Fort Morgan Reservoir & Irrigation Company

RECHARGE & WETLANDS PROJECT REPORT

Prepared for:
Colorado Water Conservation Board
1580 Logan Street, Suite 600
Denver, Colorado 80203
Phone: (303) 866-3441

Prepared by:
Fort Morgan Reservoir & Irrigation Company
218 East Kiowa Avenue
Fort Morgan, Colorado 80701
(970) 867-7561

June 25, 2012

WATER SUPPLY RESERVE ACCOUNT REPORT

for

FORT MORGAN RESERVOIR AND IRRIGATION COMPANY

RECHARGE & WETLANDS PROJECT

located in the

South Platte River Basin in Morgan County

Fort Morgan Reservoir and Irrigation Company (FMRICo) was a grant recipient for Water Supply Reserve Account (WSRA) funds from both the Statewide Account and the South Platte Basin Account. This report is being provided to describe what the WSRA funds were used for and the status of the project.

A total of $670,000 was awarded to FMRICo to help fund this project. In addition to the grant funding, there is a Colorado Water Conservation Board (CWCB) loan of up to $1,494,800 (which includes the 1% loan origination fee). FMRICo also used some funds received from the FMRICo stockholders. The total cost for construction will be approximately $1,626,342.15. Engineering costs were $195,983.14. (There are a few items still unfinished for the project, but they were not included in the Grant Scope of Work and therefore are not included in this report.)

Grant funding was very important to the success of the project. The estimated project cost of $2,200,000 was a significant price to absorb for the agricultural entities that constructed and will operate this project. If they had to pay the full price themselves, they may not be able to afford this project. However, the grant, combined with the low-interest CWCB loan, made the project affordable and practical.

The timing of the grant funding and the accompanying CWCB loan was also important. For FMRICo, during the drought of 2002, the projections for its augmentation plan showed a

possible shortage of adequate replacement supplies, resulting in the FMRICo Board of Directors requiring a shut-down of irrigation wells under the FMRICo augmentation plan so as not to injure other senior water rights. FMRICo will utilize this project to firm up its augmentation base to help make it through the drought periods without curtailing the pumping of agricultural wells. For Groves Farms, the development of an adequate augmentation plan to cover its former GASP wells was urgent. The Groves augmentation plan has been operating for the past few years by using water from short term leases and other sources. This project helps to provide a permanent source of additional augmentation credits for the plan.

INTENT OF THE FMRICO RECHARGE AND WETLANDS PROJECT

In addition to firming up the augmentation plan of the FMRICo and providing a permanent source of augmentation water for Groves, this project will also help meet consumptive needs of the South Platte Basin. Developing new junior water rights and increasing the beneficial use of re-timed augmentation credits from existing recharge projects, in amounts of approximately 2,000-2,500 acre feet per year, will help to meet the identified water supply gap that SWSI described and will contribute to the increased beneficial use of water in the South Platte Basin. At the same time, this project will help meet non-consumptive water supply needs by providing habitat for wintering and migrating waterfowl in the South Platte watershed.

MULTIPLE NEEDS AND ISSUES

FMRICo-

FMRICo serves farmers with augmentation water for their agricultural wells. Additionally, the City of Fort Morgan and the City of Brush are shareholders in FMRICo and they use their pro rata share of augmentation credits yielded by their FMRICo shares to augment their municipal wells under separately decreed augmentation plans. Also, FMRICo and Fort Morgan Water Company, which is made up of FMRICo shareholders that have contracted to provide water yielded by their FMRICo shares, lease excess augmentation credits for augmentation to other users. This project will firm up the ability of FMRICo to provide adequate augmentation supplies, especially in dry years, to these uses.

MULTIPLE NEEDS AND ISSUES (continued)

Groves Farms-

This project will help in the agriculture operations of Groves Farms, LLC, which is a family farming corporation located in Morgan County. FMRICo has an operational agreement for this project with Groves. As part of the Groves Farms operation, Groves owns 9 wells that historically were included in GASP and that irrigate approximately 1,000 acres of land. Since 2003, Groves has been developing its own augmentation plan to cover these wells and keep them pumping.

Wildlife habitat-

In addition to helping sustain approximately 16,000 acres of irrigated agriculture in Morgan County, this project will provide wildlife habitat benefits through water access at the recharge ponds while they have water in them. The ponds are located in the "golden triangle" between Riverside Reservoir, Empire Reservoir, and Jackson Lake, which is a well-known area of importance for waterfowl and related wildlife. This project provides about 95 surface acres of wetland habitat on three or more tracts of land located in western Morgan County near the South Platte River. FMRICo's use of the pipeline will likely be in November - March, which can provide warm water areas for waterfowl during freezing weather. Diversions under Groves' junior water rights will likely occur at different times, when there is no call on the river or freezing weather removes the call because senior ditches cannot divert. This project should be very beneficial to wintering and migrating waterfowl in the South Platte watershed.

USE OF GRANT MONEY

The project was divided into 4 Tasks:

- Task 1 – Pipeline
- Task 2 – Pumps
- Task 3 – Well and Well Pump (augmentation well)
- Task 4 – Wetlands and Ponds

The $670,000 in grant funds was allocated as follows:

Project Design Task 1 (Pipeline) and Task 2 (Pumps)	$82,000	
Project Design Task 3 (Well & Well Pump) and Task 4 (Ponds)	$10,340	
Pipeline and Pump Installation (Tasks 1 & 2)		$577,660

Most of the Project Design money allocated from the grant funds was expensed prior to construction. The Pipeline and Pump Installation funds were expensed as the construction progressed.

- Task 1 – Pipeline

This task included 3 miles of 24" pipe, an intake structure in the river, metering devices, valves and appurtenances to make the pipeline 100% operational for diverting water from the South Platte River and delivering it to various ponds located along the pipeline route. Civil Design Group (CDG) provided the design work, evaluated proposals received in the bid process, provided construction oversight during construction, and processed pay requests.

- Task 2 – Pumps

This task included 2 pumps near the South Platte River, electrical controls and related appurtenances to pump the water from the South Platte River to various ponds along the pipeline route. For this task, CDG finalized designs for the pumping equipment, electrical controls and related appurtenances, received and evaluated proposals, and provided construction oversight during installation and testing of the pump equipment.

