

# CITY OF EVANS, PARKER MEADOWS NON-POTABLE IRRIGATION SYSTEM JUNE 2006

DESIGNED BY: KAS  
DRAWN BY: KAS  
CHECKED BY: ALJ  
REVISIONS: SWS

## GENERAL DESCRIPTION

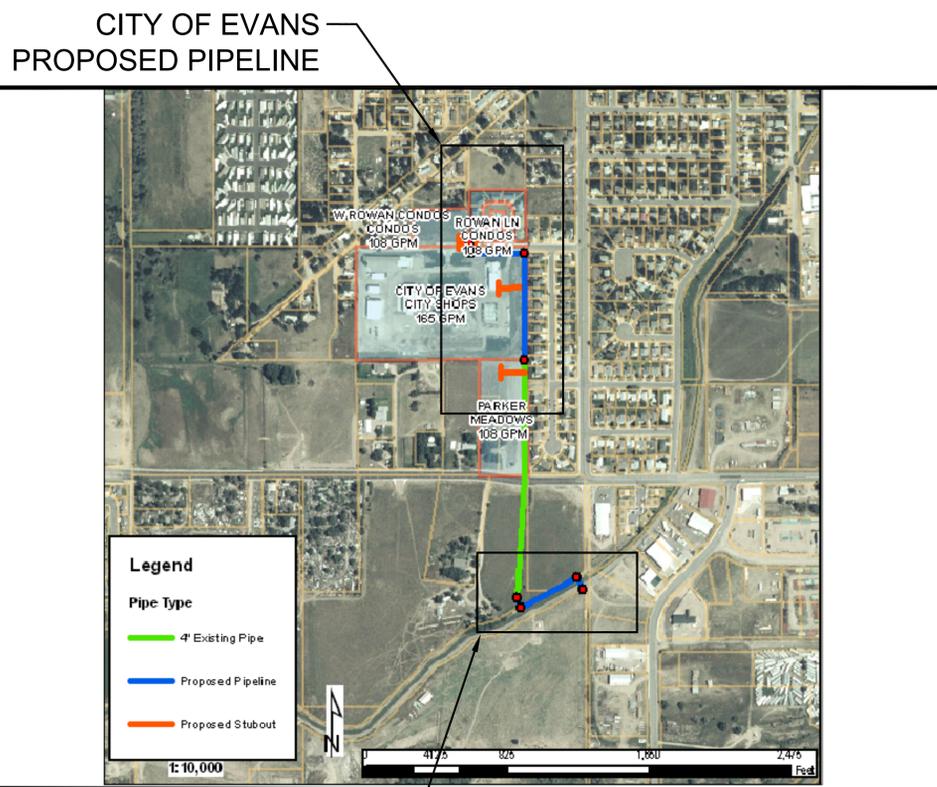
A NON-POTABLE IRRIGATION SYSTEM FOR THE CITY OF EVANS IS DESIGNED TO PROVIDE UNTREATED WATER FROM EVANS TOWN DITCH TO THE CITY OF EVANS SHOPS, PARKER MEADOWS SUBDIVISION, ROWAN CONDOS, AND WEST ROWAN CONDOS.

THE NON-POTABLE SYSTEM CONSISTS OF A PUMP STATION, TRANSMISSION PIPELINE, AND NECESSARY ACCESSORIES ASSOCIATED WITH THESE SYSTEMS. THE NON-POTABLE SYSTEM IS INTENDED TO IRRIGATE LAWNS AND LANDSCAPE WITHIN THE ABOVE MENTIONED PROPERTIES.

THIS SYSTEM HAS BEEN DESIGNED TO MEET THE NON-POTABLE STANDARDS AND SPECIFICATIONS OF THE CITY OF EVANS. THE TRANSMISSION PIPELINE WILL CONNECT TO AN EXISTING 4-INCH PIPELINE LOCATED BETWEEN EVANS TOWN DITCH AND THE ABOVE MENTIONED PROPERTIES. THE 4-INCH PIPELINE DOES NOT MEET THE CITY OF EVANS STANDARDS.

## INSTALLATION GENERAL NOTES

1. VERIFY EXISTING SITE CONDITIONS AND THE LOCATIONS OF EXISTING PIPING AND UTILITIES PRIOR TO CONSTRUCTION. BACKFILL AND COMPACT TO MATCH EXISTING CONDITIONS AND REPAIR OR REPLACE ANY EXISTING PIPING, WIRING, LANDSCAPE, SIDEWALK OR CURB THAT IS DAMAGED BY OR IS THE RESULT OF THIS CONSTRUCTION.
2. READ THOROUGHLY AND BECOME FAMILIAR WITH THE SPECIFICATIONS AND INSTALLATION DETAILS FOR THIS AND RELATED WORK PRIOR TO CONSTRUCTION.
3. COORDINATE UTILITY LOCATES ("CALL BEFORE YOU DIG", 1-800-922-1987) OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
4. DO NOT PROCEED WITH THE INSTALLATION OF THE IRRIGATION MODIFICATION WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS OR GRADE DIFFERENCES EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING, OR IF DISCREPANCIES IN CONSTRUCTION DETAILS, LEGEND, NOTES, OR SPECIFICATIONS ARE DISCOVERED. BRING ALL SUCH OBSTRUCTIONS OR DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
5. THE DRAWINGS ARE DIAGRAMMATIC. COMPONENTS MAY BE SHOWN OUTSIDE OF THE INTENDED INSTALLATION AREAS FOR CLARITY. COORDINATE THIS INSTALLATION WITH OTHER SITE WORK TO AVOID CONFLICTS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE RESTORATION OF THE FINAL GRADE AS SHOWN ON THE PLANS.
7. COAT ALL BURIED STEEL AND DUCTILE IRON PIPE AND FITTINGS WITH 8 TO 10 MILS COAL TAR EPOXY: KOPPERS 300M, AMERCOAT 78, OR EQUAL.
8. BASE MAPS PROVIDED BY CITY OF EVANS AND KING SURVEYORS.
9. BENCHMARK: BENCHMARK ELEVATIONS AS STATED IN TOPOGRAPHIC SURVEY ARE DEFINED BY VERTICAL AND HORIZONTAL DATUM. VERTICAL DATUM IS TAKEN FROM CITY OF EVANS BENCHMARK "KSI-11" 2" ALUMINUM CAP IN IRRIGATION STRUCTURE AT NORTH CORNER OF 42ND STREET AND BELMONT AVENUE. ELEVATION = 4688.76 (NAVD 1988). HORIZONTAL DATUM IS COLORADO STATE PLANE COORDINATES NAD83(1992). HORIZONTAL CONTROL IS BASED UPON NGS DESIGNATION JOHN EVANS. N = 1386102.2 E = 3222144.97
10. BASE DRAWINGS AND ELEVATIONS ON THESE DOCUMENTS WERE PROVIDED BY KING SURVEYORS WITH THE DATUM SET AT LOCATION NOTED ON DRAWINGS. VERIFY SITE ELEVATIONS PRIOR TO CONSTRUCTION. AQUA ENGINEERING, INC. IS NOT RESPONSIBLE FOR THE ACCURACY, NOR FOR THE ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT OF USING BASE INFORMATION BY OTHERS.



CITY OF EVANS  
PROPOSED PUMP STATION  
AND PIPELINE

VICINITY MAP  
NTS

### CONTACTS FOR INFORMATION:

AGENCY	CONTACT	PHONE
COMCAST 3737 W. 10TH ST GREELEY, CO 80634	GREG TITTLE	303-603-5568
ATMOS ENERGY 1200 11TH AVE GREELEY, CO 80631	JERRY ADAMS	970-304-2075
QWEST 12680 WCR 58 GREELEY, CO 80634	DEB THOMAS	970-337-6408
XCEL ENERGY 1500 6TH AVE GREELEY, CO 80631	TERRY STENCIL	800-328-8226
CITY OF EVANS PARKS 1100 37TH STREET EVANS, CO 80620	ANDY McROBERTS	970-475-1129
CITY OF EVANS WASTEWATER 3323 1ST AVENUE EVANS, CO 80620	LARRY McQUEEN	970-506-2847

CALL UTILITY NOTIFICATION  
CENTER OF COLORADO  
**1-800-922-1987**

CALL 2-BUSINESS DAYS IN ADVANCE  
BEFORE YOU DIG, GRADE, OR EXCAVATE,  
FOR THE MARKING OF UNDERGROUND  
MEMBER UTILITIES.

ALL WORK SHALL BE CONSTRUCTED TO THE CITY OF EVANS STANDARDS AND SPECIFICATIONS.

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
DIRECTOR OF PUBLIC WORKS

CITY OF EVANS, PARKER MEADOWS  
NON-POTABLE IRRIGATION SYSTEM  
COVER SHEET

Aqua Engineering, Inc.  
Irrigation System Design, Water Management,  
and Water Feature Engineering  
4903 Innovation Drive, 80525  
Fort Collins, Colorado  
Phone (970) 228-9666, FAX (970) 226-3855

DATE: JUNE 2006

SHEET: IR-C

**CITY OF EVANS  
GENERAL CONSTRUCTION NOTES**

1. ALL CONTRACTORS AND SUBCONTRACTORS SHALL HAVE A SET OF APPROVED CONSTRUCTION DOCUMENTS ON SITE AT ALL TIMES.
2. THE GENERAL CONTRACTOR SHALL CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-(800)-922-1987 TO REQUEST LOCATES OF ALL UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY LAND DISTURBING ACTIVITY.
3. ALL VERTICAL AND HORIZONTAL DATUM INFORMATION SHOULD BE OBTAINED USING THE EVANS GEODETIC SURVEY CONDUCTED BY ALBERS, DREXEL & POHLY, INC. JANUARY 9, 1998. A COPY OF FINAL COORDINATES, ELEVATIONS, AND MONUMENT DESCRIPTIONS CAN BE OBTAINED BY CONTACTING THE CITY OF EVANS ENGINEERING DIVISION AT (970) 475-1113.
4. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATIONS AND PROTECTION OF ALL EXISTING UTILITIES SHOWN, ALL EXISTING UTILITIES NOT SHOWN, AND ALL PROPOSED UTILITIES ON THESE PLANS.
5. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ADJACENT IMPROVEMENTS FROM DAMAGE AND EROSION. ANY ADJACENT IMPROVEMENT DAMAGED DURING CONSTRUCTION SHALL, AT A MINIMUM, BE RESTORED TO A STATE EQUAL TO ITS PRECONSTRUCTION STATE.
6. THE GENERAL CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE WORK, AND SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
7. IDENTIFYING THE NEED FOR A PERMIT, PREPARING THE APPLICATION, AND PAYING THE SUBMITTAL AND REVIEW FEES NECESSARY TO SECURE PERMITS WILL BE THE TOTAL RESPONSIBILITY OF THE GENERAL CONTRACTOR. A COPY OF ALL PERMITS MUST BE ON SITE AT ALL TIMES.
8. ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE STATE OF COLORADO PERMITTING PROCESS FOR STORM WATER DISCHARGE, ASSOCIATED WITH CONSTRUCTION ACTIVITY. FOR INFORMATION, CONTACT THE COLORADO DEPARTMENT OF PUBLIC HEALTH, AND ENVIRONMENT, WATER QUALITY CONTROL DIVISION, SQCD-PE-B2, 4300 CHERRY CREEK DRIVE SOUTH, DENVER, COLORADO 80246-1530, ATTENTION PERMITS AND ENFORCEMENT SECTION. (303) 692-3500. THE WATER QUALITY PERMITTING PAGE CAN BE ACCESSED AT [WWW.CDPHE.STATE.CO.US/WQ/PERMITSUNIT/WQCDPMT.HTML](http://WWW.CDPHE.STATE.CO.US/WQ/PERMITSUNIT/WQCDPMT.HTML)
9. IF DEWATERING IS TO BE USED, THEN A STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT IS REQUIRED IF DISCHARGE IS INTO A STORM SEWER, CHANNEL, IRRIGATION DITCH, OR ANY WATERS OF THE UNITED STATES.
10. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL SOILS REPORT AND PAVEMENT DESIGN REPORT, PRODUCED, OR REFERENCED FOR THIS PROJECT.
11. THE GENERAL CONTRACTOR SHALL PERFORM THE WORK ACCORDING TO ALL CITY, COUNTY, STATE, AND FEDERAL SAFETY AND HEALTH REGULATIONS. IN PARTICULAR, THE "TRENCHING" AND "OPEN EXCAVATION" OPERATIONS SHALL COMPLY WITH ALL CURRENT O.S.H.A. REGULATORY REQUIREMENTS.
12. ALL WATER LINE, SANITARY SEWER, AND STORM WATER CONSTRUCTION SHALL CONFORM TO THE CITY OF EVANS STANDARDS AND SPECIFICATIONS LATEST REVISION THEREOF. A CURRENT COPY CAN BE DOWNLOADED FROM THE CITY OF EVANS WEBSITE AT [WWW.CITYOFEVANS.ORG](http://WWW.CITYOFEVANS.ORG)
13. THE CITY OF EVANS FOLLOWS ALL TRAFFIC CONTROL STANDARDS SET FORTH IN THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).
14. A TRAFFIC CONTROL PLAN MUST BE SUBMITTED AND APPROVED FOR ANY AND ALL UTILITY WORK PERFORMED WITH THE CITY OF EVANS RIGHT-OF-WAY. TRAFFIC CONTROL PLANS CAN BE FAXED TO THE ENGINEERING DIVISION AT (970) 330-3472.
15. ALL STREET LIGHTING SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS SET FORTH IN THE CITY OF EVANS RESIDENTIAL NEIGHBORHOOD DESIGN STANDARDS.
16. ALL PLANTINGS SHALL UTILIZE THE CITY OF EVANS PARKS AND RECREATION APPROVED LANDSCAPING PLANTING LIST.
17. ALL SEEDING SHALL UTILIZE THE CITY OF EVANS IRRIGATION DESIGN GUIDELINES AND THE LAWN AND GRASS SPECIFICATIONS SECTION 02930.
18. ALL WORK INCLUDING WARRANTY WORK, SHALL BE INSPECTED BY A CITY REPRESENTATIVE WHO SHALL HAVE AUTHORITY TO HALT CONSTRUCTION WHEN PROPER CONSTRUCTION PRACTICES ARE NOT BEING ADHERED TO.
19. THERE SHALL BE NO WORK PERFORMED ON THE WEEKENDS, OR HOLIDAYS EXCEPT BY APPROVAL OF THE CITY OF EVANS WITH A MINIMUM OF 24 HOURS NOTICE.
20. THE GENERAL CONTRACTOR SHALL NOTIFY ALL RESIDENTS IN WRITING PRIOR TO ANY DISRUPTION IN SERVICE. THE NOTICES MUST HAVE THE GENERAL CONTRACTORS PHONE NUMBER AND THE NAME OF A CONTACT PERSON, AND EMERGENCY PHONE NUMBER FOR AFTER HOUR CALLS. NOTICES SHALL NOT BE LEFT IN MAILBOXES UNLESS PROPERLY SENT THROUGH THE U.S. POST OFFICE.
21. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THEIR OWN DISPOSAL SITE FOR ALL DISPOSED MATERIALS.

