Preliminary Engineering Report
Water System Improvements
Florida River Estates Homeowner's Association, Durango, Colorado
PWSID No. CO0134300

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This Preliminary Engineering Report (PER) was prepared by Goff Engineering & Surveying Inc. using RUS Bulletin 1780-2 and FmHA Instruction 1942-A (Guide 7), "Rural Utilities Service (RUS) Preliminary Engineering Report-Water Facility."

EXECUTIVE SUMMARY

At the direction of the Florida River Estates Homeowner's Association Board of Directors, Goff Engineering and Surveying Inc. (Goff) has prepared this Preliminary Engineering Report (PER) analyzing water system infrastructure improvements for the Florida River Estates Subdivision, located northeast of Durango, Colorado. The report recounts a brief history of the Association and subdivision, evaluates the current water system, explores improvement alternatives for the water system, and concludes by making recommendations from an engineering perspective.

The primary issue with the water system is excessive water loss due to breakage of the aged water distribution piping. The water distribution system and treatment plant are aged and the majority of the infrastructure has exceeded its useful life. System leakage has been measured at 40%+ which generates unnecessary strain on the system and expense to FRE for repair, maintenance, treatment, power, etc.

Because FRE does not currently have capital reserves to fund the recommended improvements, the FRE HOA will be using the information and evaluations provided in this PER to support funding assistance requests (grants and loans) to finance the project.

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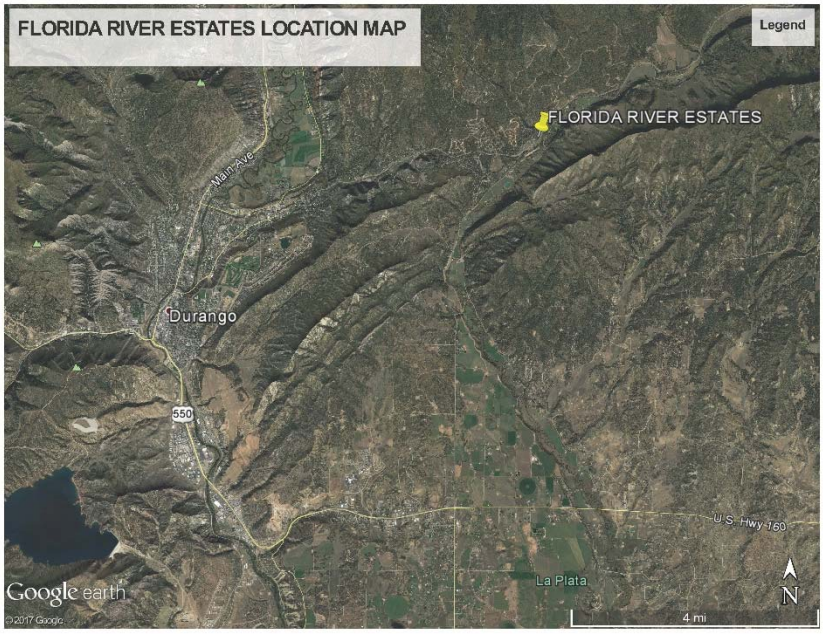
I. Project Planning Area

A. Location

The Florida River Estates Subdivision is located approximately 7 miles northeast of Durango, Colorado, in La Plata County. It is situated at an elevation of approximately 7200' to 7500' ASL in the Florida River drainage. The subdivision is surrounded by mountainous terrain to the north and south, with the river flowing east to west through the southern portion of the subdivision. The region lies entirely within the Florida River watershed.



The platted subdivision occupies an area of approximately 187acres. Typical homesites are approximately one acre in size. The subdivision is located in Sections 7 & 8, T35N, R8W, NMPM, which is located at approximately 37.317° North latitude and 107.772° West longitude.

The layout of Florida River Estates, including depiction of the water distribution infrastructure is included in Appendix A as Figure 1.

B. Environmental Resources Present

Florida River Estates (FRE) subdivision lies along the Florida River and homesites are located along an upper bench above the valley floor. Portions of the subdivision which are located along the Florida river corridor are within mapped 1% recurrence (100-year floodplain) flood hazard areas the water treatment plant is included within this mapped area. This reach of the Florida river is designated as Zone "A" and detailed analysis has not been formed to establish base flood elevations nor 500-year flooding extents.

The subdivision is surrounded by private residential properties and development subdivisions. Public lands (BLM) are located adjacent to subdivision's southwestern border.

Upstream and downstream along the Florida River drainage agricultural lands do exist and primarily are irrigated for pasture grass from diversions of the Florida River. Most people use the Florida River corridor in this area for recreation, such as walking and fishing.

Being in a river valley, the area supports a wide variety of wildlife. Deer, bear, and small mammals are present throughout the area. The river contains various fish and river flows are regulated from Lemon Reservoir located about 9 miles upstream of the subdivision.

The area annually receives roughly 19 inches of precipitation which includes 79 inches of snow. The drinking water source for the subdivision is the groundwater aquifer (spring) in the Florida River valley.

SME Environmental, Inc. has been engaged to perform resource specific environmental evaluations of the project area for threatened and endangered species, cultural resources, and wetlands. Completion of the environmental assessments cannot be completed until the known

limits of disturbance are understood. Presently, the amount of snow on ground surface obscures the ground surface, making surface surveys impossible. Completion of the environmental studies is anticipated in early Spring 2019, after snow cover has receded. In the event sensitive or culturally valuable areas are discovered, the water system improvement design plans will be adjusted to avoid disturbance of these areas.

C. Population trends

The Florida River Estates subdivision is comprised of 94 lots. Presently there are 103 taps within the water system. The growth potential is limited to the four (4) remaining undeveloped parcels. Expansion of the system service area outside of the subdivision boundaries is not anticipated.

The current population density is approximately 238 people based upon the U.S. Census Bureau data of 2.64 people per household for the period of 2011-2015. The Census Bureau data for La Plata County is slightly lower with 2.41 people per household (2012-2016). With limited growth potential, the planning number for total population served has been conservatively set in the range of 250 to 270 people. Please note that according to a population survey of the subdivision residents, the population was approximately 130 year-round residents. This is approximately half of the average national household density. The population density is stable and most homes are occupied year-round. The subdivision does not cater to a second home or seasonal market. The background population data is included in Appendix A.

According to Mark Fuson, the Operator in Responsible Charge (ORC) the water service customer distribution includes 103 residential taps, 0 commercial taps and 1 industrial tap for the fire station.

D. Community Engagement

The FRE Homeowners Association (hereafter HOA or Association) Board has been actively educating and involving the subdivision property owners about the need for water system infrastructure improvements for many years. The system users are knowledgeable about the system deficiencies and increasing maintenance/operating costs as these costs are conveyed directly to the end users through rate adjustments that are necessary to cover HOA expenses. The rate structure for water billing has been revised to a tiered water use as well as a fixed fee for funding of capital improvements.

Currently, the HOA is working with their attorney to update and alter the Association's water policies and a member vote is planned in April 2019 to assess additional user fees to cover the cost loan debt planned to fund infrastructure improvements.

II. Existing Facilities

A. Location Map

The layout of the FRE subdivision, including depiction of the water distribution infrastructure is included in Appendix A as Figure 1.

B. History

The Florida River Estates Subdivision was platted and recorded in the La Plata County Clerk and Recorders office in February, 1965. During the formation of the subdivision, Protective Covenants were recorded that established the Florida River Estates Homeowner's Association (FRE) which governs the subdivision. The FRE governs the architectural control within the subdivision and the water system. Subdivision roads have been dedicated to La Plata County and are maintained by the County's Road and Bridge Department.

Development of the FRE central water system was initiated in the late 1960's. Very little historic information or data is available about the FRE water system. Basic water system maps are available, but no information related to the water source is available. For the purpose of this report, the FRE water distribution pipe network has been mapped from an assortment of as-built drawings as reviewed by the operator and long-time residents. Initially, it is believed the system was a pressurized system, with the water storage tank being installed at a later date. The water tank is a used bolted steel ground level tank purchased from the Town of Rico, Colorado. Information about the storage tank has been assembled from inspection reports and historical accounts from the ORC. Details about the FRE's water source and pumping equipment has been collected through discussions with the Board, ORC, and records provided. Water treatment facilities and processes have been observed and partially designed by Goff Engineering as part of a previous project.

The subdivision is comprised of 103 lots within an area of 186.7 acres. Lots are occupied solely by residential dwelling units. Most lots have been fully developed with home construction

beginning in the early 1970's. It is our understanding the water system was installed in this time frame as well.

C. Condition of Existing Facilities

The water system for FRE is comprised of a shallow spring source, treatment plant with pumping, water storage, and three pressure zones. Water storage is provided in a singular 100,000-gallon tank. Pressure zone #3 near and above the water storage tank is pressurized via a constant pressure VFD controlled booster pump system set in a below ground vault. The lower two pressure zones are fed via gravity from the water storage tank, with the lowest zone being controlled by a pressure reducing valve. Detailed narratives of the water system are provided in the following outline.

i. Certified Operator

The FRE HOA has a full-time certified water system operator and meets the State Regulation. The present ORC (operator in responsible charge), Mark Fuson is the sole operator for the HOA system. He reports to the HOA Board and ensures the system is maintained to comply with the CDPHE permit and testing requirements.

ii. Water Rights

The Florida River Estates Pipeline (Sortais Spring) supplies water to the subdivision. The absolute water right is 0.5 cfs (224 gpm), with a conditional amount of 1.5 cfs. In future review the conditional flow amount of 1.5 cfs was stated to be abandoned to allow FRE to retain the absolute water right of 0.5 cfs (Case No. 80CW77 states the water is non-tributary to the water course). Based upon the decreed absolute amount of water, there is sufficient legal water for the water system. Also, water rights allow for the storage of water within the two FRE ponds known as Lake Carol and Lake Susan. These two ponds can store 8,109 and 17,459 acre feet respectively. The spring has an appropriation date of Oct. 1, 1962 under Court Case 1751-B. The spring has been continually used for over 56 years.

iii. Water Supply

The Florida River Estates water system is sourced from the Sortais Spring. The spring enters an infiltration gallery located within the existing water treatment building where submersible pumps are used to pump the water through the water treatment plant and into the distribution and storage system. Given the spring is very shallow, the system is considered to be under the influence of surface water as defined by CDPHE rules and regulations. Filtration and disinfection are required and have been installed as a part of the system infrastructure.

Water quality issues occur seasonally during the spring runoff of Mud Spring Creek located near and above the water treatment plant. Due to the increased turbidity occurring for approximately one to two months during spring runoff, the present filtration system is not adequate to reduce turbidity within required limits. The highly turbid water pumped through the filters causes premature clogging. Filter bag replacements are required weekly during spring runoff season, compared to approximately two-month service life during non-runoff periods. These replacements generate significant expenses for FRE. Additionally, the pumping rate must be greatly reduced during spring runoff to maintain compliant water turbidity. This diminishes the available water to the community.

iv. Treatment Facilities

The treatment system is classified as a community water system and as such is regulated by the CDPHE. The treatment system is permitted with the state under the public water system permit: PWSID #CO 0134300. The treatment plant is comprised of the following major items with the treatment plant schematic depicted in Figure 2, Appendix A:

- Raw water pumps are two Gould's submersible pumps with CentriPro 5Hp, 230 V, 3ph pump controllers and VFD controllers to set pumping rate to desired levels.
- Filtration system is comprised of two Harmsco 170x2 pre filters, three roughening filters and three each, pre and post Strainrite bag filters.
- Pre and post disinfection is provided by LMI chemical metering pumps utilizing liquid sodium hypochlorite (bleach).
- Flow meters for the main distribution system and a flow meter for the lower pressure zone are provided.
- Hach Turbidimeter 1720E and Hach CL17 chlorine analyzer are provided to record turbidity and chlorine levels for the finished water leaving the treatment plant prior to entering the distribution system. Continuous monitoring results are recorded on a Partlow MRC 5000 circular chart recorder.
- Miscellaneous valves, pressure gauges, relief valves, solution containers, etc. are included in the system along with the necessary electrical controls for the pumps, sensors and building lighting, service outlets, auxiliary heating.
- Due to limitations on the flow through each filter bag container, the maximum treatment plant flow is 20 gallons/minute x 3 filters = 60 gpm. A flow restrictor to ensure this flow is not exceeded is provided with the treatment train.
- To ensure proper chlorine contact time is met prior to the first customer tap, a buried chlorine contact chamber comprised of 8 inch and 18 inch pipes for plug flow is adjacent to the treatment plant.
- System controls for the system include a timed pump system and pressure level sensors to automatically operate the system when the tank level drops to a predetermined level and a signal is sent to the water plant to start pumping operations.

The system's water source is located within the existing treatment plant building and consists of a shallow (~10-foot depth) concrete manhole that is constructed over Sortais Spring. The top of the manhole is set flush with the concrete slab of the plant and shows signs of significant settlement. It is believed that this settlement is due to the instability of the subterranean infiltration gallery beneath the treatment plant. The slab beyond the spring is well constructed and performs adequately.

The water system does not have any SCADA controls (Supervisory Control and Data Acquisition), requiring the operator to physically visit the plant when any alarm is sent via an autodialer to the designated phone line. The current autodialer is located in the treatment plant. Most system operations are done via a timer system or automated via a level sensor in the tank that calls for water when the tank level drops below predetermined levels.

The treatment plant's electrical system has been repaired and modified numerous times over the years and most equipment is not water tight, water resistant, nor installed in compliance with current electrical code requirements, presenting serious safety problems.

v. Water Storage Facilities

Water storage is provided at a ground level 100,000-gallon bolted steel water storage tank. The tank was purchased used from the Town of Rico in the early 1970's and installed at the upper part of the subdivision in a deeded HOA parcel. The tank has been in service approximately forty-four years. The tank is supported by wooden skids on a gravel foundation pad.

The tank was inspected by CW Divers of Farmington, NM on June 22, 2017 and was found to be in generally good condition. The results of the inspection are included in Appendix D and summarized as follows:

- The interior coating appears to be in good condition

- Minor work is recommended around the tank and on the tank exterior.
- Recommend the installation of a roof hatch and new exterior ladder with safety cage.
- Installation of cathodic protection

Recent improvements performed by the Association include:

- installation of a screened roof top vent
- installation of a draft hydrant to assist with fire protection services for the community.
- Gravel addition around tank perimeter
- Removal of vegetation.

Overall, the water tank is in good condition considering its age, and should continue to serve the community with routine maintenance.

vi. Distribution System

The FRE water distribution network includes approximately 2.95 miles of pipeline consisting primarily of 4-inch and 3-inch distribution mains, 0.54 miles of 2-inch and 1-inch distribution lines and 0.85 miles of service lines. The mains are older ASTM pressure rated water pipe with an unknown pressure rating. From review of the system, the water pipes were constructed with glued joints and fittings. There are also a few mains that are constructed of 1 inch to 2-inch pipe that provide shared lot service. The network has very few known isolation valves. Yard hydrants exist for system flushing and sampling.

The system serves a total of 103 service connections which include 90 active and 13 inactive services. All connections are for residential use, except one tap for the existing fire station.

The water system is comprised of three pressure zones. The lower pressure zone (Zone #1) located along the River lots is controlled by pressure reducing valves located within the treatment plant building. The static pressure at the water treatment plant is approximately 100 psi. The pressure is reduced to 65 psi for Zone #1 that serves 40 taps. Household static pressures have been measured between 55 psi to 75 psi.

Zone #2 is served via gravity from the water storage tank. The approximate pressure for the lots within this zone ranges from approximately 65 psi to 10 psi for the lots located near the water storage tank. Homes with low static pressure near the water storage tank have installed individual water booster pumps to increase the pressure to normal household levels. Zone #2 serves 54 taps.

Zone #3 is served by a booster pump station near the water storage tank and provides household pressure to 8 lots (Lots 12-19, Block #1). Delivery pressure leaving the booster station is set at 65 psi. This provides pressure in the range of 40 to 60 psi to the Zone #3 lots.

The water distribution piping is in fair to poor condition as described by the ORC and as noted in the CCR (Consumer Confidence Report) and site sanitary survey. There has been excessive water leakage in the lower section, Zone #1 for some time. Numerous breaks have been repaired and the condition of the pipe in this area has met or exceeded its useful life. The ORC has monitored water production rates and water usage rates (from meter reading results) and determined Zone #1 has a leakage loss of ~25% and Zone #2 has a leakage loss of ~15%. Zone #3 does not appear to have significant leakage losses.

In 2017, a few major leaks were located and repaired. After these identified leaks have been repaired, leakage in Zone #1 still exceeds accepted standards. During break repairs, it has been observed that there is little to no bedding material around the pipe and leaks appear to occur at the glued joints that have been stressed over the years.

Water services to each home are tapped onto the distribution main. Some service lines are shared by multiple residential lots. Each residential service includes a meter within a pit, however meter yokes, shut off valves, or check valves are not included at the meter installations. Water metering equipment is aged and has reached its service life. Water meters record less flow as they age which relates to reduced revenue for the Association. The lack of proper isolation valves across the system is also problematic for limiting service disruptions during repairs.

The treatment plant plumbing was also constructed with the ASTM plastic piping and was prone to frequent failure. The treatment plant plumbing was upgraded with copper pipe (except for the two floor penetrations) in 2018.

vii. Drinking Water Quality

A copy of the 2017 Public Water Supply (PWS) Consumer Confidence Report (CCR) has been included in Appendix D. The CCR represents that no Maximum Contaminant Levels (MCL) were exceeded when sampling the Association's water for the past period.

The most recent CDPHE sanitary survey was performed in February 7th, 2017, and has been included in Appendix D. This survey identified the high leakage rate (described above) as a "significant deficiency"

A copy of the previous Sanitary survey (June 2014) which found no significant deficiencies has also been included in Appendix D.

D. Financial Status of any Existing Facilities

Presently, all water collection, treatment, distribution, and storage equipment in owned by and maintained by the HOA. There is no debt for the existing system, however O&M costs have been rapidly increasing as the system ages and failure rates increase.

E. Water/Energy/Waste Audits

No water, Energy, or waste audits have been performed for the system.

III. Need for Project

The improvements considered in this report apply to the water system distribution, metering, storage, treatment, and pumping facilities for the Florida River Estates Subdivision. Basis of need considers public health and safety and also operational and maintenance, which are described in more detail below. Given the subdivision is nearly built out and no expansion beyond the current service area is proposed, the primary project need is to upgrade the system infrastructure which has exceeded its useful service life or is non-safe.

A detailed hydraulic model was not created for this project as this is typically used to assess fire suppression capabilities, which this subdivision does not provide. System users have not complained about lack of water pressure to their homes, so it was determined that hydraulic modeling would not be beneficial.

A. Health Sanitation and Security

The Sanitary Survey prepared by the CDPHE (dated January 26, 2017), identified 1 significant deficiency, no violations, and 12 observations and recommendations. The 2014 Sanitary Survey identified no violations and had only 1 recommendation. The pertinent issues of the surveys as related to water system are as follows:

Item 1 – High Leakage Rates. Classification: Significant Deficiency

During the time of the Sanitary Survey, excessive leakage was estimated to be in the range of 70%. This amount was determined by comparison of the raw water pumping volumes to the sum of all metered water billed to the customers. The probable cause is the age of pipe and glued joints that have deteriorated over time and tap connections to the system.

B. Aging Infrastructure

The primary factor used to assess Project need is based on the aged system infrastructure which has exceeded its useful service life or is non-safe. The identified system deficiencies are described below.

i. Distribution System

Due to significant losses, FRE worked to identify and repair system leakage. Progress has been made through discovery and repair of a 19 gpm mainline leak and replacement of a failed 3" isolation valve. Additional leakage is continuing, but the rate has been reduced by these repairs.

Other leaks as noted in the FRE Sanitary Survey Response letter of March 13, 2017 have been noted. The response letter is included in Appendix D. This letter provides a written plan with milestones and timeframe to alleviate the high leakage problem.

From water meter records, it appears the present leakage is roughly 40% with Zone #1 contributing 25% and Zone #2 contributing 15%. From this data, Zone #1 is the primary area where the distribution system needs the most immediate attention. The upper zones have leakage rates that are within acceptable limits considering the age of the system, although continued monitoring is essential.

ii. Meters

All customers' water usage is metered and the service connections consist of a tap onto the water main and a service line (generally 1 inch) is extended to a meter pit. The meter is installed in the pit and the service line continues to the residential unit. The ORC has noted that the meters do not have a meter yoke assembly and many have been in service for decades. Addition of a meter yoke would allow isolation, and the included double check valve assembly would protect against back siphonage into the water mains. Most of the water meters have been operation longer than the recommended length of use for replacement. Meter reliability is variable, but a replacement range of approximately 10 to 16 years is reasonable. As the meters age, their flow accuracy diminishes and it more pronounced at low flows. It is suggested meters be changed out no longer than 16 years. For ease of operations, maintenance and safety, meter yokes should be provided for all new taps and for taps that are replaced.

Some of the platted residential lots within the subdivision boundaries do not presently have water services extended from the distribution main. It is recommended that all lots receive a water tap and meter pit to avoid need for future system expansion. Residents who opt to not receive water service can be excluded by not installing a meter in the proposed pit.

iii. Storage

The existing water tank in review of the last inspection from CW Divers performed June 22, 2017, shows minor repairs are suggested. The inspection service was performed based on the recommendation of the 2014 Sanitary Survey. The suggested work involves some general yard cleanup, grading and addition of ballast under portions of the tank. In addition, a new ladder, safety cage, cathodic protection, and roof top access hatch should be installed. These recommendations would bring the water tank into compliance with the current CDPHE "Design Criteria for Potable Water Systems" effective December 15, 2017. Overall, the water tank is in good condition considering its age.

The existing tank provides approximately 1,000 gallons storage per residential unit. According to the system ORC, the stored water volume within the existing tank is sufficient during the non-irrigation season and provides 2-3 days of stored water for the community. During the irrigation season (May-October), the community uses roughly 100,000 gallons of water/day, requiring nearly continuous pumping to maintain adequate storage levels.

Addition of a supplemental water storage tank is recommended to reduce strain on the treatment and pumping system. This is especially important during the spring runoff season when increased turbidity in the source water causes reduces treated water production rates (refer to section C-iii, above)

Referencing local regulations from La Plata County planning, 350 gal/day/unit is the average day water usage. This equates to average demand of ~35,000 gallons/ day. Water storage facilities are required to provide 2 days of storage for the maximum day, (which is considered 2.5 times the average daily demand) equating to 175,000 gallons.

These storage volumes consider only domestic water, and do not account for reserve storage for fire flow demands. As specified in the 2009 International Fire Code: fire flow needs for a Type 5 (frame construction, less than 3,600 square feet) structure is 1,500 gallons per minute for 2-hour duration. This equates to a water storage volume of 180,000 gallons. The current storage capacity of 100,000 gallons does not meet the minimum fire flow storage requirement. CDPHE design criteria specifies that adequate storage should be provided for domestic demand AND fire flow.

Summarily, based on RUS guidance, the current 100,000 gallons of water storage is adequate for the current population and projected full buildout. Based on CDPHE criteria additional storage is suggested if fire flow storage is considered an option. If the system were to provide fire flow storage, an additional 200,000 gallons would be suggested to provide a total storage volume of approximately 250,000 to 300,000 gallons. This would also require all water mains to be increased in size to 8-inch minimum diameter to allow for sufficient fire hydrant flow.

iv. Treatment Plant

The water treatment plant pumps water from the spring which is considered surface water / GWUDI (ground water under direct influence) and is properly filtered and disinfected prior to distribution to the service connections. The treatment system is currently comprised of 3 -3M 522A roughing filters with 2.5-micron bags followed by 3 StrainRite HPM99-CC-2SR 1-micron nominal bag filters followed by 3 StrainRite HPM99-CCX-2SR 1-micron absolute finishing compliance filters. Due to the maximum allowable flow through each StrainRite filter of 20 gpm, the maximum allowable pumping rate is 60 gpm. To ensure this capacity is not exceeded, a flow restrictor is provided as a requirement of the CDPHE. To pump the water from the spring to the water tank, there are two Gould's pumps located in the spring that pumps water from the spring, through the filters and to the water storage tank. These pumps were recently replaced. The VFD (variable frequency drive) controls were not replaced and are versions from the previous pumps. The treatment plant plumbing was replaced with copper piping in March, 2018. The remaining plastic pipe consists of two four inch main line penetrations through the floor slab to that deliver water to the storage tank and to the Zone #1 services. The static pressure at the plant is 100 psi (to tank overflow) with pressure upwards of 140 psi in the pipes before the filters to overcome the pressure drop across the 3 stages of filters.

Monitoring for turbidity and chlorine residual are constantly monitored and recorded as required by CDPHE permit requirements.

Due to seasonal high ground water, the plant experiences an increase in the raw water turbidity when Mud Spring Creek flows from one to two months in the late spring associated with the

seasonal snow melt period for the drainage basin above the treatment plant. The ORC is presently recording TOC (total organic content) and particulate size levels prior to the runoff and will collect TOC levels when the turbidity levels are high. The major issue with the higher turbidity is the filter bags will collect sediment much more frequently than the rest of the year. Thus, the bags must be replaced very frequently (~ once/week or at times once per day) and the cost is extremely expensive during this period of time. Also, the flow rate has been adjusted lower due to the increased pressure drop as the filters clog with sediment. The water treatment plant design flow of 60 gpm had to be reduced to a very low amount of 6 gpm (10% capacity) to extend service life of the filters. System replenishment is compromised at this level of treatment.

Due to these seasonal turbidity spikes, two new Harmsco Industrial bag filters Model HUR 1X170FL-XP with a surface area of 170 square feet have been installed upstream of the current filter trains. These filters were intended to capture the seasonal sediment to lengthen the service life of the StrainRite filters.

During the 2019 runoff season, excessive turbidity (300 Ntu) has continued to be problematic for the filter train. It is assumed this is caused by shallow flooding on adjacent properties (from Mud Springs Creek) which are tributary to Sortais spring. Installation of a cut-off trench drain is recommended for collecting shallow flood waters and diverting them into Lake Carol prior to contaminating the Sortais Spring well.

The water plant has seen some upgrades in equipment over time, with the plastic plumbing pipes being replaced with copper Oct,2017 to April, 2018. New master water meters were added in Oct, 2018. These improvements will ensure the system is more secure, reliable and safe.

The electrical controls are housed in the treatment plant. The treatment plant's electrical system has been repaired and modified numerous times over the years and most equipment is not water tight, water resistant, nor installed in compliance with current electrical code requirements, presenting serious safety problems.

The concrete slab around the spring is in need of repair, although the main slab for the treatment system components is in good shape. Replacement of the entire structure has been suggested in the past, but space is limited and a full relocation could be problematic due to space constraints. In our past review, some structural members may need replacement along the walls where water damage over the years rotted some studs. The only way to truly assess the condition would be to remove at least the lower four feet of fiber panel sheathing and check conditions. If the interior sheathing is removed, a fiberglass waterproof paneling can be applied to limit any future damage from water spills, pipe breaks, etc.

v. Booster Station (Zone #3)

To serve the upper lots within the subdivision, a water booster station is located in a buried vault near the water tank on the northwest corner of the intersection of Sortais Drive and Nusbaum Road. The vault is a concrete structure with locking hatch, access ladder, pressure pumps, pressure tanks and controls. Since the vault is buried, a sump pump is provided to ensure any water intrusion or water seeps are collected and discharged to a surface swale to drain away from the tank.

One of the system pumps has been upgraded to a constant pressure VFD controlled pump system and includes an Aquavar AB-II variable speed pump controller for Gould's pumps to provide varied flow based on demand. The system plumbing is comprised of hard (metal pipe), PEX piping and PVC plastic pipes. It is recommended that the pump station plumbing be

completely upgraded to Type K copper, and the older Gould's HSC20 centrifugal pump and pressure tank be replaced with another VFD pump and controller.

