serve to advise you that the completion date of the above referenced permit has been extended for **one month** from your previous completion date.

LOCATION: **SR-87(NB) @ 132.000-132.000**

NEW COMPLETION DATE: **June 8, 2015**

Thank you in advance for ensuring that the permit work is completed within the new time frame in this extension.

Sincerely,

Richard La Pierre
Tucson District Permits Supervisor
1221 S. 2nd Avenue
Tucson, AZ 85713
(520) 388-4234

SH:aa

c: Maintenance Permits
Maintenance Supervisor

Permit #1213899

CERTIFICATE OF LIABILITY INSURANCE

1/1/2016

DATE (MM/DD/YYYY) 12/29/2014

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
Lockton Insurance Brokers, LLC
725 S. Figueroa Street, 35th Fl.
CA License #0F15767
Los Angeles CA 90017
(213) 689-0065

CONTACT NAME:
PHONE (A/C, No, Ext):
FAX (A/C, No):
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : SCF Indemnity Insurance Company	13928
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
1348151
Arizona Water Company
PO BOX 29006
Phoenix AZ 85038

COVERAGES ARIWA01 CERTIFICATE NUMBER: 11579320 REVISION NUMBER: XXXXXXX

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	
	COMMERCIAL GENERAL LIABILITY			NOT APPLICABLE			EACH OCCURRENCE	$ XXXXXXX
	CLAIMS-MADE OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ XXXXXXX
							MED EXP (Any one person)	$ XXXXXXX
							PERSONAL & ADV INJURY	$ XXXXXXX
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ XXXXXXX
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ XXXXXXX
	OTHER							$
	AUTOMOBILE LIABILITY			NOT APPLICABLE			COMBINED SINGLE LIMIT (Ea accident)	$ XXXXXXX
	ANY AUTO						BODILY INJURY (Per person)	$ XXXXXXX
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$ XXXXXXX
	HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$ XXXXXXX
								$
	UMBRELLA LIAB OCCUR			NOT APPLICABLE			EACH OCCURRENCE	$ XXXXXXX
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ XXXXXXX
	DED RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N		Y	1009629	1/1/2015	1/1/2016	X PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y	N/A					E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000

APPROVED
MAR 11 2015
ADOT - ASD
RISK MANAGEMENT

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
State of Arizona, its departments (ADOT), agencies, boards, commissions, universities and its officers, officials, agents and employees shall be named as additional insured's with respect to liability arising out of activities performed by or on behalf of the permittee or contractor, waiver of subrogation applies.

CERTIFICATE HOLDER

11579320

Arizona Department of Transportation
1221 South 2nd Ave
Tucson AZ 85713

CANCELLATION See Attachment

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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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) OCT 0 9 2014

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 General Southwest Insurance Agency, Inc. A United Valley Insurance Services Member 5628 East Thomas Road Phoenix, Arizona 85018 Phone: (480)990-1900 Fax: (480)481-9551	CONTACT NAME: Nancy J Carter, CISR PHONE (A/C, No, Ext): (480)990-1900, 120 FAX (A/C, No): (480)481-9551 E-MAIL ADDRESS: nancyc@generalsouthwest.com
	INSURER(S) AFFORDING COVERAGE — NAIC #
	INSURER A: CopperPoint Mutual Insurance Company — 14216
INSURED Tucson Asphalt Contractors Inc 2425 W Curtis Rd Tucson, AZ 85705	INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER: 1962** **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	
	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY PRO-JECT LOC OTHER:						EACH OCCURRENCE	$
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
							PRODUCTS - COMP/OP AGG	$
								$
	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident)	$
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $						EACH OCCURRENCE	$
							AGGREGATE	$
								$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N If yes, describe under DESCRIPTION OF OPERATIONS below		Y	1805511	10/1/2014	10/1/2015	✓ 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

APPROVED
OCT 2 9 2014
ADOT - ASD
RISK MANAGEMENT

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

Additional Insured: ADOT Tucson District Permits includes a Waiver of Subrogation per form WC000313 04/84.
RE: Work performed on behalf of Metropolitan Domestic Water Improvement District

CERTIFICATE HOLDER

Holder's Nature of Interest: Additional Insured

ADOT Tucson District Permits

1221 S Second Ave
Tucson, AZ 85713-1602

CANCELLATION

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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WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE POLICY

WC 00 03 13
(Ed. 4-84)

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

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

Schedule

ANY PERSON OR ORGANIZATION TO WHOM YOU ARE REQUIRED TO OBTAIN THIS WAIVER AS OUR RIGHT TO RECOVER FROM OTHERS A WRITTEN CONTRACT OR AGREEMENT.