**PROJECT GENERAL CONSTRUCTION NOTES**

1. ALL WORK MUST CONFORM TO THE APPROVED CONSTRUCTION PLANS AND REQUIREMENTS OF THE SYSTEM DESIGN AND CONSTRUCTION STANDARDS.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF ANY PROBLEMS IN CONFORMING TO THE ACCEPTED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
3. REPRODUCIBLE COPIES OF RECORD DRAWING PLANS SHALL BE SUBMITTED TO THE CITY OF EVANS PRIOR TO CONSTRUCTION ACCEPTANCE OF THE PUBLIC IMPROVEMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR SECURING A LICENSED SURVEYOR TO STAKE PUMP STATION AND PIPELINE IN THE FIELD PRIOR TO CONSTRUCTION. THE OWNER'S REPRESENTATIVE MUST REVIEW STAKING PRIOR TO START OF EXCAVATION AND CONSTRUCTION OF THE PIPELINE.
5. INSTALL RESTRAINED FITTINGS WITH MEGALUGS FOR ALL PIPE BENDS, TEES, AND DEAD ENDS AS SHOWN IN THE DETAILS.
6. JOINT DEFLECTIONS FOR VERTICAL BENDS SHALL NOT EXCEED HALF OF THE MANUFACTURER'S SPECIFICATIONS.

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**CITY OF EVANS, PARKER MEADOWS  
NON-POTABLE IRRIGATION SYSTEM  
GENERAL CONSTRUCTION NOTES**



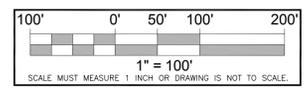
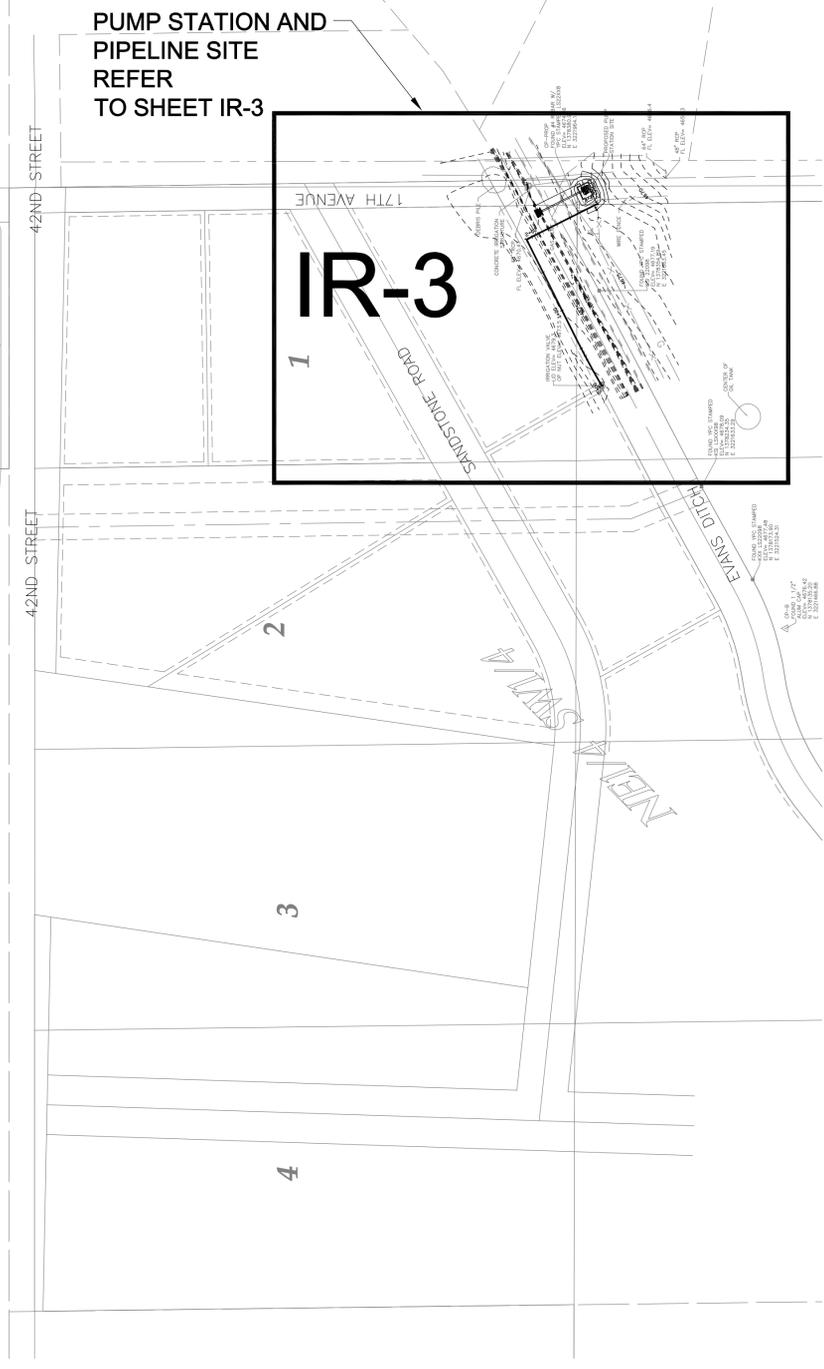
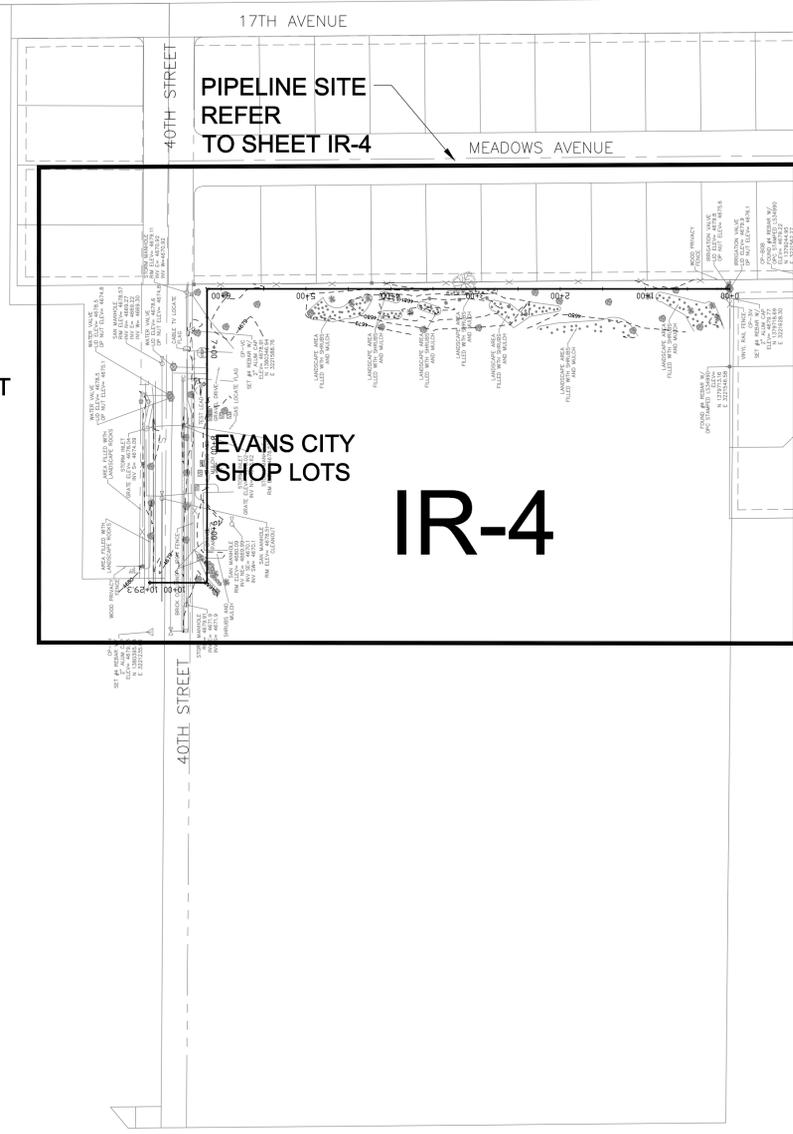
CALL UTILITY NOTIFICATION  
CENTER OF COLORADO  
**1-800-922-1987**

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MEMBER UTILITIES.

DATE: JUNE 2006

SHEET: IR-1

1 OVERALL SITE PLAN



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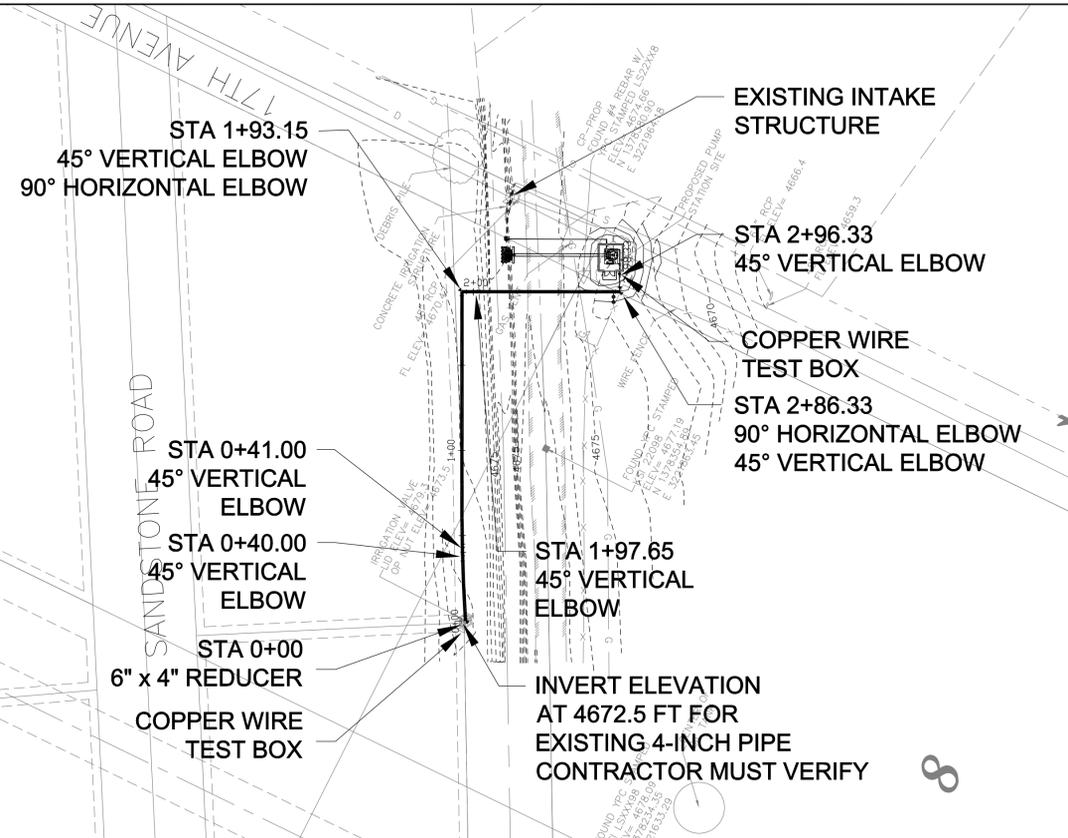
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 NON-POTABLE IRRIGATION SYSTEM  
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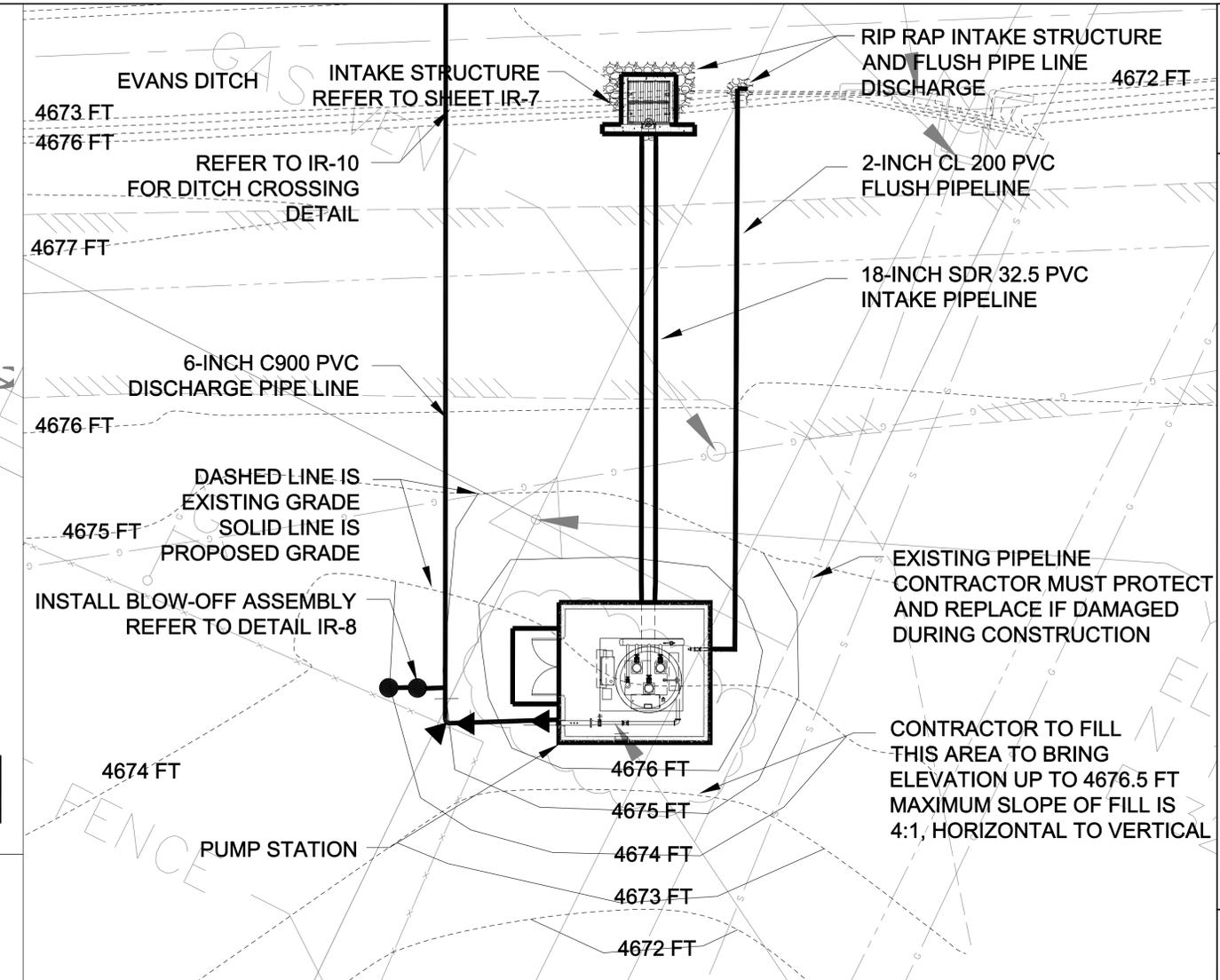
**Aqua Engineering, Inc.**  
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 4503 Innovation Drive  
 Fort Collins, Colorado 80525  
 Phone (970) 228-9666, FAX (970) 226-3855