Surface grading and drainage improvements around the Zone 3 booster station are recommended to ensure snowmelt and stormwater runoff is directed away from the booster station access hatch.

vi. SCADA, telemetry, and controls

Currently, the treatment plant, storage facilities, and pumping systems utilize inconsistent and antiquated control systems. Currently an older radio system communicates water tank levels to the treatment plant's pumping system. There are also controls to operate the system with a timer and one via a pressure switch that monitors static pressure. All of the systems have been in operation for many years and are not considered reliable. The autodialer technology requires the operator to physically visit the plant to determine what issues or problems have generated the alarm.

Installation of a comprehensive SCADA communication and control system between the primary and Zone 3 booster stations, storage tanks, and treatment plant is recommended to allow remote operability and further enhance system reliability.

C. Reasonable Growth

Given the subdivision is nearly built out and no expansion beyond the current service area is proposed, growth is not considered a factor for Project need.

IV. Alternatives Considered

A. Description

Alternatives considered in this report include;

- Continuation of

i. Alternative 1 – Continued repairs on existing system

Alternative #1 is not sustainable and will generate increasing system failures, user costs and compliance issues and has therefore been discounted.

ii. Alternative 2 – Complete system replacement

Alternative #2 should be considered as a long-range planning goal for the Association. Based upon the urgency of implementing system upgrades and the limited Association funds available for the rehabilitation work, it is understood that alternative funding will be necessary. The best and most available funding source will be USDA low interest loans given the HOA structure of the community.

USDA funding assistance requires compliance with stipulations (e.g. mitigation of 500-year flood hazard area) that are not considered practical in the near term. Implementing improvements and rehabilitation work in a phased manner will allow the Association to fund projects with differing funding sources, thereby maximizing cost to benefits for the community.

iii. Alternative 3– Phased implementation of improvements

Phasing system improvements over a multi-year time period will allow the community to address urgent repairs immediately and develop capital reserves to finance future projects as priorities change. The infrastructure improvements discussed in this report have been prioritized by phases considering public health, safety, and cost.

Phase 1 would replace all water distribution system piping, install new water services and metering equipment, rehabilitate the existing water tank, construct a new water storage tank,

Upgrade the Zone 3 booster station, and implement a SCADA control system . Phase 2 would replace and/or reconstruct the treatment plant.

Distribution System and Water Service/Metering

As stated above in the report the majority of the water distribution piping has exceeded its useful life in Zone #1. With lower pressures system pressures and better ground conditions for Zones #2 and #3, the pipeline issues are not as prevalent in these areas.

Replacement of the water mains, service lines and meter assemblies in Zone #1 is considered a priority. Zone #2 and #3 need to be monitored and scheduled for review in the future. Due to the number of leaks, poor service connections and observed poor pipe bedding in areas where repairs have been performed, the only viable option has been determined to replace the water mains to reduce the excessive leakage.

The replacement project may be in phases due to construction costs. Also, if additional valves were installed in the existing system, isolation of the worse sections of line might be determined. This would allow the worse areas to be replaced first and to continue with the remainder of the project as funds become available. New valves installed in the existing system could be re-used as warranted for the new pipe installation to recapture costs. Acoustic leak detection firms might be engaged to determine if spots leakage areas could be pinpointed. This assessment could allow smaller sections of pipe to be repaired and hopefully reduce the system losses.

Overall the amount of storage provided for the subdivision is sufficient for domestic use based upon the various parameters listed above. Overall the amount of storage provided for the subdivision is sufficient for domestic use based upon the various parameters listed above.

B. Design Criteria

As the FRE water system is regulated by the Colorado Department of Public Health and Environment (CDPHE), the water system improvements will be designed in accordance with CDPHE and AWWA criteria. These design criteria and capacity planning are detailed in CDPHE publications titled; *New Water System Capacity Planning Manual* and *Design Criteria for Potable Water Systems (Revision date December 15, 2017).*

All water facilities must meet the requirements of the Safe Drinking Water Act (Pub. L. 93-523) and provide water of a quality that meets the current Interim Primary Drinking Water Regulations (40 CFR 141).

The system has been designed for household use only with small (3 inch-4inch) distribution main lines. Fire suppression flows are were not considered during the design/installation of the system, and only a singular draft hydrant connected to the storage tank is provided in the subdivision.

C. Map

Refer to Appendix B for the location and schematic layout of the proposed water distribution main replacements for future project.

D. Environmental Impacts

SME Environmental, Inc. has been engaged to perform resource specific environmental evaluations of the project area for threatened and endangered species, cultural resources, and wetlands. Completion of the environmental assessments cannot be completed until the known limits of disturbance are understood. Presently, the amount of snow on ground surface obscures the ground surface, making surface surveys impossible. Completion of the environmental studies is anticipated in early Spring 2019, after snow cover has receded. In the

event sensitive or culturally valuable areas are discovered, the water system improvement design plans will be adjusted to avoid disturbance of these areas.

E. Land Requirements

The majority of the current distribution mains follow existing subdivision roads which are located within County Right of Way, and as such are maintained by the La Plata County Road and Bridge Department. Distribution system replacement is proposed to be contained within existing County right of way, and on the opposite side of the subdivision roadways from the existing waterline to minimize service disruption during construction. There may be the need for some temporary construction easements in areas where space may be limited, or obstacles exist.

Some pipeline alignments pass through privately held and Association owned properties. In reviewing the subdivision Declarations, we believe that implied easements exist for the purpose of repair, maintenance, and replacement of the water system (refer to excerpt in Appendix D), although no legal review or title policy research has been conducted as part of this report to verify this assumption.

The distribution main that is located along CR 240 (Florida Road) may be relocated outside of County right of way due to numerous utility crossings/conflicts that are known to exist. This relocation would require acquisition of easements from ~ 8 private properties within the subdivision.

The water treatment plant building appears to be within Association property, however boundary survey work has not been performed to verify if encroachments exist onto private properties or LPC right of way. A utility permit was obtained from the county for installation of the expanded chlorine contact chamber which lies outside the Association property. property acquisition should be expected if the treatment plant was to be relocated.

The current water tank is located on an Association owned parcel. The proposed new water tank will be located adjacent and require parcel subdivision and acquisition from a privately held landowner.

F. Potential Construction Problems

Based upon review of NRCS Soils information, site observations, and consultation with the ORC there will be difficult sections of pipeline to construct. High ground water is present in the area of Zone #1 and the Pescar fine sandy loam soil contains large amounts of gravel. The upper elevations of the subdivision include areas of exposed formational bedrock, which will be challenging for trench construction, and blasting may be necessary. Excavations may require dewatering for construction.

Directional drilling or pipe jacking installation methods are likely necessary to avoid sensitive, challenging, and road crossing areas. Care must be exercised to ensure bore pits do not collapse due to the cobble and ground water. Length of directional drilling runs are probably in the 300 to 400 lineal feet range. Pipe burst methods are possible, however this method could limit service to more users for longer periods of time.

A La Plata County (LPC) utility permit will be necessary for work within Right of Way areas. Impacts to the county road system need to be minimized due to the backfill and road crossing requirements. The county requirements for any utility construction must comply with their current standards and specifications (flowable backfill, bored installations, QA/QC testing, etc)

Other utilities are known to exist within the construction corridor (overhead and underground) and the actual location of the existing water main is not well defined. The existing pipeline does

not have a tracer wire and there are long lengths between isolation valves. Utility crossings and conflicts should be anticipated during construction.

Replacement or relocation of the treatment plant would be problematic both operationally and administratively. Operationally, the existing system would be required to maintain functionality while a new plant was constructed due to community demand. The system's water source (Sortais Spring) is located within the existing treatment plant building, and relocation may be administratively problematic due to legal water rights.

The current treatment plant is also located within the mapped 100-year flood plain hazard area. Federal funding sources consider water system infrastructure to be critical facilities and require mitigation of the 500-year flood floodplain. Meeting this requirement would be extremely challenging and costly if the new plant were to be located proximate to the existing.

Rehabilitation work that is recommended for the existing tank (sandblasting and painting) cannot be performed between November and March due to weather constraints and should be done in favorable weather.

G. Sustainability Considerations

i. Water and energy Efficiency

Tiered water rates have been implemented by the Association that are based on volumetric usage in an effort to discourage high usage. This has been effective in reducing the amount of water produced and used for landscape irrigation.

ii. Green Infrastructure

The location for the proposed water distribution system is planned to occur within previously disturbed areas and directly parallel the subdivision roadways. Stormwater and erosion control management practices will be implemented during construction to minimize sediment transport watercourse pollution.

H. Cost Estimate

Material and construction costs were obtained from a variety of sources including vendors, regional representative projects, and local contractors. The costs associated with construction, design, and O&M, for each phase of water main replacement is listed in the following spreadsheet:

PHASE 1 CONSTRUCTION COST ESTIMATE				
Description	Unit	Qty	Unit Cost	Cost
DISTRIBUTION SYSTEM				
Hydro-vac Potholing & Investigation	HR	80	$ 300	$ 24,000
Dewatering	LS	1	$ 7,500	$ 7,500
Erosion Control - SWMP	LS	1	$ 5,000	$ 5,000
Rock Excavation (Estimate)	CY	200	$ 200	$ 40,000
Flowable Concrete Backfill	CY	225	$ 150	$ 33,750
Site rehabilitation and seeding	LS	1	$ 10,000	$ 10,000
4" PVC C-900 DR-18 (Incl. Trenching, Bedding, Backfill, Tracer wire)	LF	17,100	$ 45	$ 769,500
Bored 4" HDPE Waterline Installation (Complete, including transition joints)	LF	250	$ 140	$ 35,000
4" Fitting (caps, bends, Tees, etc.) includes restrained joints and w/ thrust blocking	EA	71	$ 500	$ 35,500
4" Gate Valve (Includes joint restraint, valve box, thrust blocking, Complete)	EA	41	$ 2,500	$ 102,500
4" Air vacuum relief valve assembly, complete including vault	EA	1	$ 5,000	$ 5,000
1" Flushing Yard Hydrant (Incl. Trenching, Bedding, Backfill)	EA	8	$ 1,200	$ 9,600
F & I Water Service (includes tap, corp stop, curb stop, 1" Service Line, Meter Pit, Yoke and meter)	EA	101	$ 1,750	$ 176,750
Bored installation of service line	LF	340	$ 100	$ 34,000
Pressure test station	EA	2	$ 1,500	$ 3,000
Pressure Testing & Disinfection	LF	17,100	$ 1	$ 17,100
Class 6 ABC for roadway rehabilitation	CY	1,000	$ 42	$ 42,000
Install french drain at treatment plant	LF	150	$ 65	$ 9,750
			subtotal	*$ 1,359,950*
EXISTING TANK REHABILITATION				
Roof Access Hatch w/ lock, (Complete)	EA	1	$ 1,500	$ 1,500
Exterior Ladder w/ Cage and locking security door. (Complete)	EA	1	$ 3,000	$ 3,000
Cathodic Protection (passive system)	LS	1	$ 1,000	$ 1,000
Class 6 ABC gravel under tank edges and around tank.	CY	15	$ 80	$ 1,200
Touch up paint on Exterior (sand and paint)	SF	30	$ 50	$ 1,500
			subtotal	*$ 8,200*
NEW WATER TANK				
New tank site parcel acquisition	LS	1	$ 50,000	$ 50,000
Site preparation includes clearing, grubbing, grading, subgrade prep.	LS	1	$ 7,500	$ 7,500
Construct concrete tank foundation	EA	1	$ 50,000	$ 50,000
Furnish and install new 100,000 gallon glass fused steel tank, complete including connection to water distribution system	EA	1	$ 225,000	$ 225,000
			subtotal	*$ 332,500*
ZONE 3 BOOSTER STATION				
Replace existing centrifugal pump with VFD and controller	LS	1	$ 15,000	$ 15,000
Replace plastic plumbing conduit with Type K Copper	LS	1	$ 7,500	$ 7,500
New power service to Booster station	EA	1	$ 15,000	$ 15,000
site grading improvements	LS	1	$ 2,500	$ 2,500
			subtotal	*$ 40,000*
SCADA, Telemetry, and controls				
Install system wide SCADA communication system for remote monitoring and operation	LS	1	$ 25,000	$ 25,000
			subtotal	*$ 25,000*
			Subtotal labor and materials	***$ 1,765,650***
General Contractor costs				
Bonding & insurance	%	3.0%		$ 52,970
Mobilization	%	2.5%		$ 44,141
Traffic Control	%	1.0%		$ 17,657
			Total Construction cost	***$ 1,862,761***

A budgetary cost estimate for Phase 2 has been developed to assist the association with long range planning. Please note that this work assumes only renovation of existing plant building and does not consider replacement or relcation of the treatment plant, nor mitigation of flood hazard areas.

PHASE 2 ESTIMATED PROJECT COST					
Item	Description	Unit	Qty	Unit Cost	Cost
A	General				
1	Mobilization	LS	1	$ 4,000	$ 4,000
2	Bonding and Insurance	LS	1	$ 2,000	$ 2,000
3	Potholing & Investigation	HR	4	$ 275	$ 1,100
B	Water Treatment Plant				
1	Replumb internal pipe for Zone #1 and for Pipe to tank. Extend 5 lf beyond WTP	LS	1	$ 5,000	$ 5,000
2	Replace Zone #1 PRV valves and Water meters	LS	1	$ 10,000	$ 10,000
3	Replace VFD controllers for raw water submersible pumps	EA	2	$ 6,500	$ 13,000
4	Rehabilitate building with new studs where warranted and lower interior sheathing	LS	1	$ 10,000	$ 10,000
5	Provide new SCADA system and new Pressure Transducer for tank level control system.	LS	1	$ 20,000	$ 20,000
6	Provide motorized ventilation system for summer use and replace existing electric heater. Upgrade electric for components	LS	1	$ 12,000	$ 12,000
7	Replace Strainrite Filters with Harmsco Filters, 2 units, complete in place.	LS	1	$ 15,000	$ 15,000
8	Replace concrete slab around spring	LS	1	$ 7,000	$ 7,000
				Subtotal (materials & labor)	$ 99,100
				Administration/Engineering/Construction Management (15%)	*$ 14,865*
				Contingency at 15%	*$ 14,865*
				Total Project Cost	$ 128,830

V. Selection of an Alternative

A. Life Cycle Cost Analysis

The bolted, “Glass Fused Steel” tank was selected as the preferred alternative based on a life cycle cost analysis.

Budgetary pricing for a GFS bolted tank was provided by a local vendor (~$140,000). The analysis conservatively assumed the cost for tank fabrication and construction would be identical for a welded steel and painted tank. Tank maintenance for the two alternatives considered re-caulking the GFS tank at 15-year interval and repainting the welded steel tank (interior and exterior) at 20-year interval.

Assuming a 50-year design life, it was determined that the GFS tank would be a more cost-effective solution for the storage tank. Refer to Appendix D for detailed analysis.

Life cycle cost analysis of other project elements such as pipe replacement was not considered, understanding that the replacement cost would be primarily be based on installation and not material selection.

B. Non-Monetary Factors

The project improvements will be designed to be located in or adjacent to the existing subdivision roadway. Not only will this approach facilitate future access for maintenance and meter reading, it ensures protection of all culturally and environmentally sensitive areas that may be discovered.

VI. Proposed project - Recommended Alternative

Alternative #3 - Phased implementation of infrastructure improvements, is proposed as the preferred alternate. This alternate provides the following benefits:

- Leakage loss reduction will reduce finished water production volumes, thereby reducing maintenance and operational costs.
- New water meters will ensure precise accounting for water use and reduce for contamination.
- Extend life expectancy of existing tank and enhancing safety for operator access.
- Provision for increased water storage capacity.
- Construction of the French drainage system around the Sortais well source will reduce seasonal turbidity, and extend filter media lifespan, thereby reducing maintenance and operational costs.
- Installation of a comprehensive SCADA communication and control system between the primary and Zone 3 booster stations, storage tanks, and treatment plant is recommended to allow remote operability and further enhance system reliability.

A. Preliminary Project Design

A preliminary design layout has been developed for the Phase 1 distribution system replacement, which is the basis of Project cost estimate. The recommendations specified in the tank inspection report are the basis for the tank rehabilitation work, and should extend its life for 20-30 years. The new water tank would be installed adjacent to and at the same overflow elevation to the existing tank, allowing these storage tanks to be operated in parallel.

Temporary isolation valves and air/vacuum relief valves will be installed on the existing system prior to initiating the replacement Project to ensure the water system can be isolated and drained and limiting service disruptions to the community.

B. Project Schedule

The project should be constructed as soon as is reasonably feasible to reduce unnecessary costs of repairing the existing distribution system. Understanding that the primary funding source for the Project will be a USDA low interest loan, the construction schedule will be driven by USDA review and approval of the loan application and supporting documents (Preliminary Engineering Report, Environmental Reports, etc). Anticipating the urgency for the Project, preliminary construction plans have been initiated by Goff Engineering and as scheduled for completion in early Spring 2019. Finalization of the construction plans and environmental studies cannot be completed until the ground snow cover has receded, which will allow ground survey data collection for the cultural analysis and topographic and geotechnical data collection for the new water storage tank.

Optimistically, we anticipate preliminary plan review in late March 2019, and final acceptance in late April 2019. Bid solicitation could then occur in May 2019 with construction initiation in June 2019. Due to local contractor limitations, we expect the project implementation would span multiple construction seasons. Final completion of Phase 1 is conservatively estimated for Fall 2020.

C. Permit Requirements

Permitting requirements anticipated for the Phase 1 project are limited to La Plata County utility permits as discussed previously. Permitting from CDPHE will be required for the new water storage tank. Additional permitting may be required from US Army Corp of Engineers due to the potential disturbance to wetland areas and river crossings of the Florida River.

D. Sustainability Considerations

i. Water and energy Efficiency

The tiered water rates that have been implemented by the Association are expected to continue reducing the amount of water produced and used for landscape irrigation, which will directly reduce O&M costs. A more reliable water system will likely reduce the potential for “hoarding” which has plagued the current unreliable system.

ii. Green Infrastructure

Stormwater and erosion control management practices will be required as part of the construction plans. These practices will minimize sediment transport watercourse pollution. Only limited disruption of green areas are anticipated for the project at the new water storage tank site. The remaining areas planned for distribution system replacement are within previously disturbed roadway and utility corridors. Revegetation of all disturbed areas will also be a project requirement.

E. Total Project Cost Estimate

The total project cost estimate for the Phase 1 project is roughly $2.4 Million dollars ($2,400,000), as calculated in the following tabulation. Detailed summary of construction cost has been presented in the construction cost estimate spreadsheet in Section IV-H.

TOTAL PROJECT COST				
Description	Unit	Qty	Unit Price	Cost
Administration	%	0.00%		$ -
Construction (refer to section IV-H)	%	100.00%		$1,862,760.8
Contingency	%	15.00%		$ 279,414.1
Equipment	%	0.00%		$ -
Interest - Interim	%	2.00%		$ 37,255.2
QA/QC testing (by owner)	%	0.50%		$ 9,313.8
Land or Right of way acquisition	AC	50.00%	$ 20,000	$ 10,000
Legal Fees - Local attorney	%	0.25%		$ 4,656.9
Legal Fees - Bond Counsel	%	0.00%		$ -
ENGINEERING FEES				
Preliminary Engineering Report	%	2.00%		$ 37,255
Environmental Report	%	0.75%		$ 13,971
Design	%	3.50%		$ 65,197
Construction Inspection (full time)	%	5.00%		$ 93,138
Additional services	%	0.00%		$ -
ESTIMATED TOTAL PROJECT COST				**$ 2,412,961**

F. Annual Operating Budget

The Association has historically been remiss in planning for water infrastructure improvements and has only recently (in 2017) implemented a Capital Account fund to account for system upgrades and replacement.

i. Income

Income for the association is primarily from water sales. Each user is billed at the residential base rate ($98/month) plus water consumption at a tiered rate. In May 2019, a vote by the residents resulted in approval of an additional $85 per lot for the capital account for the purpose of loan re-payment. This additional fee will initiate only as loan payments become due, and can be adjusted depending on the loan payment amount. The current rate schedule is presented below.

FLORIDA RIVER ESTATES HOMEOWNER'S ASSOCIATION WATER RATES As of 6.1.2019		
BASE RATE		
Rate Type	Monthly Cost	
Operations Account	$58.00	All customers we are serving water to - 91 lots
Capital Account Fee (Short Lived Assets)	$40.00	All customers we are serving water to - 91 lots
Rec Fee	$5.00	All customers who opt in** **NOT INCLUDED IN BUDGET**
Ready to Serve / Capital Account)	$40.00	Those without active taps, vacant lots - 12 lots***
**Each customer has the right to abstain payment / ***These customers are not charged for operations		
TIERED WATER COST STRUCTURE		
Rate Type	Monthly Cost	
Less than 10,000 gal. used	$0.0018	Per gallon
Between 10,000 and 15,000 gal. used	$0.0030	Per gallon
Between 15,000 and 20,000 gal. used	$0.0050	Per gallon
Between 20,000 and 50,000 gal. used	$0.0100	Per gallon
50,000 gal. and above used	$0.0200	Per gallon
CAPITAL ACCOUNT FOR LOAN REPAYMENT RATE Will begin when loan repayment begins		
Rate Type	Monthly Cost	
Capital Account Fee (Loan Fee)	Up to $85 per lot	All lots both vacant and being served water - 103 total lots

A summarized income-expense report for the past 10-year period has been presented in the following table. Detailed accounting used in this table is presented in Appendix C. Please note the Association's fiscal year is July 1 through June 30.

FISCAL YEAR (July 1 to June 30)	O&M cost	Total income	DELTA	NOTES
July 2009-June 2010	$ 53,253	$ 63,195	$ 9,941	
July 2010-June 2011	$ 48,802	$ 77,331	$ 28,530	
July 2011-June 2012	$ 47,016	$ 75,984	$ 28,967	
July 2012-June 2013	$ 45,891	$ 83,601	$ 37,710	
July 2013-June 2014	$ 53,201	$ 76,930	$ 23,729	
July 2014-June 2015	$ 69,069	$ 71,966	$ 2,898	
July 2015-June 2016	$ 62,567	$ 65,695	$ 3,128	
July 2016-June 2017	$ 165,049	$ 89,920	$ (75,129)	Excessive repairs, new Filter Canisters
July 2017-June 2018	$ 87,190	$ 139,146	$ 51,956	New Filter canisters
July 2018-June 2019	$ 134,748	$ 142,334	$ 7,586	$30,000 in Engineering/Design $5,400 Legal for ballot & amendment $17,400 Excessive repairs for breaks
TOTALS	**$ 766,786**	**$ 886,102**	**$ 119,317**	

ii. Annual O&M costs

O&M costs include cost of consumables (such as filter media, chemicals), water testing, personnel, allowance for repairs, and power for the two booster pumps. Historic O&M expenses are presented in the 10-year Profit Loss report presented in Appendix C.

Predicted O&M for the new system have been estimated at $72,765 as summarized in the following table,

ANNUAL O&M COSTS		
Personell (Salary, Benefits, Payroll Tax, Insurance, Training)	$	-
Administrative Costs	$	12,265
Water purchase/Treatment Costs	$	15,000
Insurance	$	5,000
Energy Costs	$	4,000
Process Chemical	$	1,400
Monitoring and Testing	$	2,000
Short Lived asset maintenance/replacement	$	10,500
Professional Services	$	22,600
Residuals disposal	$	-
Micellaneous	$	-
TOTAL O&M	**$**	**72,765**

Further detailing of the predicted O&M costs is presented in the “Estimated Annual Operating Budget…” in Appendix C

iii. Debt repayment

The FRE HOA has no outstanding Debt at present as confirmed by the association administrator.

Loan repayment is planned to be funded by the recently approved Capital account fee (Loan fee) at $85 per lots per month, refer to rate table above.

iv. Reserves (Short Lived Assets)

Water system costs for Short Lived Assets (SLA) is intended for capital reserves to repair/replace equipment which is being financed which has a useful lifespan significantly less than the repayment period of the loan.

Short Lived Assets for the water system have been estimated at $49,440 per year, and are incorporated into the annual operating budget for the Association. Refer to Appendix C for a detailed summary of the SLA. This is funded by HOA members as shown in the rate table above

VII. Conclusions and Recommendations

It is the recommendation of this PER that Phase 1 improvements be installed as quickly as is reasonably possible. This work includes installation of new water distribution infrastructure, renovation of the existing tank, and installation of a new water tank. Rapid implementation of the project will reduce the increasing maintenance costs associated with repairing the aged infrastructure and provide added storage capacity for the community.

Distribution system improvements should initiate in pressure Zone #1, and sequentially proceed into Zones #2 and #3. New metering equipment will allow the Association to better account for

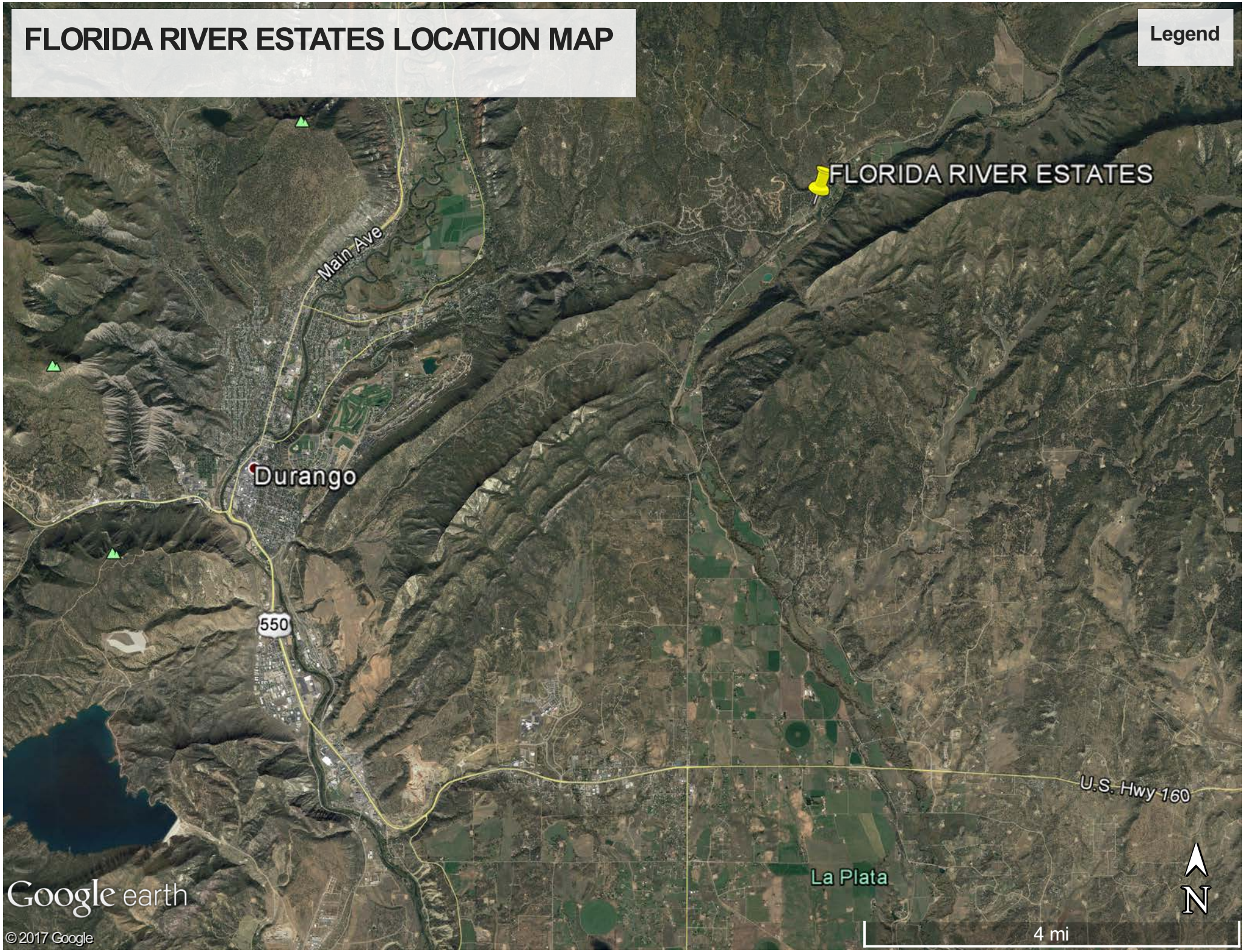
usage, loss, and production in addition to. maintaining compliance with cross contamination regulations.

