

**IRRIGATION SYSTEM
MANAGEMENT PLAN**

FOR

ADOBE VIEW NORTH SUBDIVISION

Prepared for:

Adobe View Development Company LLC.
P.O. Box 903
Rangely, CO 81648

Prepared by:

Rolland Consulting Engineers LLC
405 Ridges Blvd. Suite A
Grand Junction, CO 81507

September 21, 2016

I. GENERAL

The Adobe View North Subdivision (the Site) is a 34 lot, residential single family home development on an approximate 12-acres located west of Pine St. (18 Rd.) north of the Adobe View Subdivision. The lots are approximately 9,500 to 14,000 square feet in size.

This Irrigation system plan is intended as a guideline for operations and maintenance of the irrigation system as well as presenting basic information about the system.

II. INFLOW AND ON-SITE SYSTEM DESIGN

Irrigation water for the Site is received from the Grand valley Irrigation Company system through lateral #IR140 which is a shared use lateral. Information operation and maintenance of the lateral itself must be obtained from the other water users on the lateral. The property has rights to 20 shares of water on a will call basis. The water is diverted at headgate # IR140 on the Independent Ranchmans ditch then travels south and west in a series of culverts and ditches under Highway 6, Union Pacific Rail Road and Interstate 70 then south and west crossing under Pine St. (18 Rd.). On the west side of Pine St. it continues south and terminates into the Adobe View Subdivision irrigation storage facility. Residents of Adobe View Subdivision and Adobe View North Subdivision are the last water users on this branch of lateral IR140.

The irrigation system will be a central on-demand pump system that distributes water to the respective lots. The systems shall operate at a design pressure of 40 to 60 psi maximum with water supplied from a storage facility constructed within a tract of the Adobe View North Subdivision. to accommodate demand during periods of peak flow. The distribution pipes that deliver water to the individual lots generally run along the back of the lots in a 10' wide irrigation easement and terminate near the south west corner of the site into a storm drain inlet. The connection to the storm drain inlet allows the system to be gravity drained from the storage facility to the storm inlet.

Details of the Pumping and control system and pump house plumbing will be provided by **Munro Pumps** of Grand Junction (phone: 243-5669). Their information shall become a part of this irrigation plan. The irrigation facility has a storage capacity of approximately 8,640 cubic feet.

SYSTEM DESIGN DATA:

Type of system: central pressure (40-60 psi at pumphouse)

Water Supply: 20 shares GVIC =89.6 gpm (@4.48 gpm/share)

Irrigated area = 34 lots x 5,000 SF/lot irrigated landscape (av.)= 3.90 acres

Minimum demand = 3 " x 3.90 = 42,500 ft³ week x (7.48 gal/ ft³) /
(7days/week) / (24Hours/day) / (60min/Hour)= 31.5 gpm

31.5/(4.48 gpm/share)=7.0 shares <20 shares **O.K.**

Peak system demand: 25% x 34 lots x 12 gpm/lot = 102 gpm (22.8 shares)

Storage is required for peak system demand

Storage: concrete vault 8' deep vault capacity is approximately:

8,640 cu. ft. = 64,627 gallons.

This storage will provide 10.5 hours of continuous flow at 102 gpm.

If the watering schedule in section IV is complied with, there will be a 6-hour storage 'recharge' time between service periods allowing an addition of $67.2 \text{ gpm} \times 6 \text{ hr} = 24,192 \text{ gal} = 3,234 \text{ cu. ft.}$ to the storage vault

III. OPERATION AND MAINTENANCE

A. General

The Adobe View North Homeowners Association are responsible for the care, operation and maintenance of the irrigation delivery systems and storage facility. The following is a general list of duties:

1. Yearly cleaning and maintenance of the IR140 lateral (shared with other water users)
2. Yearly inspection of all components of the system for general condition and function.
3. Clean out sediment accumulation in storage vault (as required for proper function)
4. Algae removal (as required) see section III C.
5. Annual system draining and winterization.