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SHEET: IR-2

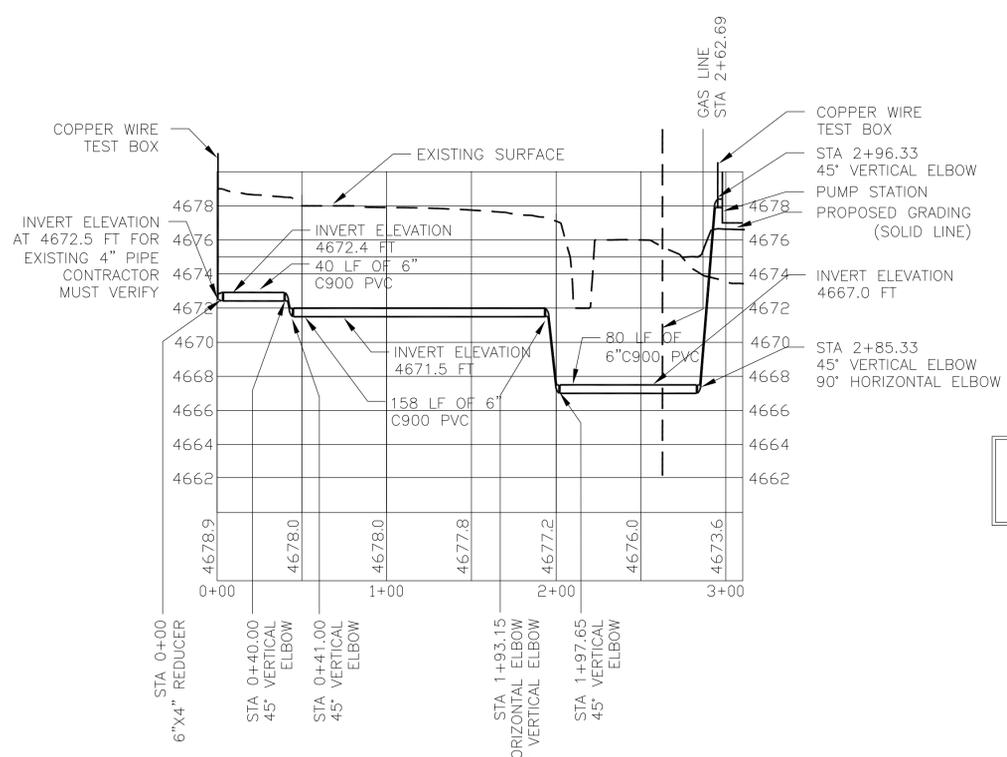


1 PIPELINE LAYOUT PLAN VIEW



- NOTES:
1. FIELD VERIFY ALL UTILITIES IN CONSTRUCTION AREA PRIOR TO EXCAVATION
  2. GRADE PROJECT SITE AS SHOWN TO ELEVATE EXISTING GROUND AT PUMP STATION ELEVATION

2 PUMP STATION DETAIL PLAN VIEW



PROFILE SCALE:  
 HORIZ: 1" = 50'  
 VERT: 1" = 5'

3 PIPELINE LAYOUT PROFILE

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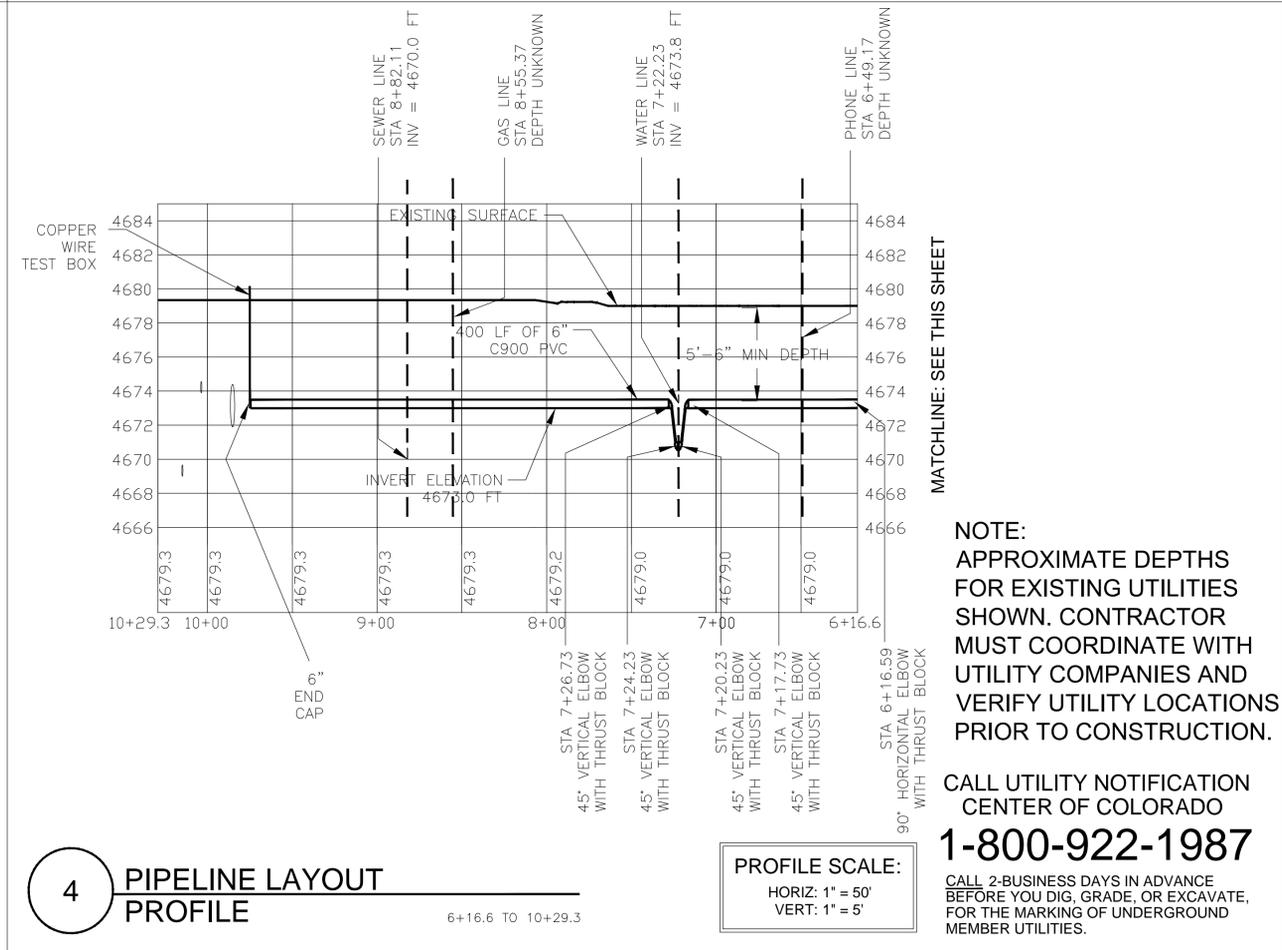
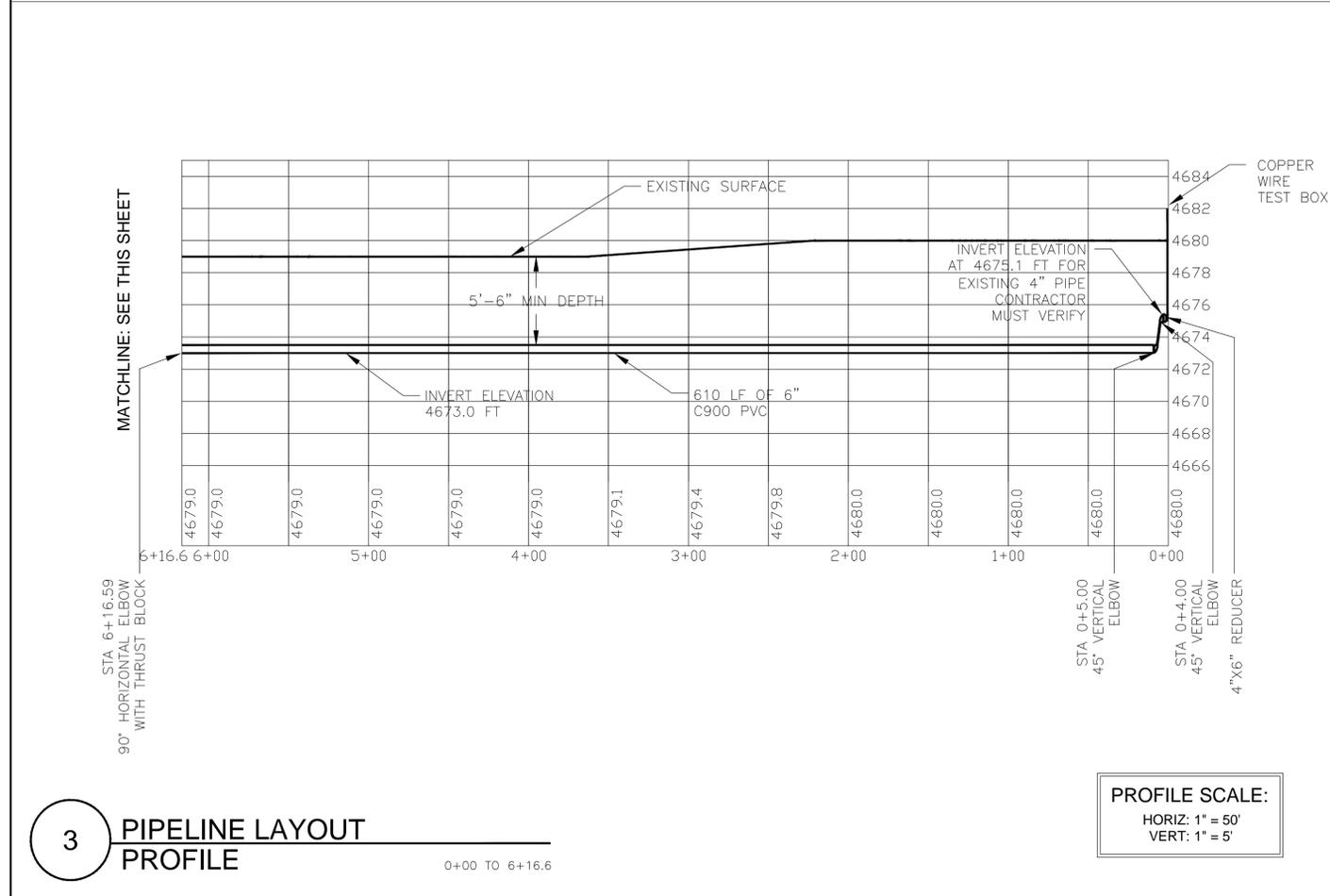
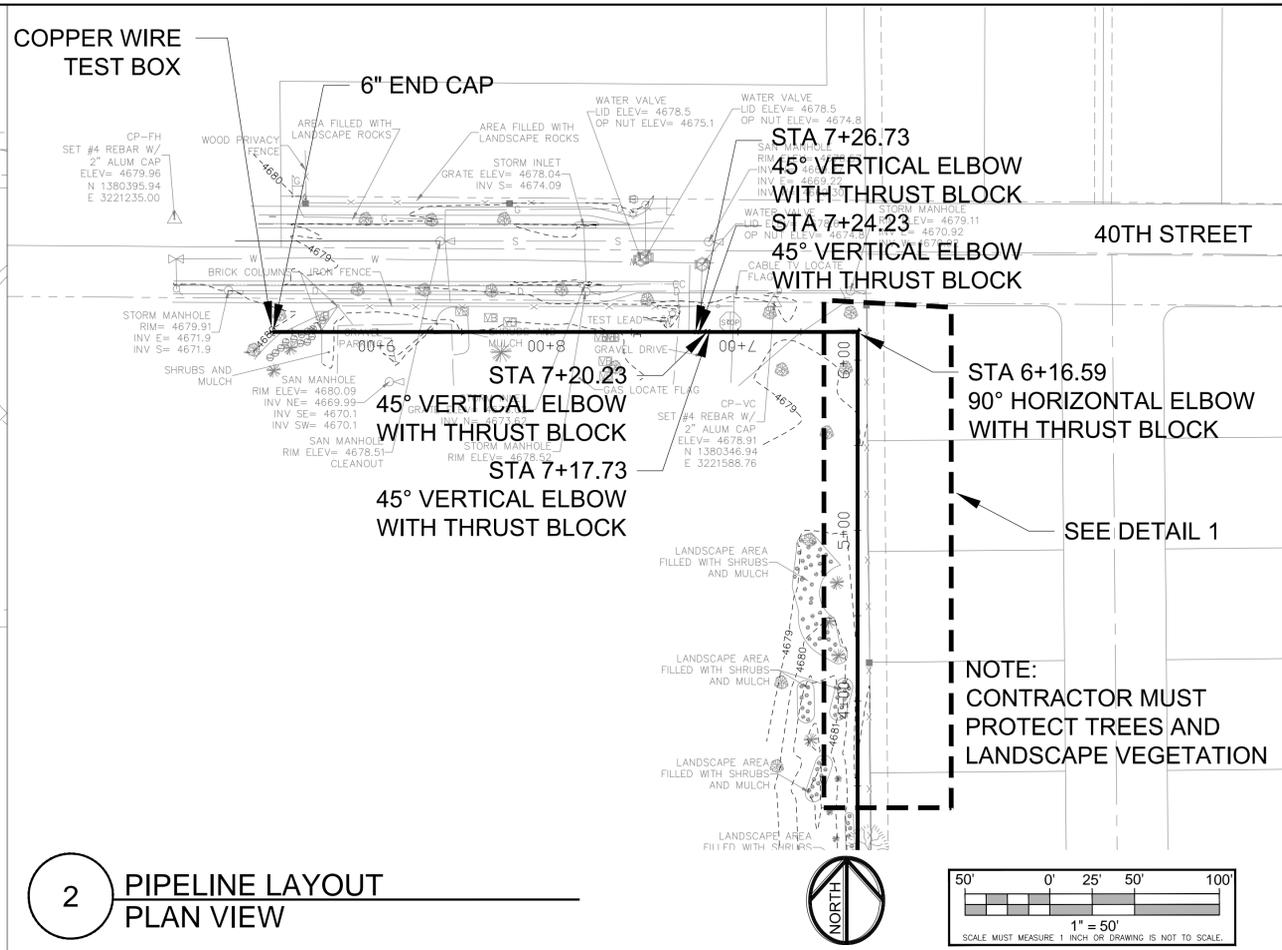
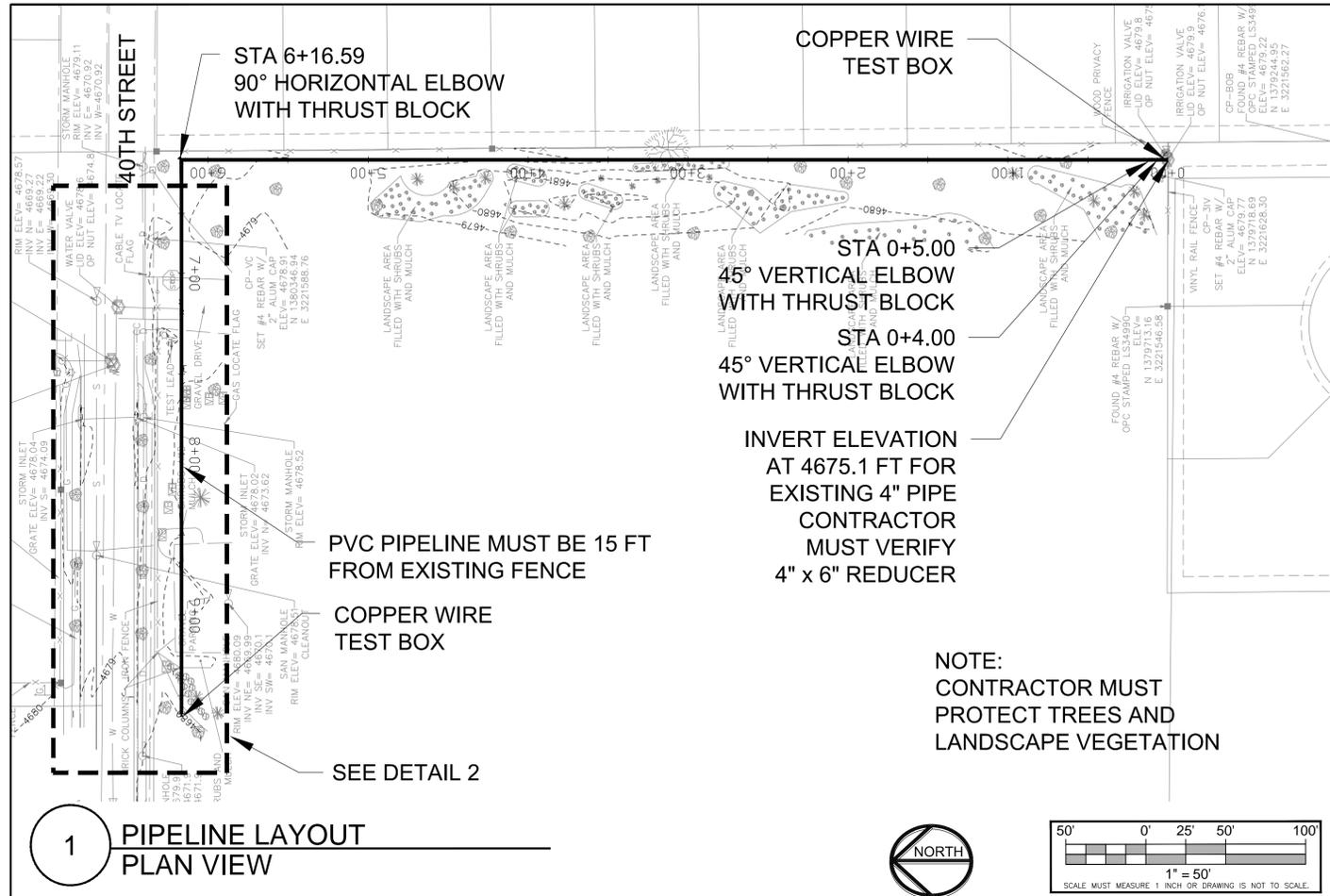
CITY OF EVANS, PARKER MEADOWS  
 NON-POTABLE IRRIGATION SYSTEM  
 PUMP STATION AND PIPELINE DETAILS