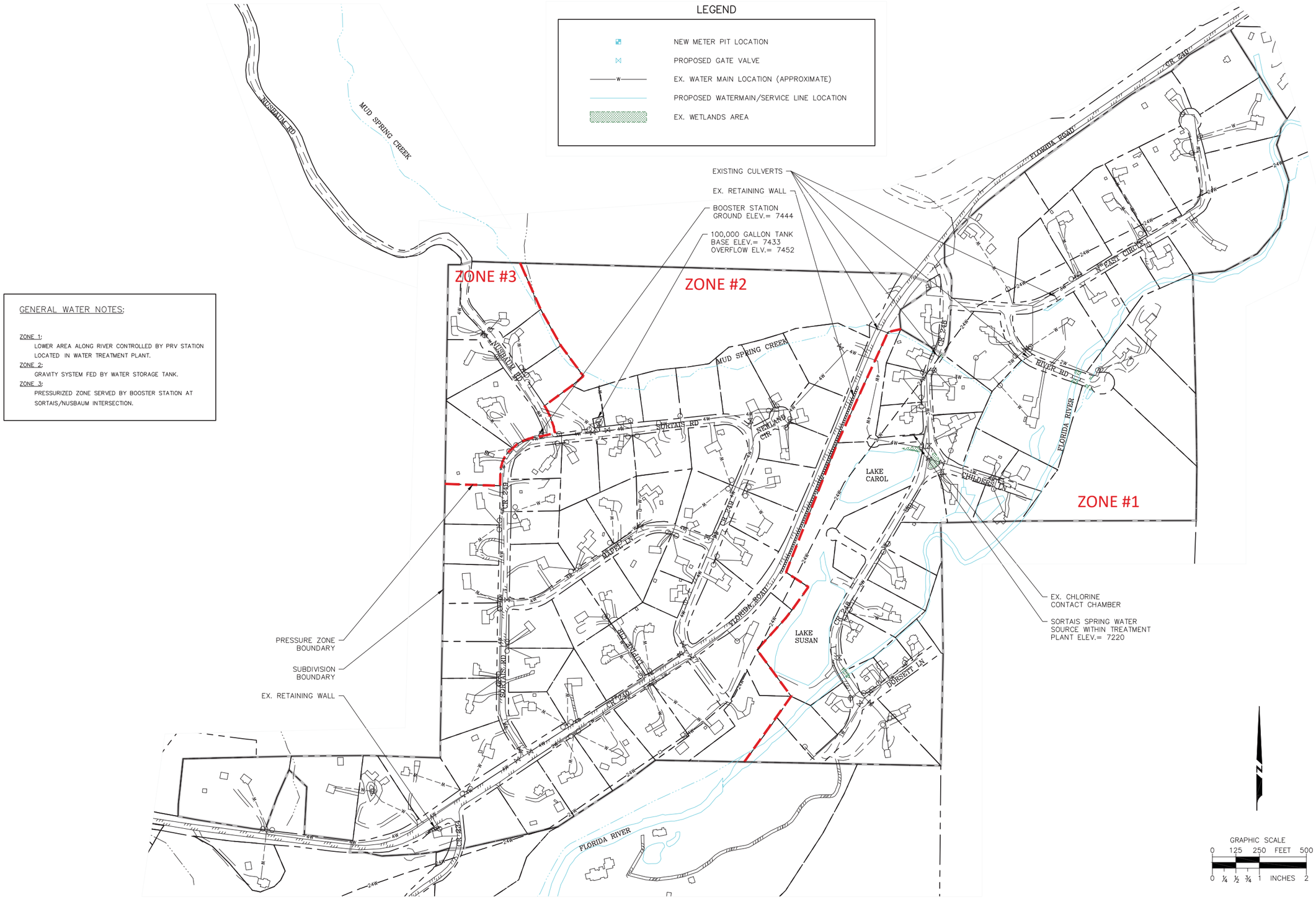
The recommendations noted in the tank inspection should be performed as this will extend the service life of the tank and enhance safety for maintenance personnel.

The capital account that has been established to cover improvements should be utilized for implementation Phase 2 (Treatment Plant) improvements in the near term. These improvements will improve reliability and enhance and safety. Addition of SCADA controls should be prioritized as these upgrades will ensure reliability and system safety well into the future, and reduce operating expenses.

GOFF

APPENDIX A


FLORIDA RIVER ESTATES LOCATION MAP
Legend
FLORIDA RIVER ESTATES
Main Ave
Durango
550
U.S. Hwy 160
La Plata
N
4 mi
Google earth
© 2017 Google



GENERAL WATER NOTES:

ZONE 1:
LOWER AREA ALONG RIVER CONTROLLED BY PRV STATION LOCATED IN WATER TREATMENT PLANT.

ZONE 2:
GRAVITY SYSTEM FED BY WATER STORAGE TANK.

ZONE 3:
PRESSURIZED ZONE SERVED BY BOOSTER STATION AT SORTAIS/NUSBAUM INTERSECTION.

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PRELIMINARY FOR REVIEW ONLY

FLORIDA RIVER ESTATES WATER DISTRIBUTION SYSTEM
FLORIDA RIVER ESTATES HOA
LA PLATA COUNTY, COLORADO

Issue Record:
PROGRESS 06-03-2019

Revisions:

Project Number: 17-195
Drawn By: JAE
Designed by: JAE
Checked By: RSH

Sheet
C1.0

EX. CONDITIONS

\\Vol1\goff_common\projects\2017\17-195 florida river estates hoa water system\cad\sheets\c1.0 ex. conditions.dwg DATE:6/3/2019 USER:JENGLISH PLOT SCALE=1:2.5849

FLORIDA RIVER ESTATES H.O.A

CHLORINE CONTACT CHAMBER EXPANSION PROJECT

PROJECT DESCRIPTION

INSTALLATION OF APPROXIMATELY 3100 LINEAL FEET OF 18–INCH C–905 DR–25 PVC WATERLINE. PROJECT INCLUDES TWO (2) CONNECTIONS TO EXISTING WATERLINE. CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL, LANDSCAPE RESTORATION TO MATCH EXISTING AND DESIGN AND IMPLEMENTATION OF AN EROSION CONTROL PLAN TO ENSURE SEDIMENT IS NOT CARRIED TO THE ADJACENT POND.

SPECIFIC PROJECT NOTES:

1. ALL TIE–INS TO THE EXISTING WATER SYSTEM SHALL BE COORDINATED WITH THE ENGINEER AND OPERATOR. EXISTING SYSTEM SHALL REMAIN IN SERVICE AT ALL TIMES EXCEPT FOR THE TIE–INS AND SHALL BE COORDINATED TO ENSURE THE WATER TANK IS FULL AND THE TIMING FOR THE INTERRUPTION IS FULLY COORDINATED WITH THE OWNER AND HIS REPRESENTATIVES.

2. ALL FITTINGS SHALL INCLUDE MECHANICAL JOINT RESTRAINT IN ADDITION TO CONCRETE THRUST BLOCKS.

3. THE CONTRACTOR SHALL PERFORM THE REQUIRED WORK AS PER THESE PLANS AND SPECIFICATIONS.

4. ALL WORK IS OUTSIDE THE TRAFFIC AREAS, BUT CARE MUST BE EXERCISED WHEN WORKING NEAR TRAFFIC. PROPER TRAFFIC CONTROL SHALL BE PROVIDED AS WARRANTED.

5. THE EXISTING WATER MAINS SHALL REMAIN IN SERVICE DURING THE NEW LINE CONSTRUCTION. IF AN EXISTING WATER MAIN MUST BE TAKEN OUT OF SERVICE FOR TIE–IN PURPOSES, THE CONTRACTOR IS REQUIRED TO OBTAIN APPROVAL TO INTERRUPT WATER SERVICE FROM THE WATER SYSTEM OPERATOR AT LEAST 24 HOURS PRIOR TO SHUTTING OFF THE MAIN.

GENERAL WATER NOTES:

1. ALL WATER MAIN PIPING SHALL BE AWWA C–900 OR C–905 PVC PIPE, AS REQUIRED.

2. ALL WATER MAIN FITTINGS SHALL BE DUCTILE IRON PIPE, CLASS 52, COMPLYING WITH AWWA C–150.

3. ALL PIPE LINES SHALL BE BURIED A MINIMUM OF FOUR FEET, AND BEDDED TO 12" ABOVE THE PIPE, UNLESS OTHERWISE APPROVED AS NOTED ON THE PLANS.

4. ALL LINES SHALL BE PRESSURE TESTED PER AWWA STANDARDS. MINIMUM TEST PRESSURE SHALL BE 150 PSI FOR A MINIMUM OF ONE HOUR. A LEAKAGE TEST SHALL BE PERFORMED PER AWWA STANDARDS.

5. THE MINIMUM FACE AREA FOR ALL THRUST BLOCKS SHALL BE AS SHOWN IN THE THRUST BLOCK TABLE.

6. WHERE MINOR BENDS ARE SHOWN FOR WATER LINES, DEFLECTION IS TO BE TAKEN IN JOINTS NO GREATER THAN 3 DEGREES OR THAT RECOMMENDED BY THE MANUFACTURER, WHICHEVER IS MORE RESTRICTIVE. FOR THE 18 INCH PVC PIPE, THE JOINT DEFLECTION SHALL BE 1.5 DEGREES MAXIMUM, AS RECOMMENDED.

MATERIAL QUANTITIES

##	DESCRIPTION	QUANTITY	UNIT
EXTENSION OF CHLORINE CONTACT CHAMBER			
1.	18" C–905 CLASS 165 DR 25 PVC WATERLINE	310	L.F.
2.	8" C–900 CLASS 150 DR 18 PVC WATERLINE	10	L.F.
3.	18" DIP 90° M.J. FITTINGS, WITH MEGALUGS	2	EA.
4.	18" x 8" DIP M.J. REDUCER W/ MEGALUGS	2	EA.
5.	8" DIP M.J. 90° FITTINGS, W/ MEGALUGS	1	EACH
6.	8" DIP M.J. 45° FITTINGS, W/ MEGALUGS	1	EACH
7.	8" DIP M.J. 22–1/2° FITTINGS W/ MEGALUGS	2	EACH
8.	THRUST BLOCKS	8	EACH
9.	2" DOW BLUEBOARD – 4'x8' SHEETS	30	EACH

NOTE – BLUEBOARD ONLY REQ'D FOR SHALLOW COVER

GENERAL NOTES:

1. THE CONTRACTOR MUST BE FAMILIAR WITH THE PROPOSED PROJECT'S EXISTING CONDITIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, DIFFICULT CONSTRUCTION AROUND EXISTING TREES AND UTILITIES, CONNECTING TO EXISTING WATER LINES AND SMALL VERTICAL GRADE ADJUSTMENTS NECESSARY TO AVOID CONSTRUCTION CONFLICTS. THE CONTRACTOR MUST ADJUST PRICING TO ACCOUNT FOR THESE DIFFICULT CONSTRUCTION SITUATIONS. NO COMPENSATION SHALL BE GIVEN FOR EXISTING SURFACE CONDITIONS THAT MAY CAUSE DIFFICULT FIELD CONSTRUCTION MODIFICATIONS. CONTRACTOR SHALL EXPECT EXCAVATION TO INCLUDE INDIVIDUAL ROCKS OF VARYING SIZE, SOME TO BE VERY LARGE.

2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THESE PLANS AND SPECIFICATIONS AS SHALL BE MATCH INDUSTRY STANDARDS. ALL WORK SHALL BE INSPECTED AND APPROVED BY PERSONNEL OF THE OWNER.

3. THE CONTRACTOR SHALL NOTIFY THE OWNER, TWENTY–FOUR (24) HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:

A) THE LOCATION OF ALL UTILITY LINES, BOTH HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION. THE UTILITIES SHOWN ON THE DESIGN DRAWINGS ARE FROM UTILITY MAPS AND SURFACE EVIDENCE AND MAY NOT REFLECT THE EXACT FIELD LOCATION.

B) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PERMITS, FEES, OR TARIFFS REQUIRED FOR THE PROJECT. PERMITS, FEES, OR TARIFFS SHALL BE CONSIDERED INCIDENTAL TO THE WORK.

C) THE NOTIFICATION OF THE PROPER AUTHORITIES PRIOR TO CONSTRUCTION AND A PRE–CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE.

D) PROVIDING THE OWNER WITH AN "AS CONSTRUCTED" RED LINED PRINT PRIOR TO FINAL ACCEPTANCE OF THE WORK.

E) THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).

F) THE PROPER AND LEGAL DISPOSAL OF ALL DEMOLISHED AND EXCESS MATERIALS.

G) ALL BACKFILL, SOIL, AND ASPHALT COMPACTION AND QUALITY TESTS REQUIRED BY THE STANDARDS AND SPECIFICATIONS.

H) THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE. INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

5. ALL DIMENSIONS ARE TO THE CENTER OF PIPE AND CENTER OF FITTING.

6. PIPELINE STATIONING IS ALONG THE CENTER LINE OF THE NEW PIPE.

7. THE EXISTING WATER MAINS SHALL REMAIN IN SERVICE DURING THE NEW LINE CONSTRUCTION.

A) IF AN EXISTING WATER MAIN MUST BE TAKEN OUT OF SERVICE FOR TIE–IN PURPOSES, THE CONTRACTOR IS REQUIRED TO OBTAIN APPROVAL OF WATER SERVICE PERMIT FROM OWNER 24 HOURS PRIOR TO SHUTTING OFF THE MAIN.

8. THE CONTRACTOR SHALL REPAIR OR REPLACE THE EXISTING LANDSCAPING, IN KIND, THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL GUARANTEE SAID LANDSCAPING FOR ONE (1) YEAR AFTER THE FINAL ACCEPTANCE OF THE CONSTRUCTION.

9. PIPE BEDDING – ALL PIPE BEDDING SHALL BE 3/4 INCH MINUS MATERIAL BEDDING WITH AT LEAST 12–INCHES OF BEDDING ABOVE THE PIPE AND AT LEAST 4–INCHES OF BEDDING BELOW THE BELLS. ALL BEDDING SHALL BE COMPACTED TO 90% MODIFIED PROCTOR (ASTM 1557).

10. BEDDING MATERIAL – ALL PIPE BEDDING MATERIAL SHALL BE ⅜" MINUS WASHED PEA GRAVEL, CONCRETE SAND, CL. 6 A.B.C GRAVEL OR OTHER MATERIAL AS APPROVED.

11. TRENCH BACKFILL – VEGETATED/NATIVE AREA: ALL TRENCH BACKFILL SHALL BE NATIVE MATERIAL SCREENED TO 3–INCH MINUS MATERIAL AND COMPACTED TO 90% MODIFIED PROCTOR IN ACCORDANCE WITH ASTM 1557 AT ±2% OPTIMUM MOISTURE CONTENT.

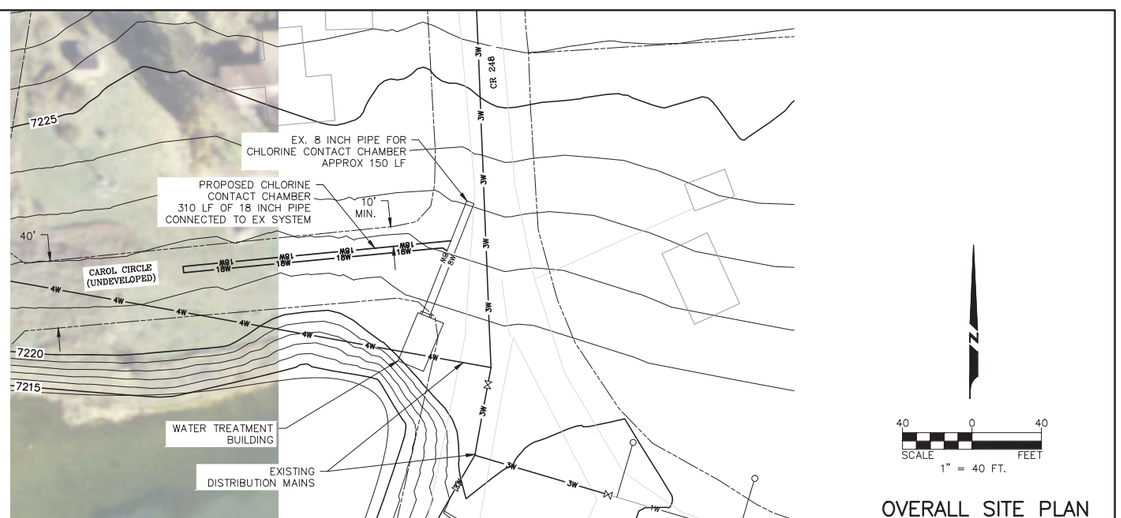
12. THE CONTRACTOR SHALL INFORM THE OWNER'S REPRESENTATIVE 24 HOURS IN ADVANCE WHEN TRENCH WILL BE READY FOR COMPACTION TESTS. THE OWNER SHALL OBTAIN A GEOTECHNICAL TESTING LABORATORY TO PERFORM ALL REQUIRED TESTS.

13. THE CONTRACTOR SHALL PROTECT, REPAIR OR REPLACE ANY UTILITY IN KIND INCLUDING BUT NOT LIMITED TO; RESIDENTIAL SERVICES, WATER LINES, SEWER LINES, STORM DRAINS, ETC., THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION.

14. CONTRACTOR IS ADVISED THAT UNDERGROUND WATER, SEWER, DRAINAGE, TELEPHONE, GAS, AND CABLE TV FACILITIES ARE LOCATED IN THE VICINITY OF THIS PROJECT. LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE. OTHER UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS INCLUDING SEWER AND WATER SERVICE CONNECTIONS.

15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE TRUE AND CORRECT LOCATIONS OF EXISTING UTILITIES THAT MAY IMPACT EACH PORTION OF THE WORK. 48 HOURS PRIOR TO PERFORMING WORK, THE CONTRACTOR SHALL CONTACT THE UTILITY LOCATION SERVICE AT (800) 922–1987 (CALL 811). CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO COMMENCING CONSTRUCTION IF MARKED UTILITIES APPEAR TO CONFLICT WITH PROPOSED IMPROVEMENTS. THE COST OF LOCATING, PROTECTING AND ACCOMMODATING EXISTING UTILITIES SHALL BE INCIDENTAL TO THE COST OF THE PROJECT. IF AN ACTUAL CONFLICT REQUIRES RELOCATION OF AN EXISTING UTILITY OR THE REDESIGN OF THE PROPOSED IMPROVEMENT, THE CITY WILL DETERMINE IF EXTRA PAY IS WARRANTED TO ACCOMMODATE THE CHANGED OR UNFORESEEN CONDITION. MINOR HORIZONTAL OR VERTICAL ADJUSTMENTS OF THE PROPOSED IMPROVEMENTS TO AVOID CONFLICTS SHALL NOT ENTITLE THE CONTRACTOR TO EXTRA PAY.

16. CONTRACTOR TO FOLLOW BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL. NO STATE STORMWATER PERMIT REQUIRED.



OVERALL SITE PLAN

AGENCIES

DOMESTIC WATER
Florida River Estates HOA
Mike Amato, O.R.C.
(970) 247–2429

NATURAL GAS
Atmos Energy
1 (888) 442–1313
Emergency Phone No.
1 (800) 662–6185

ELECTRICAL POWER
LPEA
45 Stewart Street
Durango, CO 81301
(970) 247–5788

CABLE TELEVISION
Bresnan Communications
146 East 15th Avenue
Durango, CO 81301
(970) 247–2681

TELEPHONE
Century Link
225 Sawyer Drive
Durango, CO 81301
(970) 259–1441

811 Know what's below. Call before you dig.

ALL DEPTHS TO EXISTING UTILITIES HAVE BEEN ASSUMED. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING DEPTHS.

Legend of Civil Features

Existing Features

6W	WATER MAIN (SIZE NOTED)	P	POWER VAULT
10S	SEWER MAIN (SIZE NOTED)		POLE MOUNTED STREET LIGHT
FM	SEWER FORCEMAIN		LUMINARY
24D	STORM CULVERT (SIZE NOTED)		UTILITY POLE
IRR	IRRIGATION		TELE./CATV RISER
P	UNDERGROUND POWER		PHONE BOOTH
OHP	OVERHEAD POWER		POWER JUNCTION BOX
FO	UNDERGROUND FIBER OPTIC		TELE/TV MANHOLE
TV	UNDERGROUND TELEVISION		UTILITY POLE ANCHOR
T	UNDERGROUND TELEPHONE		SIGN ON WOODEN POST
OHT	OVERHEAD TV/TELE		SINGLE WATER SERVICE
	WATERCOURSE FLOWLINE		DOUBLE WATER SERVICE
G	UNDERGROUND GAS		WATER MANHOLE – WELLHEAD
X	FENCE		BLOW OFF ASSEMBLY
	PAVEMENT EDGE		WATER METER
	GRAVEL/DIRT ROAD		FIRE HYDRANT
	RAILROAD TRACK		WATER VALVE
	GUARDRAIL		GAS VALVE
	RETAINING WALL		GAS METER
			ELECTRICAL CABINET
			TRANSFORMER

Proposed Features

	WATERLINE	A / 3.1	DETAIL # / SHEET #
	WATERLINE REDUCER		
	WATERLINE CAP		
	WATERLINE VALVE		
	WATERLINE TEE		
	WATERLINE CROSS		

Sheet Index

C1.0 COVER SHEET & SITE PLAN
C2.0 PIPE LAYOUT PLAN & DETAILS

GOFF ENGINEERING & SURVEYING, INC.
126 ROCK POINT DRIVE SUITE A
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COLORADO REGISTERED 16716 PROFESSIONAL ENGINEER AUG 21 2012

FLORIDA RIVER ESTATES
CHLORINE CONTACT PROJECT
DURANGO, COLORADO

Issue Record:

REVIEW	12-15-2011

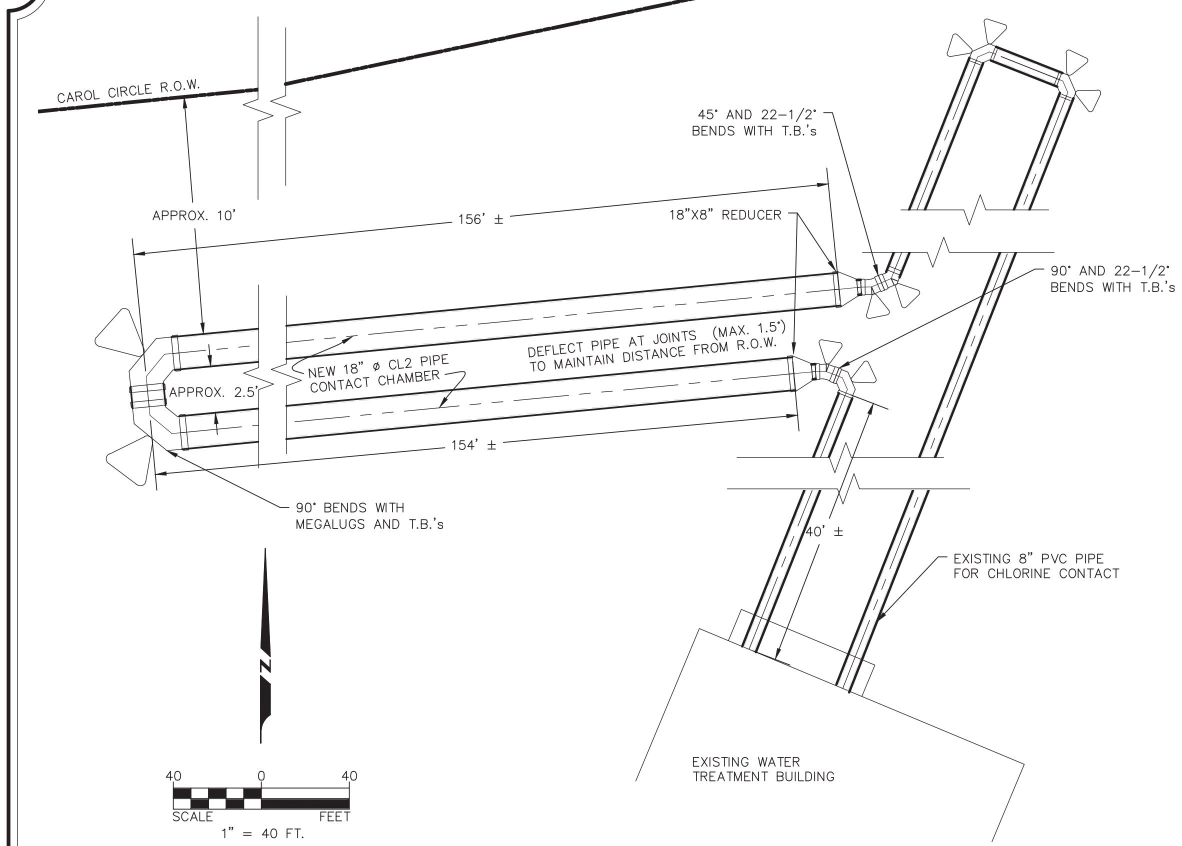
Revisions:

EXPAND CL2 CHAMBER	08-21-2012

Project Number:	11-063
Drawn By:	RCM
Designed by:	BAH
Checked By:	BAH

Sheet **C1.0**

COVER SHEET & SITE PLAN



ENLARGED PIPE LAYOUT PLAN

GENERAL CHLORINE CONTACT CHAMBER NOTES:

1. 18" DIA. C-905 DR 25 PIPE TO BE USED FOR CL2 CHAMBER.
1. 8" DIA. C-900 DR 18 PIPE TO BE USED FOR TRANSITION.
2. FITTINGS SHALL BE DUCTILE IRON PIPE OF THE SIZES SHOWN.
3. MEGALUG JOINT RESTRAINTS SHALL BE PROVIDED FOR ALL FITTINGS.
4. DEPTH OF BURY SHALL BE 4'. IF 4' IS NOT OBTAINABLE, DOW BLUEBOARD INSULATION SHALL BE INSTALLED AT 1' ABOVE TOP OF PIPE AS A FROST BREAK FOR FREEZE PROTECTION. IF ALLOWABLE, THE FINISHED GRADE ABOVE PIPE CAN BE RAISED UP TO ONE FOOT ABOVE EXISTING GRADE TO PROVIDE FROST PROTECTION IN LIEU OF RIGID INSULATION.
5. SPACING FOR 18" PIPES IN PARALLEL IS APPROX. 24".
6. CONTRACTOR SHALL CONTACT UNDERGROUND LINE LOCATION SERVICE (CALL 811) FOR UTILITY LOCATES PRIOR TO CONSTRUCTION.
7. UTILITY PERMIT FOR WORK WITHIN UNDEVELOPED CAROL CIRCLE COUNTY RIGHT-OF-WAY NOT REQUIRED.
8. ALL PERMIT FEES TO BE PAID BY CONTRACTOR.
9. CONTRACTOR TO UNCOVER EXISTING 8" PIPE TO VERIFY ANGLES FOR FITTINGS

REQUIRED FREE CHLORINE RESIDUAL:

REFER TO CALCULATIONS INCLUDED FOR REQUIRED CONTACT CHAMBER LENGTHS TO ACHIEVE ADDITIONAL LOG REMOVAL AS REQUIRED.

PRESENT DESIGN PROVIDES PRE FILTER CHLORINATION.

PLUMBING CHANGES PROPOSED WILL CHANGE EXISTING CHLORINATION LOCATION TO POST FILTER CHLORINATION.

STRAINRITE FILTER BAGS SUGGEST MAXIMUM 0.6 mg/L CHLORINE RESIDUAL THROUGH FILTERS. DUE TO SEASONAL DEMANDS AND WATER QUALITY A SECOND CHLORINATOR IS PROPOSED TO ALLOW PRE OR POST FILTER CHLORINATION TO BE DETERMINED BY OPERATION OF RESPONSIBLE CHARGE (ORC). ORC TO USE EITHER OR BOTH CHLORINATORS BASED UPON SYSTEM REQUIREMENTS AND TO ENSURE MAXIMUM CHLORINE DOSAGE THROUGH FILTER BAGS IS NOT EXCEEDED.

