

# SKY HI DOMESTIC WATER IMPROVEMENT DISTRICT

## NEW WELL IMPROVEMENT PLANS



### NOTES AND SPECIFICATIONS

#### WATER

- ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE SKY HI DOMESTIC WATER IMPROVEMENT DISTRICT'S STANDARDS AND/OR MAG STANDARDS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
- ALL FRAMES, COVERS, VALVE BOXES AND WATER METER BOXES SHALL BE ADJUSTED TO FINISH GRADE BY THE CONTRACTOR PER DISTRICT'S SPECIFICATIONS.
- AWWA C900, CLASS 200 PVC WATER PIPE SHALL BE USED FOR WATER DISTRIBUTION LINES.
- A MINIMUM COVER OF THREE (3) FEET TO FINISHED GRADE SHALL BE MAINTAINED OVER ALL WATER LINES.
- ALL FITTINGS IN WATER DISTRIBUTION LINES SHALL BE INSTALLED WITH THRUST BLOCKS PER MAG STANDARD DETAIL 380. ALL GATE VALVES SHALL BE INSTALLED WITH THRUST BLOCKS PER MAG STANDARD DETAIL 301.
- FIRE HYDRANTS SHALL BE INSTALLED PER MAG STANDARD DETAIL 360.
- ALL MATERIALS MUST BE NSF APPROVED FOR POTABLE WATER USE.
- DISINFECTION OF ALL WELLS AND WATER LINES SHALL BE IN ACCORDANCE WITH AWWA SPECIFICATION C-654-13 OR ENGINEERING BULLETIN NO. 10, CHAPTER 7, SECTION L-3 OR ENGINEERING BULLETIN NO. 8 PART V SECTION A FOR WATER MAINS AND SECTION C FOR WELLS AND AAC R18-5-508(C).
- WATER LINE SHALL BE PRESSURE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF AWWA C-605-94. TEST PRESSURE SHALL BE 150 PSI FOR TWO (2) HRS.
- UTILITY MARKING TAPE SHALL BE INSTALLED OVER ALL WATER MAINS. IT SHALL BE MARKED "CAUTION - WATER LINE BELOW" AND SHALL BE LOCATED AT LEAST 18" ABOVE THE PIPE. TAPE SHALL BE AT LEAST THREE (3) INCHES WIDE. A TRACER WIRE SHALL BE INSTALLED IN THE TRENCH AND SHALL SURFACE AT ALL BOXES.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE A MINIMUM COVER OF THREE (3) FEET FOR ALL SERVICE STUBS AND FIRE HYDRANT LINES CROSSING DRAINAGE DITCHES.
- A.A.C. R18-4-502 DESIGN: MINIMUM DESIGN CRITERIA
  - A PUBLIC WATER SYSTEM SHALL BE DESIGNED USING GOOD ENGINEERING PRACTICES. A PUBLIC WATER SYSTEM WHICH IS DESIGNED IN A MANNER CONSISTENT WITH THE CRITERIA CONTAINED IN ENGINEERING BULLETIN NO. 10, "GUIDELINES FOR THE CONSTRUCTION OF WATER SYSTEMS," ISSUED BY THE ARIZONA DEPARTMENT OF HEALTH SERVICES, MAY 1978 (AND NO FUTURE EDITIONS), WHICH IS INCORPORATED HEREIN BY REFERENCE AND ON FILE WITH THE OFFICE OF THE SECRETARY OF STATE, SHALL BE CONSIDERED TO HAVE BEEN DESIGNED USING GOOD ENGINEERING PRACTICES. OTHER SYSTEM DESIGNS SHALL BE APPROVED IF THE APPLICANT CAN DEMONSTRATE THAT THE SYSTEM WILL FUNCTION PROPERLY AND MAY BE OPERATED RELIABLY IN COMPLIANCE WITH THIS CHAPTER. MINIMUM DESIGN CRITERIA WHICH ARE NOT SUBJECT TO MODIFICATION ARE LISTED IN THIS SECTION.
  - A POTABLE WATER DISTRIBUTION SYSTEM SHALL BE DESIGNED TO MAINTAIN AND SHALL MAINTAIN A PRESSURE OF AT LEAST 20 POUNDS PER SQUARE INCH AT GROUND LEVEL AT ALL POINTS IN THE DISTRIBUTION SYSTEM UNDER ALL CONDITIONS OF FLOW.
  - WATER AND SEWER MAINS SHALL BE SEPARATED IN ORDER TO PROTECT PUBLIC WATER SYSTEMS FROM POSSIBLE CONTAMINATION. ALL DISTANCES ARE MEASURED PERPENDICULARLY FROM THE OUTSIDE OF THE SEWER MAIN TO THE OUTSIDE OF THE WATER MAIN. SEPARATION REQUIREMENTS ARE AS FOLLOWS:
    - A WATER MAIN SHALL NOT BE PLACED:
      - WITHIN SIX (6) FEET, HORIZONTAL DISTANCE, AND BELOW TWO (2) FEET, VERTICAL DISTANCE, ABOVE THE TOP OF A SEWER MAIN UNLESS EXTRA PROTECTION IS PROVIDED. 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. ALTERNATE EXTRA PROTECTION SHALL CONSIST OF ENCASING BOTH THE WATER AND SEWER MAINS IN AT LEAST SIX (6) INCHES OF CONCRETE FOR AT LEAST TEN (10) FEET BEYOND THE AREA COVERED BY THIS SUBSECTION (C)(1)(A).
      - WITHIN TWO (2) FEET HORIZONTALLY AND TWO FEET BELOW THE SEWER MAIN.
    - 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 (6) FEET, MEASURED FROM THE CENTER OF THE MANHOLE.
    - THE MINIMUM SEPARATION BETWEEN FORCE MAINS OR PRESSURE SEWERS AND WATER MAINS SHALL BE TWO (2) FEET VERTICALLY AND SIX (6) FEET HORIZONTALLY UNDER ALL CONDITIONS. WHERE A SEWER FORCE MAIN CROSSES ABOVE OR LESS THAN SIX (6) FEET BELOW A WATER LINE, THE SEWER MAIN SHALL BE ENCASING IN AT LEAST SIX (6) INCHES OF CONCRETE OR CONSTRUCTED USING MECHANICAL JOINT DUCTILE IRON PIPE FOR TEN (10) FEET ON EITHER SIDE OF THE WATER MAIN.
    - THE SEPARATION REQUIREMENTS DO NOT APPLY TO BUILDING, PLUMBING, OR INDIVIDUAL HOUSE SERVICE CONNECTIONS.
    - SEWER MAINS (GRAVITY, PRESSURE, AND FORCE) SHALL BE KEPT A MINIMUM OF 50 FEET FROM WELLS UNLESS THE FOLLOWING CONDITIONS ARE MET:
      - WATER MAIN PIPE, PRESSURE TESTED IN PLACE TO 50 PSI WITHOUT EXCESSIVE LEAKAGE, IS USED FOR GRAVITY SEWERS AT DISTANCES GREATER THAN 20 FEET FROM WATER WELLS; OR
      - WATER MAIN PIPE, PRESSURE TESTED IN PLACE TO 150 PSI WITHOUT EXCESSIVE LEAKAGE, IS USED FOR PRESSURE SEWERS AND FORCE MAINS AT DISTANCES GREATER THAN 20 FEET FROM WATER WELLS. "EXCESSIVE LEAKAGE" MEANS ANY AMOUNT OF LEAKAGE WHICH IS GREATER THAN THAT PERMITTED UNDER THE AWWA STANDARD APPLICABLE TO THE PARTICULAR PIPE MATERIAL OR VALVE TYPE.
  - REQUESTS FOR AUTHORIZATION TO USE ALTERNATE CONSTRUCTION TECHNIQUES, MATERIALS, AND JOINTS SHALL BE REVIEWED BY THE DEPARTMENT, AND SUCH REQUESTS MAY BE APPROVED ON A CASE-BY-CASE BASIS.