**Aqua Engineering, Inc.**  
 Irrigation System Design, Water Management,  
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 4903 Innovation Drive, 80525  
 Fort Collins, Colorado  
 Phone (970) 228-9666, FAX (970) 226-3855

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SHEET: IR-3



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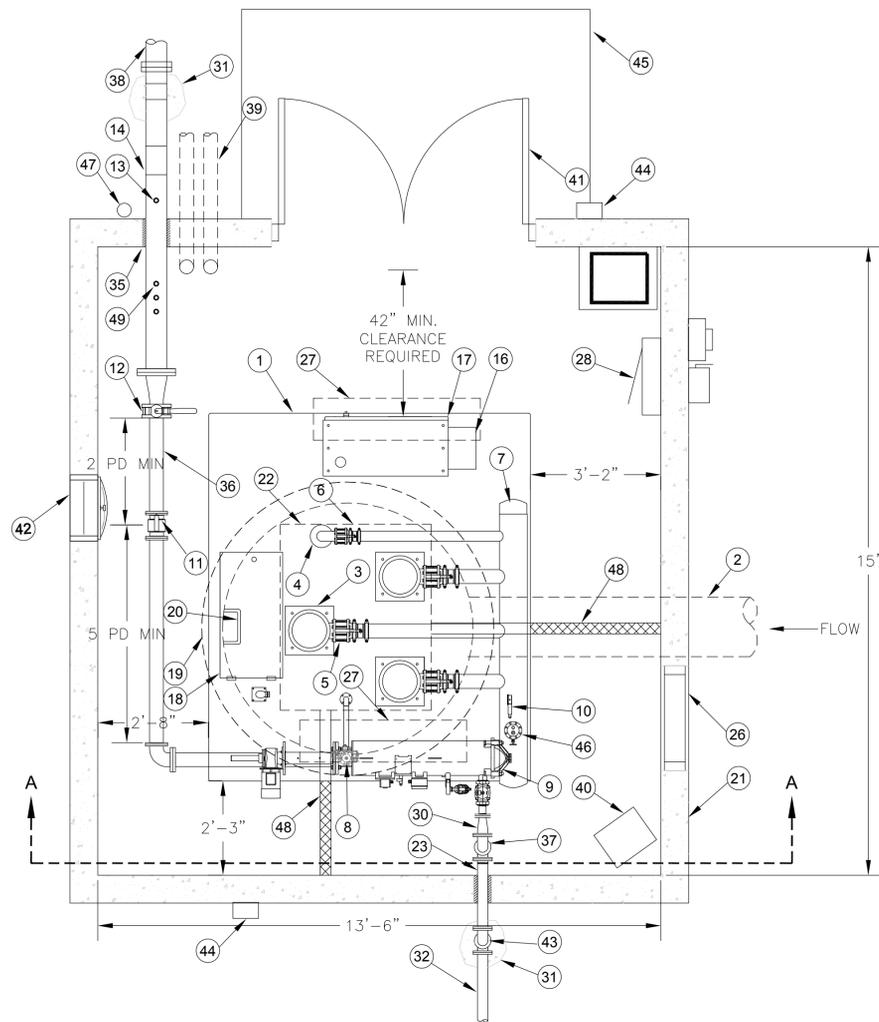
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 PIPELINE DETAILS**

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 Phone (970) 229-9666, FAX (970) 226-3655

DATE: JUNE 2006  
 SHEET: IR-4

**NOTE:**  
 APPROXIMATE DEPTHS  
 FOR EXISTING UTILITIES  
 SHOWN. CONTRACTOR  
 MUST COORDINATE WITH  
 UTILITY COMPANIES AND  
 VERIFY UTILITY LOCATIONS  
 PRIOR TO CONSTRUCTION.

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 CENTER OF COLORADO  
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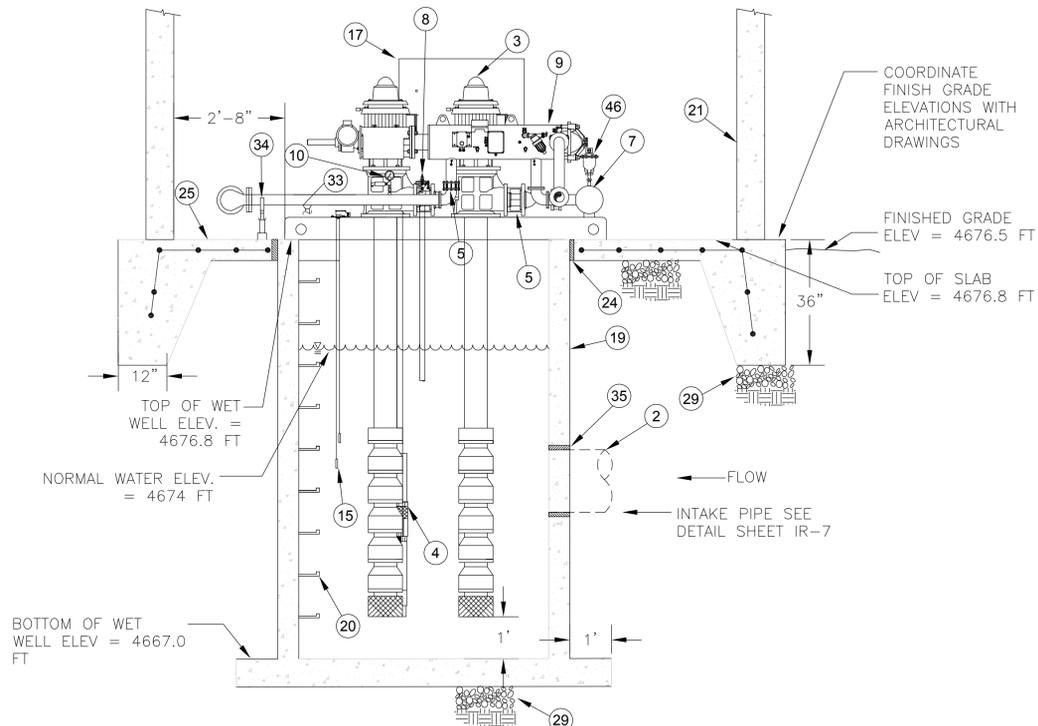