SODIUM HYPOCHLORITE FEED CALCULATIONS:

(FOR PRE-FILTER LOCATION)

ASSUME 6% SOLUTION (60,000 mg/L)

DESIRED FREE CHLORINE RESIDUAL = 0.6 mg/L

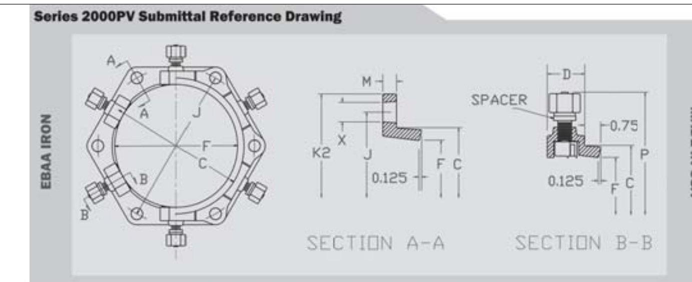
MAX PUMP FLOW RATE = 60 gpm (CURRENT APPROVED)

REQUIRED CHLORINE = 600 gal/min (0.6 mg/L) (3.7854 L/gal) = 136.3 mg/min

CHEMICAL FEED PUMP CAPABLE OF DELIVERING BETWEEN 0.07 AND 0.22 mL PER STROKE. FOR THE ABOVE SOLUTION, IF SET AT SAY 0.1 mL/STROKE, CHEMICAL FEED PUMP WILL DELIVER 60,000 mg/L (0.1 mL/STROKE) (1 L/1000 mL) = 6 mg/STROKE

THEREFORE, FOR THE ABOVE SOLUTION SET INITIAL CHEMICAL FEED PUMP SPEED AT (136.3 mg/min) / (106.25 mg/min-STROKE) = 22 STROKES, AND ADJUST ACCORDINGLY TO ACCOUNT FOR CHLORINE DEMAND AND FREE RESIDUAL.

Series 2000PV Submittal Reference Drawing



Nominal Pipe Size	Series Number	C	D	F	M	P	P*	X	J	K2	Wedge Qty	Bolt Qty	Weight (lbs.)
8	2008PV	10.17	1.68	9.15	0.62	14.5	13.6	⅞	11.75	13.38	6	6	16.3
18	2018PV	20.60	2.25	19.68	1.13	25.9	25.1	⅞	23.25	24.88	12	12	61.8

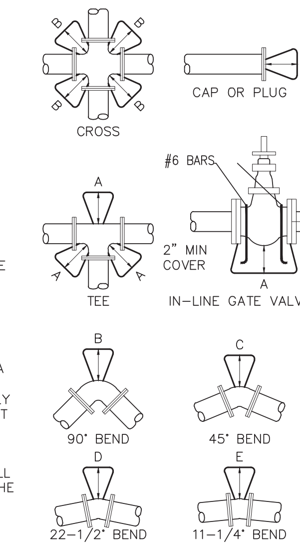
NOTE: Dimensions are in inches and are subject to change without notice. For applications or pressures other than those shown, please contact EBAA for assistance.

Nominal Pipe Size	Series Number	Ratings for Ordinary Water Works w/Transient surges only						Ratings for Peak Pressures used in Sewage Force Mains and other installations designed for Cyclic Surges of 1-Mill. Cycles						C905 PVC Pipe			
		DR14	DR18	DR25	SDR17	SDR21	SDR26	DR14	DR18	DR25	SDR17	SDR21	SDR26	DR18	DR25	DR32.5	DR41
8	2008PV	305	235	165	250	200	160	244	188	132	200	160	120	-	-	-	-
18	2018PV	-	-	-	-	-	-	-	-	-	-	-	-	200	165	-	-

* Refer to Series 2200 to achieve rated pressure on DR41 in stated pipe size.

MINIMUM REQUIRED BEARING AREA (SQ FT)					
	Tees/ ends	90°	45°	22.5°	11.25°
PIPE	A	B	C	D	E
4"	1.3	1.8	1.0	0.5	--
6"	2.8	4.0	2.2	1.1	0.5
8"	5.0	7.1	3.8	2.0	1.0
10"	7.8	11.1	6.0	3.0	1.5
12"	11.3	16.0	8.6	4.4	2.2
14"	15.4	21.7	11.8	6.0	3.0
18"	25.4	36.0	19.4	10.0	5.0

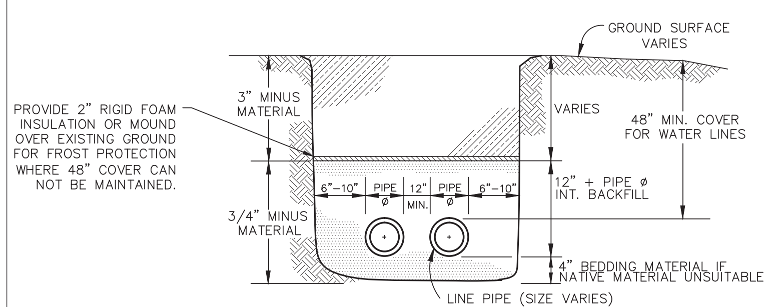
1. THE TABLE PROVIDES THE MINIMUM CONCRETE BEARING SURFACE OF THRUST BLOCKS & ARE BASED ON THE FOLLOWING PARAMETERS:
   - 100 PSI INTERNAL FLUID PRESSURE
   - 1,000 PSF SOIL BEARING CAPACITY
   DEVIATIONS FROM THESE CONDITIONS REQUIRE RECALCULATING SIZE OF THRUST BLOCK
2. CONCRETE SHALL BE CAST-IN-PLACE WITH A MIN 1/4 SQ FT BEARING AGAINST THE FITTING
3. CONCRETE SHALL BEAR AGAINST FITTING ONLY AND NOT ADJACENT PIPING. CONCRETE SHALL NOT IMPEDE DISMANTLING JOINT OR FITTING.
4. BLOCKING SHALL WITHSTAND BOTH THE TEST PRESSURE AND ALL OPERATING PRESSURES.
5. IF VERTICAL BENDS ARE REQUIRED TO INSTALL WATERMAIN, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR CONSTRUCTION DETAILS
6. BEARING AREA MAY BE REDUCED OR ELIMINATED BY USING TIE RODS OR RESTRAINED JOINTS, WHEN DESIGNED AND SEALED BY A P.E.
7. VALVES & FITTINGS MUST BE ENCASED IN PE IN ACCORDANCE WITH AWWA C-105 PRIOR TO INSTALLING THE THRUST BLOCKING.



NOTE: DESIGN PRESSURE = 150 PSI
ASSUMED SOIL BEARING CAPACITY = 2500 PSF
CORRECTION FACTOR FOR TABLE = 1.5/2.5 = 0.6
(TO BE VERIFIED IN THE FIELD)

THRUST BLOCKING SCHEDULE

(NO SCALE)

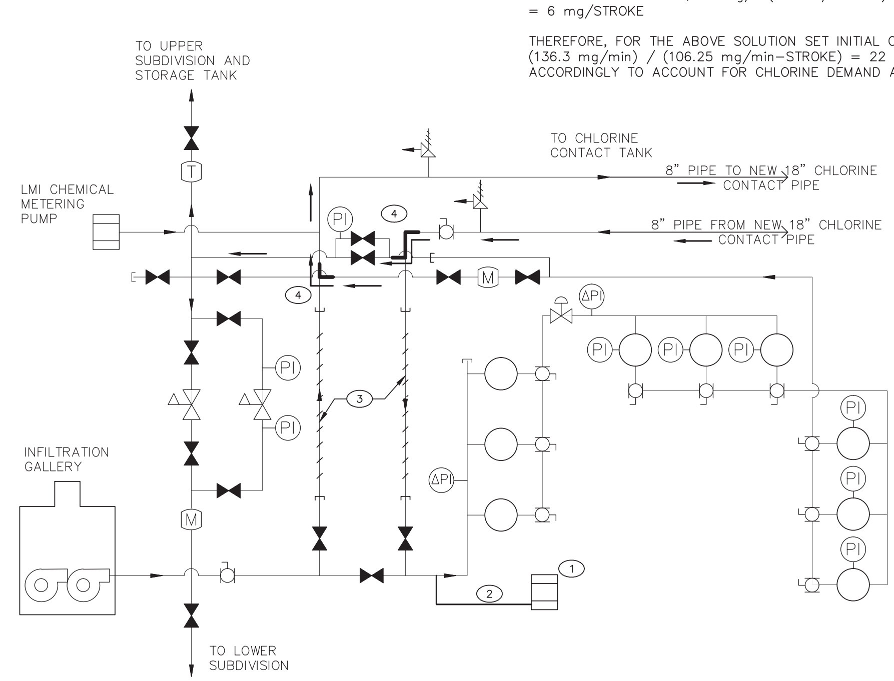


STANDARD TRENCH DETAIL

(NO SCALE)

LEGEND

- GATE VALVE
- AIR RELIEF VALVE
- PRESSURE REDUCING VALVE
- FLOW CONTROL VALVE
- TREATMENT WATER SPIGOT
- SIEMENS VSD1 SUBMERSIBLE PUMPS
- CHLORINE 55 GALLON DRUM
- PRESSURE GAUGE
- DIFFERENTIAL PRESSURE GAUGE
- BADGEMETER T200
- TURBIDIMETER
- FLOW DIRECTION
- 2.5 INCH PIPE (SCH 40 PVC)
- LINE CROSSING
- REMOVED PIPE



WATER TREATMENT FACILITY PLUMBING SCHEMATIC

(NO SCALE)

SYSTEM DETAIL KEYNOTES:

1. INSTALL 0.2 GPH LMI MILTON ROY ELECTRONIC METERING PUMP (SERIES P76 MODEL P12-150 PSI FOR USE WITH SODIUM HYPOCHLORITE) ON SHELF OF LMI 35-GALLON SOLUTION TANK (MODEL 27400). USE NSF 60 COMPLIANT SODIUM HYPOCHLORITE SOLUTION. SOLUTION TANK TO BE PLACED ON LOW-PROFILE 19-GALLON CONTAINMENT TRAY (BLUEBOOK MODEL MG-42657).
2. CONNECT 3/8" CL_2 SOLUTION TUBING (NSF 61 COMPLIANT) FROM CHEMICAL FEED PUMP TO WATER LINE.
3. DISCONNECT THESE 2½" ø PVC LINES TO REROUTE FLOW PATH FOR CHLORINE CONTACT PIPES TO BE AFTER FILTER SYSTEM.
4. CONNECT 2½" ø SCH 40 PVC PIPE INTO NEW FLOW PATH AS SHOWN. PROVIDE PIPE, FITTINGS AND COUPLERS.

WATER SYSTEM CONSTRUCTION NOTES:

PRIOR TO PLACING NEW CHLORINATION DEVICE INTO SERVICE, CONTRACTOR TO SUPPLY LMI CHEMICAL FEED PUMP REPAIR KIT AND SUFFICIENT CHEMICAL FEED PUMP REPLACEMENT SUCTION TUBING (CLEAR PVC) AND DISCHARGE TUBING (PE).

DISINFECTION AT STARTUP SHALL COMPLY WITH AWWA STD. C-652 FOR STORAGE TANKS AND AWWA STD. C-651 FOR WATER MAINS.

ALL WATER PIPING AND APPURTENANCES SHALL COMPLY WITH NSF STANDARD 61 FOR POTABLE WATER USE.

DAILY REQUIRED CHLORINE DOSE:

AVERAGE DAY WATER DEMAND FOR SUBDIVISION = 30,000 MPD (0.03 MGD)

AVERAGE DAY WATER DEMAND FOR WEST PUMPHOUSE = SAY 0.5 MGD

CHLORINE DEMAND OF WATER UNKNOWN, THEREFORE REQUIRED CHLORINE DOSE AT MINIMUM = [2.0 mg/L (0.5 MGD) (8.345 lb-L/mg-MG)] / 0.125 = 2.5 lb/day, OR 0.3 gal/day OF SODIUM HYPOCHLORITE SOLUTION THAT IS 6% AVAILABLE CHLORINE.

GOFF
ENGINEERING + SURVEYING INC
GOFF ENGINEERING & SURVEYING, INC.
126 ROCK POINT DRIVE SUITE A
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DURANGO, COLORADO 81302
(970) 247-1705
www.GoffEngineering.com
COLORADO REGISTERED PROFESSIONAL ENGINEER 16716 AUG 21 2012

FLORIDA RIVER ESTATES CHLORINE CONTACT PROJECT

DURANGO, COLORADO

Issue Record:

REVIEW	12-15-2011

Revisions:

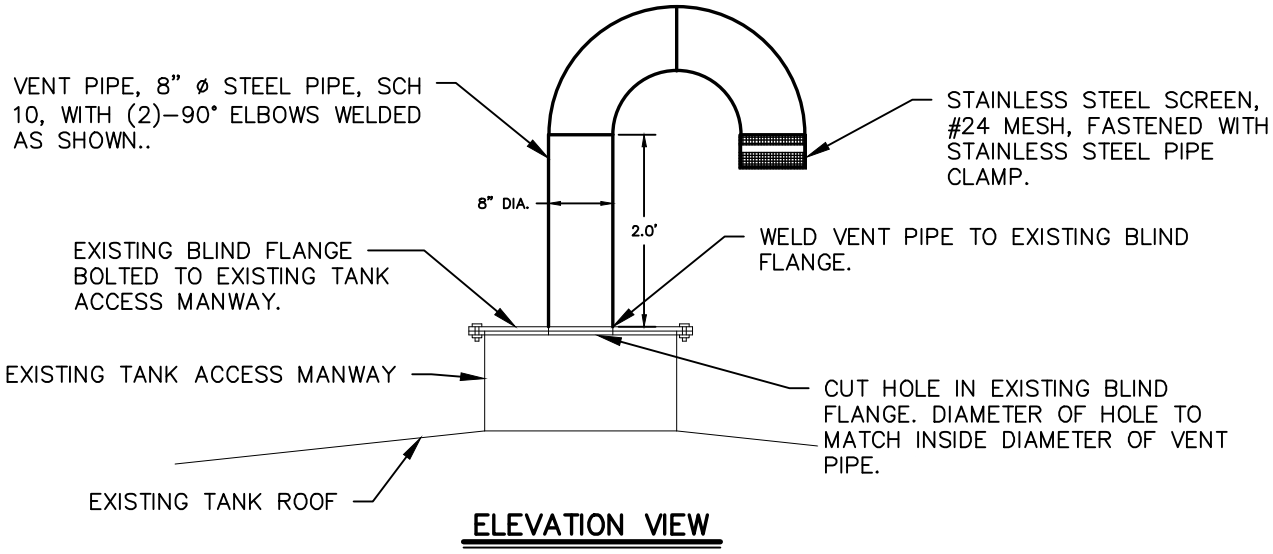
EXPAND CL2 CHAMBER	08-21-2012

Project Number:	11-063
Drawn By:	RCM
Designed by:	BAH
Checked By:	BAH

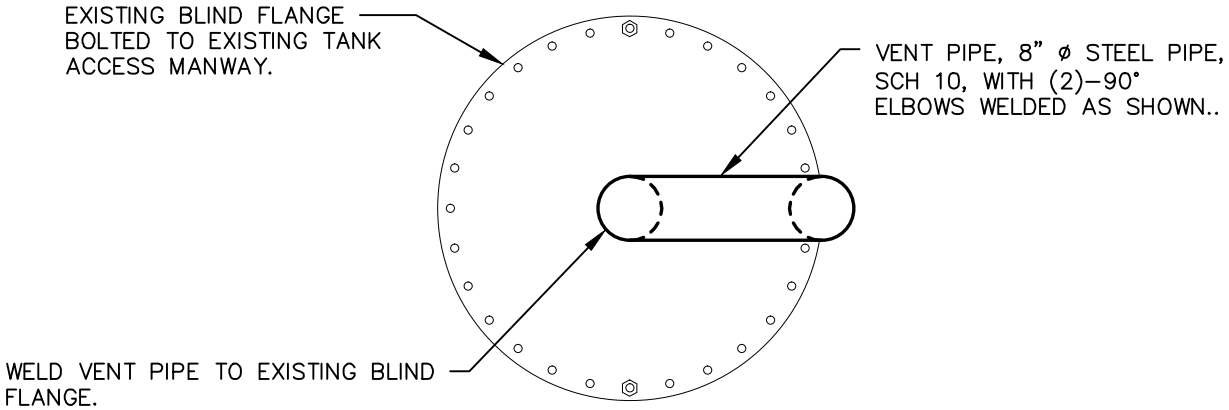
Sheet

C2.0

PIPE LAYOUT PLAN AND DETAILS



ELEVATION VIEW



PLAN VIEW

NOTES:
1. ALL WORK SHALL BE DONE PER AWWA STANDARD SPECIFICATIONS, D–100.
2. NEW VENT PIPE AND WELDS TO BE PAINTED PER AWWA D–102.

GOFF
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136 ROCK POINT DRIVE
PO BOX 97
DURANGO, COLORADO 81302
970.247.1705

FLORIDA RIVER ESTATES
WATER TANK VENT DETAIL

SHEET 1 OF 1

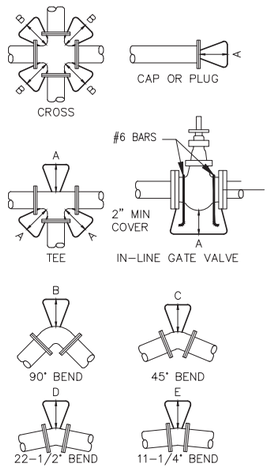
PREPARED BY:	RA	CHECKED BY:	BAH
PROJECT NO.	11-063	SCALE: AS SHOWN	DATE: 8/7/13

FLORIDA RIVER ESTATES
FIRE PREVENTION SYSTEM PLAN

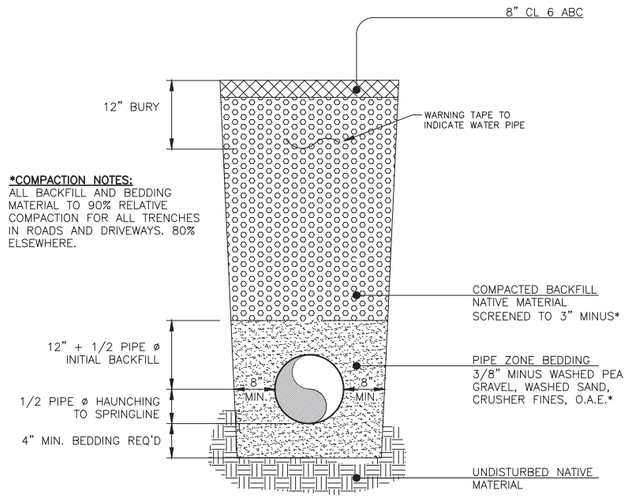
MINIMUM REQUIRED BEARING AREA (SQ FT)					
	Tees/ ends	90°	45°	22.5°	11.25°
PIPE	A	B	C	D	E
4"	1.3	1.8	1.0	0.5	--
6"	2.8	4.0	2.2	1.1	0.5
8"	5.0	7.1	3.8	2.0	1.0
10"	7.8	11.1	6.0	3.0	1.5
12"	11.3	16.0	8.6	4.4	2.2
14"	15.4	21.7	11.8	6.0	3.0

1. THE TABLE PROVIDES THE MINIMUM CONCRETE BEARING SURFACE OF THRUST BLOCKS & ARE BASED ON THE FOLLOWING PARAMETERS:
   - 100 PSI INTERNAL FLUID PRESSURE
   - 1,000 PSF SOIL BEARING CAPACITY

   DEVIATIONS FROM THESE CONDITIONS REQUIRE RECALCULATING SIZE OF THRUST BLOCK
2. CONCRETE SHALL BE CAST-IN-PLACE WITH A MIN 1/4 SQ FT BEARING AGAINST THE FITTING
3. CONCRETE SHALL BEAR AGAINST FITTING ONLY AND NOT ADJACENT PIPING. CONCRETE SHALL NOT IMPEDE DISMANTLING JOINT OR FITTING.
4. BLOCKING SHALL WITHSTAND BOTH THE TEST PRESSURE AND ALL OPERATING PRESSURES.
5. IF VERTICAL BENDS ARE REQUIRED TO INSTALL WATERMAIN, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR CONSTRUCTION DETAILS
6. BEARING AREA MAY BE REDUCED OR ELIMINATED BY USING TIE RODS OR RESTRAINED JOINTS, WHEN DESIGNED AND SEALED BY A P.E.
7. VALVES & FITTINGS MUST BE ENCASED IN PE IN ACCORDANCE WITH AWWA C-105 PRIOR TO INSTALLING THE THRUST BLOCKING.



THRUST BLOCKING TABLE
(NO SCALE)

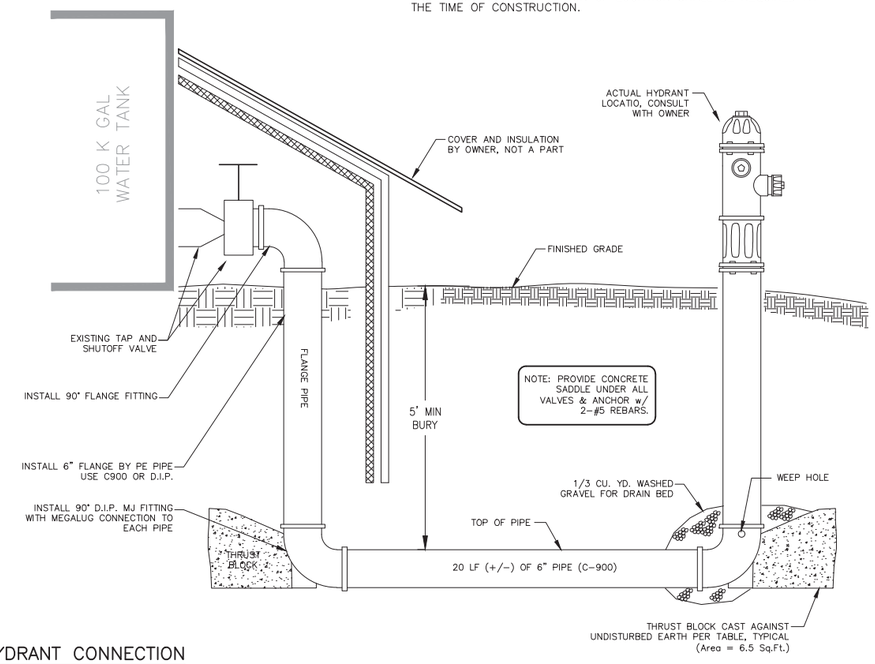


***COMPACTION NOTES:**
ALL BACKFILL AND BEDDING MATERIAL TO 90% RELATIVE COMPACTION FOR ALL TRENCHES IN ROADS AND DRIVEWAYS. 80% ELSEWHERE.

BACKFILL DETAIL
(NO SCALE)

NOTES:

1. PER THE REQUIREMENTS OF DURANGO FIRE AND RESCUE AUTHORITY (DFRA), HYDRANTS SHALL BE RED-PAINTED, OPEN LEFT (COUNTER-CLOCKWISE) MUELLER BRAND SUPER CENTURION 250 A-423 WITH (2) 2 ½" NH PORTS AND ONE STEAMER CONNECTION EQUIPPED WITH A 5" STORZ FITTING AND CAP (OPTION 479, 5").
2. THE STEAMER CONNECTION MUST FACE AWAY FROM THE TANK. HYDRANTS SUBJECT TO PROBABLE VEHICULAR DAMAGE MUST BE PROTECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL FIRE CODE. A DISTANCE OF 3' CLEAR MUST BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT. WHEN LANDSCAPING IS COMPLETE ALL HYDRANT BASE FLANGES ARE TO BE 6" ABOVE FINISHED GRADE.
3. ALL FIRE HYDRANTS MUST MEET THE DFRA REQUIREMENTS. FIELD INSPECTION AND VERIFICATION OF LOCATION SHALL BE REQUIRED AT THE TIME OF CONSTRUCTION.



FIRE HYDRANT CONNECTION
(NO SCALE)

GENERAL WATER NOTES:

1. ALL WATER MAIN PIPING SHALL BE C-900 DR 18 COMPLYING WITH AWWA C900 OR CL 52 D.I.P.
2. ALL LINES SHALL BE PRESSURE TESTED PER AWWA STANDARDS. MINIMUM TEST PRESSURE SHALL BE 50 PSI FOR A MINIMUM OF ONE HOUR.
3. A LEAKAGE TEST SHALL BE PERFORMED PER AWWA STANDARDS, IF REQUIRED BY OWNER.
4. THE MINIMUM FACE AREA FOR ALL THRUST BLOCKS SHALL BE AS SHOWN IN THE THRUST BLOCK TABLE.
5. FIRE HYDRANTS SHALL COMPLY WITH AWWA C-502. THE HYDRANTS SHALL BE MUELLER CENTURIAN MODEL No. A-423 WITH 5" STORTZ CONNECTION OR EQUAL AS APPROVED BY DURANGO FIRE AND RESCUE AUTHORITY.

GENERAL NOTES:

1. THE CONTRACTOR MUST BE FAMILIAR WITH THE PROPOSED PROJECT'S EXISTING CONDITIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, DIFFICULT CONSTRUCTION AROUND EXISTING TREES AND UTILITIES, CONNECTING TO EXISTING WATER LINES AND SMALL VERTICAL GRADE ADJUSTMENTS NECESSARY TO AVOID CONSTRUCTION CONFLICTS. THE CONTRACTOR MUST ADJUST PRICING TO ACCOUNT FOR THESE DIFFICULT CONSTRUCTION SITUATIONS. NO COMPENSATION SHALL BE GIVEN FOR EXISTING SURFACE CONDITIONS THAT MAY CAUSE DIFFICULT FIELD CONSTRUCTION MODIFICATIONS. CONTRACTOR SHALL EXPECT EXCAVATION TO INCLUDE INDIVIDUAL ROCKS OF VARYING SIZE, CONTACT ENGINEER FOR DIRECTION IF LARGE BOULDERS OR BEDROCK IS ENCOUNTERED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:

   THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PERMITS, FEES, OR TARIFFS REQUIRED FOR THE PROJECT. PERMITS, FEES, OR TARIFFS SHALL BE CONSIDERED INCIDENTAL TO THE WORK.

   PROVIDING THE OWNER WITH AN "AS CONSTRUCTED" RED LINED PRINT PRIOR TO FINAL ACCEPTANCE OF THE WORK.

   THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).

   THE PROPER AND LEGAL DISPOSAL OF ALL DEMOLISHED AND EXCESS MATERIALS.

   THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE. INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
3. THE CONTRACTOR SHALL REPAIR OR REPLACE THE EXISTING LANDSCAPING, IN KIND, THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL GUARANTEE SAID LANDSCAPING FOR ONE (1) YEAR AFTER THE FINAL ACCEPTANCE OF THE CONSTRUCTION.
4. THE CONTRACTOR SHALL PROTECT, REPAIR OR REPLACE ANY UTILITY IN KIND INCLUDING BUT NOT LIMITED TO: RESIDENTIAL SERVICES, WATER LINES, SEWER LINES, STORM DRAINS, ETC., THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION.
5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE TRUE AND CORRECT LOCATIONS OF EXISTING UTILITIES THAT MAY IMPACT EACH PORTION OF THE WORK. 48 HOURS PRIOR TO PERFORMING WORK, THE CONTRACTOR SHALL CONTACT THE UTILITY LOCATION SERVICE AT (800) 922-1987. CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO COMMENCING CONSTRUCTION IF MARKED UTILITIES APPEAR TO CONFLICT WITH PROPOSED IMPROVEMENTS. THE COST OF LOCATING, PROTECTING AND ACCOMMODATING EXISTING UTILITIES SHALL BE INCIDENTAL TO THE COST OF THE PROJECT. MINOR HORIZONTAL OR VERTICAL ADJUSTMENTS OF THE PROPOSED IMPROVEMENTS TO AVOID CONFLICTS SHALL NOT ENTITLE THE CONTRACTOR TO EXTRA PAY.