USE OF GRANT MONEY (continued)

- Task 3- Well and Well Pump (augmentation well)

This task included drilling one augmentation well and pump equipment near the Groves Ponds, electrical controls, flow meter, and related appurtenances to pump ground water from the South Platte alluvium near the Groves Ponds through the pipeline to the South Platte River. TZA Water Engineers, Inc. (TZA) designed the well and pumping equipment, electrical controls and related appurtenances, received and evaluated proposals, and provided construction oversight during installation and testing of the water well and associated pump equipment.

- Task 4 – Wetlands and Ponds

Task 4 was for constructing / rehabilitating seven (7) pond structures designed to optimize recharge, augmentation supply, and waterfowl habitat. TZA designed the pond structures and oversaw construction activities. The ponds have a total surface are of approximately 95 acres.

PROJECT CONSTRUCTION

- August 2010- Began construction on the project: excavation of the augmentation ponds and burying pipe along the 3-mile route from the South Platte River to the various augmentation ponds.
- September 2010- Augmentation well completed. Work continues on burying pipeline and reseeding the pipeline route.
- October 2010- First section of installed pipe (near South Platte River) was pressure tested. The augmentation well was also tested.
- November 2010- Most of the pipe along the route has been buried. The second section of the pipe was pressure tested. The concrete pre-fab vault to house the pumps was on site. County road crossings were completed. Augmentation ponds almost completed.
- December 2010- Pump vault set in the ground, pipe buried from pump vault, under Fort Morgan Canal, to South Platte River.
- Extreme weather conditions prevented some work from progressing until conditions were better.
- January / February 2011- Intake screen placed in river bottom. Pumps installed in pump vault. Electrical and metering devices connected.
- February 15, 2011- Project started up. Meters at turnouts into augmentation ponds tested.
- February – March 2011- The project was operated whenever river conditions would allow pumping. Water was delivered to the augmentation sites.

As use of the project continued, issues arose including sand in the pump vault, debris plugging the slots in the intake screen, bearings in the pumps needing replaced, and a few other items. As the issues arose, they were dealt with and corrected. For example, the intake screen was removed from the river so that it could be cleaned off. Prior to reinstalling the screen, a butterfly valve was installed on the upstream end of the intake pipe so that the pipe could be completely closed off, preventing water from getting into the pump vault whenever the pumps are shut off.

CONCLUSION

As stated earlier in this report, grant funding was very important for the Fort Morgan Reservoir & Irrigation Company Recharge and Wetlands Project. Without the grant income, this project would not have been feasible for the FMRICo stockholders. But with the assistance of the CWCB grant, the project was possible and FMRICo can better manage its excess augmentation water to provide for a more secure source of replacement water for its stockholders agricultural wells. In addition, Groves Farms now has a more permanent supply of augmentation water rather than relying on leased sources for it augmentation plan.

PHOTOS LISTING

General Location Map of Project

Recharge and Wetlands Project Map

TASK 1- Pipeline, Intake screen

- Pipe Installation (8-30-2010)
- Pipe Installation at Station 10+00 (9-1-2010), Pipe Turnout at Aug Pond (11-3-2010)
- Water Pressure Test (9-30-2010), Pipe along Morgan County Road 7 (9-16-2010)
- Screen installation (2-15-2011)

TASK 2- Pumps, Pump Vault, Pump Controls

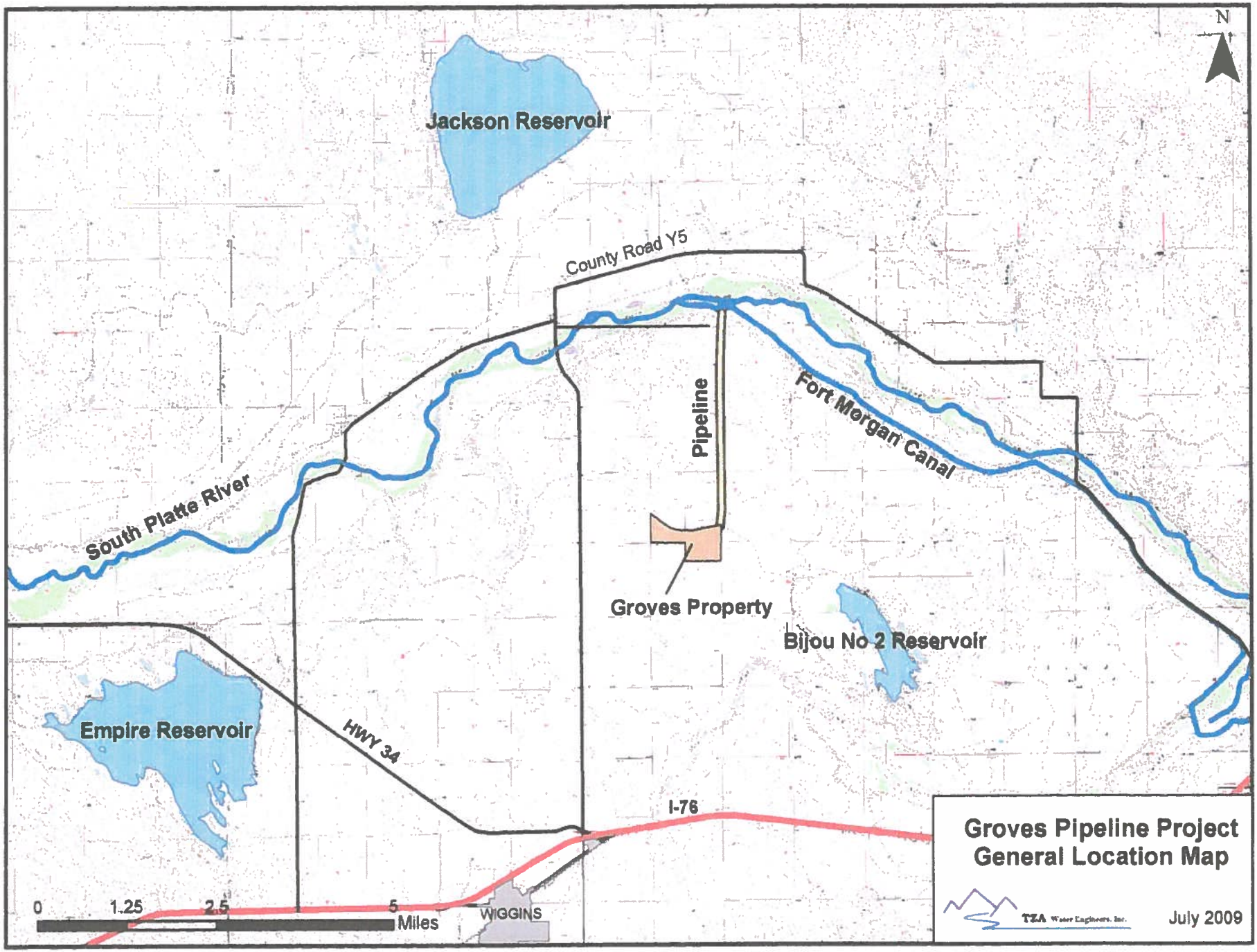
- Pump vault- base and middle sections (12-2-2010)
- Pump vault view showing holes for pump line and aug well return pipe (12-2-2010)
- Completed building over pump vault, Motors and pumps after installation (2-7-2011)
- Variable Frequency Drive Unit (VFD) and Discharge Control Valves on pumps (2-7-2011)