**EQUIPMENT LIST**

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| <ul style="list-style-type: none"> <li>① PREFABRICATED SKID MOUNTED VARIABLE SPEED PUMPING SYSTEM, THREE MAIN VERTICAL TURBINE PUMPS, SUBMERSIBLE PRESSURE MAINTENANCE PUMP, VALVES, FLOW METER, AUTOMATIC BACKWASH FILTER AND PIPING AS SPECIFIED. SYSTEM BELOW IS FOR 500 GPM AT 120 PSI DISCHARGE PRESSURE</li> <li>② 18-INCH SDR 32.5 INTAKE PIPE</li> <li>③ 250 GPM, 30 HP, 1800 RPM VERTICAL TURBINE PUMP (1 OF 3)</li> <li>④ 5 HP SUBMERSIBLE PRESSURE MAINTENANCE PUMP WITH SHROUD</li> <li>⑤ WAFER TYPE CHECK VALVE (1 OF 5)</li> <li>⑥ BUTTERFLY VALVE (1 OF 5)</li> <li>⑦ 8-INCH DISCHARGE MANIFOLD</li> <li>⑧ 4-INCH PRESSURE RELIEF VALVE WITH DISCHARGE PIPE TO WET WELL</li> <li>⑨ AUTOMATED BACKWASH FILTER ASSEMBLY WITH 300-MICRON SCREEN: AMIAD SAF-3000 6" SIZE</li> <li>⑩ LIQUID FILLED 2.5-INCH 150 P.S.I. PRESSURE GAUGE (1 OF 2)</li> <li>⑪ 6-INCH BADGER MAGNETOFLOW MAG METER WITH PRIMO AMPLIFIER OR EQUAL</li> <li>⑫ 4-INCH BUTTERFLY VALVE</li> <li>⑬ WINTERIZATION CONNECTION: 2-INCH THREAD-O-LET WITH THREADED STEEL NIPPLES, BALL VALVE AND CAP</li> <li>⑭ PAINTED SCH 40 STEEL 6-INCH DISCHARGE PIPE WITH MJ OUTLET FITTING EPOXY COATED BELOW GRADE.</li> <li>⑮ WATER LEVEL PROBES</li> <li>⑯ HEAT EXCHANGER OR AIR CONDITIONER</li> <li>⑰ ELECTRICAL STARTER, TIMERS, AND CONTROL PANELS</li> <li>⑱ WET WELL ACCESS DOOR, DIMENSIONS: 30" x 22" MIN.</li> <li>⑲ 72-INCH I.D. PRECAST WET WELL - ROUND SECTION</li> <li>⑳ CAST-IN ACCESS STEPS, 12-INCHES O.C.</li> <li>㉑ PRECAST PUMP STATION ENCLOSURE</li> <li>㉒ ROOF ACCESS HATCH, 72" x 72" MIN. DIMENSION CENTER OVER PUMPS</li> <li>㉓ 3-INCH SCH 40 PAINTED STEEL FILTER FLUSH PIPE. PAINT PIPE THAT IS OUTSIDE BUILDING A COLOR SPECIFIED BY OWNER. ROUTE PIPE 3" ABOVE FINISH FLOOR ELEVATION.</li> <li>㉔ 2-INCH VOID FORM</li> </ul> | <ul style="list-style-type: none"> <li>㉕ CONCRETE FLOOR 6" SLAB, #5 REBAR 12" O.C.</li> <li>㉖ 34" X 30" INTAKE LOUVER VENT, DAYTON ELECTRIC MODEL 4F422 RATED FOR 2,625 CFM OR EQUAL</li> <li>㉗ VAPOR PROOF FLUORESCENT 40-WATT LIGHT FIXTURE WITH SHATTER PROOF COVER, TYPICAL (REFER TO ELECTRICAL DRAWINGS)</li> <li>㉘ PROPOSED LOCATION FOR ELECTRICAL PANELS, TRANSFORMER, AND METER (REFER TO ELECTRICAL DRAWINGS FOR EXACT LOCATION) (2 TYP)</li> <li>㉙ 6-INCH GRAVEL SUBBASE OVER UNEXCAVATED SUBGRADE OF 95% COMPACTED BACKFILL SUBGRADE</li> <li>㉚ 2" X 3" FLANGED REDUCER</li> <li>㉛ THRUST BLOCK AGAINST UNDISTURBED SOIL: SEE THRUST BLOCK DETAIL</li> <li>㉜ 3-INCH CL 200 PVC FILTER FLUSH PIPE</li> <li>㉝ DRAIN VALVE (1 OF 2)</li> <li>㉞ PIPE SUPPORT (TYPICAL, AS NEEDED)</li> <li>㉟ GROUT AND WATERPROOF ALL JOINTS AND PENETRATIONS (TYP) WITH FLEXIBLE COLORED GROUT TO MATCH BUILDING</li> <li>㊱ 4" x 6" SCH 40 STEEL FLANGED REDUCER EL</li> <li>㊲ 3-INCH SCH 40 PAINTED STEEL EL</li> <li>㊳ 6-INCH CL 200 PVC IRRIGATION MAINLINE</li> <li>㊴ 3-INCH PVC SLEEVE WITH PVC SWEEP EL (1 OF 2)</li> <li>㊵ 5 KW ELECTRIC HEATER (SEE ELECTRICAL PLAN)</li> <li>㊶ METAL DOUBLE DOORS WITH FRAME</li> <li>㊷ 18-INCH DIAMETER, HIGH VOLUME, SHUTTERED MOUNTED 1/4 HP EXHAUST FAN WITH BALL BEARING AND SPLIT PHASE MOTOR. DAYTON ELECTRIC MODEL 4C357 WITH AUTOMATIC THERMOSTATIC CONTROL RATED FOR 2,590 CFM AT 0.0 INCH SP OR EQUAL</li> <li>㊸ CAST IRON ELBOW BELOW GRADE WITH PVC SCH 40 SOLVENT WELD FLANGE</li> <li>㊹ EXTERIOR LIGHT; REFER TO ELECTRICAL DRAWINGS (1 OF 2)</li> <li>㊺ ENTRY STOOP</li> <li>㊻ AIR RELEASE VALVE</li> <li>㊼ COPPER WIRE TEST BOX</li> <li>㊽ TRENCH DRAIN, NDS STANDARD "SPEE-D" CHANNEL (SEE DETAIL)</li> <li>㊾ CAPPED 3/4" THREAD-O-LETS (1 OF 3)</li> </ul> |
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**CONSTRUCTION NOTES**

1. COORDINATE PUMP SKID LAYOUT WITH CAST-IN-PLACE CONCRETE PAD AND PUMP STATION BUILDING CONSTRUCTION.
2. REFER TO IRRIGATION PUMP SYSTEM AND BUILDING SPECIFICATIONS FOR ADDITIONAL TECHNICAL REQUIREMENTS.
3. THESE DRAWINGS AND DETAILS REPRESENT A TYPICAL SKID MOUNTED PUMP STATION WITH THE REQUIRED COMPONENTS AND CLEARANCES. ALTERNATE LAYOUTS MAY BE PROPOSED PROVIDING THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATION AND REDESIGN OF PIPING, CONCRETE PAD, AND BUILDING.
4. FURNISH SHOP DRAWINGS FOR APPROVAL PRIOR TO ORDERING PUMP STATION. SHOP DRAWINGS MUST SHOW LOCATION OF PUMP, VALVES, PIPING, FITTINGS, WET WELL ORIENTATION IN CONCRETE FLOOR, AND DISTANCES TO PUMP BUILDING WALLS.
5. COORDINATE EXACT LOCATION OF ELECTRICAL SUPPLY WITH CITY OF EVANS AND ENERGY COMPANY.
6. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE ELEVATIONS SHOWN AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER.
7. PROVISION AND INSTALLATION OF SECONDARY CONDUCTORS IS RESPONSIBILITY OF THE CONTRACTOR. COORDINATE FOR ALL NECESSARY SUPPLY LOCATIONS AND SIZES WITH THE ELECTRICAL DRAWINGS.
8. COORDINATE LOCATION FOR ELECTRICAL PANELS, TRANSFORMER, AND METER WITH ELECTRICAL DRAWINGS.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NECESSARY PIPING AND FITTINGS, AND ALL OTHER EQUIPMENT NECESSARY FOR COMPLETE INSTALLATION OF PUMP STATION.
10. INSTALL ALL REQUIRED SLEEVES IN CONCRETE FLOOR.
11. CENTER ROOF ACCESS HATCH OVER PUMPS.
12. CORE DRILL WALL PENETRATIONS AFTER PUMP SKID HAS BEEN INSTALLED TO INSURE PROPER LOCATIONS.
13. GROUT AND WATERPROOF ALL JOINTS AND PENETRATIONS.
14. BACKFILL AND COMPCACT TO 95% STANDARD PROCTOR DENSITY AROUND FILTER DISCHARGE PIPE AT POND EDGE. PROVIDE AND INSTALL NECESSARY RIP RAP BELOW DISCHARGE PIPE.
15. PUMP STATION IS DESIGNED TO OPERATE AT MOST TWO PUMPS SIMULTANEOUSLY. THE THRID IS A BACKUP AND ALL THREE WILL ROTATE OPERATION.
16. PROVIDE OPTICAL ISOLATOR INTEGRAL TO PUMP STATION FOR INTERFACE WITH THE CITY'S IRRIGATION CONTROL SYSTEM



**SECTION AA**

SCALE: 1/2" = 1'



**1 PUMP STATION DETAIL**

DESIGNED BY: KAS  
 DRAWN BY: KAS  
 CHECKED BY: ALJ  
 REVISIONS: SWS

**CITY OF EVANS, PARKER MEADOWS  
 NON-POTABLE IRRIGATION SYSTEM  
 PUMP STATION DETAILS**

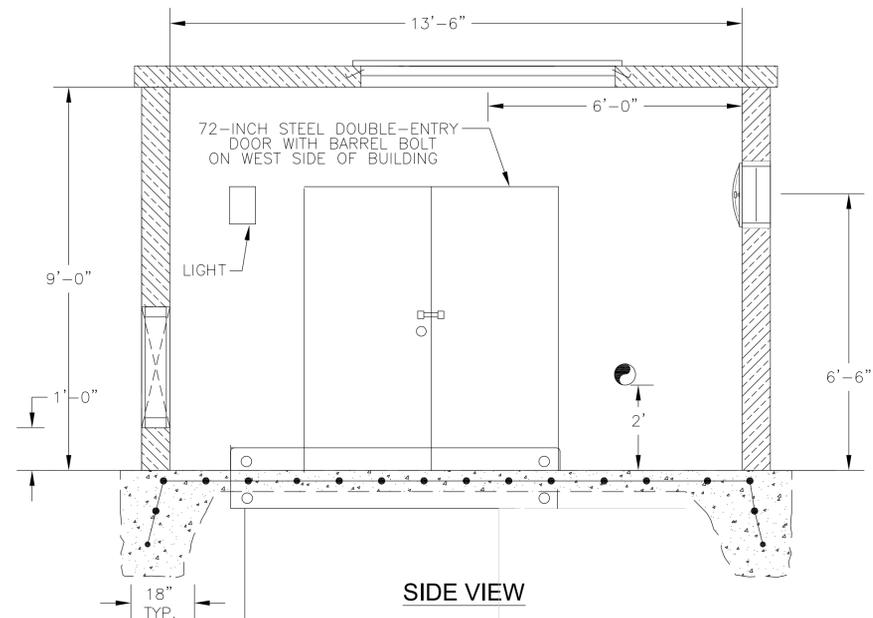
**Aqua Engineering, Inc.**  
 Irrigation System Design, Water Management,  
 and Water Feature Engineering  
 4903 Innovation Drive, 80525  
 Fort Collins, Colorado  
 Phone (970) 228-9666, FAX (970) 226-3855

DATE: JUNE 2006

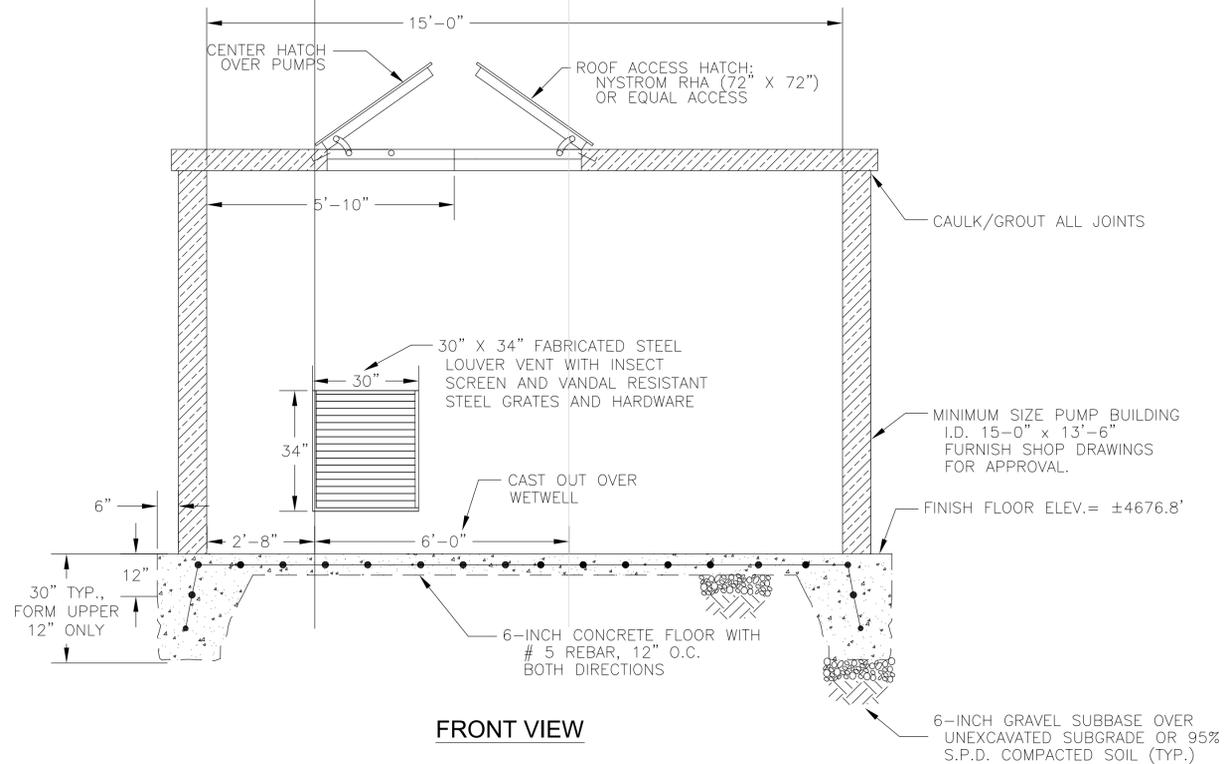
SHEET: IR-5

**CALL UTILITY NOTIFICATION  
 CENTER OF COLORADO  
 1-800-922-1987**

CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE, FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.