Know what's **below.**
Call before you dig.

GOFF ENGINEERING & SURVEYING, INC.
126 ROCK POINT DRIVE SUITE A
P.O. BOX 97
DURANGO, COLORADO 81302
(970) 247-1705
www.GoffEngineering.com

COLORADO REGISTERED BRUCE A. HONTECH 16716 PROFESSIONAL ENGINEER

FLORIDA RIVER ESTATES
FIRE PREVENTION SYSTEM
LA PLATA COUNTY, CO

Issue Record:
CONSTR PLAN 21-Jun-13

Revisions:

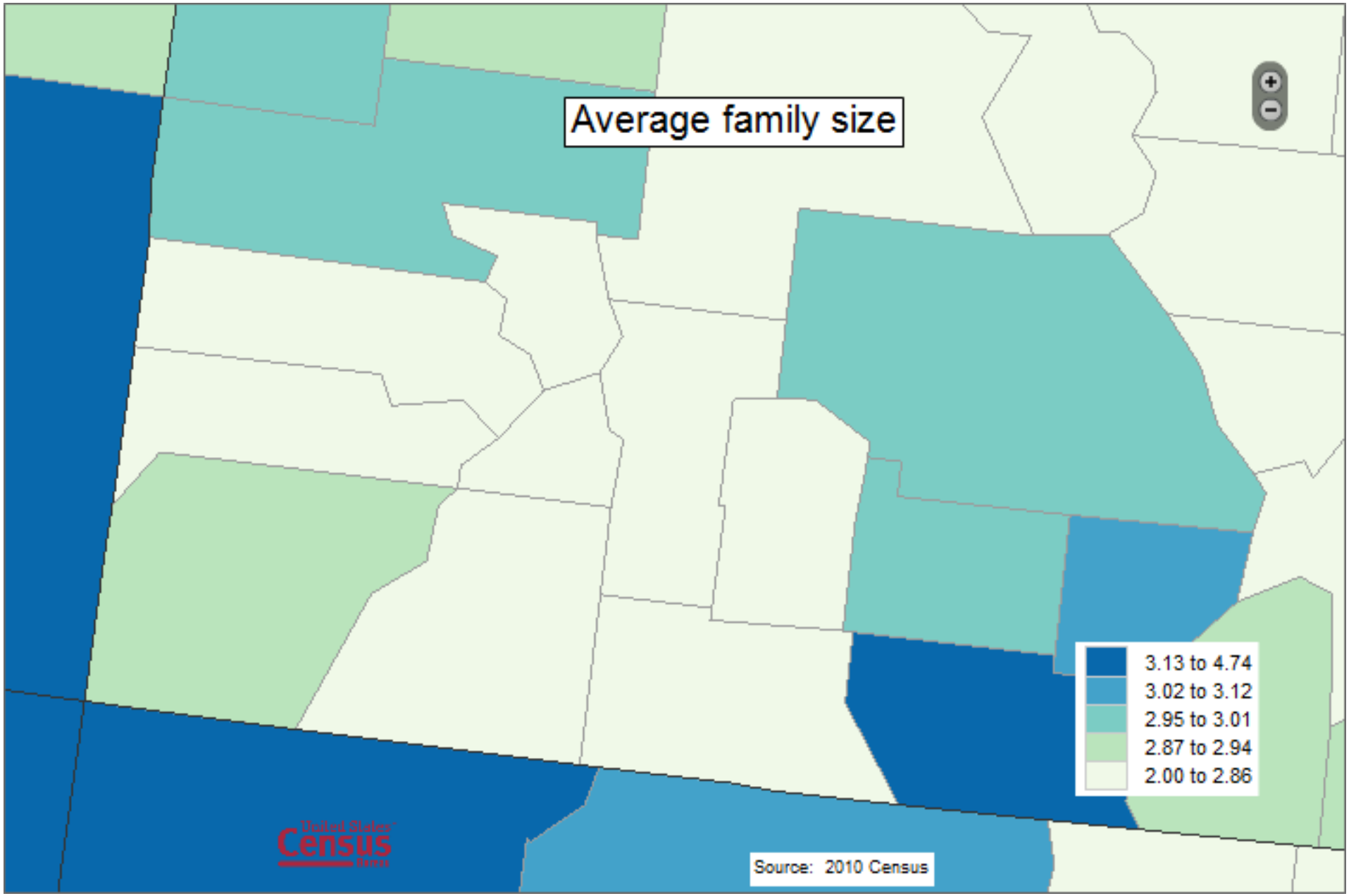
Project Number: N/A

Designed by: TWE

Checked By: BAH

Sheet
C-01

FIRE PREVENTION SYSTEM


Average family size
3.13 to 4.74
3.02 to 3.12
2.95 to 3.01
2.87 to 2.94
2.00 to 2.86
Source: 2010 Census

GOFF

APPENDIX B

LEGEND

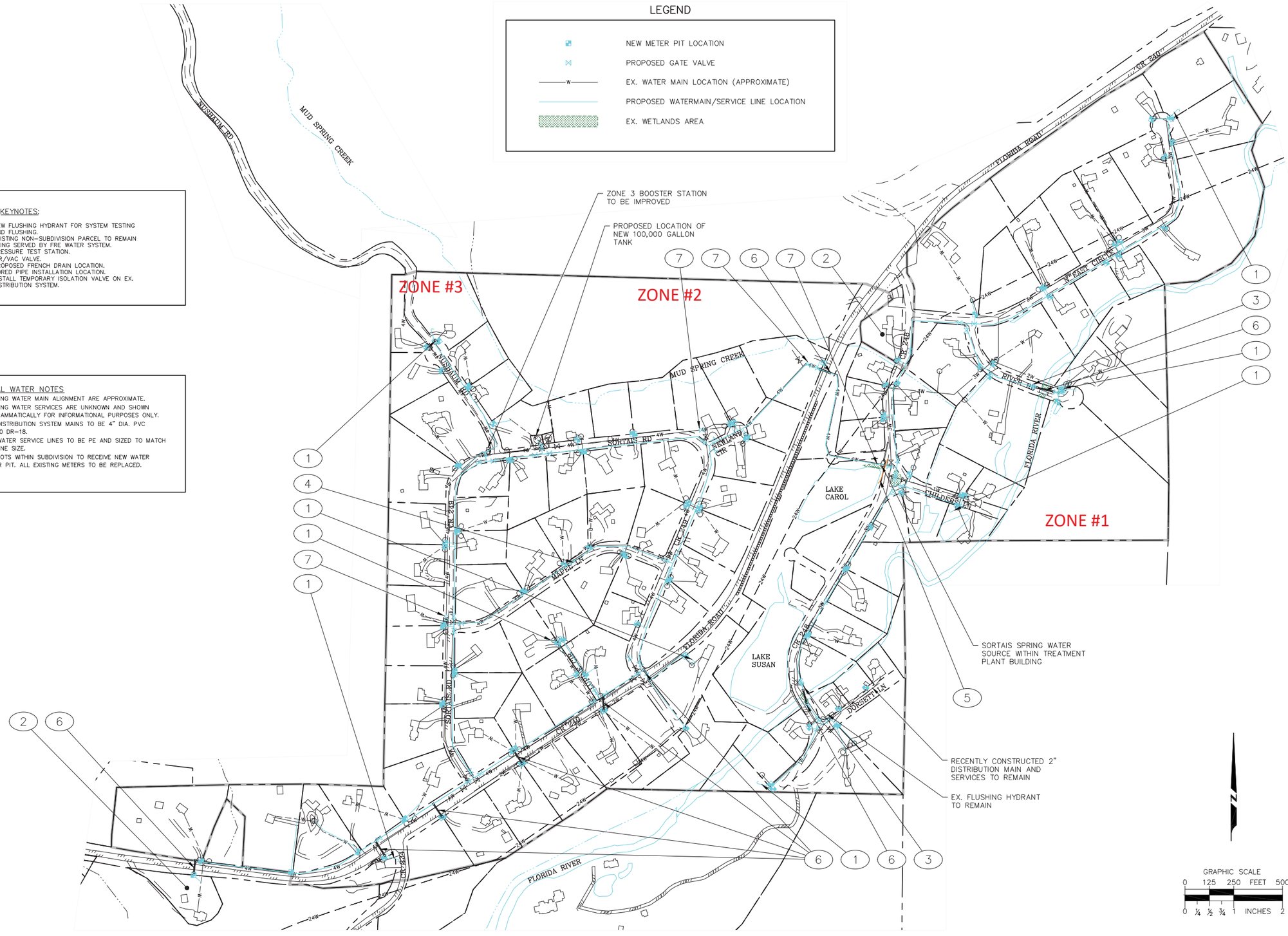
- NEW METER PIT LOCATION
- PROPOSED GATE VALVE
- EX. WATER MAIN LOCATION (APPROXIMATE)
- PROPOSED WATERMAIN/SERVICE LINE LOCATION
- EX. WETLANDS AREA

(##) KEYNOTES:

1. NEW FLUSHING HYDRANT FOR SYSTEM TESTING AND FLUSHING.
2. EXISTING NON-SUBDIVISION PARCEL TO REMAIN BEING SERVED BY FRE WATER SYSTEM.
3. PRESSURE TEST STATION.
4. AIR/VAC VALVE.
5. PROPOSED FRENCH DRAIN LOCATION.
6. BORED PIPE INSTALLATION LOCATION.
7. INSTALL TEMPORARY ISOLATION VALVE ON EX. DISTRIBUTION SYSTEM.

GENERAL WATER NOTES

1. EXISTING WATER MAIN ALIGNMENT ARE APPROXIMATE.
2. EXISTING WATER SERVICES ARE UNKNOWN AND SHOWN DIAGRAMMATICALLY FOR INFORMATIONAL PURPOSES ONLY.
3. ALL DISTRIBUTION SYSTEM MAINS TO BE 4" DIA. PVC C-900 DR-18.
4. ALL WATER SERVICE LINES TO BE PE AND SIZED TO MATCH EX. LINE SIZE.
5. ALL LOTS WITHIN SUBDIVISION TO RECEIVE NEW WATER METER PIT. ALL EXISTING METERS TO BE REPLACED.



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PRELIMINARY FOR REVIEW ONLY

FLORIDA RIVER ESTATES WATER DISTRIBUTION SYSTEM
FLORIDA RIVER ESTATES HOA
LA PLATA COUNTY, COLORADO

Issue Record:

PROGRESS	06-03-2019

Revisions:

Project Number:	17-195
Drawn By:	JAE
Designed by:	JAE
Checked By:	RSH

Sheet
C1.1

OVERALL SITE IMPROVEMENT PLAN

\\Vol1\goff_common\projects\2017\17-195 florida river estates hoa water system\cad\sheets\c1.1 improvement plan.dwg DATE:6/3/2019 USER:JENGLISH PLOT SCALE=1:1.5849

APPENDIX C

Florida River Estate HOA, Inc.
Profit & Loss
July 2009 through June 2019

06/27/2019
Accrual Basis

	Jul '09 - Jun 10	Jul '10 - Jun 11	Jul '11 - Jun 12	Jul '12 - Jun 13	Jul '13 - Jun 14	Jul '14 - Jun 15	Jul '15 - Jun 16	Jul '16 - Jun 17	Jul '17 - Jun 18	Jul '18 - Jun 19	TOTAL
Ordinary Income/Expense											
Income											
***Uncategorized Income**	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.97
40000 · Sales - Water Usage <10,000	8,749.46	8,737.90	8,940.05	10,364.35	9,526.43	8,328.08	7,834.52	8,234.20	8,785.99	8,985.19	88,486.17
40010 · Sales - Water Usage 10k to 15k	486.72	1,594.31	2,110.79	2,541.37	1,764.93	1,375.23	968.93	1,332.25	1,672.80	1,364.28	15,211.61
40015 · Sales - Water Usage 15k to 20k	522.20	1,743.04	2,131.44	2,647.75	1,947.00	1,285.00	957.39	1,356.25	1,526.35	1,448.30	15,564.72
40020 · Sales - Water Usage >20,000	3,746.50	15,565.78	13,311.12	18,711.40	14,857.20	12,093.60	4,743.80	13,879.90			96,909.30
40021 · Sales - Water Usage 20K to 50K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,704.10	8,447.30	15,151.40
40022 · Sales - Water Usage >50,000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,705.80	7,199.20	11,905.00
40050 · Sales - Water Usage >10,000	8,463.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00			8,463.82
40100 · Sales - Operation account fee	35,640.00	42,340.01	42,761.45	42,717.00	43,180.00	43,160.00	45,317.00	53,462.04	77,280.00	75,558.00	501,415.50
40200 · Sales - Ready to serve	4,266.00	5,616.00	5,616.00	5,395.00	5,044.00	4,992.00	5,254.00	5,642.00	6,240.00	6,600.00	54,665.00
40250 · Sales - Capital Account	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,547.21	30,912.00	31,752.00	65,211.21
40300 · NSF Charges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	5.00
40400 · Tap Fees-001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,000.00	0.00	0.00	2,000.00
40600 · Transfer Fees	40.00	20.00	50.00	40.00	320.00	400.00	300.00	1,100.00	500.00	300.00	3,070.00
40800 · Overdue Acct Interest	40.26	106.55	-54.48	72.10	2.41	0.00	0.00	0.00	0.00	0.00	166.84
40900 · Interest Income	125.10	58.93	53.69	38.75	23.83	52.24	79.53	93.66	148.47	174.62	848.82
40950 · Dividend Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	385.80	0.00	385.80
41000 · Other Income	556.82	0.00	0.00	0.00	-49.59	0.00	0.00	267.84	284.79	404.76	1,464.62
45400 · Late Fees											
45410 · Reconnect Fee	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	100.00	200.00
45400 · Late Fees - Other	557.84	1,548.94	1,063.59	1,072.79	213.23	280.25	240.00	0.00	0.00	0.00	4,976.64
Total 45400 · Late Fees	557.84	1,548.94	1,063.59	1,072.79	313.23	280.25	240.00	0.00	0.00	100.00	5,176.64
Total Income	63,194.72	77,331.46	75,983.65	83,600.51	76,930.41	71,966.40	65,695.17	89,920.35	139,146.10	142,333.65	886,102.42
Cost of Goods Sold											
50100 · Cost of Sales Chemicals	468.60	431.60	377.74	503.70	810.72	516.82	742.59	1,118.42	1,886.07	1,302.50	8,158.76
50200 · Cost of Sales Electricity	3,524.77	2,775.32	2,729.26	3,006.36	3,414.77	3,824.82	4,195.37	5,115.42	4,283.00	3,941.18	36,810.27
50250 · Cost of Sales Filters	7,958.83	4,993.20	2,739.03	2,647.41	3,177.55	6,645.49	8,073.02	23,535.91	12,861.73	23,113.92	95,746.09
50300 · Cost of Sales Operator	11,475.00	11,400.00	11,400.00	11,580.00	12,040.00	12,750.00	13,819.57	19,040.00	0.00	0.00	103,504.57
50305 · Operator Time USDA Loan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	210.00	210.00
50300 · Cost of Sales Operator - Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,420.00	19,667.50	38,087.50
Total 50300 · Cost of Sales Operator	11,475.00	11,400.00	11,400.00	11,580.00	12,040.00	12,750.00	13,819.57	19,040.00	18,420.00	19,877.50	141,802.07
50400 · Cost of Sales Repairs & Maint	2,673.54	674.40	3,147.84	6,195.44	6,680.65	13,280.76	4,145.70	73,382.90	11,145.06	17,359.30	138,685.59
50500.1 · Cost of Sales Supplies Heading											
50500 · Cost of Sales Supplies	0.00	0.00	187.78	607.11	0.00	0.00	0.00	348.25	374.53	24.73	1,542.40
50505 · Meter Supplies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	437.05	1,106.97	1,544.02
50510 · Monitoring	0.00	0.00	0.00	0.00	0.00	0.00	20.65	104.38	137.40	537.34	799.77
Total 50500.1 · Cost of Sales Supplies Heading	0.00	0.00	187.78	607.11	0.00	0.00	20.65	452.63	948.98	1,669.04	3,886.19
50600 · Cost of Sales Testing	1,023.00	2,446.00	2,726.00	882.00	2,718.00	804.05	943.00	1,328.48	3,384.72	1,708.00	17,963.25
Total COGS	27,123.74	22,720.52	23,307.65	25,422.02	28,841.69	37,821.94	31,939.90	123,973.76	52,929.56	68,971.44	443,052.22
Gross Profit	36,070.98	54,610.94	52,676.00	58,178.49	48,088.72	34,144.46	33,755.27	-34,053.41	86,216.54	73,362.21	443,050.20

	Jul '09 - Jun 10	Jul '10 - Jun 11	Jul '11 - Jun 12	Jul '12 - Jun 13	Jul '13 - Jun 14	Jul '14 - Jun 15	Jul '15 - Jun 16	Jul '16 - Jun 17	Jul '17 - Jun 18	Jul '18 - Jun 19	TOTAL
Expense											
60000 · Accounting Expense	325.00	400.00	400.00	400.00	660.00	460.00	480.00	480.00	0.00	0.00	3,605.00
60500 · Administrator Expense	8,100.00	8,100.00	8,100.00	8,100.00	11,750.00	10,800.00	11,730.10	16,330.70	0.00	0.00	83,010.80
60510 · Loan applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	243.90	3,179.70	3,423.60
60520 · Admin Expense Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10,421.10	8,457.35	18,878.45
Total 60500 · Administrator Expense	8,100.00	8,100.00	8,100.00	8,100.00	11,750.00	10,800.00	11,730.10	16,330.70	10,665.00	11,637.05	105,312.85
62000 · Bank Charges	0.00	0.00	0.00	0.00	0.00	20.00	250.00	106.00	2.10	2.00	380.10
64000 · Depreciation Expense	6,356.21	11,571.88	7,004.92	7,453.46	6,576.89	9,933.27	10,056.82	14,459.96	6,490.60	5,923.14	85,827.15
64500 · Dues and Subscriptions Exp	203.00	500.00	325.00	310.00	361.00	516.39	385.00	250.00	250.00	325.00	3,425.39
67000 · Insurance Expense	3,313.99	3,247.12	3,246.71	3,303.09	3,463.00	3,805.04	3,303.98	3,811.50	4,332.88	4,694.95	36,522.26
68500 · Legal and Professional Expense	0.00	0.00	0.00	0.00	0.00	1,360.00	0.00	610.00	1,260.00	5,960.00	9,190.00
69000 · Licenses Expense	110.00	20.00	0.00	0.00	0.00	0.00	60.00	70.00	85.00	10.00	355.00
69100 · Line Locates Expense	50.00	50.00	50.00	121.18	68.34	335.68	32.77	145.11	218.95	197.69	1,269.72
70000 · Maintenance Expense	0.00	0.00	0.00	0.00	0.00	404.36	988.70	350.00	30.56	422.07	2,195.69
70500 · Meals and Entertainment Exp	0.00	207.81	106.00	115.00	130.00	40.23	0.00	0.00	26.92	0.00	625.96
70501 · Meals 100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	333.52	333.52
71000 · Office Expense	0.00	0.00	0.00	0.00	262.21	0.00	543.24	219.14	69.87	556.07	1,650.53
71500 · Other Taxes	0.00	138.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00		138.17
73500 · Postage & Shipping Expense	832.35	424.49	531.43	403.66	525.85	811.56	0.00	381.50	648.73	758.20	5,317.77
74000 · Rent or Lease Expense	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.00	0.00	155.00	225.00
74500 · Repairs and Maint Expense	5,171.62	0.00	0.00	0.00	0.00	2,169.11	0.00	0.00	0.00	0.00	7,340.73
75200 · Small Equipment											
75210 · Monitoring	0.00	0.00	0.00	0.00	0.00	0.00	1,960.11	0.00	0.00	0.00	1,960.11
75220 · Small Equipment/ Non-monitoring	0.00	0.00	0.00	0.00	0.00	0.00	761.87	3,044.80	0.00	3,993.84	7,800.51
Total 75200 · Small Equipment	0.00	0.00	0.00	0.00	0.00	0.00	2,721.98	3,044.80	0.00	3,993.84	9,760.62
75400 · Software expense	0.00	0.00	0.00	0.00	0.00	199.95	0.00	0.00	0.00	0.00	199.95
75500 · Supplies Expense	0.00	0.00	0.00	0.00	0.00	0.00	0.00	121.34	0.00	0.00	121.34
76000 · Telephone Expense	0.00	0.00	0.00	0.00	0.00	0.00	0.00	541.24	776.03	662.03	1,979.30
76100 · Testing Expense	770.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	770.00
77600 · Website	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.88	143.88	159.05	386.81
78000 · Engineering and Design Expense	897.50	1,136.25	3,677.06	187.50	562.00	0.00	0.00	0.00	9,260.00	29,986.70	45,707.01
89000 · Other Expense	0.00	285.36	267.64	75.00	0.00	390.97	74.45	0.00	0.00	0.00	1,093.42
Total Expense	26,129.67	26,081.08	23,708.76	20,468.89	24,359.29	31,246.56	30,627.04	41,075.17	34,260.52	65,776.31	323,733.29
Net Ordinary Income	9,941.31	28,529.86	28,967.24	37,709.60	23,729.43	2,897.90	3,128.23	-75,128.58	51,956.02	7,585.90	119,316.91
Other Income/Expense											
Other Income											
80150 · Sales - Recreation Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,438.00	3,478.00	5,452.00	15,368.00
80200 · Other Income - Rec Fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.06	16.21	26.27
Total Other Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,438.00	3,488.06	5,468.21	15,394.27
Other Expense											
98000 · Recreation Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,440.06	4,499.26	2,342.25	9,281.57
Total Other Expense	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,440.06	4,499.26	2,342.25	9,281.57
Net Other Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,997.94	-1,011.20	3,125.96	6,112.70
Net Income	**9,941.31**	**28,529.86**	**28,967.24**	**37,709.60**	**23,729.43**	**2,897.90**	**3,128.23**	**-71,130.64**	**50,944.82**	**10,711.86**	**125,429.61**

Florida River Estates Homeowners Association Inc
Estimated Annual Operating Budget
With New System

Accrual Basis

THIS IS BASED ON ACTUAL COSTS OVER THE LAST 3 YEARS WITH ESTIMATES OF DECREASED R&M, LEGAL, AND ENGINEERING COSTS ONCE THE NEW SYSTEM IS IN PLACE

		ONE YEAR
I	Ordinary Income/Expense	
	Income	
	40000 · Sales - Water Usage	26,000.00
	40100 · Sales - Operation account fee	63,336.00
	40600 · Transfer Fees	300.00
	40900 · Interest Income	150.00
	Total Income	89,786.00
II	Cost of Goods Sold	
	50100 · Cost of Sales Chemicals	1,400.00
	50200 · Cost of Sales Electricity	4,000.00
	50250 · Cost of Sales Filters	15,000.00
	50300 · Cost of Sales Water Operator	20,000.00
	50400 · Cost of Sales Repairs & Maint	10,000.00
	50500.1 · Cost of Sales Supplies	500.00
	50600 · Cost of Sales Testing	2,000.00
	Total COGS	52,900.00
	Gross Profit	36,886.00
	Expense	
	60500 · Administrator Exp (Bookkeeping)	9,000.00
	64000 · Depreciation Expense	5,923.14
	64500 · Dues and Subscriptions Exp	325.00
	67000 · Insurance Expense	5,000.00
	68500 · Legal and Prof Exp	1,600.00
	69000 · Licenses Expense	10.00
	69100 · Line Locates Expense	197.69
	70000 · Maintenance Expense	422.07
	70501 · Meals 100%	150.00
	71000 · Office Expense	600.00
	73500 · Postage & Shipping	600.00
	74000 · Rent or Lease Expense	100.00
	76000 · Telephone Expense	700.00
	77600 · Website	160.00
	78000 · Engineering and Design Expense	1,000.00
	Total Expense	25,787.90
	Net Ordinary Income	11,098.10

THIS IS BASED ON ACTUAL COSTS OVER THE LAST 3 YEARS WITH ESTIMATES OF DECREASED R&M, LEGAL, AND ENGINEERING COSTS ONCE THE NEW SYSTEM IS IN PLACE

		ONE YEAR
III	**DEBT REPAYMENT**	
	Loan fee income (up to $85/lot total of 103 lots)	105,060.00
	Estimated loan costs (For $2 million at 4% interest)	101,000.00
IV	**Reserves (Short Lived Assets)**	
	40200 · Sales - Ready to serve (12 lots @ $40/mo)	5,760.00
	40250 · Sales - Capital Account (91 lots @ $40/mo)	43,680.00
	Total Capital Reserves Short Lived Assets	**49,440.00**

Florida River Estates Short Lived Asset List + Future Upgrade Estimates

System Area	Detail	Cost Estimate/ Goal	Generally Expected Lifespan	Annually	7	10	12	15	40
Tank Maintenance	Sand Blast & Paint Interior	20,000	15 yrs					20,000	
Tank Maintenance	Sand Blast & Paint Exterior	20,000	15 yrs					20,000	
Tank Telemetry "Future"	Radio,PLC,Solar Array	5,000	10-12 yrs			5,000			
Tank Replacement "Future"		425,000	25-40 yrs						425,000
WTP East Pump	5hp	4,000	10 yrs			4,000			
WTP East Pump VFD	5hp	3,000	7-10 yrs		3,000				
WTP West Pump	5hp	4,000	10 yrs			4,000			
WTP West Pump VFD	5hp	3,000	7-10 yrs		3,000				
WTP PLC "Future"	SCADA, Controls	3,000	10 yrs			3,000			
WTP Mapel HMI "Future"	SCADA, Controls	3,000	15 yrs					3,000	
WTP Telemetry "Future"	Radio	2,500	10-12 yrs			2,500			
WTP CL17 Hach CL2 Analyzer	SCADA Monitoring	3,800	15 yrs					3,800	
WTP 1720E Hach Turbidimeter + SC200 Controller	SCADA Monitoring	4,500	12-15 yrs				4,500		
WTP Master Meter		4,500	10 yrs			4,500			
WTP Hach 2100Q Portable Turbidimeter		1,300	10 yrs			1,300			
WTP Chemical Pumps	1300 x2	2,600	7-10 yrs		2,600				
WTP Hach Pocket Colorimeter 2		500	7-10 yrs		500				
WTP Lower Master Meter		4,500	10 yrs			4,500			
WTP Building Rehab "Future"	Building R&M	10,000	15 yrs					10,000	
Booster Station Pump 1	3-5hp	1,200	10 yrs			1,200			
Booster Station Pump 1 VFD	3-5 hp	2,500	7-10 yrs		2,500				
Booster Station Pump 2	3-5hp	1,200	10 yrs			1,200			
Booster Station Pump 2 VFD "Future"	3-5 hp	2,500	7-10 yrs		2,500				
Booster Station Telemetry "Future"	Radio,PLC	5,000	10-12 yrs			5,000			
Distribution Residential Meters	91 x 100	9,100	10-15 yrs			9,100			
Distribution Repair Meter Pit, Yoke, Curb Stop "Future"	200 x 2	4,000	spare parts	4,000					
Distribution Meter Pit Lids	300 x2	600	spare parts	600					
Distribution Repairs	1 Repair	15,000	annually	15,000					
		565,300							
Total needed by year				19,600.00	14,100.00	45,300.00	4,500.00	56,800.00	425,000.00

APPENDIX D

FLORIDA RIVER ESTATES HOA INC 2018 Drinking Water Quality Report
For Calendar Year 2017

Public Water System ID: CO0134300

Esta es información importante. Si no la pueden leer, necesitan que alguien se la traduzca.

We are pleased to present to you this year's water quality report. Our constant goal is to provide you with a safe and dependable supply of drinking water. Please contact MARK FUSON at 970 759-3930 with any questions or for public participation opportunities that may affect water quality.