- A WATER SYSTEM SHALL NOT CONSTRUCT OR ADD TO ITS SYSTEM A WELL WHICH IS LOCATED:
  - WITHIN 50 FEET FROM EXISTING SEWERS UNLESS THE SEWER MAIN HAS BEEN CONSTRUCTED IN ACCORDANCE WITH SUBSECTION (C)(5)(A) OR (B), OF THIS SECTION;
  - WITHIN 100 FEET OF ANY EXISTING SEPTIC TANK OR SUBSURFACE DISPOSAL SYSTEM;
  - WITHIN 100 FEET OF A DISCHARGE OR ACTIVITY WHICH IS REQUIRED TO OBTAIN AN INDIVIDUAL AQUIFER PROTECTION PERMIT, PURSUANT TO A.R.S. S.S. 49-241(A) THROUGH 49-251;
  - WITHIN 100 FEET OF AN UNDERGROUND STORAGE TANK AS DEFINED IN A.R.S. S.S. 49-1001(17);
  - WITHIN 100 FEET OF HAZARDOUS WASTE FACILITIES OPERATED BY LARGE QUANTITY GENERATORS AND TREATMENT, STORAGE, AND DISPOSAL FACILITIES REGULATED UNDER THE ARIZONA HAZARDOUS WASTE MANAGEMENT ACT, A.R.S. S.S. 49-921 ET SEQ.
- CONSTRUCTION MATERIALS USED IN A PUBLIC WATER SYSTEM, INCLUDING RESIDENTIAL AND NONRESIDENTIAL FACILITIES CONNECTED TO THE PUBLIC WATER SYSTEM, SHALL BE LEAD FREE AS DEFINED AT R 18-4-101(46) AND ACCORDING TO PARAGRAPHS (1) AND (2) BELOW. THIS SECTION SHALL NOT APPLY TO LEADED JOINTS NECESSARY FOR THE REPAIR OF CAST IRON PIPES.
  - WHEN USED WITH RESPECT TO SOLDER AND FLUX, "LEAD FREE" MEANS CONTAINING NO MORE THAN 0.2 PERCENT (2%) LEAD.
  - WHEN USED WITH RESPECT TO PIPES, "LEAD FREE" INCLUDES PIPES AND PIPE FITTINGS CONTAINING NO MORE THAN 8.0 PERCENT (8%) LEAD.