**SIDE VIEW**



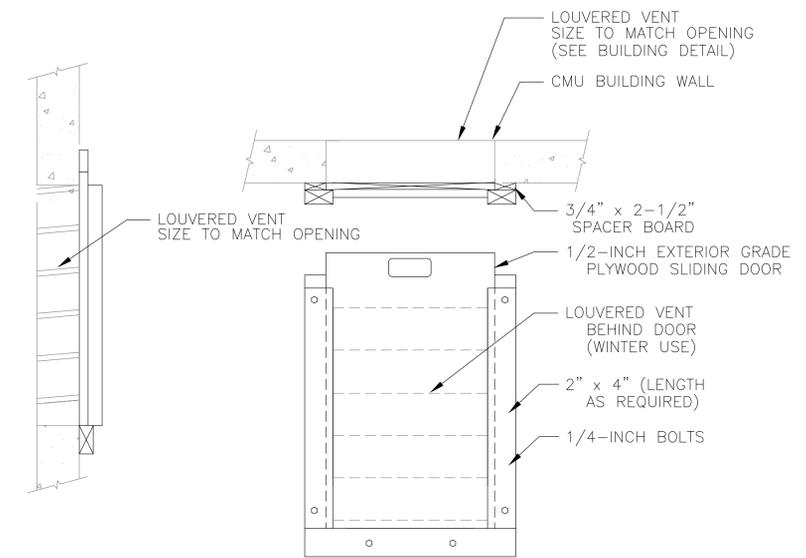
**FRONT VIEW**

**CONSTRUCTION NOTES:**

1. FURNISH SHOP DRAWINGS FOR APPROVAL SHOWING CONCRETE FLOOR, LOCATION OF PUMP SKID, VALVES, PIPING, FITTINGS, AND WELD PLATES PRIOR TO CONSTRUCTION. ADJUST BUILDING DIMENSIONS TO ACCOMMODATE ACTUAL PUMP SKID LAYOUT.
2. FURNISH AND INSTALL #5 REBAR, 12" ON CENTER BOTH DIRECTIONS IN CENTER OF 6-INCH THICK CONCRETE SLAB.
3. INSTALL CONDUIT AND CONDUCTORS FROM POWER SUPPLY TO PUMP CONTROL PANEL.
4. CENTER ROOF ACCESS HATCH OVER VERTICAL TURBINE PUMPS.
5. INSTALL TWO OUTDOOR LIGHTS IN SERIES WITH ONE WALL SWITCH.
6. PRE-ENGINEERED PUMP BUILDING MUST INCLUDE P.E. STAMP AND SIGNATURE ON SHOP DRAWING SUBMITTAL.
7. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF PANELS ON BUILDING.
8. CORE DRILL WALL PENETRATIONS AFTER PUMP SKID HAS BEEN INSTALLED TO ENSURE PROPER LOCATIONS.
9. COORDINATE METHOD OF ATTACHING BUILDING TO FLOOR SLAB WITH BUILDING MANUFACTURER'S APPROVED SHOP SUBMITTALS.
10. THIS DRAWING SHOWS THE MINIMUM BUILDING SIZE RECOMMENDED.

**1 MECHANICAL PUMP SYSTEM BUILDING DETAIL**

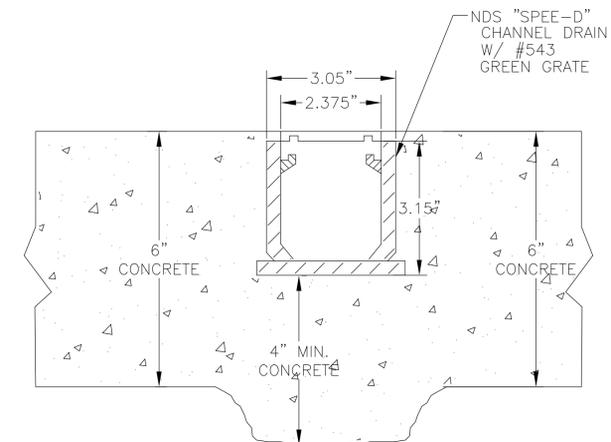
SCALE 1/2" = 1'



- NOTES:
1. BOLT VENT COVER FRAME TO BUILDING WALL.
  2. FABRICATE VENT COVER TO ALLOW DOOR TO SLIDE UP AND DOWN AND BE REMOVED.
  3. SIZE VENT COVER TO BE 3-INCHES LARGER THAN LOUVER VENT IN ALL DIRECTIONS.

**2 LOUVERED VENT DETAIL**

SCALE 1" = 1'



- NOTES:
1. THICKEN PUMP STATION FLOOR SLAB UNDER TRENCH DRAIN AS SHOWN IN DRAWING.
  2. EXTEND TRENCH DRAIN FROM WET WELL TO LOCATION SHOWN ON DRAWINGS.
  3. CUT CONCRETE OUT AT WET WELL TO ALLOW FLOW OF WATER FROM DRAIN INTO WET WELL.

**3 TRENCH DRAIN DETAIL**

N.T.S.

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MEMBER UTILITIES.

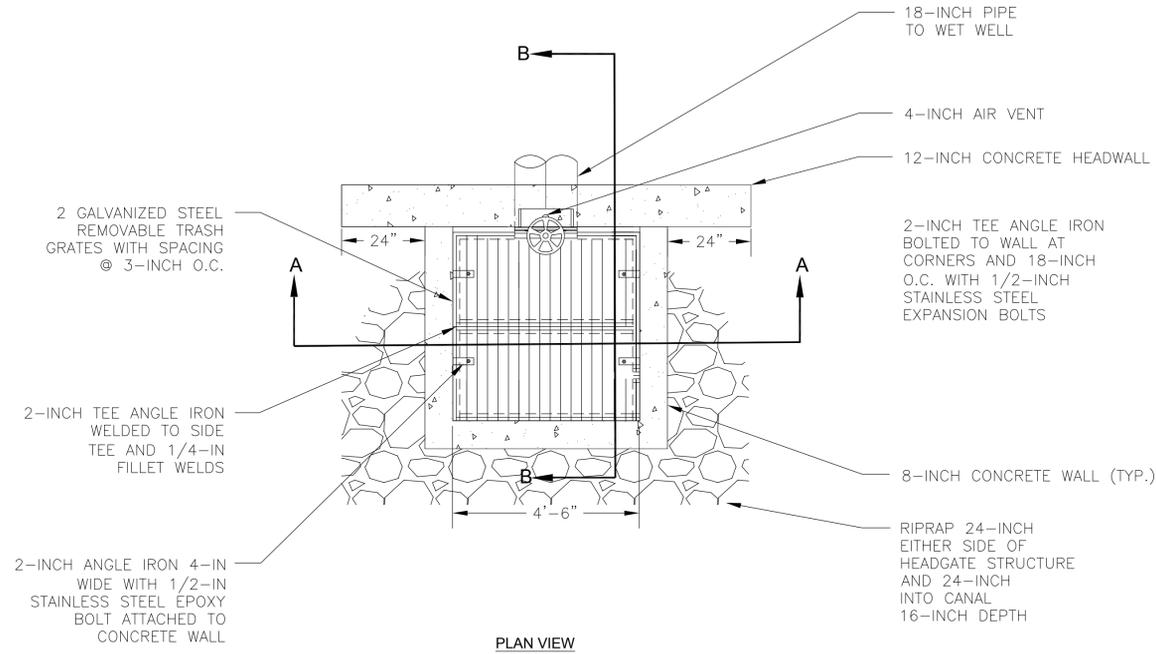
DESIGNED BY: KAS  
DRAWN BY: KAS  
CHECKED BY: ALJ  
REVISIONS: SWS

**CITY OF EVANS, PARKER MEADOWS  
NON-POTABLE IRRIGATION SYSTEM  
PUMP BUILDING DETAILS**

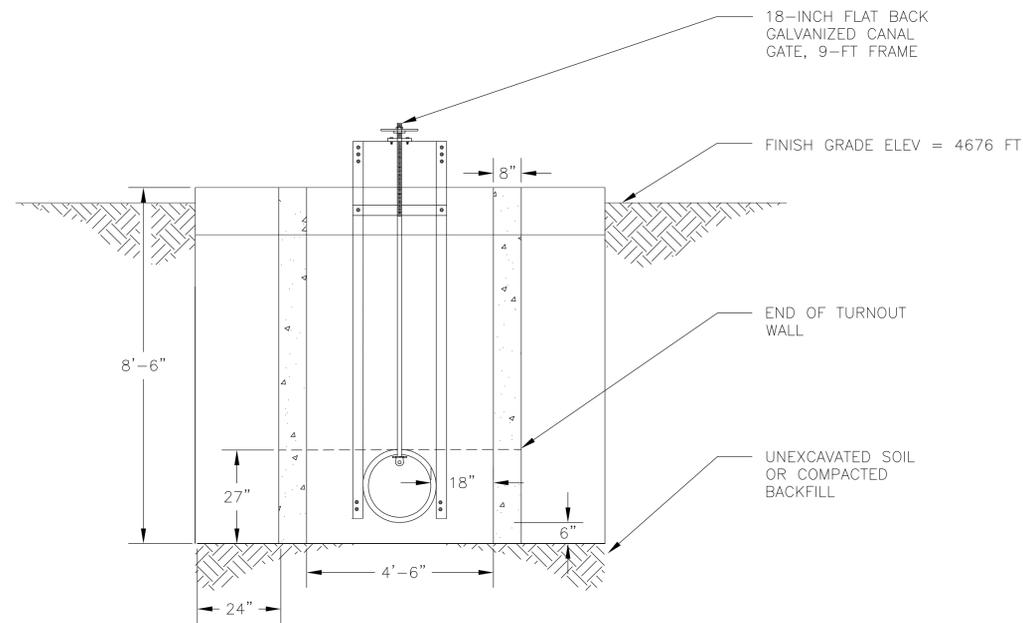
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4903 Innovation Drive, 80525  
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Phone (970) 228-9666, FAX (970) 226-3855

DATE: JUNE 2006

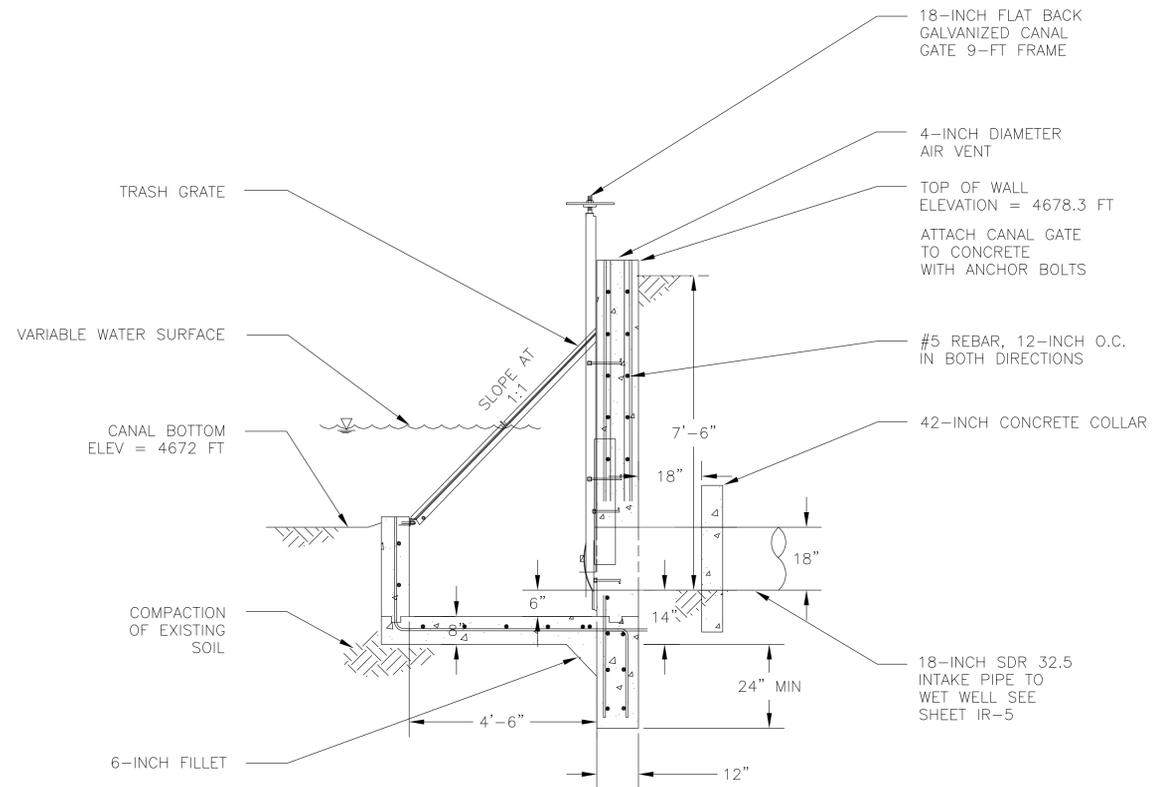
SHEET: IR-6



PLAN VIEW



SECTION A-A



SECTION B-B

NOTES:

- COORDINATE LOCATION OF HEADGATE STRUCTURE IN THE FIELD WITH DITCH COMPANY AND OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
- ANCHOR 18" PIPE TO FORM AND CAST IN CONCRETE.
- FURNISH SHOP DRAWINGS FOR APPROVAL THREE WEEKS PRIOR TO CONSTRUCTION AND INSTALLATION.
- INSTALL DIVERSION STRUCTURE WITH 18-INCH SDR 32.5 PIPE; FLOW LINE 18" BELOW CANAL BOTTOM.
- BACKFILL THE EXCAVATED AREA IN 6-INCH LIFTS. COMPACT TO 95%.
- INSTALL 18-INCH SDR 32.5 W/1% SLOPE FROM WET WELL TO CANAL.
- INSTALL CANAL GATE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
- STEEL TROWEL FINISH ALL CAST-IN-PLACE CONCRETE SURFACES AND TROWEL ROCKS BELOW FINISHED SMOOTH SURFACES.
- INSTALL KEY JOINT WHERE VERTICAL WALL MEETS FLOOR SLAB, AND TIE TOGETHER WITH REBAR.
- GROUT AND SEAL ALL CONCRETE JOINTS. SEAL ALL EXTERIOR WALL AND BASE SLAB JOINTS WITH GREENSTREAK BASE SEAL MODEL 925 WATERSTOP OR EQUAL.
- LAP REBAR AS NEEDED. LAP BAR LENGTH EQUALS 48 BAR DIAMETERS.
- CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 315.
- GALVANIZE STEEL GRATE AFTER FABRICATION.
- STONE FOR RIPRAP SHALL BE SOUND AND DURABLE, FREE FROM SEAMS AND COATINGS, AND OF SUCH CHARACTERISTICS THAT IT WILL NOT DISINTEGRATE WHEN SUBJECTED TO THE ACTION OF WATER. STONE SHALL BE OF SHAPES WHICH WILL FORM A STABLE PROTECTION STRUCTURE OF THE REQUIRED DEPTH. ROUNDED BOULDERS OR COBBLES SHALL NOT BE USED ON SLOPES STEEPER THAN 2 TO 1 UNLESS GROUTED. ANGULAR SHAPES MAY BE USED ON ANY SLOPE. FLAT OR NEEDLE SHAPES WILL NOT BE ACCEPTABLE UNLESS THE THICKNESS OF THE PIECE IS MORE THAN 1/3 THE LENGTH. WASTE CONCRETE MAY BE USED, IF THE PIECES ARE SOUND FREE FROM COATINGS, AND MEET THE SIZE REQUIREMENTS SPECIFIED FOR A STONE.