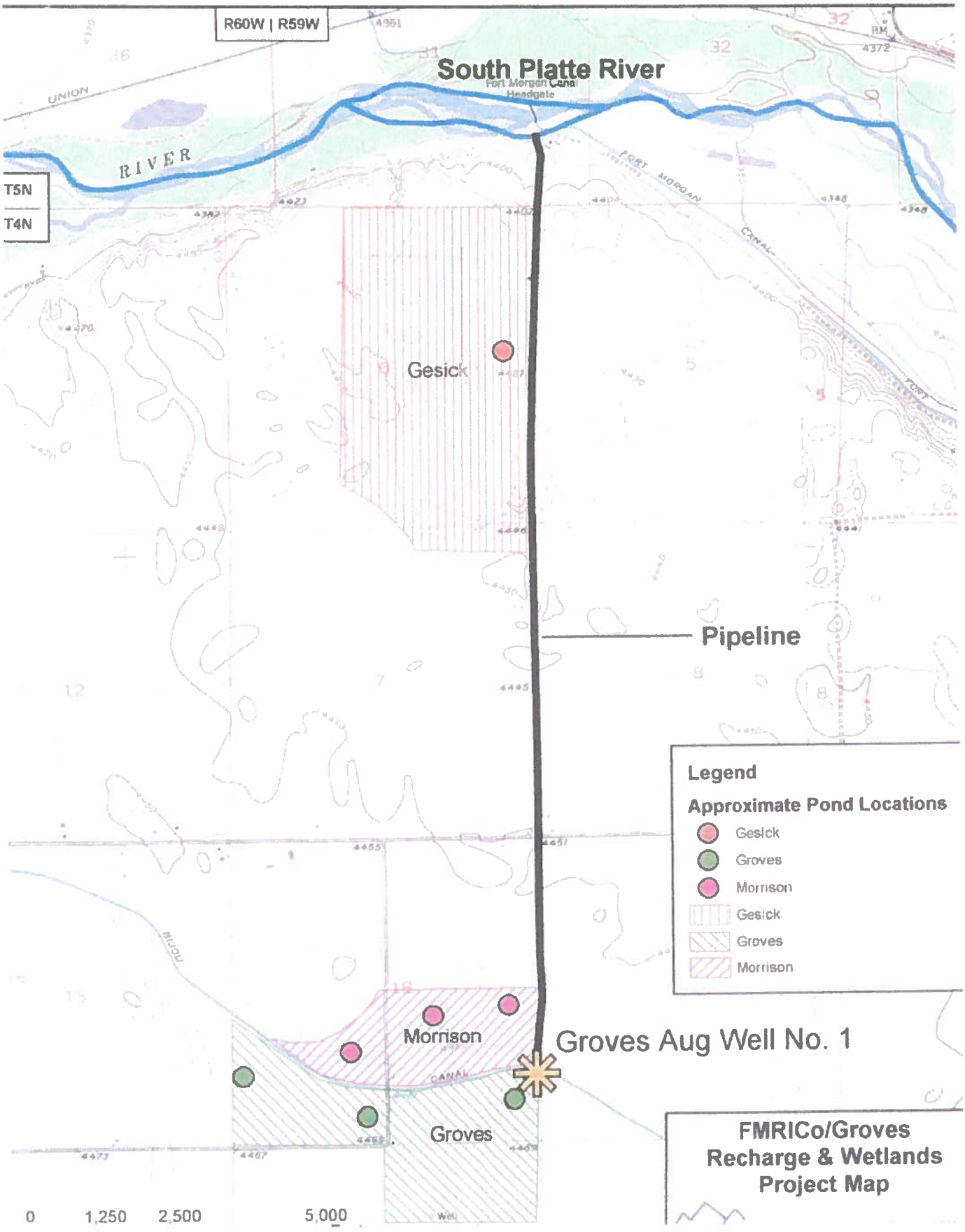
TASK 3- Well & Well Pump (augmentation well), Flow Meter

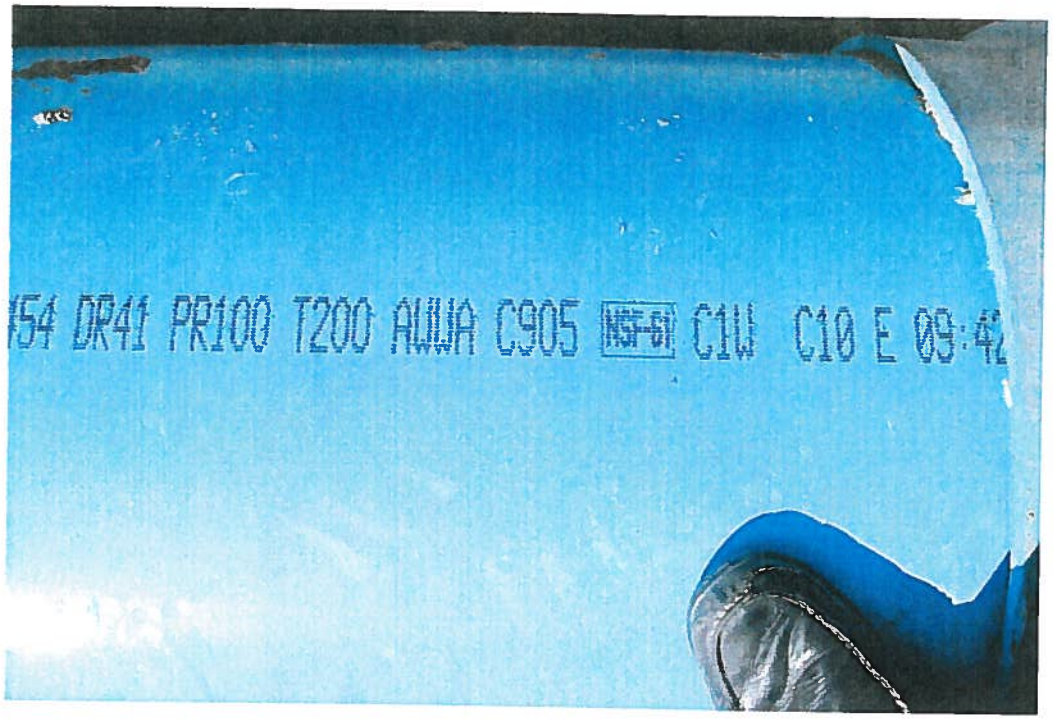
- Augmentation well and VFD building (1-5-2011), Meter readout and VFD (2-15-2011)