#### ELECTRICAL AND INSTRUMENTATION

- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL, INSTRUMENTATION, AND CONTROL OF EQUIPMENT.
- SHOP DRAWINGS AND OPERATING PROCEDURES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO ANY INSTALLATION.

#### AMERICAN IRON & STEEL COMPLIANCE STATEMENT

"SECTION 746 OF TITLE VII OF THE CONSOLIDATED APPROPRIATIONS ACT OF 2017 (DIVISION A - AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION, AND RELATED AGENCIES APPROPRIATIONS ACT, 2017) AND SUBSEQUENT STATUTES MANDATING DOMESTIC PREFERENCE APPLIES AN AMERICAN IRON AND STEEL REQUIREMENT TO THIS PROJECT.

ALL PARTIES ARE REQUIRED TO COMPLY WITH THESE REQUIREMENTS AND TO ENSURE THAT ALL IRON AND STEEL PRODUCTS USED IN THIS PROJECT MUST BE PRODUCED IN THE UNITED STATES. THE TERM "IRON AND STEEL PRODUCTS" MEANS THE FOLLOWING PRODUCTS MADE PRIMARILY OF IRON OR STEEL: LINED OR UNLINED PIPES AND FITTINGS, MANHOLE COVERS AND OTHER MUNICIPAL CASTINGS, HYDRANTS, TANKS, FLANGES, PIPE CLAMPS AND RESTRAINTS, VALVES, STRUCTURAL STEEL, REINFORCED PRECAST CONCRETE, AND CONSTRUCTION MATERIALS."

#### GENERAL NOTES

- ALL PIPE, FITTINGS, VALVES AND OTHER APPURTENANCES SHALL CONFORM TO THE CURRENT STANDARDS OF AWWA.
- THERE ARE NO KNOWN SURFACE WATER BODY WITHIN 500 FEET OF THE WELL.

