



Date: April 30, 2015

By: Staff
 Rich Nelson, City Manager
 Jason Bond, City Planner
 Shane Sorensen, P.E., City Engineer
 Jed Muhlestein, P.E., Assistant City Engineer

Subject: Oberee Annexation Report – Addendum 1

Background This report is meant to supplement the original staff report dated April 17, 2015 titled “Oberee Annexation Report.” That report contains basic information and background regarding the proposed Oberee Annexation. New information will be reported in addendums such as this.

Pressurized Irrigation Something to consider for both pressurized irrigation and culinary water is the fact that this area was taken into consideration when the master plans for these services were drafted. Meaning, if the master plans were followed with associated improvements, then the services in the Oberee area would work. See email dated Thursday, April 30, 2015 attached as Appendix A.

The “source of water” issue was discussed for the high zone in the previous report. Outdoor source requirements for the area have been calculated and are shown in Table 1.

TABLE 1 – OUTDOOR SOURCE REQUIREMENT

	Lots	Proposed Zone	Size of Lot (sf x 1000)	Average Landscaped Area Per Lot (sf x1000)	Total acreage to provide secondary water to (acres)	Open Space (acres)	Water Consumption Requirement (ac-ft)
Non-PRD Development	48	CR-40	40	28	30.9	none	145
PRD	60	CR-40	20	14	19.3	28	222
PRD Easement*	60	CR-40	30	21	28.9	conservation easement	136

The city implemented a “pilot program” for installing meters on the pressurized irrigation system five years ago. Meters were installed on twenty five homes around the city. To calculate the

Water Consumption Requirement as noted in Table 1, data was taken from the five years' worth of data we have collected from these twenty five locations.

The master plan lists two options to remedy the "source of water" issue.

- One - Install three booster pumps that could pump water from the low zone into the high zone.
- Two – Connect to the CUP water line via pumps and lines outside the city.

Both these options are expensive and would serve much more than just the proposed development. The source at Fort Creek is approximately 1000 to 1500 gpm. One pump, pumping at 500 gpm (~ 403 ac-ft per 6 month irrigation season) could provide for the outdoor use of the proposed development no matter what density is settled upon for the development (assuming it is 60 lots or less). If this approach were taken the developer's needs would be taken care of, it could benefit the city, and the city could add on to/finish that project at some future point as needed. If the City Council would consider this option, it is an option staff feels would be more palatable to the developer and would be a win-win situation for both developer and City. At this point specific costs have not been put together but are being worked on and should be available soon.

The following is a summary of where we stand with the pressurized irrigation:

- Staff recommends the developer install a 12-inch irrigation main extending from Grove Drive to Elk Ridge Lane. A cost share approach can be worked out if annexation moves forward.
- Staff recommends the City Council consider the option of the developer providing and installing one booster pump and infrastructure to provide another water source (approximately 500 gpm) to the high zone. Staff will work with Horrocks Engineers to provide a cost estimate.

Culinary Water Staff worked with Horrocks Engineers to model the fire flows for this area with and without system buildout improvements in place. It was discovered that fire flow for this area depends on the Three Falls tank and PRV system as outlined in the culinary master plan. See Appendix A of this report and Appendix C of the original staff report. The developer has options regarding culinary water if annexation moved forward:

- Wait for Three Falls to build their tank and PRV then...
 - o Install the 10-inch main from the 12-inch Box Elder main line to the 90 degree bend in Grove Drive
 - o Install 8-inch mains within the development
 - o Install the 8-inch connection at Elk Ridge Lane. This is a required connection as it provides looping of the system and ensures fire flows
- Develop now, do not wait for Three Falls
 - o Install a 12-inch line from the 12-inch Box Elder main line to the 90 degree bend in Grove Drive
 - o Install 10-inch lines in the northern portion of development
 - o Install the 8-inch looping connection to Elk Ridge Lane

It should be noted that the water model was set for minimum fire flows of 1750 gpm at each hydrant. 1750 gpm provides enough fire protection for a 4,800 square foot home without fire sprinklers. The email mentions a larger pipe option if the developer seeks to have more fire flow, allowing larger homes to be built without the need for fire sprinklers. This can be further discussed if annexation moves forward, the main point here is that culinary water can be supplied but the infrastructure details hinge on the Three Falls system improvements.