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.
(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective | Policy No. | Endorsement No.

Insured

Insurance Company | Countersigned by

WC 00 03 13
(Ed. 4-84)

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 3/27/2015

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	CONTACT NAME: Daniel McCartin
Crest Insurance Group, LLC 5285 East Williams Circle Suite 4500 Tucson AZ 85711	PHONE (A/C, No, Ext): 520-881-5760 FAX (A/C, No): 520-325-3757 E-MAIL ADDRESS: dmccartin@crestins.com
	INSURER(S) AFFORDING COVERAGE — NAIC #
INSURED 70TUCSASP Tucson Asphalt Contractors, Inc. 2425 W. Curtis Road Tucson AZ 85705-1125	INSURER A: Westfield Insurance Company — 24112 INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** 356534912 **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	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [ ] LOC OTHER:	Y	Y	TRA0258615	2/20/2015	2/20/2016	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$2,000,000 $500,000 $5,000 $2,000,000 $4,000,000 $4,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS	Y	Y	TRA0258615	2/20/2015	2/20/2016	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$1,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 0			TRA0258615	2/20/2015	2/20/2016	EACH OCCURRENCE AGGREGATE	$3,000,000 $3,000,000
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [ ] If yes, describe under DESCRIPTION OF OPERATIONS below	N/A					PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $ $
A	Rented/Leased Equipment			TRA0258615	2/20/2015	2/20/2016	Limit: $100,000 Ded.: $500	

APPROVED
APR 02 2015
ADOT - ASD
RISK MANAGEMENT

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

Certificate holder, State of Arizona and others when required in a written contract or agreement are Additional Insured (General Liability & Automobile Liability). Coverage is Primary & Non-Contributory (General Liability). Waiver of Subrogation (General Liability, Automobile Liability) applies. This form is subject to all policy forms, terms, endorsements, conditions definitions & exclusions.

CERTIFICATE HOLDER

Arizona Department of Transportation
Attn: Manager - Maintenance Permits Services
206 S. 17th Ave., Mail Drop 004R
Phoenix AZ 85007

CANCELLATION

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
Cody Ritchie

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05/21/2015 08:06

05/21/2015 08:42

CAT
05/21/2015 08:38

ROAD
SC 0800538
05/21/2015 08:22

U-HAUL
05/21/2015 08 07

05/21/2015 08:06

05/21/2015 11:35

U-HAUL
05/21/2015 11:34

ARIZONA WATER COMPANY

CONSTRUCTION PLACED IN SERVICE NOTICE

WORK AUTHORIZATION NO.: 1-5339

DIVISION: CC/PV

DATE PLACED IN SERVICE: 5/21/15

CONTRACT NO:

FOR PURPOSES OF *MODIFIED ACCELERATED COST RECOVERY SYSTEM*, AN ASSET IS "PLACED IN SERVICE" WHEN IT IS IN A CONDITION OR STATE OF READINESS AND AVAILABILITY FOR A SPECIFICALLY ASSIGNED FUNCTION, WHETHER IT BE FOR USE IN A TRADE OR BUSINESS, OR FOR THE PRODUCTION OF INCOME.

I CERTIFY THAT THE ASSET(S) CONSTRUCTED PURSUANT TO THE PROVISIONS OF THE ABOVE-REFERENCED WORK AUTHORIZATION ARE READY FOR SERVICE AS OF THE DATE SHOWN ABOVE.

	6-11-15
~~Division Manager~~ or Operations Superintendent *(signature)*	Date

SUBMIT ORIGINAL TO ACCOUNTING DEPARTMENT

A-1-3-1
FKS 11/24/11