#### PROJECT LOCATION: CLIENT INFORMATION:

Ski-Hi Retreat Domestic Water Improvement District  
PO Box 974  
Lakeside, Arizona 85929

#### PROJECT NO: CLIENT PROJECT NO:

180051 180051

#### PROJECT NOTES:

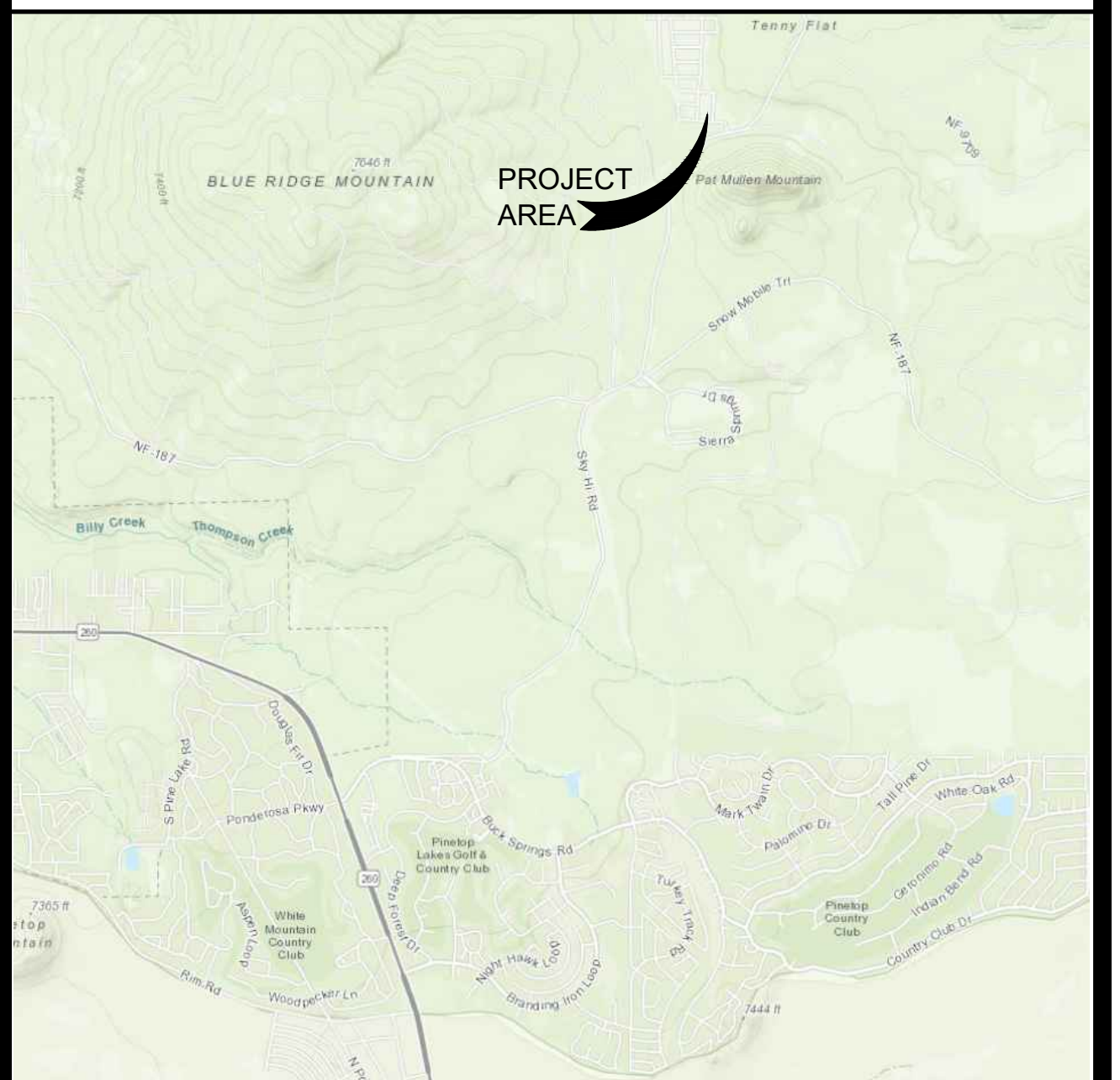
#### ISSUED:

#### Painted Sky Engineering and Surveying, LLC

1801 West Deuce od Clubs, Suite 230  
Show Low, Arizona 85901  
PHONE: 928.537.7218 FAX: 928.537.8422

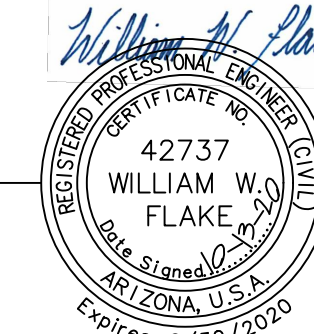
<http://www.paintedskyes.com>

#### VICINITY MAP:



RECORD PLANS  
I HEREBY CERTIFY THESE PLANS  
REFLECT AS-BUILT CONDITIONS

William W. Flake



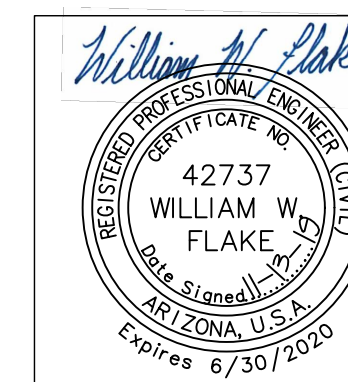
PE 42737

#### ESTIMATED QUANTITIES

CONSTRUCT NEW WELL COMPLETE	= 1 EA
INSTALL 4" C-900 WATER LINE	= 81 LF
INSTALL 4" X 45° BEND	= 4 EA
INSTALL 4" TEE	= 1EA
INSTALL 4" GATE VALVE, BOX & COVER	= 1EA