General Information

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791) or by visiting http://water.epa.gov/drink/contaminants.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV-AIDS or other immune system disorders, some elderly, and infants can be particularly at risk of infections. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and microbiological contaminants call the EPA Safe Drinking Water Hotline at (1-800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- **Microbial contaminants:** viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants:** salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides and herbicides:** may come from a variety of sources, such as agriculture, urban storm water runoff, and residential uses.
- **Radioactive contaminants:** can be naturally occurring or be the result of oil and gas production and mining activities.
- **Organic chemical contaminants:** including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also may come from gas stations, urban storm water runoff, and septic systems.

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems (especially for pregnant women and young children). It is possible that lead levels at your home may be higher than other homes in the community as a result of materials used in your home's plumbing. If you are concerned about lead in your water, you may wish to have your water tested. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at http://www.epa.gov/safewater/lead.

Source Water Assessment and Protection (SWAP)

The Colorado Department of Public Health and Environment has provided us with a Source Water Assessment Report for our water supply. For general information or to obtain a copy of the report please visit www.colorado.gov/cdphe/ccr. The report is located under "Guidance: Source Water Assessment Reports". Search the table using 134300, FLORIDA RIVER ESTATES HOA INC, or by contacting MARK FUSON at . The Source Water Assessment Report provides a screening-level evaluation of potential contamination that ***could*** occur. It ***does not*** mean that the contamination ***has or will*** occur. We can use this information to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your homes. In addition, the source water assessment results provide a starting point for developing a source water protection plan. Potential sources of contamination in our source water area are listed on the next page.

Please contact us to learn more about what you can do to help protect your drinking water sources, any questions about the Drinking Water Quality Report, to learn more about our system, or to attend scheduled public meetings. We want you, our valued customers, to be informed about the services we provide and the quality water we deliver to you every day.

Our Water Sources

Source	Source Type	Water Type	Potential Source(s) of Contamination
SORTAIS SPRING	Well	Groundwater UDI Surface Water	Row Crops, Pasture/Hay, Deciduous Evergreen and Mixed Forest, Road Miles Septic systems

Terms and Abbreviations

- **Maximum Contaminant Level (MCL)** − The highest level of a contaminant allowed in drinking water.
- **Treatment Technique (TT)** − A required process intended to reduce the level of a contaminant in drinking water.
- **Health-Based** − A violation of either a MCL or TT.
- **Non-Health-Based** − A violation that is not a MCL or TT.
- **Action Level (AL)** − The concentration of a contaminant which, if exceeded, triggers treatment and other regulatory requirements.
- **Maximum Residual Disinfectant Level (MRDL)** − The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Maximum Contaminant Level Goal (MCLG)** − The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Residual Disinfectant Level Goal (MRDLG)** − The level of a drinking water disinfectant, below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Violation (No Abbreviation)** − Failure to meet a Colorado Primary Drinking Water Regulation.
- **Formal Enforcement Action (No Abbreviation)** − Escalated action taken by the State (due to the risk to public health, or number or severity of violations) to bring a non-compliant water system back into compliance.
- **Variance and Exemptions (V/E)** − Department permission not to meet a MCL or treatment technique under certain conditions.
- **Gross Alpha (No Abbreviation)** − Gross alpha particle activity compliance value. It includes radium-226, but excludes radon 222, and uranium.
- **Picocuries per liter (pCi/L)** − Measure of the radioactivity in water.
- **Nephelometric Turbidity Unit (NTU)** − Measure of the clarity or cloudiness of water. Turbidity in excess of 5 NTU is just noticeable to the typical person.
- **Compliance Value (No Abbreviation)** – Single or calculated value used to determine if regulatory contaminant level (e.g. MCL) is met. Examples of calculated values are the 90th Percentile, Running Annual Average (RAA) and Locational Running Annual Average (LRAA).
- **Average (x-bar)** − Typical value.
- **Range (R)** − Lowest value to the highest value.
- **Sample Size (n)** − Number or count of values (i.e. number of water samples collected).
- **Parts per million = Milligrams per liter (ppm = mg/L)** − One part per million corresponds to one minute in two years or a single penny in $10,000.
- **Parts per billion = Micrograms per liter (ppb = ug/L)** − One part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
- **Not Applicable (N/A)** – Does not apply or not available.
- **Level 1 Assessment** – A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- **Level 2 Assessment** – A very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.
- **UDI**- Under the influence of surface water.

Detected Contaminants

FLORIDA RIVER ESTATES HOA INC routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table(s) show all detections found in the period of January 1 to December 31, 2017 unless otherwise noted. The State of Colorado requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Therefore, some of our data, though representative, may be more than one year old. Violations and Formal Enforcement Actions, if any, are reported in the next section of this report.

Note: Only detected contaminants sampled within the last 5 years appear in this report. If no tables appear in this section then no contaminants were detected in the last round of monitoring.

Disinfectants Sampled in the Distribution System

TT Requirement: At least 95% of samples per period (month or quarter) must be at least 0.2 ppm ***OR***
If sample size is less than 40 no more than 1 sample is below 0.2 ppm
Typical Sources: Water additive used to control microbes

Disinfectant Name	Time Period	Results	Number of Samples Below Level	Sample Size	TT Violation	MRDL
Chlorine	December, 2017	Lowest period percentage of samples meeting TT requirement: 100%	0	1	No	4.0 ppm

Lead and Copper Sampled in the Distribution System

Contaminant Name	Time Period	90th Percentile	Sample Size	Unit of Measure	90th Percentile AL	Sample Sites Above AL	90th Percentile AL Exceedance	Typical Sources
Copper	07/11/2017 to 07/11/2017	0.13	5	ppm	1.3	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	07/11/2017 to 07/11/2017	3.3	5	ppb	15	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

Disinfection Byproducts Sampled in the Distribution System

Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	Highest Compliance Value	MCL Violation	Typical Sources
Total Haloacetic Acids (HAA5)	2017	7.2	7.2 to 7.2	1	ppb	60	N/A		No	Byproduct of drinking water disinfection
Total Trihalomethanes	2017	14.3	14.3 to 14.3	1	ppb	80	N/A		No	Byproduct of drinking water

Disinfection Byproducts Sampled in the Distribution System										
Name	**Year**	**Average**	**Range Low – High**	**Sample Size**	**Unit of Measure**	**MCL**	**MCLG**	**Highest Compliance Value**	**MCL Violation**	**Typical Sources**
(TTHM)										disinfection

Disinfectants Sampled at the Entry Point to the Distribution System						
Contaminant Name	**Year**	**Number of Samples Above or Below Level**	**Sample Size**	**TT/MRDL Requirement**	**TT/MRDL Violation**	**Typical Sources**
Chlorine/Chloramine	2017	0	364	TT = No more than 4 hours with a sample below 0.2 MG/L	No	Water additive used to control microbes

Summary of Turbidity Sampled at the Entry Point to the Distribution System					
Contaminant Name	**Sample Date**	**Level Found**	**TT Requirement**	**TT Violation**	**Typical Sources**
Turbidity	Date/Month: Apr	Highest single measurement: 1.71 NTU	Maximum 5 NTU for any single measurement	No	Soil Runoff
Turbidity	Month: Apr	Lowest monthly percentage of samples meeting TT requirement for our technology: 97 %	In any month, at least 95% of samples must be less than 1 NTU	No	Soil Runoff

Radionuclides Sampled at the Entry Point to the Distribution System									
Contaminant Name	**Year**	**Average**	**Range Low – High**	**Sample Size**	**Unit of Measure**	**MCL**	**MCLG**	**MCL Violation**	**Typical Sources**
Gross Alpha	2014	1.56	1.56 to 1.56	1	pCi/L	15	0	No	Erosion of natural deposits
Combined Uranium	2014	1.7	1.7 to 1.7	1	ppb	30	0	No	Erosion of natural deposits

Inorganic Contaminants Sampled at the Entry Point to the Distribution System									
Contaminant Name	**Year**	**Average**	**Range Low – High**	**Sample Size**	**Unit of Measure**	**MCL**	**MCLG**	**MCL Violation**	**Typical Sources**

Inorganic Contaminants Sampled at the Entry Point to the Distribution System									
Contaminant Name	**Year**	**Average**	**Range Low – High**	**Sample Size**	**Unit of Measure**	**MCL**	**MCLG**	**MCL Violation**	**Typical Sources**
Nitrate	2017	0.09	0.09 to 0.09	1	ppm	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Cryptosporidium and Raw Source Water E. coli			
Contaminant Name	**Year**	**Number of Positives**	**Sample Size**
E. Coli	2017	2	7

Secondary Contaminants** **Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin, or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.						
Contaminant Name	**Year**	**Average**	**Range Low – High**	**Sample Size**	**Unit of Measure**	**Secondary Standard**
Total Dissolved Solids	2014	364	364 to 364	1	ppm	500

Violations, Significant Deficiencies, Backflow/Cross-Connection, and Formal Enforcement Actions

Violations					
Name	**Category**	**Time Period**	**Health Effects**	**Compliance Value**	**TT Level or MCL**
TOTAL COLIFORM	FAILURE TO MONITOR AND/OR REPORT - NON-HEALTH-BASED	08/01/2017 - 08/31/2017	N/A	N/A	N/A
CHLORINE/ CHLORAMINE	FAILURE TO MONITOR AND/OR REPORT - NON-HEALTH-BASED	08/01/2017 - 08/31/2017	N/A	N/A	N/A
Additional Violation Information					

Violations					
Name	**Category**	**Time Period**	**Health Effects**	**Compliance Value**	**TT Level or MCL**
Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail. Explanation of the violation(s), the steps taken to resolve them, and the anticipated resolved date:					
Total Coliform and Chlorine failure to monitor violations were due to 1 missed, or lost, bacteriological sample for the month of August. The operator is now using a different specimen drop point near the lab and not at the front desk of San Juan Basin Health Department. Resolution occurred at the next sample event for bacteriological sampling on 9/20/17.					

COLORADO
Department of Public
Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

February 7, 2017

Mr. Mark Fuson
Florida River Estates HOA Inc
383 Meadowbrook Dr
Bayfield, CO 81122

Subject: Sanitary Survey of Florida River Estates HOA Inc
Public Water System Identification (PWSID) No. CO0134300
La Plata County

Dear Mr. Fuson:

A sanitary survey was performed on January 26, 2017 by the Field Services Section of the Colorado Department of Public Health & Environment's Water Quality Control Division (the department) at Florida River Estates HOA Inc (the supplier) in accordance with *the Colorado Primary Drinking Water Regulations, 5 CCR 1002-11* (Regulation 11), Sections 11.38(1)(b) and 11.38(2). This letter serves to provide the supplier with written notification of the sanitary survey findings, including any identified significant deficiencies and violations of Regulation 11. The assistance that was provided during the sanitary survey was very helpful and is greatly appreciated. Table 1 identifies the parties present during the sanitary survey.

Table 1: Parties Present

Name	Organization
Mark Fuson	Florida River Estates HOA Inc
KC Kay	Colorado Department of Public Health & Environment

In response to this letter, the supplier must provide a written response, documenting resolution of all significant deficiencies and violations, and/or propose a corrective action plan with a corrective action schedule, as required by Regulation 11, Section 11.38(3)(d,f). Also, for findings that are violations of Regulation 11, the supplier must comply with the public notification requirements described in Section V, below. The supplier's written response is due within forty-five (45) days. If a corrective action plan is proposed, it must outline the course of action that has been or will be taken and the date by which the supplier proposes to correct each significant deficiency and violation of Regulation 11. Table 2 summarizes the number of findings and the required written response and resolution dates.

Table 2: Sanitary Survey Findings

Severity Category	Number Identified	Written Response Due (within 45 days of letter date)	Resolution Due (within 120 days of letter, or department-approved alternate date)	Public Notice Required (Violations of Regulations 11 or 100)
Significant Deficiencies	1	March 24, 2017	June 7, 2017	Not Required
Violations	0	No response required	Not applicable	Not Required
Observations - Recommendations	12	No response required	Not applicable	Not applicable

Failure to adequately address all significant deficiencies and violations referenced above may result in additional violations of Regulation 11. A list of the findings for each category in Table 2 can be found in the following sections:

Section I: Significant Deficiencies

According to Regulation 11, Section 11.3(71), a significant deficiency means:

> *any situation, practice, or condition in a public water system with respect to design, operation, maintenance, or administration, that the state determines may result in or have the potential to result in production of finished drinking water that poses an unacceptable risk to health and welfare of the public served by the water system.*

The items in this category are significant deficiencies. Please direct questions regarding resolution of the following items to the department inspector.

1. D250 - Distribution: Distribution System (SDWIS ID: DS001)
High Leakage Rates: Supplier usage data indicated that leakage rates may pose a risk of back-siphonage.

During the sanitary survey, the department inspector discussed the high leakage rates experienced by the supplier. The supplier has estimated that the current leakage rate is approximately 70%. The high leakage rates was discovered by the operator comparing pumping rates and raw water volume with billed usage. Further analysis by the operator appears to show that the distribution system may be of glued-joint hard plastic. This type of piping is fragile and ages poorly. The high leakage rates have resulted in continuous pumping of raw water which reduces the lifecycle of the pumps, increases frequency of filter bag replacement due to increased turbidity of constantly drawn water from the spring source. The operator has explored statewide leak detection contractors to determine where the leakage is occurring and it is strongly recommended that the supplier continue those efforts.

The supplier has not yet experienced a loss of pressure within the system, however, if a major line break were to occur, the water treatment plant may not be capable of keeping up with the increased demand. If fifty percent of the distribution system is without water, the supplier must call the Department's 24-Hour incident reporting hotline at 1-877-518-5608. The WQCD acute team will review the circumstances and the Department may require a Tier 1 public notice and bottled water advisory to protect public health. Please see the "Pressure Loss and Main Break Response Guidance" accessible at https://www.colorado.gov/pacific/cdphe/wq-drinking-water-incidents. To resolve this deficiency, the supplier is expected to submit a written plan with milestones and timeframe to alleviate the high leakage problem.

Section II: Violations

The items in this category are violations of Regulation 11. Please direct questions regarding resolution of the following items to the department inspector.

No Violations were identified.

Section III: Observations/Recommendations

The department recommends the supplier follow-up and consider the following observations-recommendations. Please direct questions regarding any of the items below to the department inspector.

1. D251 - Distribution: Distribution System (SDWIS ID: DS001)
Unaccounted for Water: Determining the percentage of unaccounted for water. Colorado Design Criteria for Potable Water Systems (Design Criteria), Section 8.12.

During the sanitary survey, the department inspector discussed the economics of water loss in costs of water production including filter bag filter replacement, pump lifespan, electrical and disinfection costs. The supplier's distribution system is 100% metered. The cause of Unaccounted for Water could be , incorrect or inaccurate meters, broken water lines, unconnected service taps that are leaking, household taps left open, etc.

Unaccounted for Water is an expense that is not recovered by the supplier. As noted in the Significant Deficiency #1 above, the Unaccounted for Water was discovered by the operator comparing pumping rates and raw water volume with billed usage.

2. D430 - Distribution: Distribution System (SDWIS ID: DS001)
Line Disinfection Procedures: Supplier did not have adequate disinfection procedures for installation or repair of water mains. Colorado Design Criteria for Potable Water Systems (Design Criteria), Chapter 8, Section 8.7.7.

At the time of the sanitary survey, the department inspector found that the supplier was following American Water Works Association (AWWA) disinfection procedures but did not have the procedures in writing and included in an Operations and Maintenance (O&M) Plan. These procedures can be obtained from the AWWA Disinfection of Pipelines and Storage Facilities Field Guide, and should be included in the written O&M plan. This AWWA field guide can be found at the AWWA website: **http://www.awwa.org/.**

3. D410 - Distribution: Distribution System (SDWIS ID: DS001)
Valve Inspection and Exercising Program: Valve inspection and exercising program implementation.

At the time of the sanitary survey, the department inspector and the supplier discussed the valve exercising program for the water system. A component of a public water system Operations and Maintenance (O&M) plan is a valve inspection and exercising program. The supplier should have a list of all of the valves in the distribution system, their location and maintenance information. The department recommends developing a program in accordance with AWWA Standard G200-04 Distribution System Operation and Maintenance, which states: "This program shall include at least the following elements:

a) A goal for the number of transmission valves to be exercised annually based on the percentage of the total valves in the system.
b) A goal for the number of distribution valves to be exercised annually.
c) Measures to verify that the goals are met and written procedures for action if the goals are not attained.
d) Critical valves in the distribution system shall be identified for exercising on a regular basis. Potential quality and isolation concerns shall be recognized. The program shall track the annual results and set goals to reduce the percent of inoperable valves."

Inspecting and exercising valves should include completely closing, opening, and re-closing until the valve seats properly. Leaking or damaged valves should be scheduled for repair. A record of valve maintenance and operation, including the number and direction of turns to closure, should be kept.

The supplier's current distribution system map does not appear to identify all system valves. The supplier should make an effort to locate, identify, and exercise all systems valves and update the distribution system map.

4. D400 - Distribution: Distribution System (SDWIS ID: DS001)
Line Flushing Program: System lacked an adequate line flushing program or the flushing program can be improved.

At the time of the sanitary survey, the department inspector found that the supplier did not have a program in place for line flushing or was in the process of developing a flushing program. In accordance with the Standard G200-04, Distribution System Operation and Maintenance, "the utility shall develop and implement a systematic American Water Works Association (AWWA) flushing program that meets the needs of the utility, taking into consideration the condition of the public water system including but not limited to, hydraulic capacity, treatment, water quality, and other site specific criteria. At a minimum, the flushing program, according to AWWA, shall incorporate the following items:

1. The program addresses a preventive approach to distribution system flushing, including occasional spot flushing to address localized problems or customer concerns and routine flushing to avoid water quality problems.
2. The utility shall perform system flushing at the velocity appropriate to address water quality concerns.
3. The utility has written procedures addressing all activities associated with system flushing, water quality,

monitoring, frequency, locations, and duration, as well as adherence to all regulatory requirements."
The department recommends developing a written line flushing program that can be incorporated into the supplier's Operations and Maintenance (O&M) plan. Records of flushing activities should be maintained in the plan.

Flushing of water aids in the reduction of Distribution By Products in addition to aiding in reducing color, odor, and taste issues. The supplier does not have hydrants or flushing hydrants to perform line flushing functions. During the resolution of Significant Deficiency #1 D250 - High Leakage Rates and Observation #1 D251 - Unaccounted for Water, the supplier should explore adding flushing hydrants to the distribution system.

5. D320 - Distribution: Distribution System (SDWIS ID: DS001)
Distribution Construction Standards: Distribution system construction standards. Colorado Design Criteria for Potable Water Systems (Design Criteria), Section 8.1, 8.7.

At the time of the sanitary survey, the department inspector observed that the supplier did not have written distribution construction standards or was in the process of developing standards. The department recommends that the supplier adopt and periodically update distribution construction standards to ensure that distribution system repairs are made in accordance with minimum design and construction criteria including the Colorado Design Criteria for Potable Water Systems requirements and AWWA guidelines. Contractors should have a copy of the supplier's construction standards prior to commencing work on distribution system projects. A list of construction contractors in priority order should be kept for emergency purposes.

6. T995 - Treatment: Florida River Estates Ywtp01 (SDWIS ID: 001)
Other Treatment Observations: department inspector identified treatment observation.

An isolation valve between the water treatment plant and the storage tank exists within the water treatment plant building. An isolation valve should be installed outside of the water treatment building allowing the tank to be isolated under the operator's direct request without having to access the interior of the treatment building.

7. T110 - Treatment: Florida River Estates Ywtp01 (SDWIS ID: 001)
Log Inactivation (Surface Water and GWUDI): Supplier demonstration of adequate disinfection at the time of the sanitary survey. Adequate disinfection is required prior to the entry point to the distribution system. Regulation 11, Section 11.8(1)(b)(i)(A).

Per Regulation 11, Section 11.8(3)(b)(i)(A), the supplier must maintain disinfection treatment sufficient to ensure that the total treatment processes, including filtration and disinfection, achieve 99.9 percent (3-log) treatment of Giardia lamblia cysts and 99.99 percent (4-log) treatment of viruses, as determined by the department. The supplier utilizes a Strainrite bag filtration system that, if properly operated, allows for 2.5-log removal credit for Giardia lamblia and 0-log removal credit of viruses. Per the information provided by the supplier, the disinfection contact time is achieved at the surface water treatment plant via a free chlorine injection.
Regulation 11 defines the first customer as the first potable water service connection downstream of the point where complete water treatment, including disinfection contact time, has occurred. Typically, the first customer is the water treatment plant's domestic water system. The supplier is accessing house water from a tap after a contact chamber consisting of a clear well, 310' of 18" pipe, and 200' of 8" pipe.

At the time of the sanitary survey, the department inspector noted that the current location for the entry point chlorine residual monitor used for compliance reporting is located at after the piping used for CT. Though this requirement has been part of Regulation 11 since the U.S. Environmental Protection Agency's Surface Water Treatment Rule went into effect, the department has recently begun a statewide outreach and disinfection verification project to reevaluate surface water treatment. The department has formed a Disinfection Outreach and Verification Effort (DOVE) team to perform this reevaluation and assist suppliers of water in assessing their disinfection.

During the sanitary survey, the department inspector informed the supplier that the DOVE team will be providing additional information regarding the department's evaluation process under separate letter. The department has assigned Mark Henderson to assess the supplier's treatment plant for sufficient disinfection. If the supplier opts

to proactively start addressing this issue, please contact Mark Henderson at 303-692-6255 or mark.henderson@state.co.us.

8. M990 - Management:
Other Management Observations: department inspector identified system management and operation observation.

The supplier is organized as a 501c(3) non-profit Home Owners Association. The supplier may want to consider reorganizing the water system into a Public Improvement District or other entity that allows the ability to establish a Capital Improvement Plan and funds. The PID may assist the supplier with grants, loans, and assessments for district improvements. The supplier may wish to discuss with a lawyer cognizant of benefits and disadvantages of a 501c(3) vs PID.

9. M642 - Management:
Repair and Replacement Plan: Planning and/or financial capacity for repair and replacement of aging equipment.

During the sanitary survey, the department inspector and the supplier discussed the supplier's managerial and financial processes for maintaining a budget, fiscal records and rate structure to ensure reliable operation and future repair and replacement of aging equipment. The supplier is encouraged to continue efforts to ensure that all current and long term fiscal needs are being met and to identify and prioritize future repair and replacement costs for aging equipment and infrastructure. Information to assist the supplier with developing an Asset Management Program and a Capital Improvement Plan can be found online at **http://www.colorado.gov/CDPHE/WQCD**. The supplier might also benefit from utilization of the U.S. Environmental Protection Agency's Check Up Program for Small Systems (CUPSS) program, which is available on the internet at: **http://www.epa.gov/dwcapacity/information-check-program-small-systems-cupss-asset-management-tool**. In addition, the department's Local Assistance Unit may be able to assist you with preparing an Asset Management Program and can be contacted by calling 303-692-3665.

10. R510 - Monitoring & Recordkeeping and Data Verification:
General Monitoring Plan: Monitoring plan required content, updates for facility changes, submittal to the department.

According to Section 11.5 of Regulation 11, all suppliers of water shall develop and implement a monitoring plan. At the time of the sanitary survey, the department inspector reviewed the supplier's monitoring plan and noted that the plan is of a deprecated template (2005). The supplier must develop a monitoring plan that includes all the requirements of Section 11.5. In order to aid in the development of the plan, the department recommends that the supplier use the department's monitoring plan template, which can be accessed from **http://wqcdcompliance.com**. If the supplier would like help developing the plan, please request coaching assistance via the department's Local Assistance Unit website at **https://www.colorado.gov/pacific/cdphe/drinking-water-training-opportunities**, which has an online coaching request link.

After developing the monitoring plan, the supplier is required to submit a copy to the department via the department's online portal, which can be accessed at **https://wqcdcompliance.com/login**. The supplier is required to create a portal account, if not done previously. The portal can be used for uploading non-emergency information for suppliers of water in addition to monitoring plans. For portal support, please contact Kaleb Winisko at kaleb.winisko@state.co.us or 303-691-7803.

Once submitted to the department, the plan will be reviewed by the department's Drinking Water Compliance Assurance Section. For questions regarding the Monitoring Plan requirements please contact Tim Jones of the Compliance Assurance Section at timothy.jones@state.co.us or 303-692-2085.

11. T119 - Treatment: Florida River Estates WTP01 (SDWIS ID: 001)
Proper Operation: Surface water or ground water under the direct influence (GWUDI) of surface water treatment operational practices. Regulation 11, Section 11.8(1)(b) and CDPHE-WQCD Policy 4.

During the sanitary survey, the department inspector discussed the surface water/GWUDI treatment process with the supplier's certified operator. The treatment and disinfection processes consist of (3) 3M 522A roughing filters with 2-micron bags followed by (3) StrainRite HPM99-CC-2SR 1-micron nominal bag filters followed by (3) StrainRite HPM99-CCX-2SR 1-micon absolute finishing compliance filters. The piping within the water treatment plant is hard plastic with glue-together joints. Flexible joints and connections should be considered to reduce the likelihood of piping breaks.

12. O997 - Operator:
Other Operator Compliance Observations: department inspector identified operator compliance observation.

Title 25 of the Colorado Revised Statutes (CRS), Article 9, requires that every drinking water facility and water distribution system be under the supervision of a certified operator, holding a certificate in a class equal to or higher than the class of the facility or system. In accordance with Regulation 100 (Water and Wastewater Facility Operators Certification Requirements), the supplier's water system is classified as a D drinking water treatment system and a 1 distribution system. At the time of the sanitary survey, the supplier was under the supervision of a certified operator in responsible charge (ORC), Mark Fuson, with Class A water treatment and Class 1 distribution certifications. The ORC began operational control November 1, 2016 and performed an in-depth evaluation of the system.

At the time of the sanitary survey, the supplier could not adequately demonstrate that the operator in responsible charge (ORC) was making operational decisions for the control and operation of the water treatment and distribution system or that a written operating plan was in place for delegation of activities to other facility operators or personnel. Please note that Regulation 100, Sections 100.16.5 and 100.16.6 clearly define the required roles of the ORC as the following:

a) the management or administration of the operation of the water or wastewater facility;
b) the accountability for the proper operation and maintenance of the water or wastewater facility for compliance with applicable regulations and/or permit requirements, including monitoring and reporting requirements;
c) the control of, supervision over, or active participation in the daily planning, operation or maintenance of a water or wastewater facility;
d) authority to make day-to-day process control and system integrity decisions on the operation and maintenance of the water or wastewater facility;
e) the availability to make decisions and initiate actions regarding the operation of the water or wastewater facility in a timely manner;
f) ensuring proper inspection and testing of new, modified, or repaired facilities prior to placing or returning such facilities into service;
g) developing and implementing preventative maintenance programs and performing routine maintenance functions for facilities;
h) overseeing compliance with laws and regulations and reporting as appropriate to facility owners and the department; and
i) the performance of other functions of direct responsibility, including those enumerated in section 100.15.

Regulation 100 allows the certified ORC of a water or wastewater facility to delegate tasks or activities to other facility operators when delineated by a written operating plan. During the sanitary survey, no written plan was available. **Please develop a written operating plan in accordance with Regulation 100.** The department expects that this written operating plan will be available during the next sanitary survey. More information regarding operating plans is available at: https://www.colorado.gov/pacific/cdphe/wq-facility-operator-certification-operating-plan . Please note that the operating plan must be precise in defining the limits of tasks or activities that can occur while the ORC is not on-site. Also, the operating plan must be reviewed and updated, as needed and at least once each calendar year by the certified ORC. The operating plan must be available to the facility owner and other facility operators at all times. The operating plan must be available for inspection by the department upon request. In addition, any operational activity beyond the limits defined in the operating plan requires the immediate and direct consultation with and participation of a certified ORC or another operator holding a certificate equal to or above the classification of the facility he or she is operating.

Section IV: Field Verification/Sampling

While performing the sanitary survey, the inspector verified operator certification requirements and performed water quality sampling for chlorine residual and turbidity. Table 3 indicates the results of the water quality sampling performed on-site.