TASK 4- Wetlands and Ponds

- Excavation of the Morrison Augmentation Ponds (11-23-2010)
- Water flowing into Morrison ponds at Project Startup (2-15-2011)


N
Jackson Reservoir
County Road Y5
Pipeline
Fort Morgan Canal
South Platte River
Groves Property
Bijou No 2 Reservoir
Empire Reservoir
HWY 34
I-76
WIGGINS
0
1.25
2.5
5
Miles
Groves Pipeline Project
General Location Map
TZA Water Engineers, Inc.
July 2009


R60W | R59W
South Platte River
Fort Morgan Canal
Headgate
UNION
RIVER
T5N
T4N
Gesick
Pipeline
Legend
Approximate Pond Locations
Gesick
Groves
Morrison
Gesick
Groves
Morrison
Morrison
Groves Aug Well No. 1
Groves
FMRICo/Groves
Recharge & Wetlands
Project Map
0
1,250
2,500
5,000



DSC05816, 8-30-10 pics

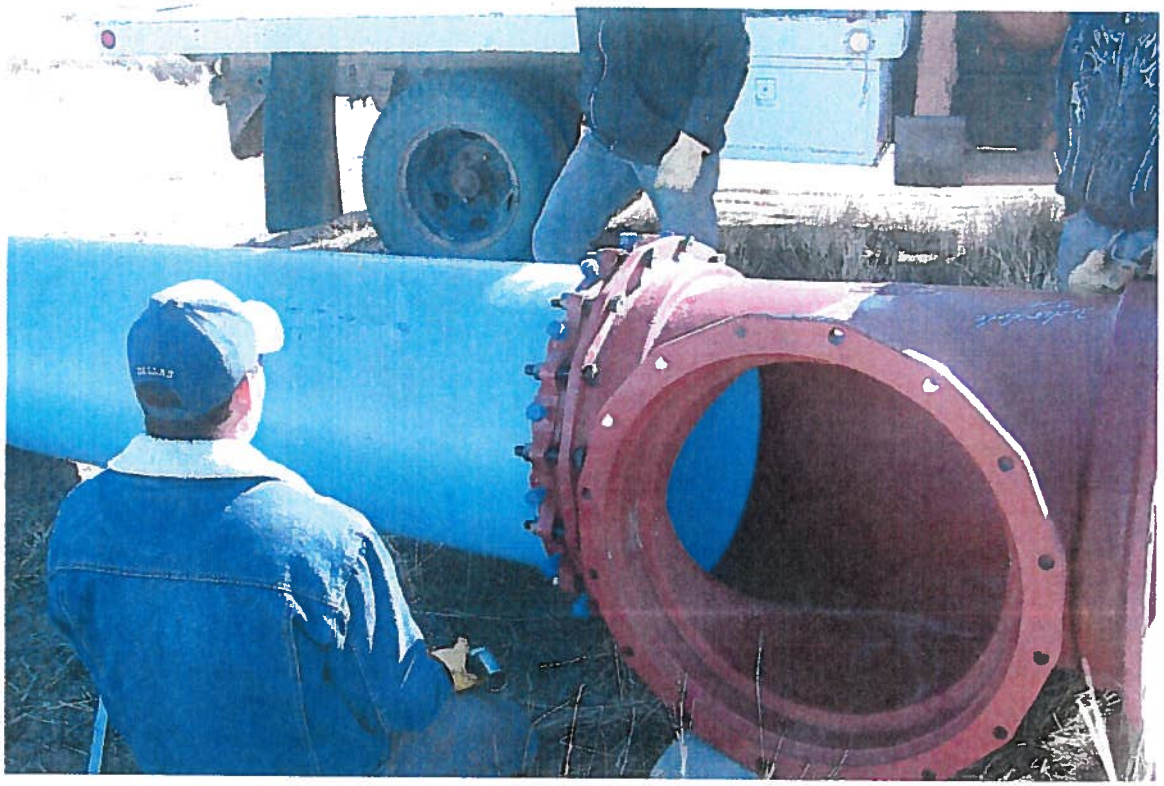
AWWA C905 PVC 24" PIPE

DSC05817, 8-30-10 pics

24" PIPE INSTALLATION

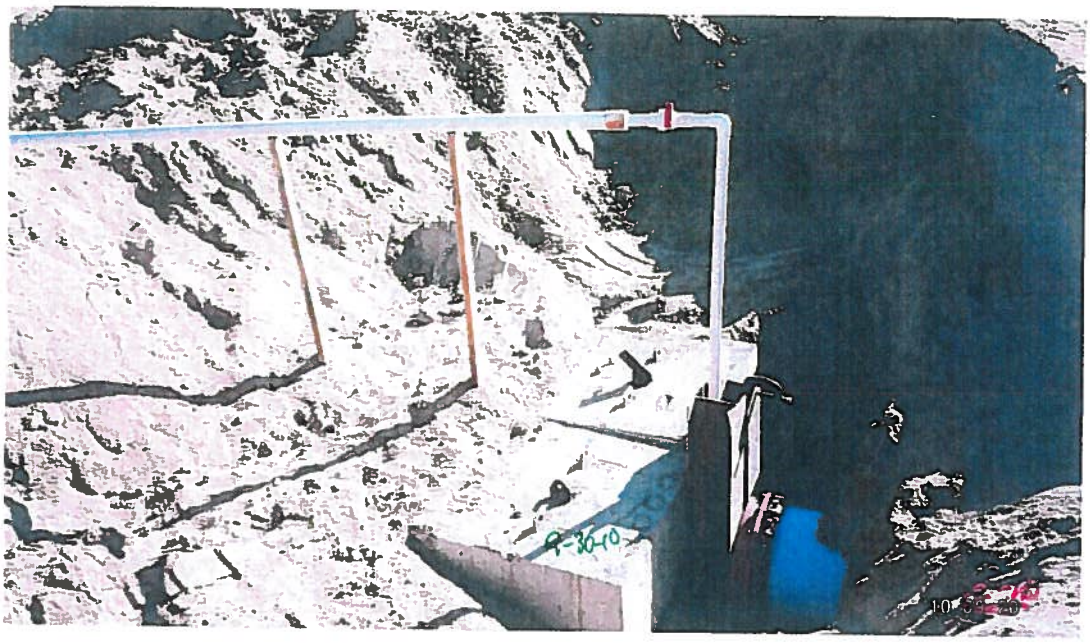
DSC05821, 9-1-10 pics

24" PIPE INSTALLATION APPROX. STA 10 + 00