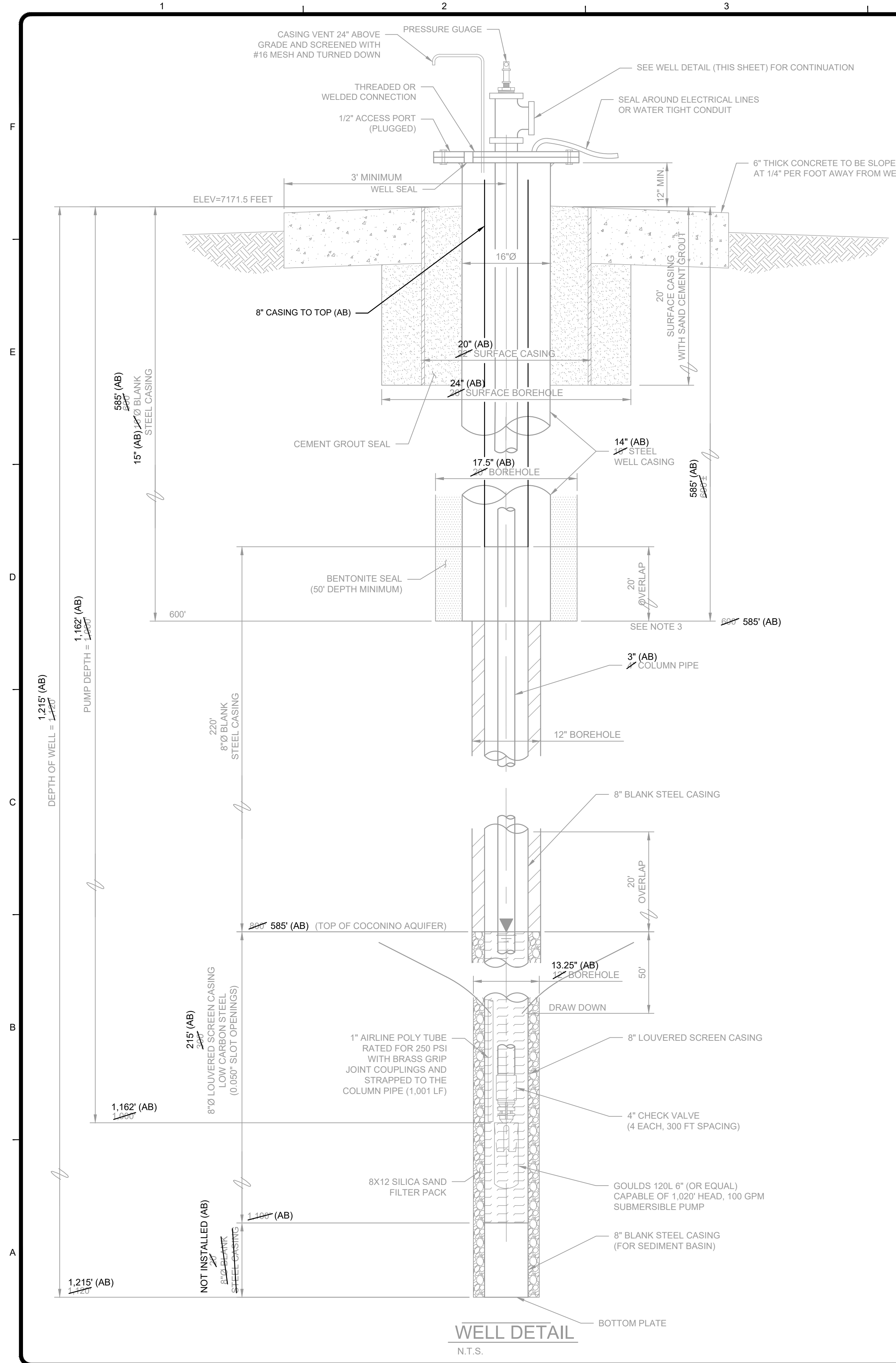
#### SHEET INDEX

C-100	COVER SHEET
C-101	WELL DETAILS
C-102	WELL PLAN

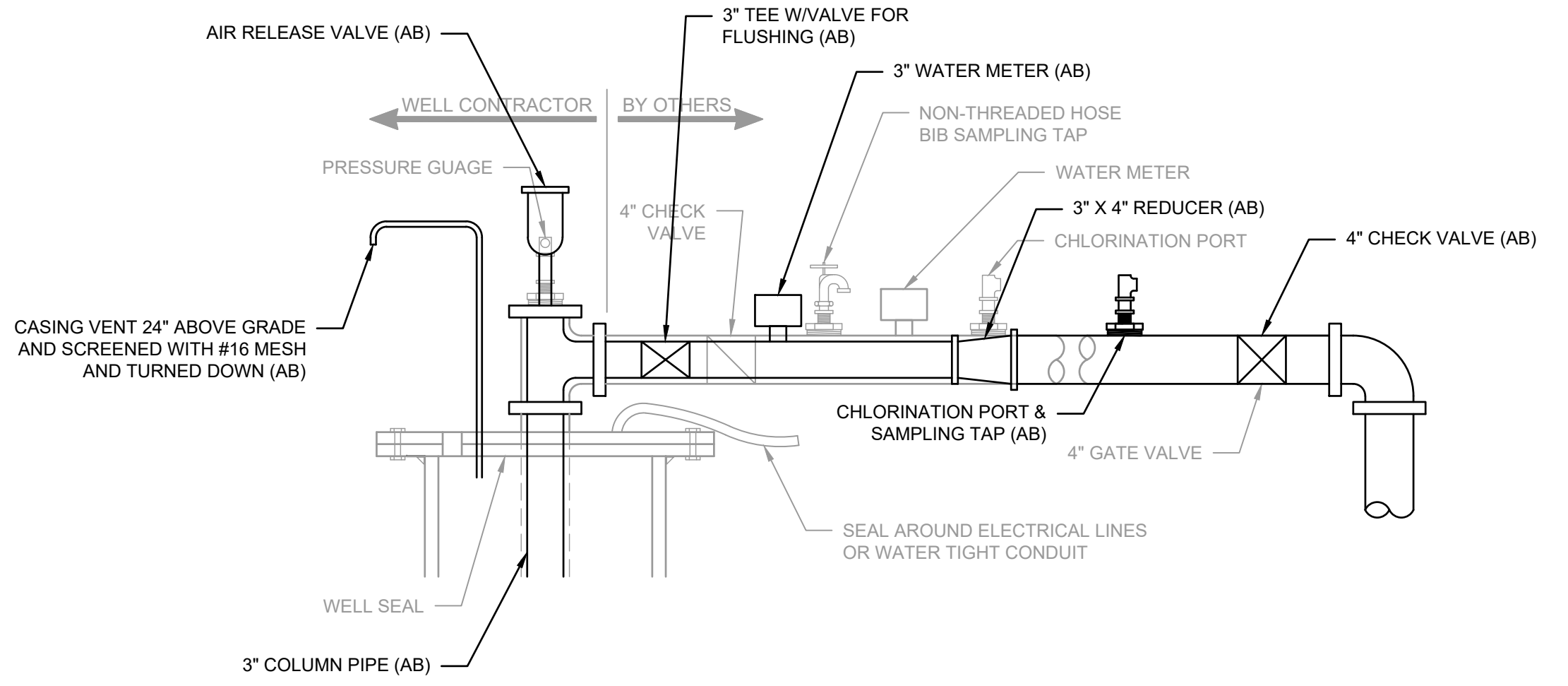




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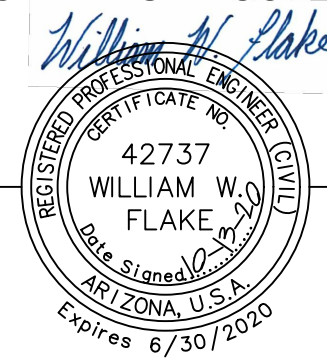


**WELL DETAIL**  
N.T.S.



**WELL HEAD DETAIL**  
N.T.S.

RECORD PLANS  
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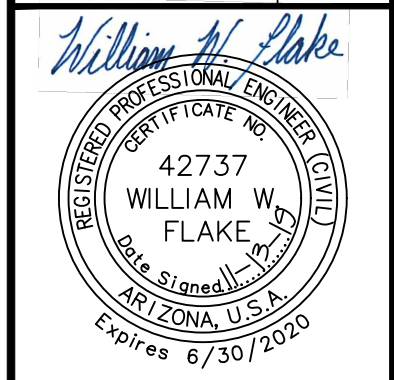


William W. Flake PE 42737

**NOTES**

1. WELL DETAILS ARE ESTIMATED. WELL CONSTRUCTION AND DEVELOPMENT SHALL BE BASED ON FIELD CONDITIONS FOUND AT SITE.
2. WELL CONTRACTOR IS RESPONSIBLE FOR COMPLETING WELL CONSTRUCTION TO THE POINT WHERE THE COLUMN PIPE IS ABOVE THE WELL SEAL, INCLUDING THE WELL SEAL. THE WELL CONTRACTOR IS ALSO RESPONSIBLE FOR COMPLETING PUMP WIRING OUTSIDE OF WELL SEAL ONLY. OWNER WILL BE RESPONSIBLE FOR CONSTRUCTION FROM WELL SEAL TO CONNECTION TO WATER SYSTEM.
3. THE WELL OWNER HAS TWO (2) EXISTING WELLS ON THE SITE. THESE WELLS ARE 430 FEET AND 442 FEET IN DEPTH. THESE WELLS SHALL BE SEALED OFF FROM THE NEW WELL SUCH THAT THE NEW WELL WILL NOT EFFECT THE EXISTING WELLS. THE 14.5\"/>