Table 3: Sampling Results

Parameter	Sample Location	Value	Units	Notes
Entry Point Disinfectant Residual	EP	0.80	mg/L	
Distribution System Disinfectant Residual	195 County Rd 248	0.80	mg/L	
Turbidity	CFE - EP	0.05	NTU	

Reminders

- Regulation 11, Section 11.4(1)(b) (Prior Approval Required) requires the department's approval prior to commencement of construction of any improvements, treatment process modifications, or the addition of new water sources.
- Most regulations, guidance documents, and forms are available on the department's website at **http://wqcdcompliance.com**.

Attached is a form that the supplier may use to document the required written response to this letter. While using this form is optional, it will fulfill the requirement to provide a written response if completed and submitted to the department by the written response due date listed above.

Enclosed with this letter you will find a postage-paid Customer Satisfaction Survey Postcard. Please take a few moments to complete the survey and return it to the department. Your efforts to provide feedback to improve the sanitary survey process are appreciated.

If you have any questions, please contact me at (970) 248-7154 or casey.kay@state.co.us. Thank you for your time and cooperation.

Sincerely,

KC Kay

KC Kay, Environmental Protection Specialist
Field Services Section
Water Quality Control Division
Colorado Department of Public Health & Environment

cc: San Juan Basin Health Department
Drinking Water File, PWSID No. CO0134300
Aquifer Case FS.17.INSP.03514
Mark Fuson MARKFUSON@FRONTIER.NET

Florida River Estates HOA Inc. PWS
45-Day Sanitary Survey Response Letter

March 13

ATTN: KC Kay, Environmental Protection Specialist
Colorado Department of Public Health and Environment
Field Services Section-Northwestern Regional Unit Office
222 South 6th Street, Room 232
Grand Junction, CO 81501

This letter serves as the required 45-day response to the 2017 sanitary survey conducted on January 26 2017 for the Public Water System listed below.

System Name:	Florida River Estates HOA Inc.
PWSID:	CO 00134300
Date of Survey Letter:	2/7/17
Response Due:	3/24/17
Inspector Name:	KC Kay

1) Deficiency D250-*High Leakage Rates*
The lower portion of the subdivision was experiencing very high leakage rates in the distribution system.

2) Corrective Actions Taken
Prior to and after the sanitary survey the operator and the Board of Directors began the process of trying to determine where the high rate of loss leak or leaks existed within the lower subdivision. After finding several valves and completing isolation processes two segments were identified. A contractor (Bonds Construction) was retained to help with leak detection on 12/31/16 on those two segments. These efforts lead to the fixing of one leak and to the possible location of another leak.

a) The leak that was found was repaired and stopped an approximate 19 gpm leak. It involved the excavation of two meter pits and the service line near those pits. The copper from the pit to the plastic service line failed in several places with holes up to ¼ " and smaller in a 5 foot section going to the PVC service line.

Additionally a 3" main valve developed a leak after the isolation process.

Installation of new service lines to the two brand new pits and replacement of the 3" valve in the county road was started 2/6/17 and completed 2/9/17.

b) The second location did not yield success in finding the actual leak. It was a large excavation and did however allow Bonds to install one 2", and two 1" valves into a intersection that did allow us to determine, by isolation, which segment of the main was still leaking. Additionally efforts were made with locating equipment to find the main and the leak in this segment but the location effort was inconclusive. This leak is estimated at 10 gpm based on isolation efforts.

Installation of the isolation valves in the county road and location effort was started 2/14/17 and completed 2/24/17.

c) Quotes were requested from several contractors for the installation of 415 feet of new main and the adjustment of two meter pits in this segment to get them out of private property.

These quotes were requested during the week February 27.

d) A total of $26,439.09 has been spent repairing and trying to find these leaks thus far. We estimate that one more similar repair effort will take us down to a critical level in the operations budget.

e) During the annual HOA meeting on February 25 the state of the system was discussed in a public meeting with many residents in attendance. At this time it was conveyed that the Board of Directors for Florida River Estates HOA Inc. will be modifying future water rates and structure.

f) Goff Engineering is developing a proposal for the Preliminary Engineering Report for a system analysis and future recommendations.

3) Corrective Action Plans

a) Since repair of leak 1 the plant now has sufficient capacity. The plant will operate in the interim as needed until the second large leak has been repaired. This will then get the system out of a high loss scenario and back to a historically manageable operating range. We anticipate this repair happening in April 2017 which would satisfy the 120 day deadline of June 7 for resolution of the deficiency without an additional plan. However the following plan is included should this repair get delayed

b) The board will decide by the end of March 2017 whether to proceed with main replacement on the segment that is leaking in the county road or to try chasing the main to find the leak through problematic access on private property.

c) By May 1 2017 the board will decide what the new rate structure will look like and send this information out to the residents in written form or email, and on the billing document.

d) On June 1 2017 Florida River Estates HOA will implement rate changes and begin putting a prescribed portion of the water bill into a Capital Improvement Account.

e) Leak events moving forward will be handled out of the operation account until such time as the reserve account must be used for repairs. This is estimated to be the case for three years.

f) It is estimated that by 2020 that there will be sufficient money in the Capital Improvement Account to obtain a loan in which to shop for bids to repair/replace the distribution system infrastructure in the lower subdivision and the upper subdivision to the point where total system leakage is minimal.

g) Grant effort processes for USDA Rural Development, Colorado Water Resource and Power Authority Revolving Fund, Southwest Conservation District and Southwest Basin Roundtable grants will begin in April 2017 to see if funds are available for this subdivision.

Paul DeJulio, HOA President Signature Paul DeJulio Date 3-13-17

Mark Fuson, ORC Signature Mark Fuson Date 3-13-17

STATE OF COLORADO

John W. Hickenlooper, Governor
Larry Wolk, MD, MSPH
Executive Director and Chief Medical Officer

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
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Located in Glendale, Colorado

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

WEST SLOPE REGIONAL OFFICE
222 South 6th Street, Room 232
Grand Junction, CO 81501
Fax (970) 248-7198.

www.colorado.gov/cdphe

Colorado Department
of Public Health
and Environment

June 2, 2014

Mr. Adam Smith
Florida River Estates HOA Inc.
PO Box 456
Durango, CO 81301

Subject: Sanitary Survey of Florida River Estates HOA Inc.
Public Water System Identification (PWSID) No. CO0134300
La Plata County

Dear Mr. Adam Smith:

This letter serves to report the findings of the sanitary survey conducted by the Field Services Section of the Colorado Department of Public Health and Environment's Water Quality Control Division ("the Department") at Florida River Estates HOA Inc. ("the Supplier") on May 15, 2014. The assistance that was provided during the sanitary survey was very helpful and is greatly appreciated. Table 1 identifies the parties present during the sanitary survey.

Table 1: Parties Present

Name	Organization
Mike Amato	Florida River Estates HOA Inc.
KC Kay	CDPHE

This letter is the Supplier's notification of any significant deficiencies and/or alleged violations of the *Colorado Primary Drinking Water Regulations* (Regulation 11), 5 CCR 1002-11 identified during the sanitary survey. A significant deficiency represents an unacceptable risk to public health or safe delivery of drinking water. For all significant deficiencies, a written response to this letter is required within forty five (45) days. Significant deficiencies must be resolved either within one hundred twenty (120) days of this notification or by an alternative deadline proposed by the Supplier and agreed to by the Department. Table 2 summarizes the number of findings and the required written response and resolution dates.

Table 2: Sanitary Survey Findings

Severity Category	Number Identified	Written Response Due (within 45 days of letter date):	Resolution Due (within 120 days of letter, or Department-approved alternate date):
Significant Deficiencies	0		
Other Violations	0		
Observations-Recommendations	1	No response required	Not applicable

A list of the findings for each category in Table 2 can be found immediately below.

Significant Deficiencies:

According to Regulation 11, Section 11.3(66), a significant deficiency means:

> *any situation, practice, or condition in a public water system with respect to design, operation, maintenance, or administration, that the state determines may result in or have the potential to result in production of finished drinking water that poses an unacceptable risk to health and welfare of the public served by the water system.*

The Supplier's written response to this letter must address all items listed in this category. All significant deficiencies must be corrected and will be followed-up by the Department. The following significant deficiencies were identified:

No Significant Deficiencies were identified.

Other Violations:

Other violations may be identified during a sanitary survey that are not significant deficiencies but must be corrected. The Supplier may be contacted by a compliance specialist from the Department's Compliance Assurance Section for additional follow-up on these violations. The Supplier must resolve these violations prior to the subsequent sanitary survey, which will be verified by the Department's inspector at that time. The following other violations were identified:

No Other Violations were identified.

Observations/Recommendations:

While the Department does not directly follow-up on the observations/recommendations, the Supplier is advised to address them. The following observations/recommendations were identified:

1. F314 - Finished Water Storage: Water Storage Tank (SDWIS ID: 003)
Storage Structural Integrity: Storage facility structural condition.

At the time of the sanitary survey, the storage tank condition was discussed. During the sanitary survey, the inspector observed that the area around the tank is susceptible to debris, animal nesting, and washout due to the tank's location in a forested area. It is recommended that the area around the tank be checked often for indications of animal burrowing or nesting, and cleared of debris and tree branch downfall. It is also recommended that the tank be evaluated by a professional tank inspection company. Please note that if the tank fails, and the Supplier is not capable of maintaining service to the distribution system, the Supplier is expected to immediately notify the Department's 24-Hour incident reporting hotline at 1-877-518-5608.

Field Verification/Sampling

While performing the sanitary survey, the inspector verified operator certification requirements and performed water quality sampling for chlorine residual and pressure. Table 3 indicates the operator certification verification for Florida River Estates HOA Inc. Table 4 indicates the results of the water quality sampling performed onsite.

Table 3: Operator Certification Verification

Category	Required	Name of Operator	Certification	Certification

	Certification Level	in Responsible Charge	Level Held and No.	Expiration Date
Treatment	D	Oliver M Amato	A - 1558	10/30/15
Distribution	1	Oliver M Amato	1 - 14698	12/30/16

Table 4: Sampling Results

Parameter	Sample Location	Value	Units	Notes
Disinfectant Residual	Entry Point Sample Tap	0.82	mg/L	
Disinfectant Residual	186 Estates Drive	0.62	mg/L	
Pressure Reading	186 Estates Drive	52	psi	
Turbidity	sample tap after clear well	0.07	NTU	

Reminders

- Regulation 11, Section 11.4(1)(b) (Prior Approval Required) requires the Department's approval prior to commencement of construction of any improvements, treatment process modifications, or the addition of new water sources.
- Most regulations, guidance documents, and forms are available via Internet on the Department's website. Please link to http://wqcdcompliance.com for further information.

Enclosed with this letter you will find a postage-paid Customer Satisfaction Survey Postcard. Please take a few moments to complete the survey and return it to the Department. Your efforts to provide feedback to improve the sanitary survey process are appreciated.

If you have any questions, please contact me by phone at (970) 248-7154 or via e-mail at casey.kay@state.co.us. Thank you for your time and cooperation.

Sincerely,

KC Kay

KC Kay, Engineering / Physical Science Tech
Field Services Section
Water Quality Control Division
Colorado Department of Public Health and Environment

cc: La Plata County
Drinking Water File, PWSID No. CO0134300
GJ Drinking Water File, PWSID No. CO0134300
Mike Amato, omamato@bresnan.net

COLORADO
Department of Public Health & Environment

Section 11.28 Storage Tank Rule
Regulation No. 11 (5 CCR 1002-11)

Comprehensive Inspection Checklist

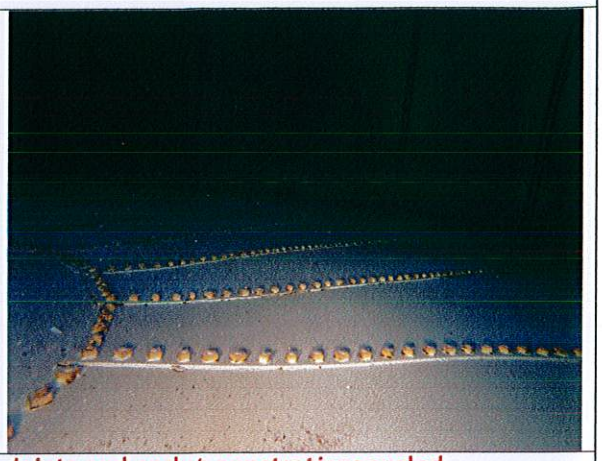
System Name & PWSID:	Florida River Estates
Inspection Date:	06/22/2017
Inspector's Name:	Charles "Bill" Donohue NACE Inspector #763
Inspector's Phone:	1-505-330-2531
Inspector's Email:	CWDIVERS@MSN.COM
SDWIS Tank Name:	Main Tank
SDWIS Facility State ID:	CO-134300
Inspection Start & Finish Time‡:	
Tank level‡:	
Weather conditions‡:	
List Sanitary Defects Identified by Inspection Item # (which are in bold)*:	

‡ *These items are not required and are included for the sole benefit of the supplier of water.*

* *Bolded inspection items that are sanitary defects if answered 'Yes': 2, 3, 6, 7, 8, 9, 11, & 13. Bolded inspection items that are sanitary defects if answered 'No': 10 & 12.*

Inspection Item:	Yes/No	N/A	Comments/Corrective Action Schedule/Action Taken/Corrective Action Completion Date:
1. Photographs or video taken?	X Y ☐ N		If no, why not? Both video and photo
INTERNAL TANK INSPECTION			
2. Contamination in the tank (e.g. floating debris, insects, other animal contamination, roots, etc.)?	☐ Y X N		Traces of tree pollen, no insects.
3. Water turbid, discolored, stale or foul?	☐ Y X N		No turbidity, water very clear.
4. Is stored water routinely turned over (stand pipe with valves or mechanical mixer), even in times of low demand	X Y ☐ N		Common inlet/outlet, turned over by consumption

(includes reviewing logged/written data)?			
5. Cathodic protection functioning appropriately? (is the anode missing, is it in contact with water or is tank corrosion present)	☐ Y ☐ N	X	Only check 'N/A' if the tank has no cathodic protection system. Galvanized, coated tank.
6. Interior coating: Blistering, peeling, scaling, rusting, any irregularities or other failure?	☐ Y X N		If conditions exist but do not constitute a sanitary defect, answer 'N' to the left and describe them here; include recommendations to prevent sanitary defects. 
7. Interior sidewalls: Structural deficiencies, biofilm, sealant loss, any irregularities or other failure?	☐ Y X N		Observed no film. Shell in good condition.
8. Roof interior: Structural deficiencies, any irregularities or other failure?	☐ Y X N		Roof interior in good condition. 
9. Interior hatch: Structural deficiencies, any irregularities or other failure?	☐ Y X N		Tank has no roof hatch. Removed vent for access.
10. Is there a stamp in the tank, documentation, or other evidence that the interior coating meets ANSI/NSF Standard 61 or equivalent potable water certification? If there is, include a photograph of the stamp, a copy of the	☐ Y ☐ N	X	Only check 'N/A' if the tank has no interior coating. Interior coated with NSF epoxy.

documentation, or other evidence in the written inspection plan.			
11. Tank floor: Corrosion? Sediment/Sludge? Any structural deficiencies? Any irregularities? Other failure?	☐ Y X N		
12. Tank penetrations (joints/ gaskets), as seen from the interior, adequately sealed?	X Y ☐ N	☐	Joints and gasket penetrations sealed.
13. When viewed from inside the tank, is there visible daylight around the hatches, vents, joints or other fixtures? If yes, document location where light can be observed in 'Comments...' column.	☐ Y X N	☐	
14. Is there evidence of damage or corrosion to the internal ladder?	☐ Y N	X	
15. Other concerns?	X Y ☐ N		Recommend cathodic protection, recommend installing roof hatch for safe egress into the tank.
16. Cleaning completed? Please note: The Storage Tank Rule does not require routine tank cleaning during tank inspections.	Y X N	☐	If so, when? If cleaning revealed any findings or sanitary defect corrections, document above. Cleaning is not necessary, no sediment.

Inspector Signature:	Charles "Bill" Donohue NACE Inspector #763 Corrosion Technologist #3119
Date	Signature
06/22/2017	CW Donohue

Attorney client privilege

Underwater Inspections
Welding & Burning
Specializing in Water
Tank Inspections

C W Divers
903 N. Watson • Farmington, NM 87401
Phone: (505) 327-2830

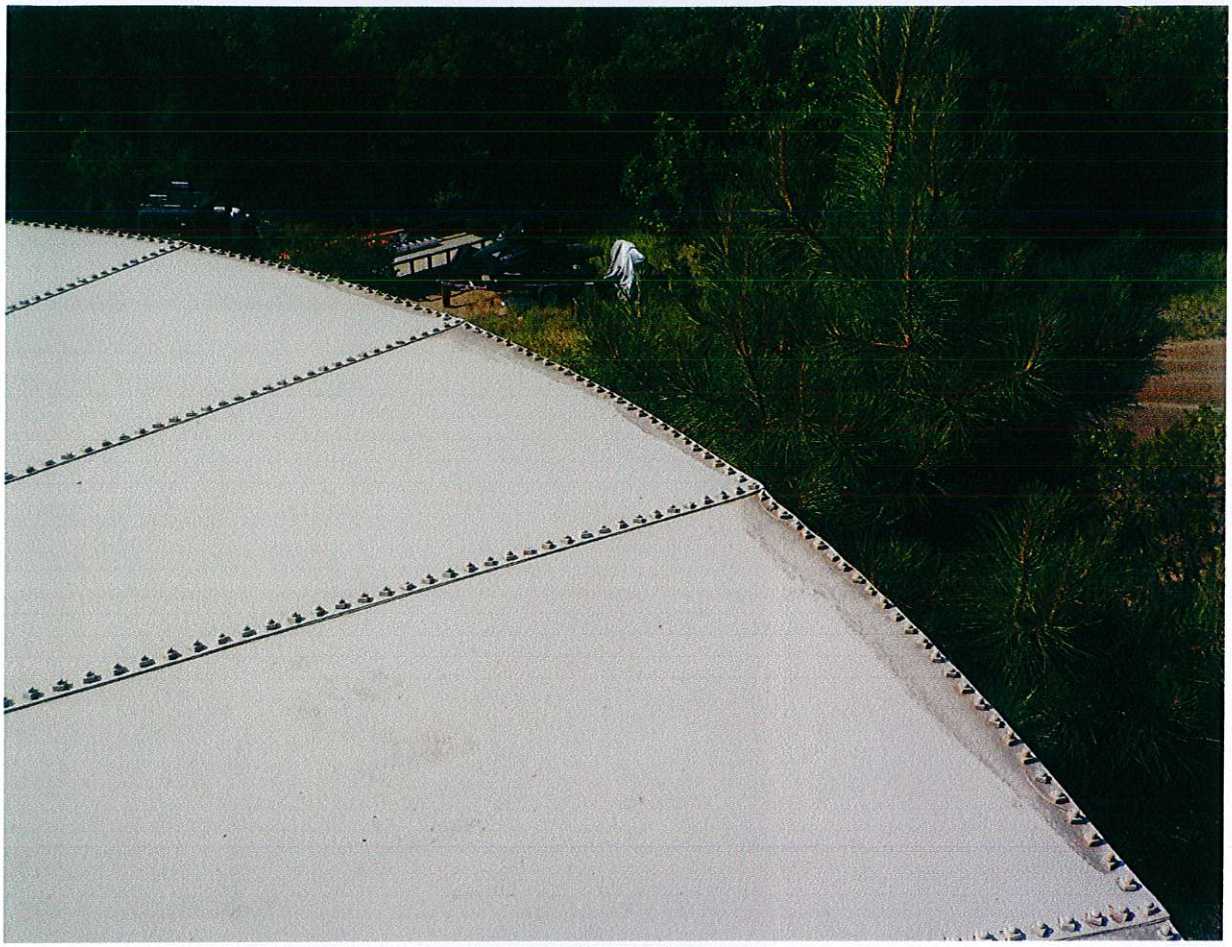
Cathodic Protection
Member AWWA
NACE Level III
Inspector #763

Florida River Estates Water Company
Attn: Mark Fuson

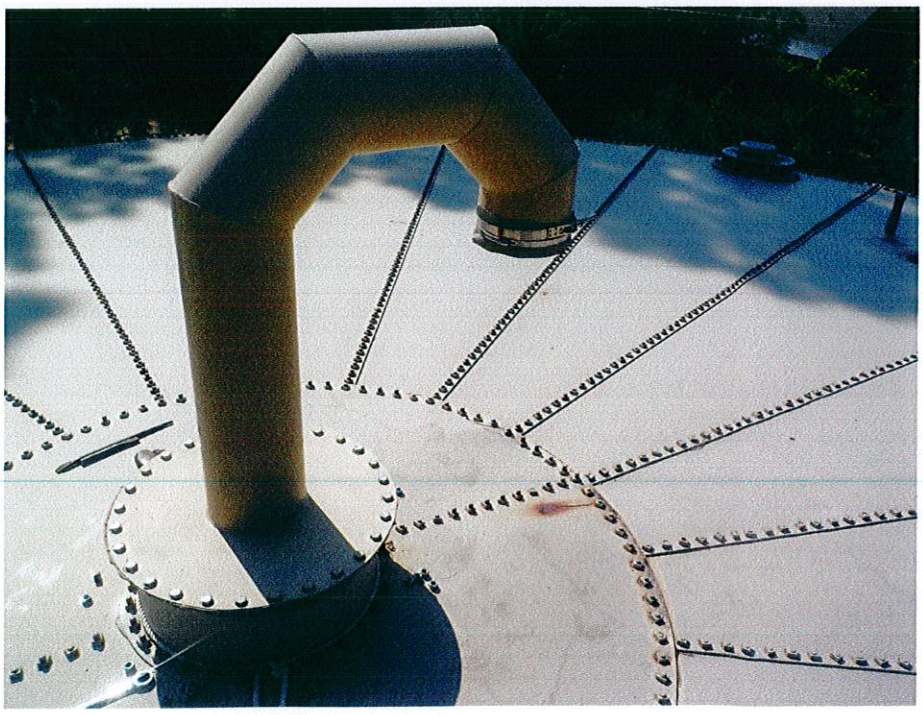
RE: 100K gallon Main Tank, CO-134300 ROV Inspection

On 6/22/2017, CW Divers performed an ROV (remote operated vehicle) inspection on the internal water tank surfaces. The inspection was performed by NACE Level III Coatings Inspector #763, Charles Donohue. The report was documented by DVD video and photography. The purpose of the inspection was to evaluate the condition of the coating, determine extent of corrosion to the internal members and assess any un-sanitary conditions.

Exterior paint condition is good on the shell surface. Observed spot area's of light surface rust and peeling paint on the upper ring wall, next to the ladder.



The roof is in good condition, no rust or peeling paint.



Underwater Inspections
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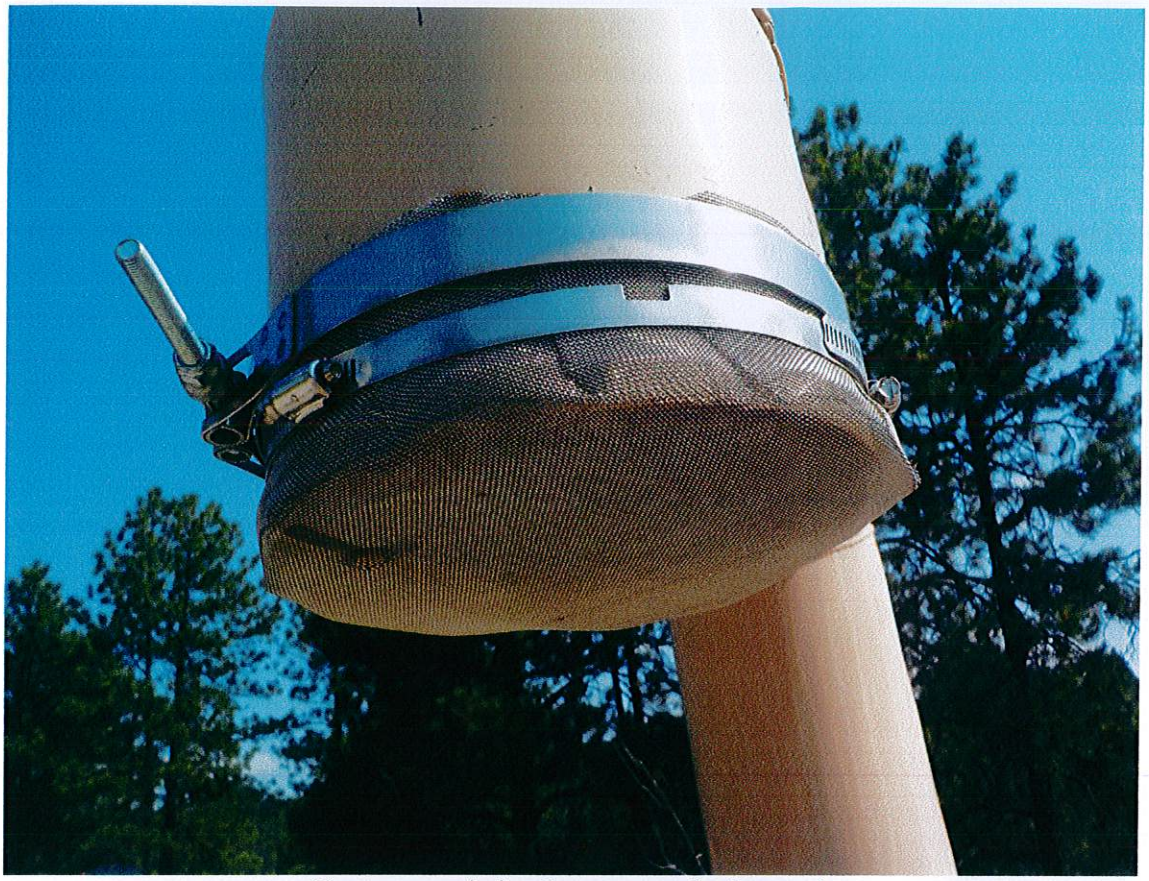
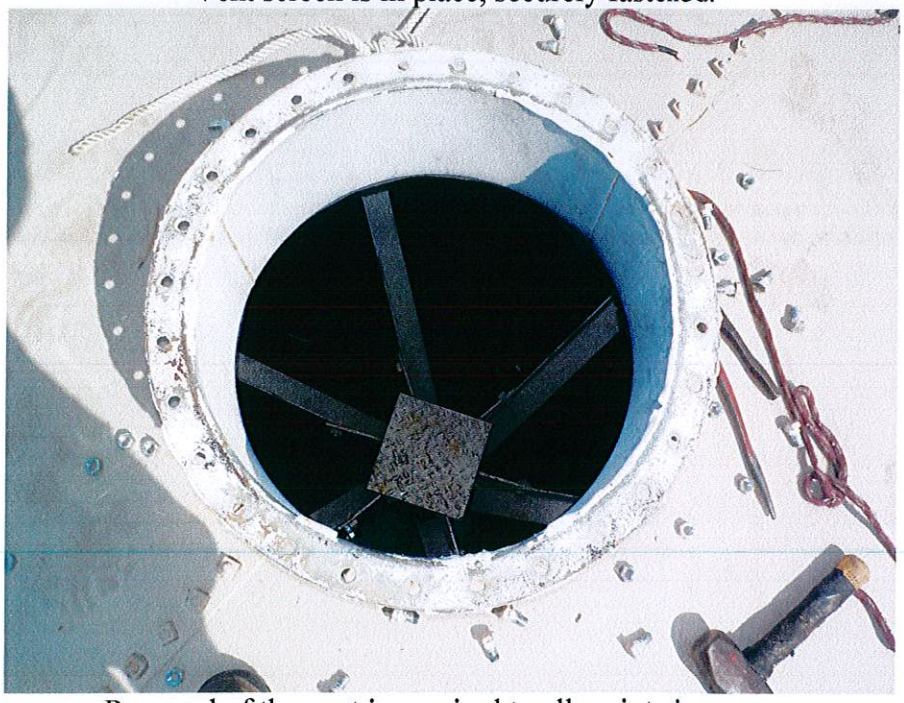
Member AWWA
NACE Level III
Inspector #763



Vent screen is in place, securely fastened.