It was mentioned in the previous report that the state requirements for source are approximately four times higher than our current use. We do not know if/when state legislature will change that requirement but we have learned there is an option to apply for a reduction in source requirement. Staff would recommend the developer fund the process of applying for a reduction in source OR wait for the legislature to modify the current requirement.

The following is a summary of where we stand with the culinary water:

- Staff recommends the developer install whatever culinary improvements are necessary to supply adequate fire flows to the development based on the option chosen for development, see above options. The specifics of a cost-share can be negotiated if annexation moves forward as some of the improvements do benefit the city.
- Staff recommends the developer make a decision on either waiting for an outcome from state legislature regarding water source requirement or funding the process of applying for a reduction in source requirement.

Sewer, Storm Water, Traffic, Street System, Secondary Access, Geologic Hazards There are no new recommendations for these subjects. A cost estimate for the Grove Drive improvements is being worked on.

The following is a summary of where we stand with these items:

- Staff would recommend the developer improve Grove Drive from Alpine Boulevard to the bend with standard street widths including curb-gutter on both sides and sidewalk on at least one side. The improvements would need to address the safety concerns at the bend. Street impact fees of the development could be credited towards the Grove Drive improvements.
- Staff would recommend that if annexation moves forward, the Developer provide a detailed traffic study. If it is found that the LOS will drop to anything less than a LOS A, we recommend that the traffic study provide recommendations for road improvements to accommodate the change.
- If annexation moves forward, staff would require the developer to obtain and submit a Geologic Hazards Report for the property. Of particular concern is the areas where mass grading and filling of an existing ravine has occurred.

PRD vs Non-PRD Development, Conservation Easement The details of these subjects can be found in the previous staff report.

- Staff recommends the Planning Commission and City Council consider the size of lots being irrigated when determining what kind of density will be allowed within the development if annexation occurs. See Table 1.

APPENDIX A – HORROCKS EMAIL

Jed Muhlestein

From: John Schiess <JSchiess@horrocks.com>
Sent: Thursday, April 30, 2015 2:39 PM
To: Jed Muhlestein
Subject: Oberee Annexation (Pack Farms) Hydraulic Review

Jed,

As requested I have looked at the Culinary, Pressurized Irrigation, and Sewer models and master plans to see if the proposed development will work. In all three cases the master plans have anticipated that this area will develop and be annexed into Alpine City. In fact the anticipated number of homes that have been modeled in this area is greater than the proposed development. The master plans are adequate for the proposed developments.

The next step I took is to determine what are the minimum improvements necessary to connect to the existing systems and provide the service necessary for each system

For the Culinary system the master planned fire flow service is 1,750 gpm. Just installing the master planned pipe sizes to the area is not enough to ensure fire flow service of 1,750 gpm. This area benefits from the master planned tank and PRV in Fort Canyon. If these were installed in addition to the master planned piping everything would work fine. If this development wishes to proceed prior to Fort Canyon then the following improvements need to be made.

- Install a 12 inch line from the 12 inch tank line near Box Elder along Grove Drive to the proposed development
- Install a 10 inch line from the 12 inch line north to the end of the proposed cul-de-sac.
- Install a 8 inch loop down to Elk Ridge Lane.

If desired to increase the fire flows to 2,750 gpm in the northern most cul-de-sac the first two recommendations could be changed to a 16 inch and 12 inch respectively. This would allow 11,300 sf homes without fire sprinklers.

As far as the pressurized irrigation goes I recommend they install the pipe sizes as shown in the master plan including the loop between Grove Drive and Elk Ridge Lane. The loop between Grove Drive and Elk Ridge fixes both an existing deficiency and serves future growth. It should be funded as noted in Table 12 of the master plan.

They should also participate in a project to get additional source in the High Zone because of limited source capacity prior to July 10 each year. The master plan calls for the Fort Creek Booster Pump expansion to meet this need. It may be possible to construct a limited project now with the full expansion later. Let me know if you would like a cost estimate for the limited project. I see the limited project as replacing one of the existing pumps with a new higher head pump on a VFD with a new discharge line connecting to the High Zone.

There are no improvements necessary to connect to the Sewer system.

If you have any questions please let me know.

Thanks

John E. Schiess, Senior Engineer

HORROCKS ENGINEERS

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