DESIGNED BY: KAS  
 DRAWN BY: KAS  
 CHECKED BY: ALJ  
 REVISIONS: SWS

CITY OF EVANS, PARKER MEADOWS  
 NON-POTABLE IRRIGATION SYSTEM  
 HEADGATE STRUCTURE DETAILS

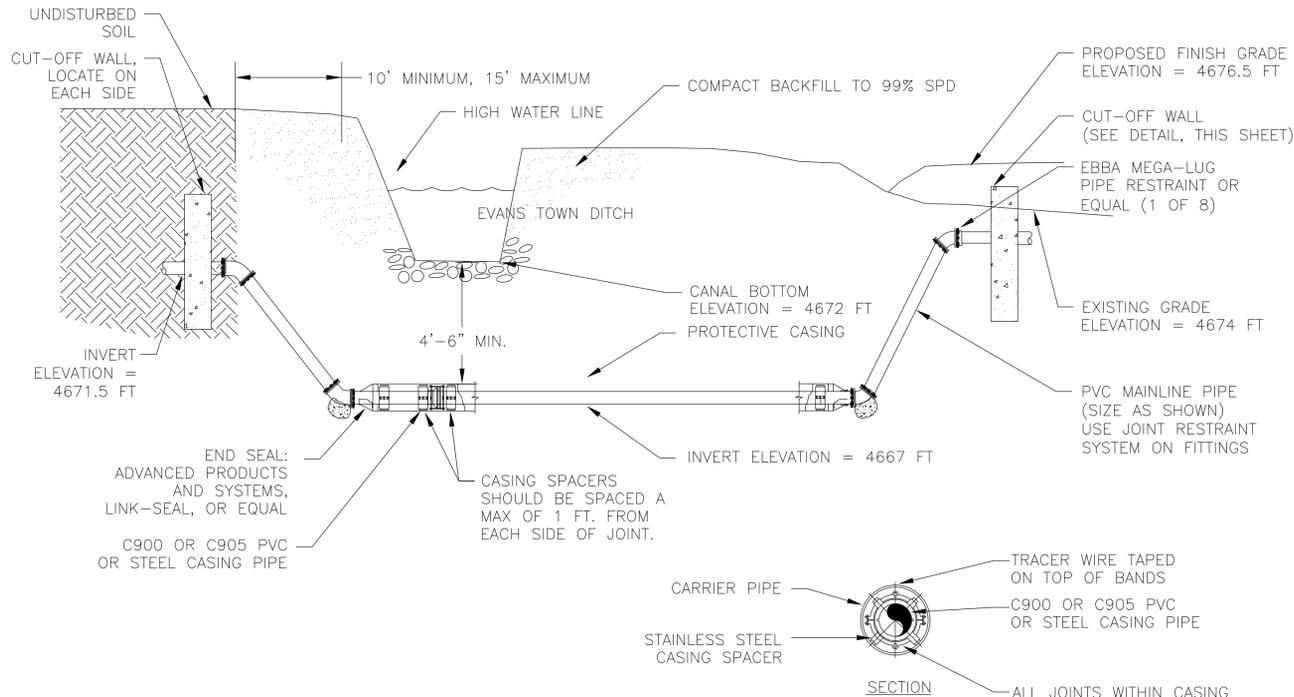
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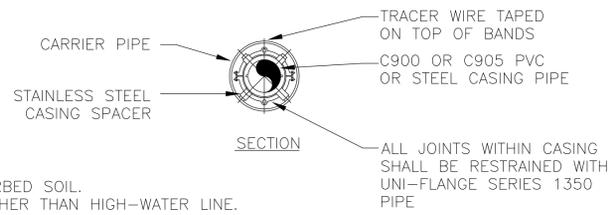






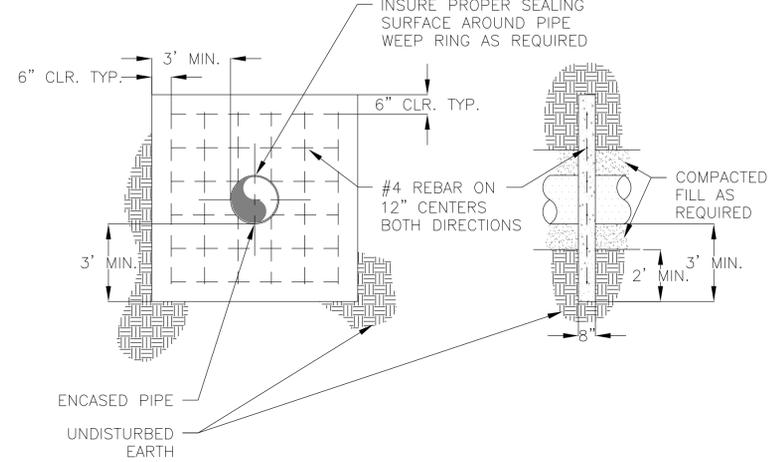
NOTES:

1. CONSTRUCT CUT-OFF WALL IN UNDISTURBED SOIL.
2. CONSTRUCT TOP OF CUT-OFF WALL HIGHER THAN HIGH-WATER LINE.
3. ENCASE CARRIER PIPE IN PVC OR STEEL CASING PIPE UNDER SURFACE
4. INSTALL CARRIER CASING SPACERS EVERY 6" AS RECOMMENDED BY MANUFACTURER. INSTALL CASCADE WATERWORKS CARRIER SPACERS OR APPROVED EQUAL.
5. INSTALL END SEAL AS RECOMMENDED BY MANUFACTURER WITH STAINLESS STEEL BANDING STRAPS.



**1 DITCH CROSSING DETAIL**

N.T.S.



NOTES:

1. KEY THE CUTOFF WALL A MINIMUM OF 3' INTO UNDISTURBED EARTH IN ALL DIRECTIONS. THE CUTOFF SHALL RISE TO AN ELEVATION OF 1' ABOVE THE HIGH WATER SURFACE (H.W.S.) IN THE CANAL OR LEVEL WITH GROUND SURFACE DEPENDING ON WHICH IS LOWER.
2. REPLACE ALL DISTURBED EARTH BETWEEN CUTOFF WALLS WITH TYPE B CDF. THE CDF FILL SHALL RISE TO AN ELEVATION OF 1' ABOVE THE H.W.S. IN THE CANAL OR LEVEL WITH GROUND SURFACE DEPENDING ON WHICH IS LOWER.
3. ALL CONCRETE SHALL CONFORM TO ASTM C94 ALTERNATIVE 2 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.

**2 CUTOFF WALL**

N.T.S.

DESIGNED BY: KAS  
 DRAWN BY: KAS  
 CHECKED BY: ALJ  
 REVISIONS: SWS

**CITY OF EVANS, PARKER MEADOWS  
 NON-POTABLE IRRIGATION SYSTEM  
 DETAILS**

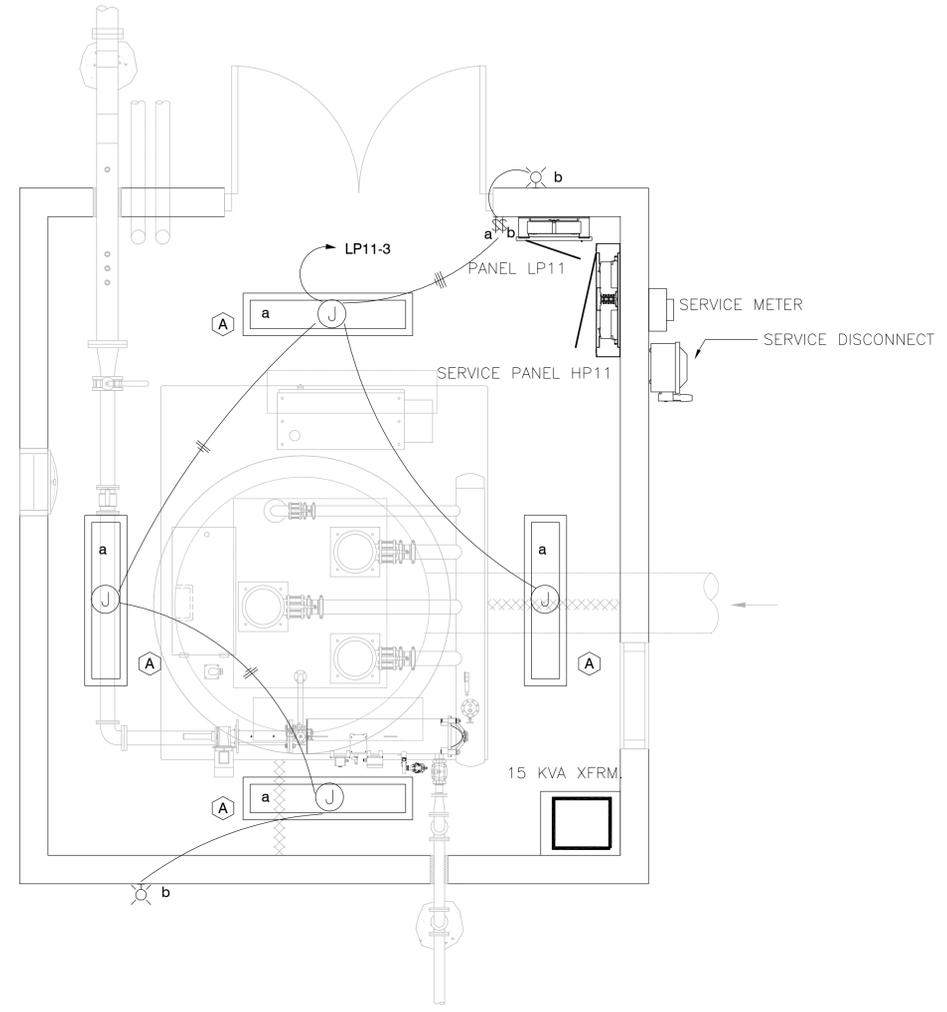
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DATE: JUNE 2006

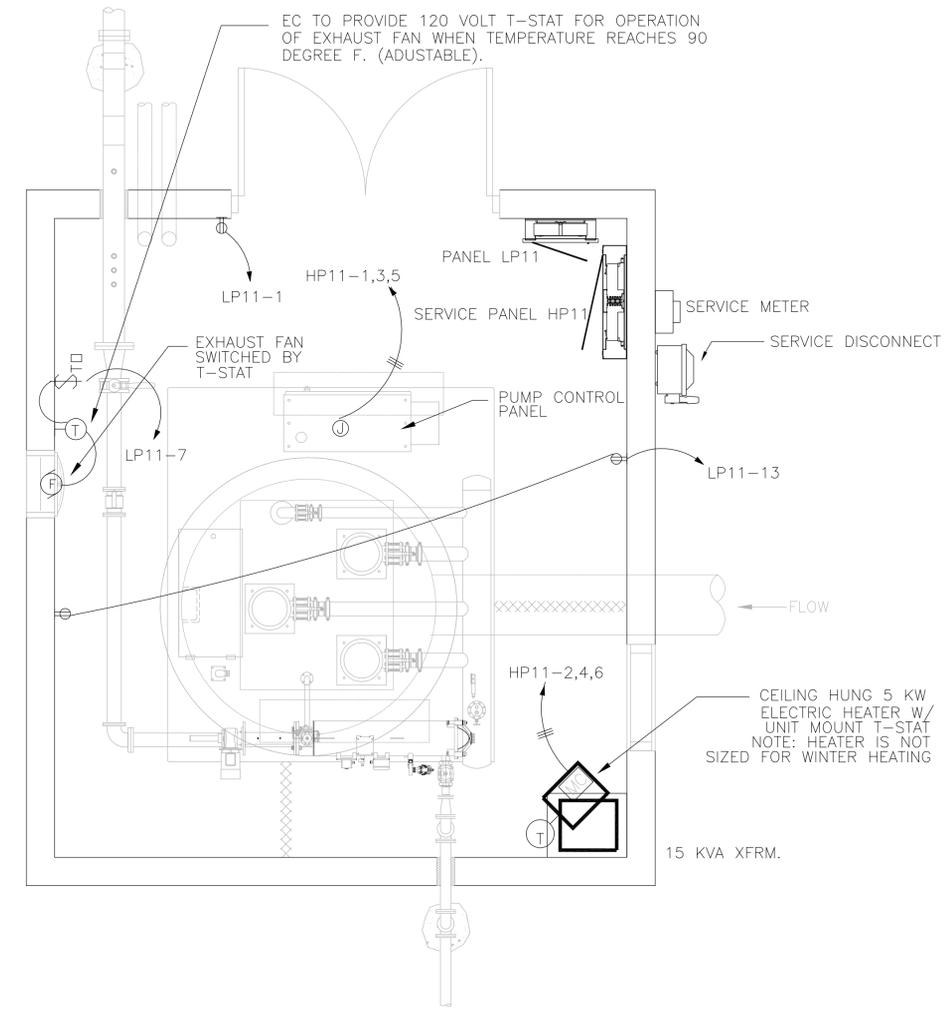
SHEET: IR-10

DESIGNED BY: MHG  
 DRAWN BY: MHG  
 CHECKED BY: MHG  
 REVISIONS:

**CITY OF EVANS, PARKER MEADOWS  
 NON-POTABLE IRRIGATION SYSTEM**



**IRRIGATION PUMP STATION LIGHTING PLAN** NORTH  
 SCALE ----- 1/2" = 1'0"



**IRRIGATION PUMP STATION POWER PLAN** NORTH  
 SCALE ----- 1/2" = 1'0"

**LIGHTING LEGEND**

- 1'x4' SURFACE MOUNT FLUORESCENT
- FIXTURE DESIGNATION
- SINGLE POLE SWITCH, WEATHERPROOF COVER.
- SMALL LETTER BESIDE SWITCH AND LIGHT INDICATES FIXTURE TO BE SWITCHED
- WALL MOUNTED FIXTURE

**POWER LEGEND**

- DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPT TYPE, WEATHERPROOF COVER AND ENCLOSURE, MOUNT 24" ABOVE FLOOR.
- 120 VOLT COOLING THERMOSTAT, BY EC
- MOTOR SYMBOL
- H.P. RATED THERMAL OVERLOAD SNAP SWITCH HEATERS TO MATCH MOTOR CONNECTED + 25%
- H.P. RATED DISCONNECT. VOLTAGE/POLES/AMPS/FUSED/NEMA RATING/FUSES
- DISTRIBUTION PANELBOARD
- PANELBOARD

**CIRCUITS LEGEND, LIGHTING AND POWER**

- HOME RUN, ADD NUMBER OF ARROWS AS REQUIRED FOR TOTAL NUMBER OF HOME RUN CIRCUITS
- J-BOX
- SHORT LINE INDICATES NEUTRAL WIRES AND LONGER LINE INDICATES PHASE CONDUCTORS. ONE EQUIPMENT GROUND ALSO REQUIRED.
- LP12-12,14 PANELBOARD NAME - PANELBOARD BREAKER SPACE(S)
- BRANCH CIRCUIT IN CONDUIT, HIDDEN IN WALL OR CEILING. 2 WIRES WITH ONE EQUIPMENT GROUND.
- BRANCH CIRCUIT IN CONDUIT, BELOW FLOOR. 2 WIRES WITH ONE EQUIPMENT GROUND.