Removal of the vent is required to allow interior access

Underwater Inspections
Welding & Burning
Specializing in Water
Tank Inspections

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903 N. Watson • Farmington, NM 87401
Phone: (505) 327-2830

Cathodic Protection
Member AWWA
NACE Level III
Inspector #763

The overflow is PVC, piped thru the bolted shell

Bottom of overflow supported by a rock

Underwater Inspections
Welding & Burning
cializing in Water
nk Inspections

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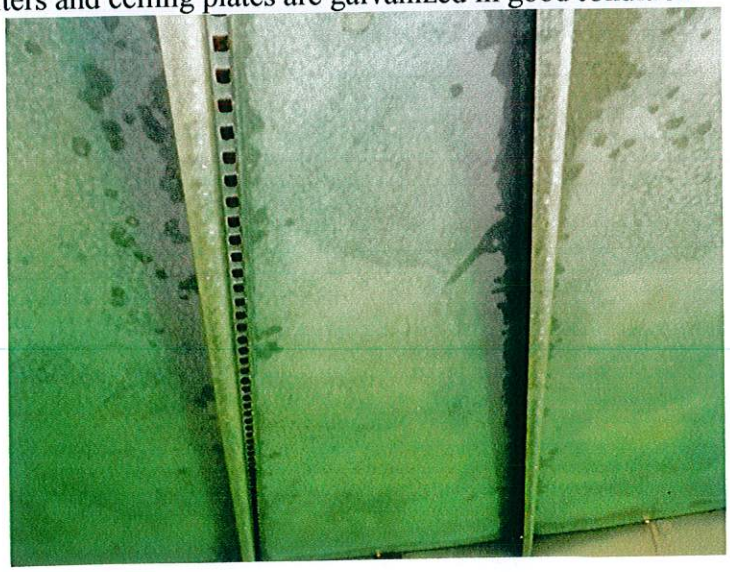
NACE Level III
Inspector #763

Rafters and ceiling plates are galvanized in good condition



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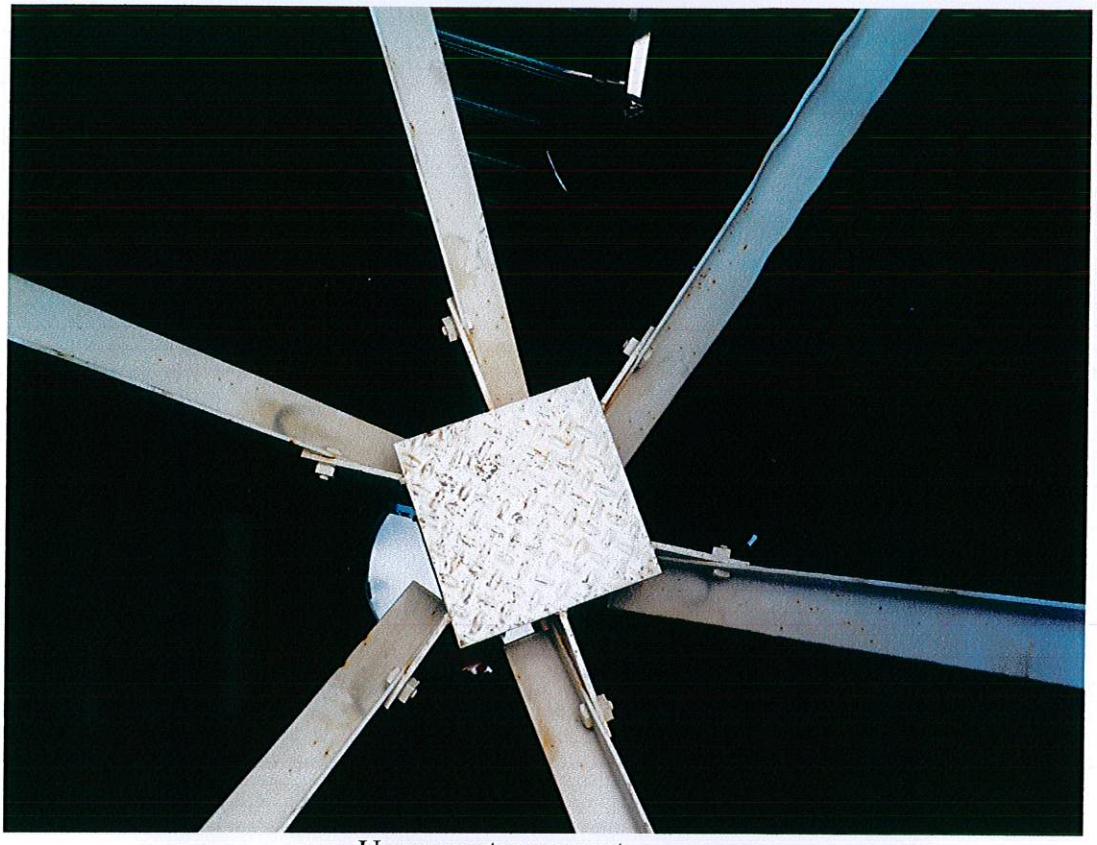
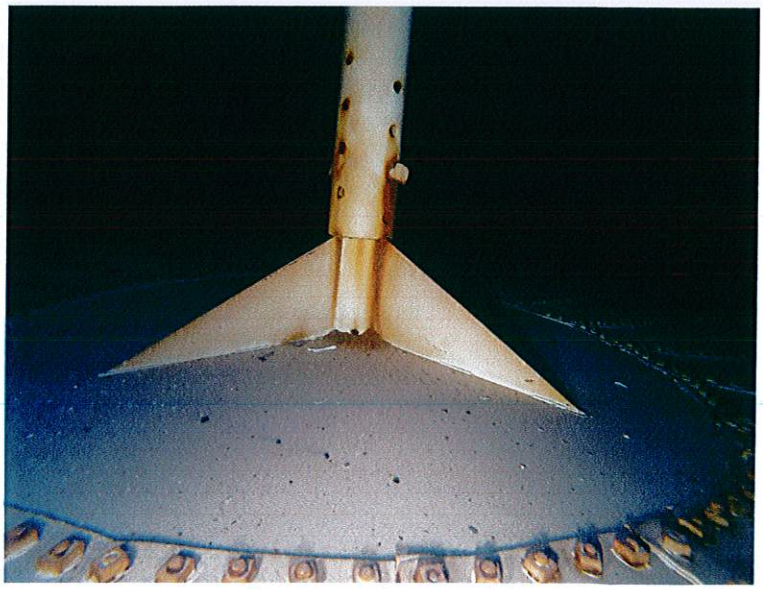


Upper center support



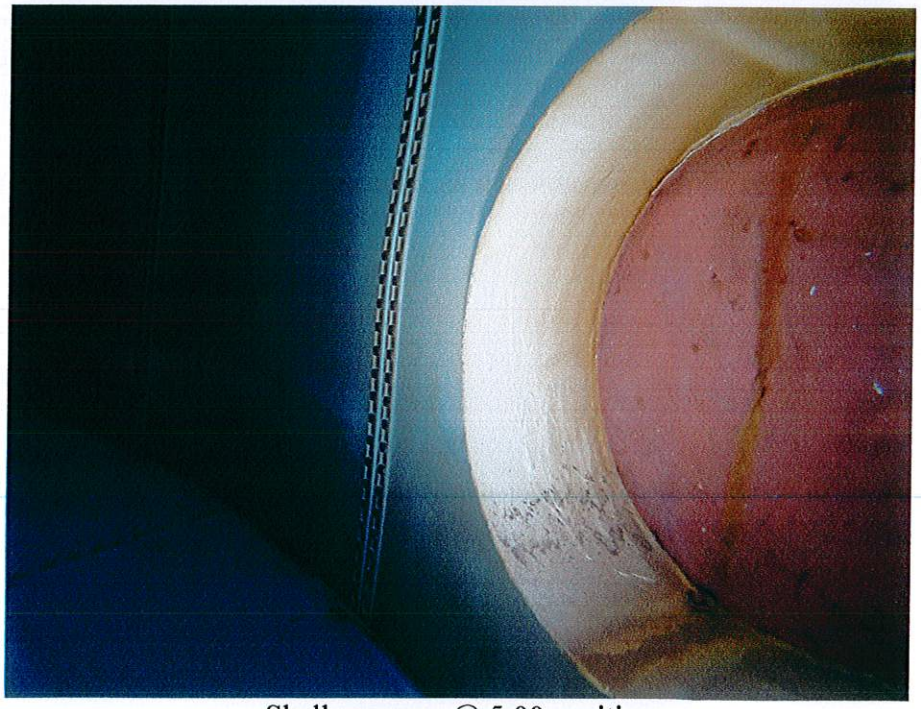
Lower center support

Underwater Inspections
Welding & Burning
Specializing in Water Tank Inspections

C W Divers
903 N. Watson • Farmington, NM 87401
Phone: (505) 327-2830

Cathodic Protection
Member AWWA
NACE Level III
Inspector #763

Minor corrosion at floor/shell area. Drain on floor.

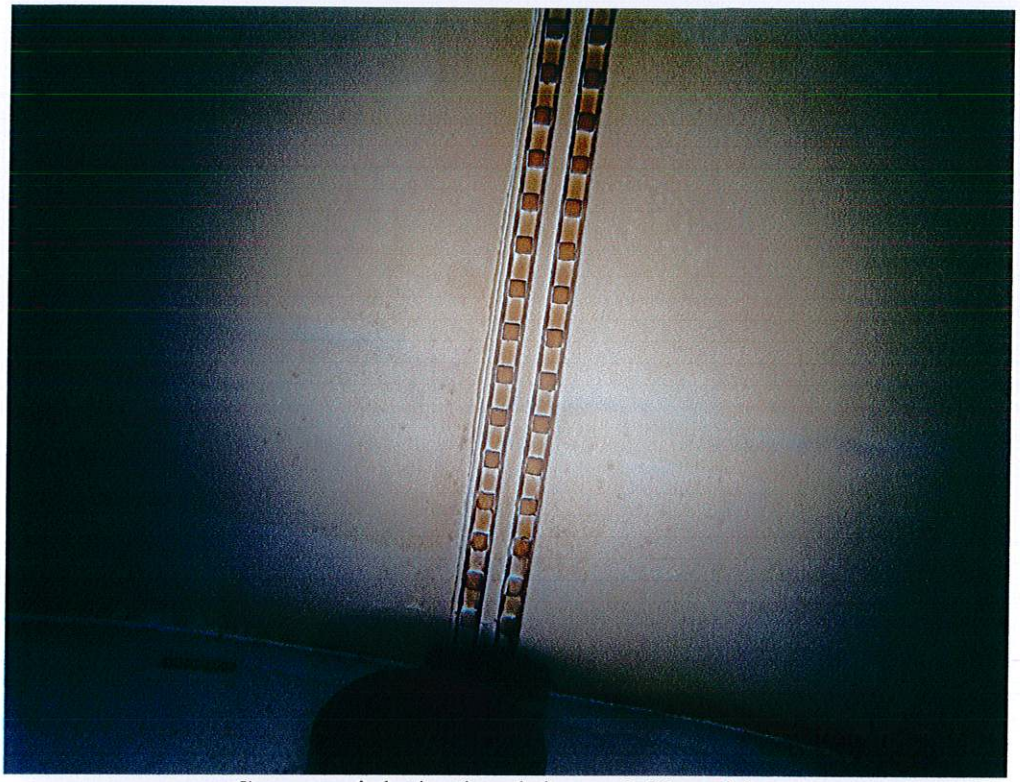


Shell manway @ 5:00 position

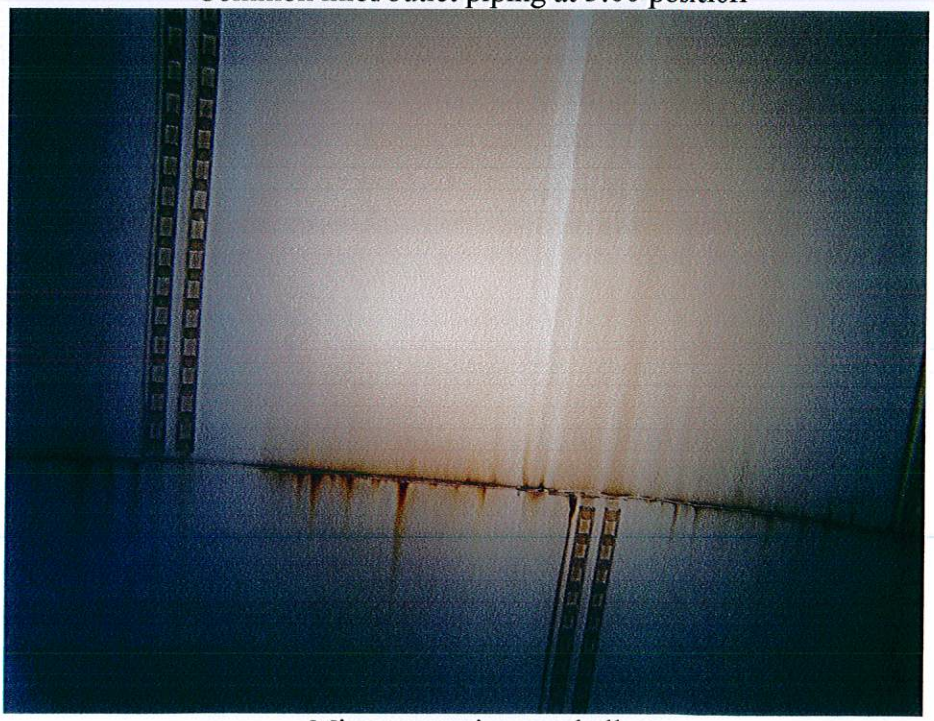
Underwater Inspections
Welding & Burning
Specializing in Water
Tank Inspections

C W Divers
903 N. Watson • Farmington, NM 87401
Phone: (505) 327-2830

Cathodic Protection
Member AWWA
NACE Level III
Inspector #763



Common inlet/outlet piping at 3:00 position



Minor corrosion on shell

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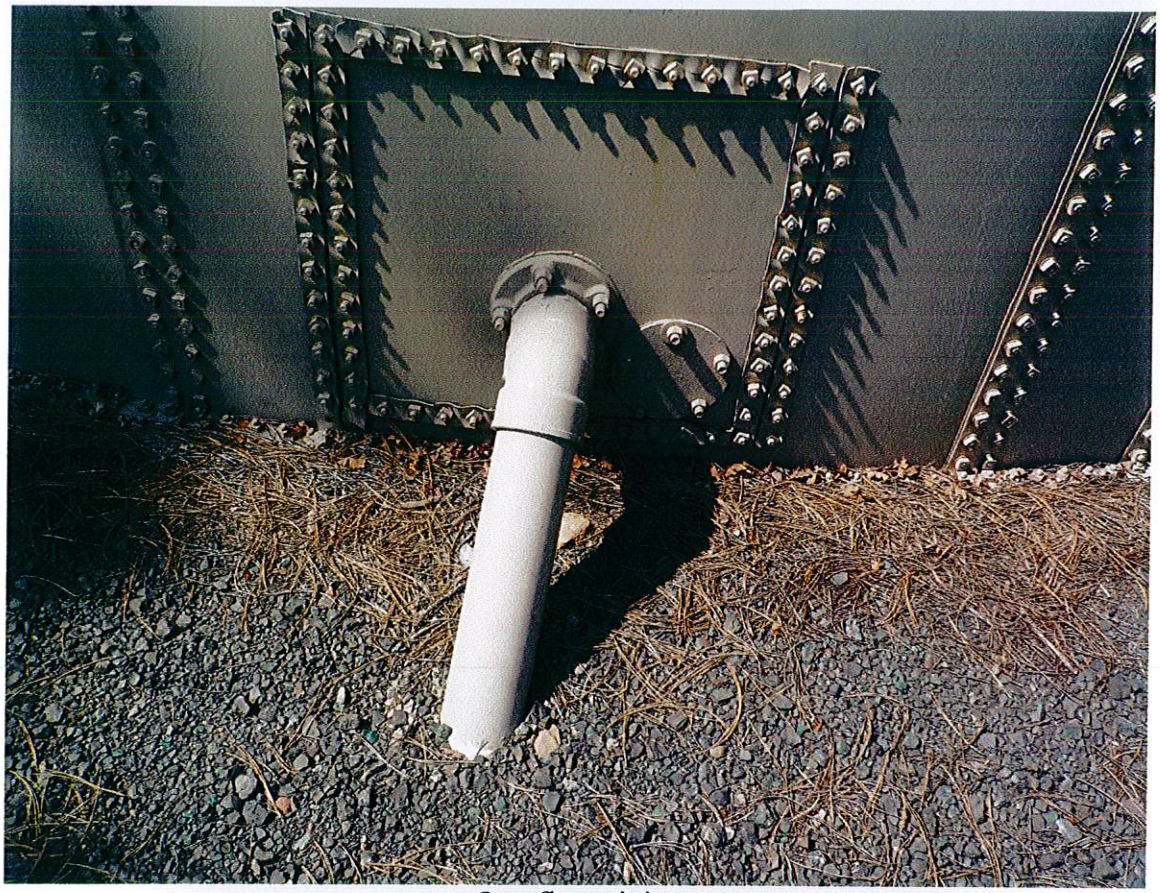

Overflow piping

Overflow and drain

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Phone: (505) 327-2830

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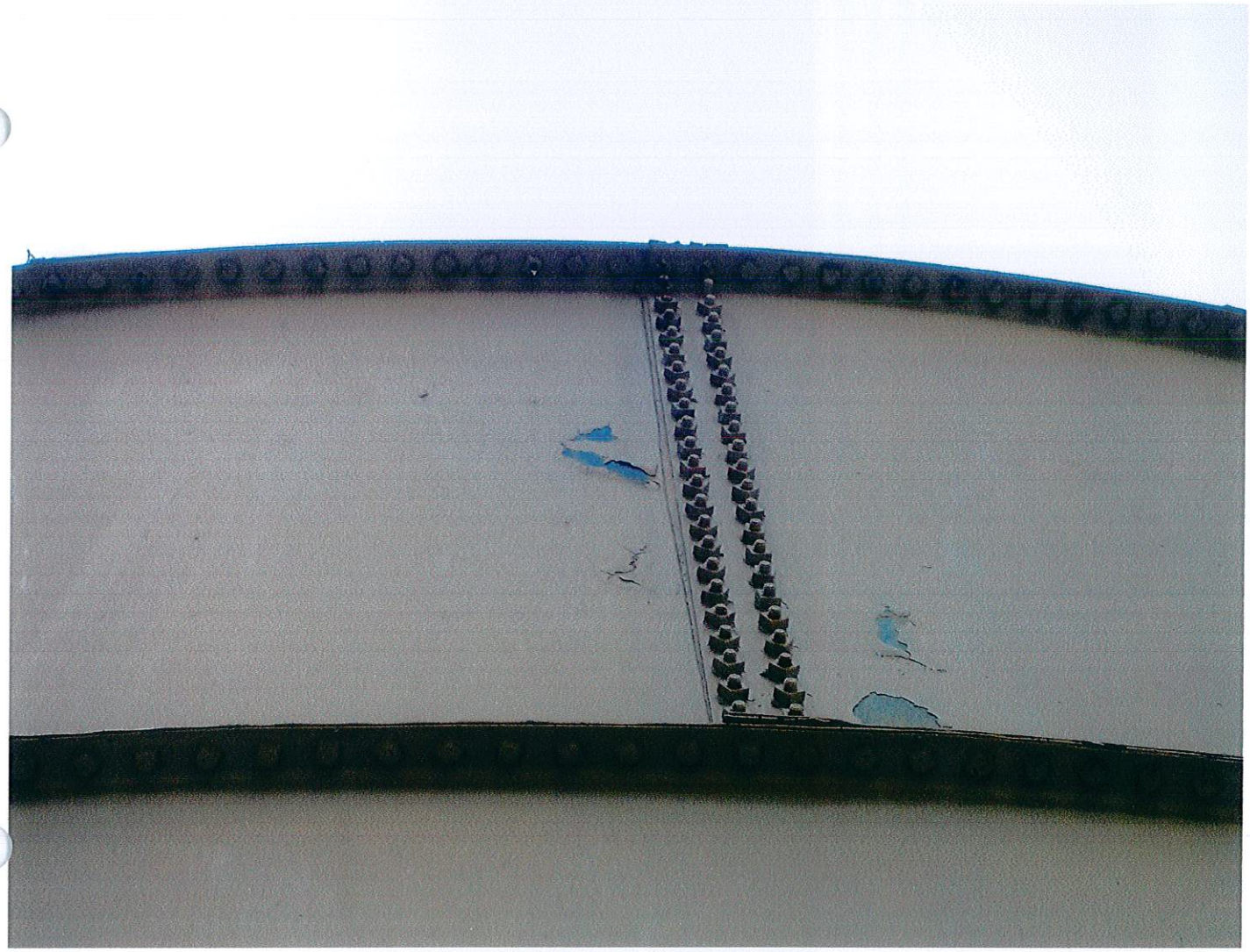
NACE Level III
Inspector #763

Wood skids for floor support



Observed no measurable corrosion on the interior shell, floor, or ceiling. The interior shell coating is in good condition with no blisters only pinpoint rust. Observed no sanitary defects. Floor cleaning is not necessary at this time.

Recommendations: We recommend cathodic protection be installed to control corrosion at the shell bolted seams. We recommend the installation of a roof hatch. The roof vent removal for entry is an unsafe entry method. The external ladder handrails need to be extended 3' above the landing surface. CW Divers can provide these recommended improvements. Inspect the reservoir in 4 years. For any questions regarding this inspection, contact Bill Donohue at 505-330-2531.

NACE Level III Coatings Inspector #763
NACE Corrosion Technologist #3119

CW Donohue

a substantial threat to the continued operation of the FREHOA. Denial may also be based upon an unresolved obligation between the FREHOA and the applicant or upon a violation of these regulations.

10.2 Service Within FRE.

Any property owner within FRE desiring FREHOA water service may apply for water service.

At the time of executing the application, the property owner shall pay the required Tap Fee(s) and Meter Appliance Fee(s). See SECTION VI. The customer may be required to pay any Capital Account Fee which is in arrears.

Upon request of the FREHOA, the customer shall furnish satisfactory evidence of inclusion within FRE. Satisfactory evidence includes a tax receipt, or certification in lieu thereof, received from, and signed by, the La Plata County Treasurer.

The customer grants to the FREHOA an easement, as reasonably necessary, for the construction or repair of any water line, water meter, and other equipment.

SECTION XI
DISCONTINUANCE OF WATER SERVICE

11.1 Voluntary Discontinuance of Water Service.

Customers may request a temporary discontinuance of water service. The FREHOA will charge a reconnect fee as determined by the Board from time to time for reconnection of the water service. Temporary discontinuance of water service does not relieve customers from Capital Account Fees where applicable.

11.2 Discontinuance of Water Service Due to Delinquency in Payment.

The FREHOA shall give ten (10) days' notice of intention to discontinue water service because of a delinquency in payment. This notice shall be delivered by hand to the property serviced or sent by certified mail, addressed to the last known address of the customer. If neither the owner nor the occupant of the property can be located for notice, FREHOA shall attach the notice to the front door of the property. The FREHOA reconnect fee shall be charged after a discontinuance of water service because of a delinquency in payment. The cost of preparing and certifying the delinquent notice shall be charged to the delinquent customer.

LIFE CYCLE COST ESTIMATOR (LCCE)

= a cell in which you can input your data and variables

1. The aim of the model is to highlight the fact that the initial cost is not the full cost. It is assumed that there is a one time capital cost (inputs table 2) with no long term funding costs.

2. The model assumes routine maintenance and inspections for both tanks will be similar, therefore not included.

3. Enter data in the yellow cells. The accuracy of the model is a function of the data you enter.

Table 1: Life Cycle Cost Estimator

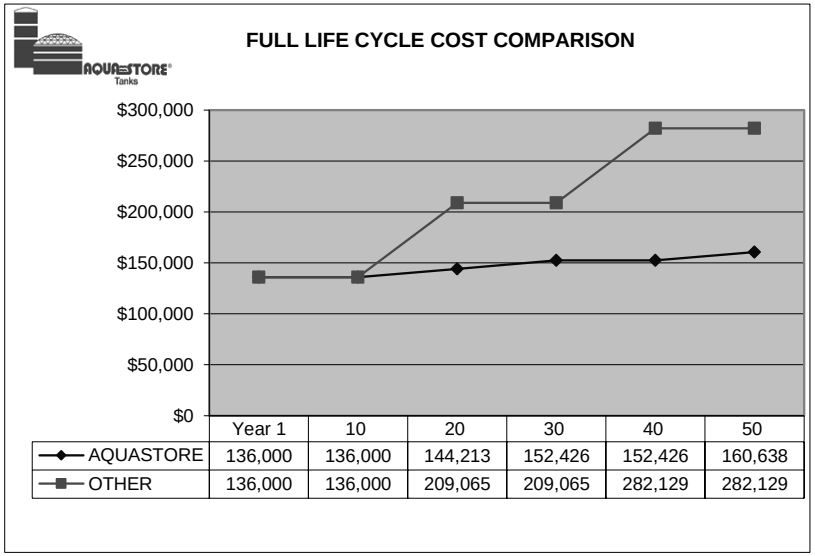
Project:			**AQUA STORE**		**OTHER**
For:	**Florida River Estates Water Storage**		**TANK**		**Tank**
Tank Details					
	Diameter, Ft.		**31**		**31**
	Height, Ft.		**19**		**19**
	Open Top or Alum Dome Enter 1 : Steel Roof Enter 0		**1**		**0**
	Nominal Capacity Gallons		**107,228**		**107,228**
Interior Repainting / Touch-Up					
	Repainting Cycle, Years				**20**
	Resealing/Touch-Up/Other cycle, Years % of Sealer to be	####	**15**		
Exterior Repainting / Resealing					
	Repainting Cycle, Years				**20**
	Resealing/Touch-Up/Other cycle, Years % of Sealer to be	####	**15**		
Calculation Variables					
	Period for which you wish to Determine Life Cycle Cost (years)		**50**		
	Inflation Rate, %		**2.0%**		
	Discount Rate %		**2.0%**		
	Repainting: Current Cost $/sq ft				**$12.50**
	Resealing/Touch-Up/Other: Cost, $/sq ft =0, $/lin ft = 1	**1**	**$7.00**		
SURFACE AREA REQUIRING REPAINTING / RESEALING		**Aquastore**		**OTHER**	
--> INTERNAL Surface Area: Other Tank (SQ FT) : Aquastore unit:		**Lin ft**	**598**	**SQFT**	**3,358**
--> EXTERNAL Surface Area:(excl floor area) (SQ FT) : Aquastore		**Lin ft**	**598**	**SQFT**	**2,604**
LIFE CYCLE COST ESTIMATIONS					
INTERIOR :(No costs included for recoat/reseal in final year of analysis period)					
Number of cycles (See Note)			**3**		**2**
Future Cash Flow Cost of Interior Repaint/Reseal			**$22,976**		**$152,025**
EXTERIOR :(No costs included for repaint/reseal in final year of analysis period)					
Number of cycles (See Note)			**3**		**2**
Future Cash Flow Cost of External Repaint/Reseal			**$22,976**		**$117,875**
TOTAL REPAINTING/RESEALING COSTS			**$45,951**		**$269,900**
TOTAL REPAINTING/RESEALING COSTS (Adjusted for NPV)			**$24,638**		**$146,129**
AMOUNT (NPV) AQUASTORE TANK BID CAN EXCEED OTHER BID & STILL HAVE LOWEST LIFE CYCLE COST			**$121,491**		

Table 2: TOTAL SAVINGS: INITIAL COST + LIFE CYCLE COST

Enter Tank Initial Cost	
AQUASTORE	**OTHER**
$136,000	$136,000

ESTIMATED LIFE CYCLE SAVINGS WITH AQUASTORE (INCL TANK PURCHASE)

$121,491



	Year 1	10	20	30	40	50
AQUASTORE	136,000	136,000	144,213	152,426	152,426	160,638
OTHER	136,000	136,000	209,065	209,065	282,129	282,129

Note: If a repaint/reseal is due in the last year of the specified period of analysis, then these are NOT included in costings.

Tuesday, June 25, 2019