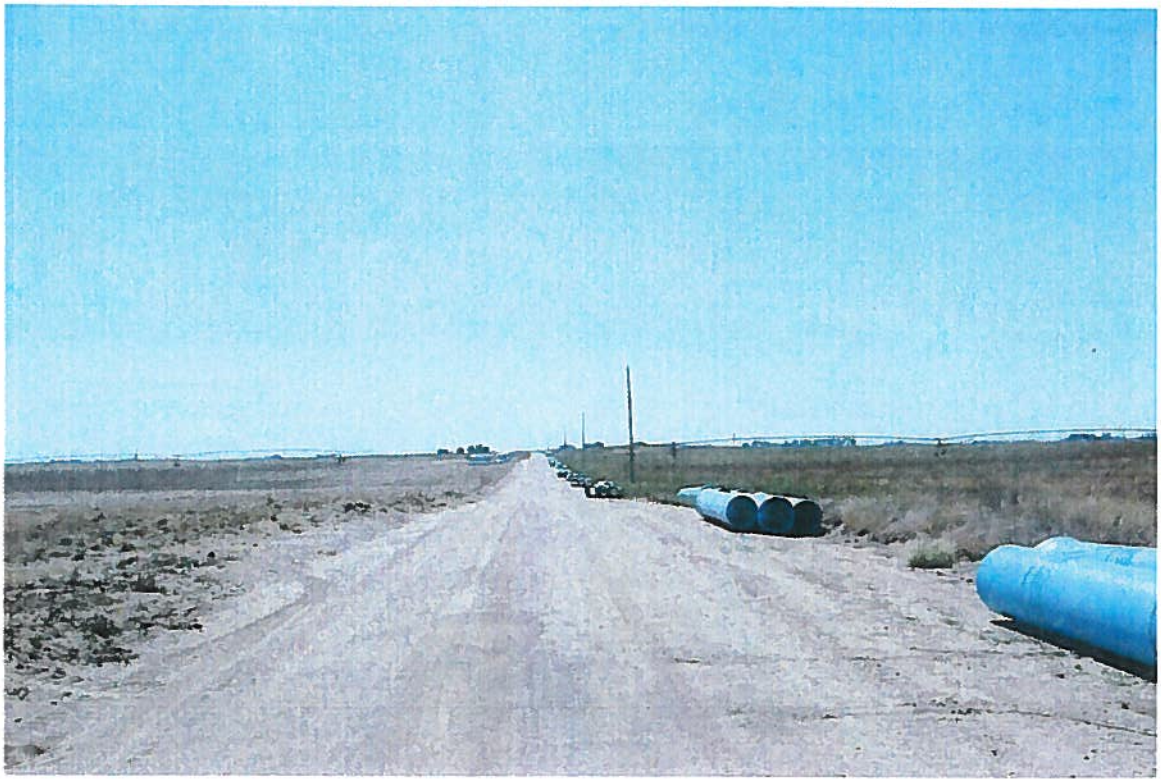
DSC06056, 11-3-10 pics

MORRISON POND TURNOUT INSTALLATION



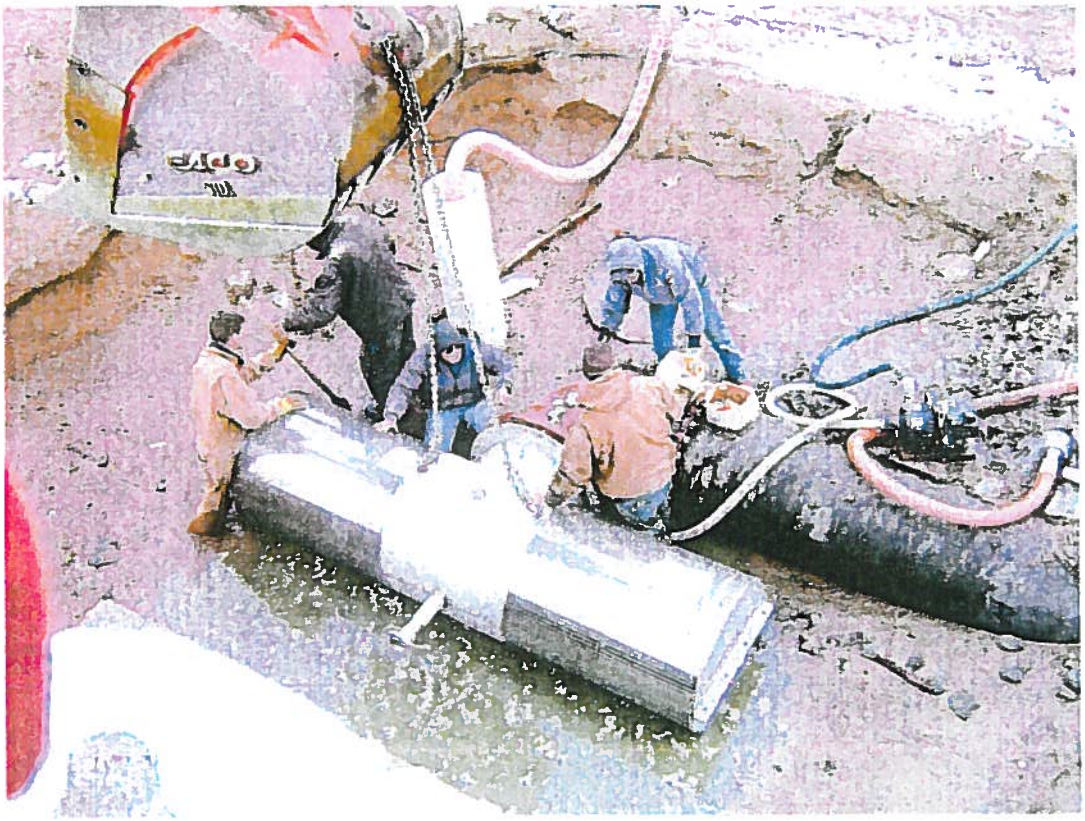
Scanned pic, 9-30-10,

WATER PRESSURE TEST



DSC05939, 9-16-10 pics

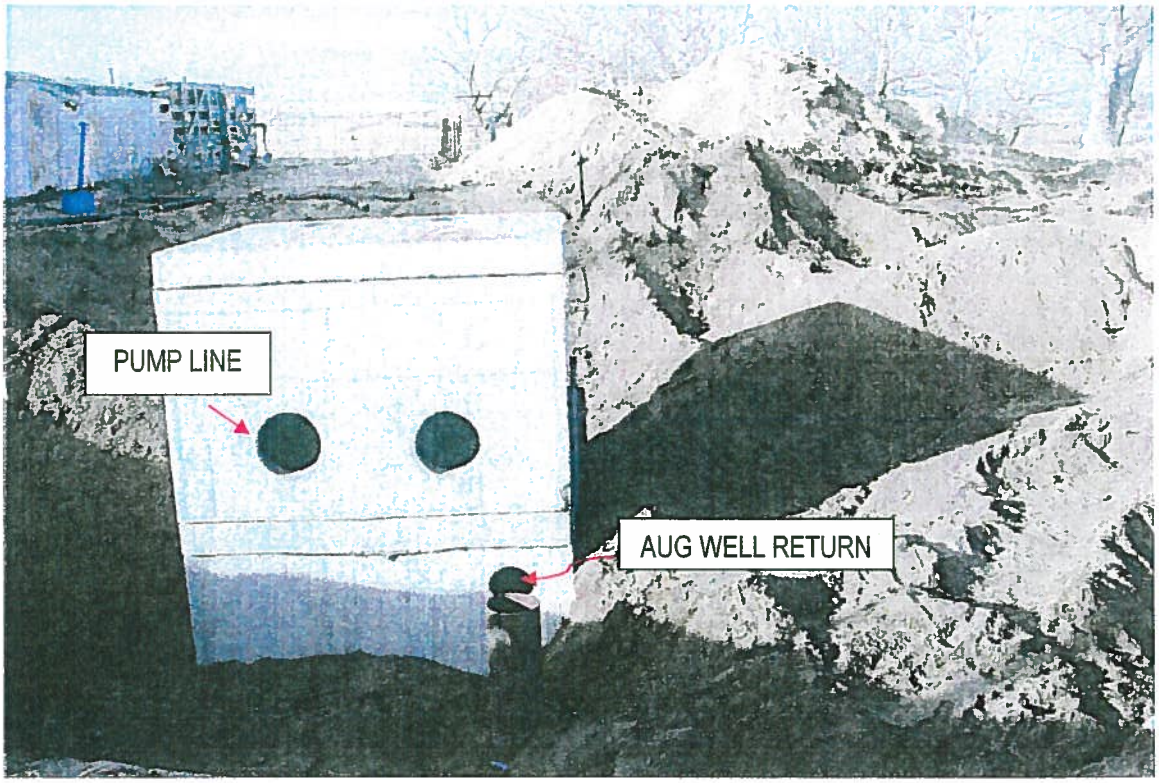
24" PIPE ALONG MCR 7



INSTALLATION INTAKE SCREEN

SETTING OF BASE SECTION

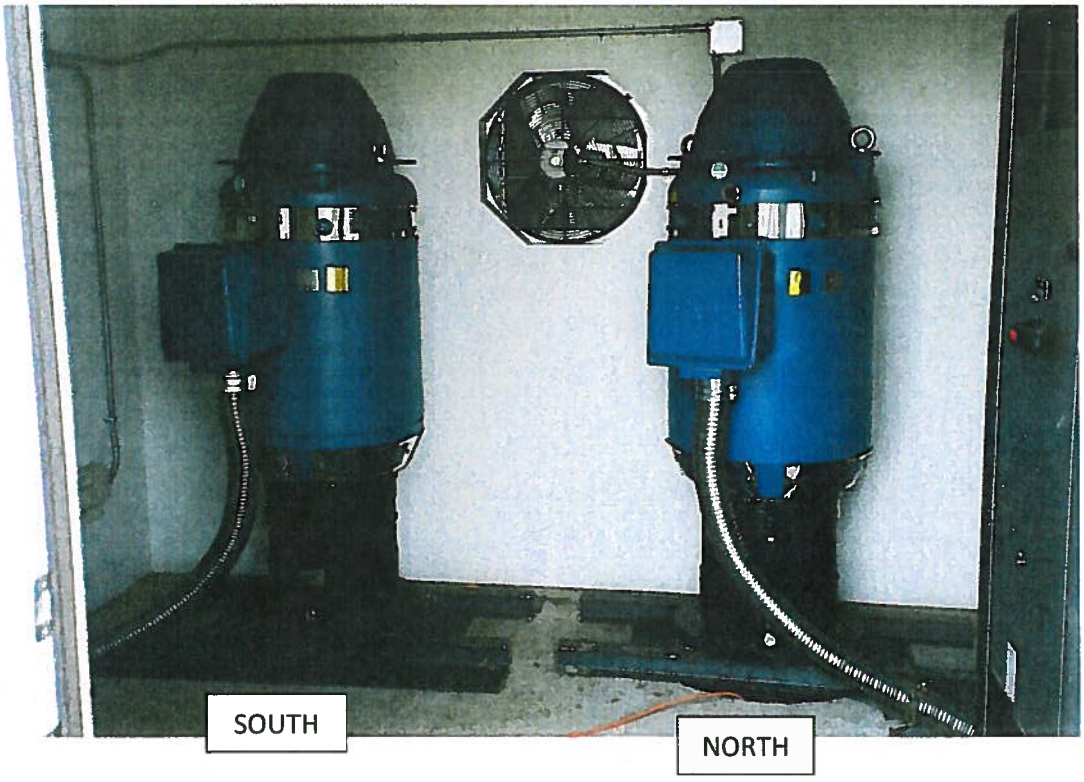
WET WELL MIDDLE SECTION PLACEMENT



DSC06357, 12-2-10 pics

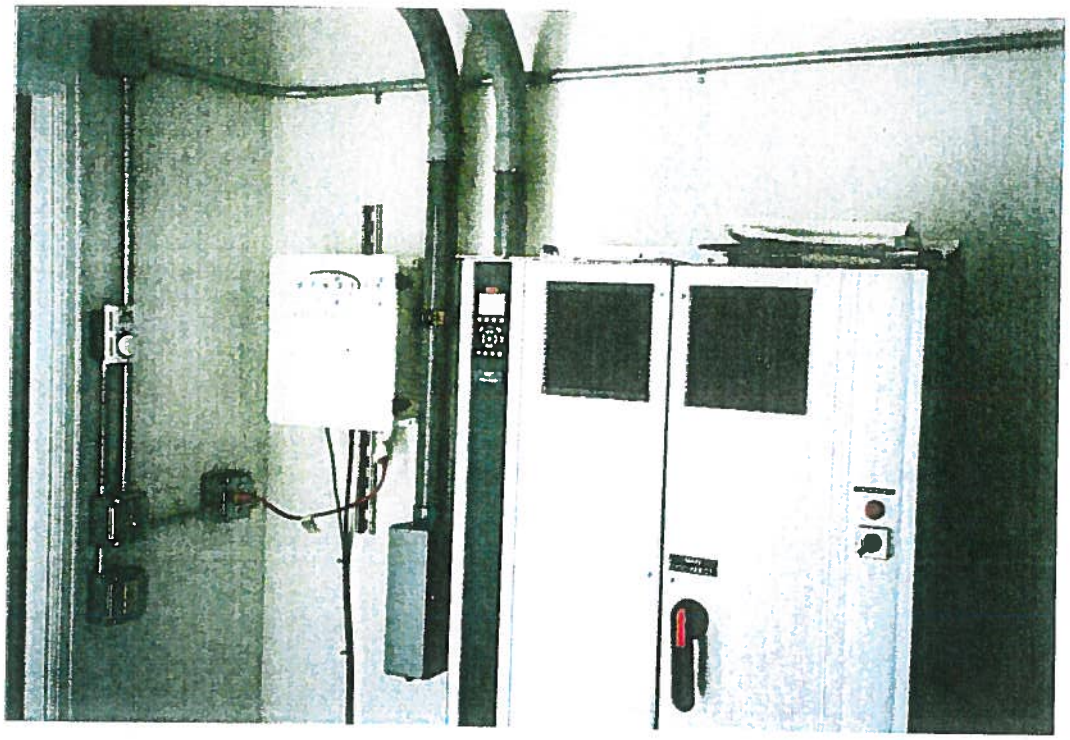
WET WELL (LOOKING WEST)