**ELECTRIC UNIT HEATER SCHEDULE:**

ELECTRIC UNIT HEATER TO BE 480 VOLT, 3 PHASE, 5 KW. UNIT TO HAVE CEILING MOUNT BRACKET. UNIT TO HAVE T-STAT MOUNTED ON UNIT. UNIT TO COME WITH FACTORY MOUNTED STEP DOWN TRANSFORMER TO 24 VOLT FOR FAN AND CONTROL POWER. UNIT TO HAVE EPOXY PAINT FINISH. SEE SPECIFICATION FOR FURTHER INFORMATION.

**LIGHTING SCHEDULE:**

- "A" METALUX # VT2-2-32-LEX-120-EB18-WL-VR. 2-T8 LAMPS, 120 VOLT OPERATION, LISTED FOR WET LOCATIONS, FIBERGLASS HOUSING, LEXAN LENS, ELECTRONIC BALLAST.
- "0A" FAIL-SAFE # HPBWHE35H120LLPB. EXTERIOR WALL MOUNTED FIXTURE. 35 WATT HPS, 120 VOLT, WHITE POLYCARBONATE LENS, HORIZONTAL EYE LID, PHOTO CELL. WEATHER TIGHT.



DATE: 06-23-06

SHEET: IR-11

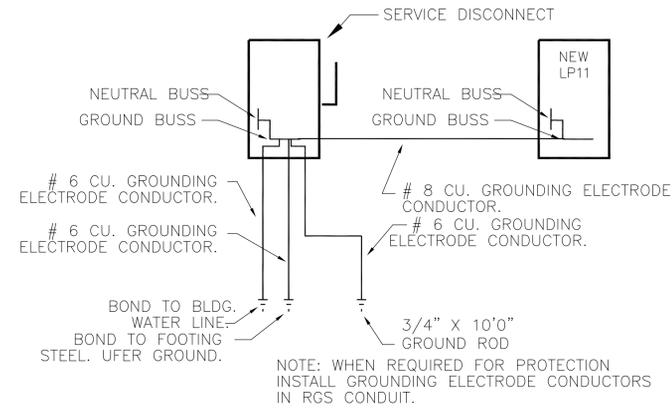
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ONE LINE SCHEDULE	FEEDER	FEEDER	FEEDER
INITIAL 1 PHASE ASCI	12800	4400	4373
FEEDER OVER CURRENT PROTECTION	NONE	20 AMP RK1	125 AMP BREAKER
FED FROM	UTILITY TRANSFORMER	MAIN DISCONNECT	HP11
FED TO	MAIN DISC. SWITCH	HP11	PUMP CONTROL CENTER
LOCATION OF LOAD EQUIPMENT	OUTSIDE PUMP HOUSE	INSIDE PUMP HOUSE	INSIDE P.M.P HOUSE
FEEDER SIZE, CU.	4 # 3/0	4 # 3/4 & 1 # 6 GRD.	4 # 1 & 1 # 6 GRD.
CONDUIT SIZE, INCHES	2	2	1 1/2"
NUMBER OF PARALLEL FEEDERS	1	1	1
ESTIMATED FEEDER LENGTH	50	4	17
LINE TO LINE VOLTAGE	480	480	160
C FACTOR	10638	10638	1250
F FACTOR	1.226260248	0.90622157	0.04731759
M FACTOR	1.815487578	0.903816319	0.95183498
NOTES			
FINAL 3 PHASE ASCI AT LOAD	10,438	4,373	4186

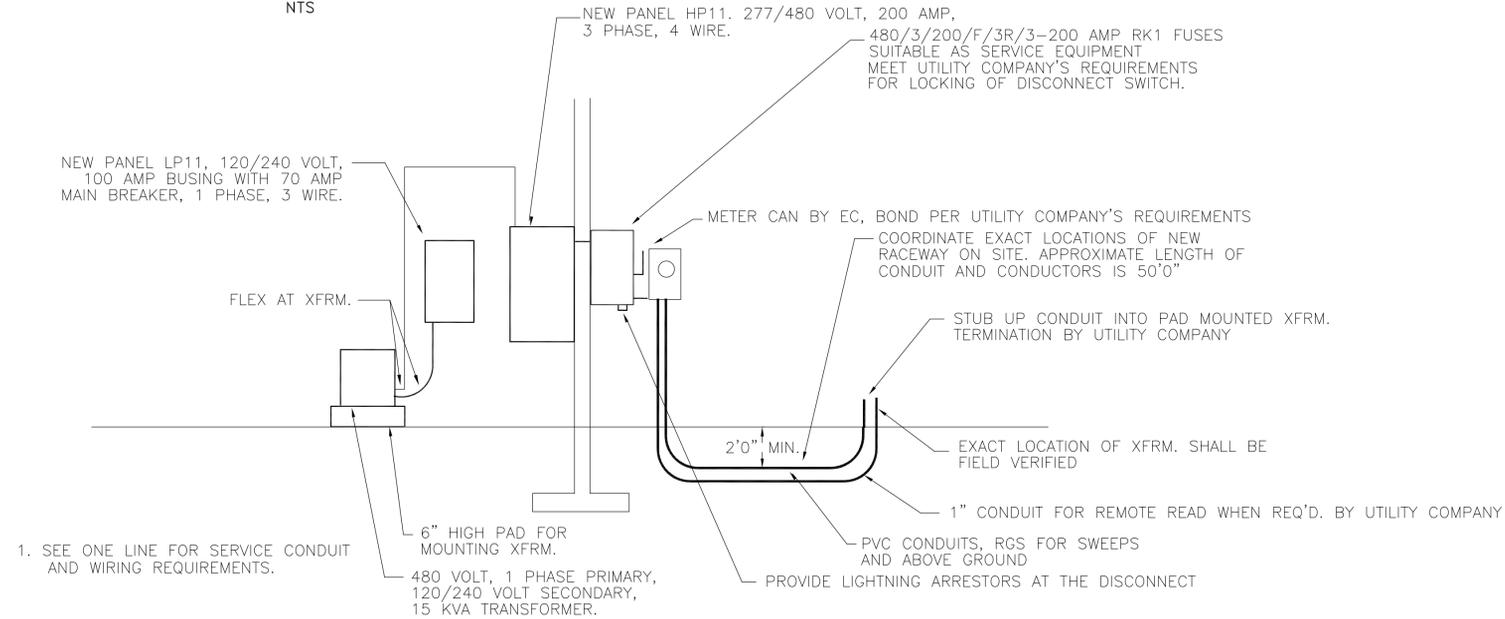
  

ONE LINE SCHEDULE	FEEDER	FEEDER	FEEDER
INITIAL 1 PHASE ASCI	4,373	3,222	
FEEDER OVER CURRENT PROTECTION	40 AMP BREAKER	NONE	
FED FROM	HP11	15 KVA TRANSFORMER	
FED TO	15 KVA TRANSFORMER	LP11	
LOCATION OF LOAD EQUIPMENT	INSIDE PUMP HOUSE	INSIDE PUMP HOUSE	
FEEDER SIZE, CU.	2 # 1 & 1 # 10 GRD.	3 # 4 & 1 # 8	
CONDUIT SIZE, INCHES	0.75	1	
NUMBER OF PARALLEL FEEDERS	1	1	
ESTIMATED FEEDER LENGTH	20	20	
LINE TO LINE VOLTAGE	480	240	
C FACTOR	1429	3333	
F FACTOR	1.230167944	0.139381345	
M FACTOR	1.812897137	0.177698276	
NOTES			
FINAL 3 PHASE ASCI AT LOAD	3,555	2,628	

DISTRIBUTION PANEL SCHEDULE						
	Phase to Neutral Voltage: 277	Panel Name: HP11				
	Phase to Phase Voltage: 480	Panel Location: INSIDE PUMP HOUSE				
	Bus Rating: 200 AMP	Panel Feeder: MAIN DISCONNECT SWITCH				
	Main Breaker: M.L.O.	Panel Feeder: SEE ONE LINE SCHEDULE				
	No. of Wires: 4	Feeder Conduit Size: SEE ONE LINE SCHEDULE				
	Mounting: SURFACE	Interrupting Rating: SEE ONE LINE SCHEDULE				
Description	Breaker/Phase	Lights LN voltamps	Recept. LN voltamps	Equip. LN voltamps	Equip LL voltamps	Phase
1 PUMP CONTROL PANEL, 3-30 HP PUMP, 1-5 HP.	125/3				33090	A
3 AND CONTROL PANEL					33090	B
5 ONLY TWO 30HP PUMPS RUN AT ONE TIME					33090	C
7 SPARE	20/3					A
9						B
11						C
13 SPARE	15/3					A
15						B
17						C
19 SPARE	15/3					A
21						B
23						C
25 SPARE						A
27 SPARE						B
29 SPARE						C
2 ELECTRIC UNIT HEATER	15/3				1667	A
4					1667	B
6					1667	C
8 15 KVA TRANSFORMER	40/2	0	720	0	0	A
10		500	0	464	0	B
12 SPARE						C
14 SPARE						A
16 SPARE						B
18 SPARE						C
20 SPARE						A
22 SPARE						B
24 SPARE						C
26 SPARE						A
28 SPARE						B
30 SPARE						C
Phase A Totals (VA):	35477	0	720	0	34757	A
Phase B Totals (VA):	35721	500	0	464	34757	B
Phase C Totals (VA):	34757	0	0	0	34757	C
Column Totals (VA):		500	720	464	104271	
Phase A Current (Amps):	129					
Phase B Current (Amps):	129					
Phase C Current (Amps):	125					
Neutral Current (Amps):	3					
Total Panel Load (VA):					105955	
Total Panel Demand Load (VA):					130898	
Special Requirements:	MOUNT IN NEMA 12 ENCLOSURE, SQUARE D, I-LINE PANEL OR --					



**SERVICE GROUND**  
NTS



**ELECTRICAL ONE LINE**  
NTS

PANELBOARD SCHEDULE						
	Phase to Neutral Voltage: 120	Panel Name: LP11				
	Phase to Phase Voltage: 240	Panel Location: INSIDE PUMP HOUSE				
	Bus Rating: 100 AMP	Panel Feeder: HP11 THRU 15 KVA XFRM.				
	Main Breaker: 70 AMP	Panel Feeder: SEE ONE LINE SCHEDULE				
	No. of Wires: 3	Feeder Conduit Size: SEE ONE LINE SCHEDULE				
	Mounting: SURFACE	Interrupting Rating: SEE ONE LINE SCHEDULE				
Description	Breaker/Phase	Lights LN voltamps	Recept. LN voltamps	Equip. LN voltamps	Equip LL voltamps	Phase
1 RECEPTACLE	20/1		180			A
3 INTERIOR AND EXTERIOR LIGHTS	20/1	500				B
5 SPARE			180			A
7 EXHAUST FAN	20/1			464		B
9 SPARE	20/2					A
11						B
13 RECEPTACLES	20/1		360			A
15 SPARE	20/1					B
17 SPARE	20/1					A
19 SPARE	20/1					A
21 SPARE	20/1					B
23 SPARE	20/1					A
2 SPARE						A
4 SPARE						B
6 SPARE						A
8 SPARE						B
10 SPARE						A
12 SPARE						B
14 SPARE						A
16 SPARE						B
18 SPARE						A
20 SPARE						B
22 SPARE						A
24 SPARE						B
Phase A Totals (VA):	720	0	720	0	0	A
Phase B Totals (VA):	964	500	0	464	0	B
Column Totals (VA):	1,684	500	720	464	0	
Phase A Current (Amps):	6					
Phase B Current (Amps):	8					
Neutral Current (Amps):	2					
Total Panel Load (VA):					1684	
Special Requirements:	SUITABLE AS SERVICE EQUIPMENT, MOUNT IN NEMA 12 ENCLOSURE					



DESIGNED BY: MHG  
DRAWN BY: MHG  
CHECKED BY: MHG  
REVISIONS:

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NON-POTABLE IRRIGATION SYSTEM**

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Phone (970) 229-9665, FAX (970) 226-3655

DATE: 06/23/06

SHEET: IR-12