**PAINTED SKY**  
Engineering & Survey, LLC  
http://www.paintedskysurvey.com  
1801 West Deuce of Clubs, Suite 230  
Show Low, Arizona 85901  
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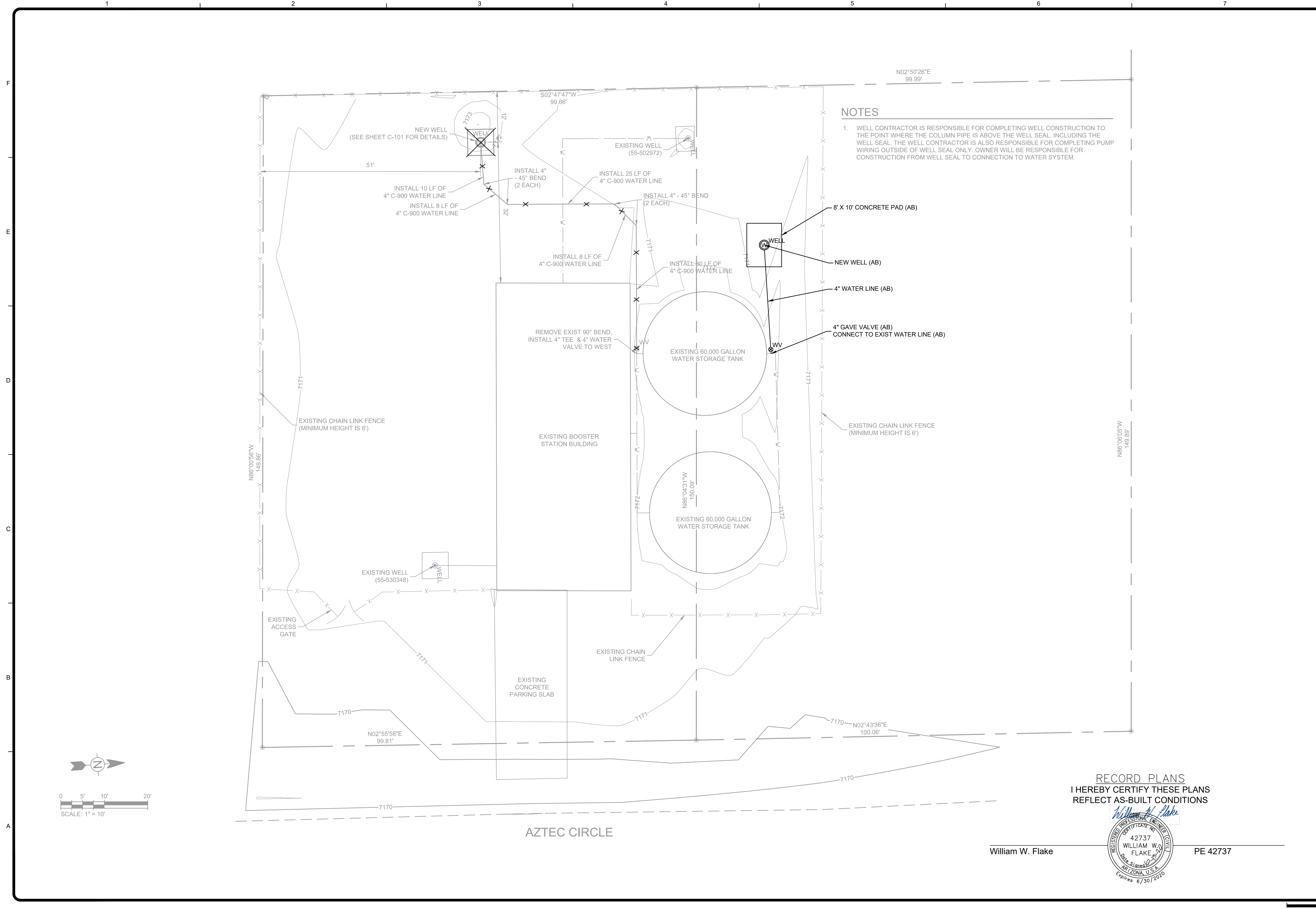
BY	DATE	DESCRIPTION

MARK	DATE	DESCRIPTION

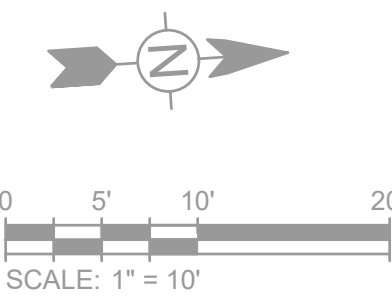
SKY HI DOMESTIC WATER IMPROVEMENT DISTRICT	NEW WELL
	WATER DETAILS
Project No.:	180051
Designed By:	JDFC
Drawn By:	JDFC
Checked By:	WWF

**C-101**

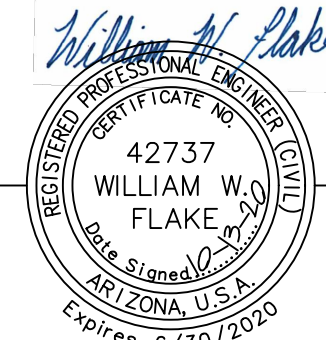
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*William W. Flake*  
REGISTERED PROFESSIONAL ENGINEER  
42737  
WILLIAM W. FLAKE  
State of Arizona, U.S.A.  
Expires 6/30/2020

MARK	DATE	DESCRIPTION	BY

SKY HI DOMESTIC WATER IMPROVEMENT DISTRICT  
**NEW WELL  
WATER  
IMPROVEMENT  
PLANS**

Project No.: 180051  
Designed By: JDFC  
Drawn By: JDFC  
Checked By: WWF

**C-102**  
3  
Bar Measures 1 inch