COMPLETED BUILDING BEFORE FINAL GRADING



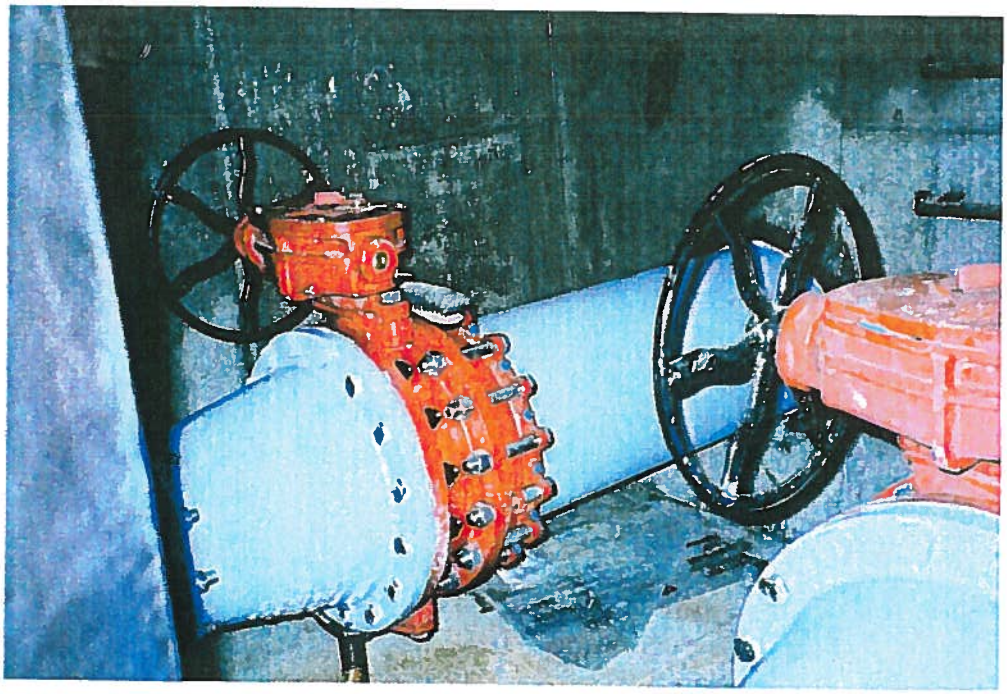
R1-05295-0010, 2-7-11 pics

MOTORS AND PUMPS



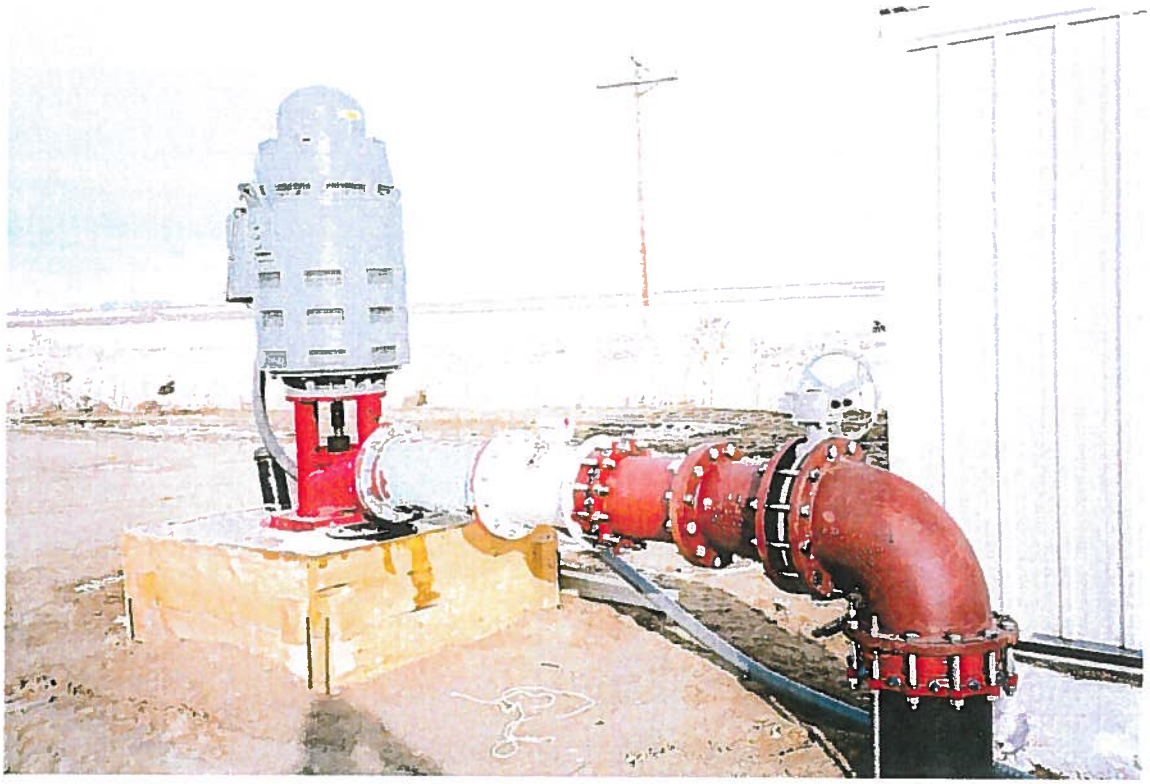
R1-05295-0009, 2-7-11 pics

SOUTH PUMP VARIABLE FREQUENCY DRIVE UNIT



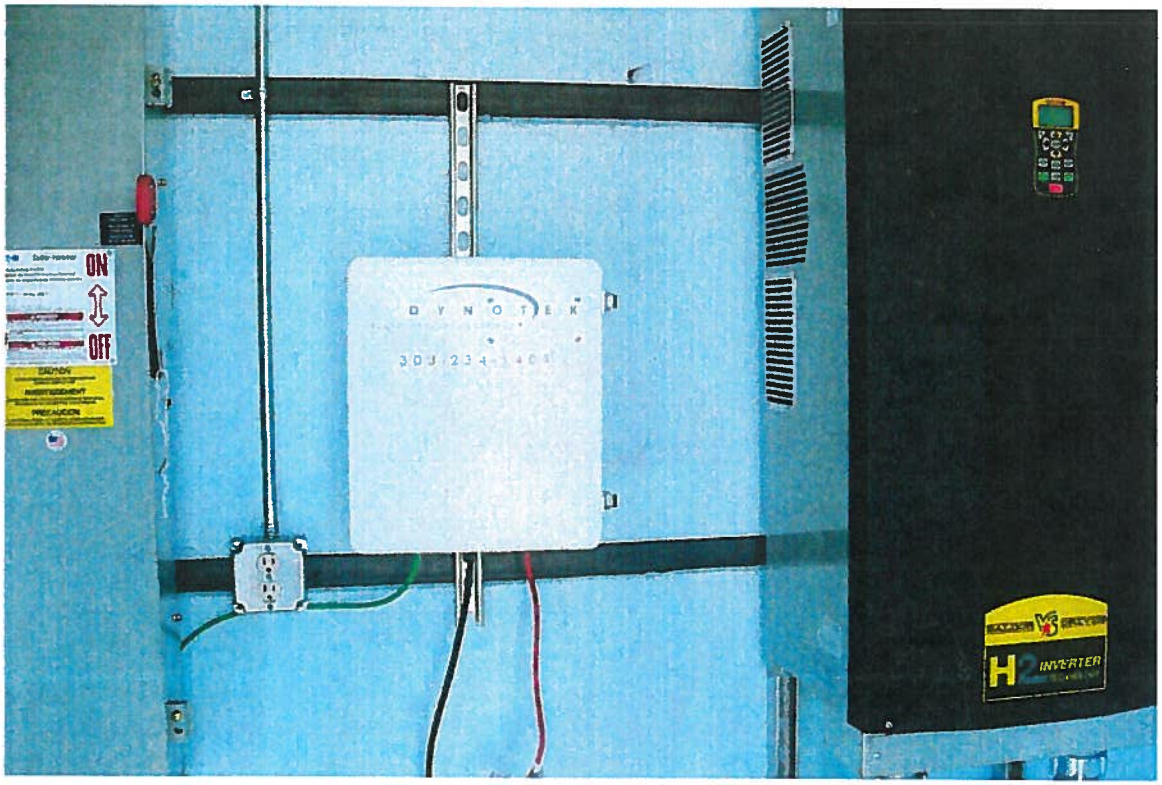
R1-05295-0014, 2-7-11 pics

PUMP DISCHARGE CONTROL VALVES



RI-05008-0003, 1-5-11 pics

AUGMENTATION WELL & V.F.D. BUILDING



DSC06645, 2-15-11 pics

AUGMENTATION WELL METER READOUT & VFD

RI-04730-0019, 11-23 10 pics **MORRISON MIDDLE PONDS**

RI-04730-0020, 11-23-10 pics **MORRISON MIDDLE PONDS**

RI-04730-0023, 11-23-10 pics **MORRISON MIDDLE PONDS**

DSC06604, 2-15-11 pics **MORRISON POND 5**

DSC02270, 2-15-11 pics **MORRISON WEST POND**