B. Seasonal

FALL (end of irrigation season)

Open drain valve in SW corner of subdivision (near storm inlet) to drain system.

Drain all water in Vault and pipe system

Flush , or mechanically remove sediment accumulation from vault.

SPRING (begin of irrigation season)

Remove any "over winter" debris from vault

Close drain valve in SW corner of Subdivision (near storm inlet).

Fill vault when water becomes available.

C. Algae Control

Note: This is an initial draft of a method of managing algae growth, it may require modification given changing conditions of temperature, available nutrients in the irrigation water, and many other factors. The recommendations herein are based on advice from Colorado State University Cooperative Extension. The current agent recognized as the authority on this matter is Karla Brown in the Montrose office telephone 970) 249-3935. Contact the extension for modifications or advice on algae management.

Algae: To help control algae, physically remove all signs of dried algae from the pond bottom by raking, bagging, and properly disposing of the remaining mats in the pond area at the beginning of the irrigation season, prior to the initial filling of the reservoir. Apply an algacide (approved by the CSU Extension) such as "Cutrine Plus" **as directed by the manufacturer at the rates and methods listed on the label.** Use appropriate personal protective equipment. Following are some *suggested*

ways to begin. *Always follow the specific product directions provided by the chemical manufacturer should they differ from those suggested herein.*

- 1st Treatment: apply at, or prior to, first sign of algae appearance (prior to 80°F days).
- 2nd Treatment (and all subsequent): apply as needed and directed by manufacturer.
- Allow at least a couple of hours of contact time after treatment prior to pumping.
- Store chemicals in a dry, safe, locked area such as the pump house.

Citrine Plus Granular – Apply by hand tossing or by a dry fertilizer spreader at a rate of one pound per 720 square-feet of affected area. Apply only to the affected areas. The entire pond is approximately 70' x 82' = 5470 square feet (an application of 8 pounds would cover the entire pond, if completely affected). Only 2 or 3 applications per season should be required. Application rates and frequency may need to be adjusted to match specific site conditions.

Citrine Plus Liquid – Apply by spraying a diluted solution (9 parts water to 1 part liquid) of the liquid with a pump/canister sprayer as evenly as possible over the surface of the pond (especially in the affected areas). Apply at a rate of 0.6 gallon of the original liquid per acre-foot of water (the pond contains approximately 0.5 acre-feet of water when at full capacity – indicating a need for approximately 0.3 gallons of the original liquid for the entire pond). Apply as needed, not to exceed one application per three weeks.

Product Information – **Citrine Plus**, by “**Applied Biochemists**” Phone (308) 632-4570
Distributors – Randal Industries (Grand Junction, Phone: 242-3787)
Fruita Consumers Co-op (Phone: 858-3667)

Note: Citrine Plus was available at the Fruita Consumers Co-op in granular form (30 lb. Bag) and in liquid form (1 gallon container) as of April 16, 2002 with specific application directions on the product labeling *to be precisely followed.*

D. Sediment

Removal of sediment can be done in the fall or spring, before the initial filling of the pond. Sediment removal frequency may vary, depending on sediment transport conditions for the Colorado River and associated irrigation canals each year.

IV. IRRIGATION SCHEDULING

Day 1 – Odd number addressed lots irrigate on odd numbered days of the month between the hours of 4:00 AM to 10:00 AM OR 4:00 PM to 10:00 PM. Each lot will be limited to a maximum flow of 15 gallons per minute during their watering period.

Day 2 – Even number addressed lots irrigate on even numbered days of the month between the hours of 4:00 AM to 10:00 AM OR 4:00 PM to 10:00 PM. Each lot will be limited to a maximum flow of 15 gallons per minute during their watering period.

This Cycle should be repeated for every odd and even day in the irrigation season except for Sunday, which will be reserved for algae control and maintenance.

To work effectively this schedule will require the cooperation and compliance of the homeowners. This schedule can be adjusted as needed to provide satisfactory service to the users as long as the operating capacities of the pumping system, storage pond and available inflow are not exceeded.