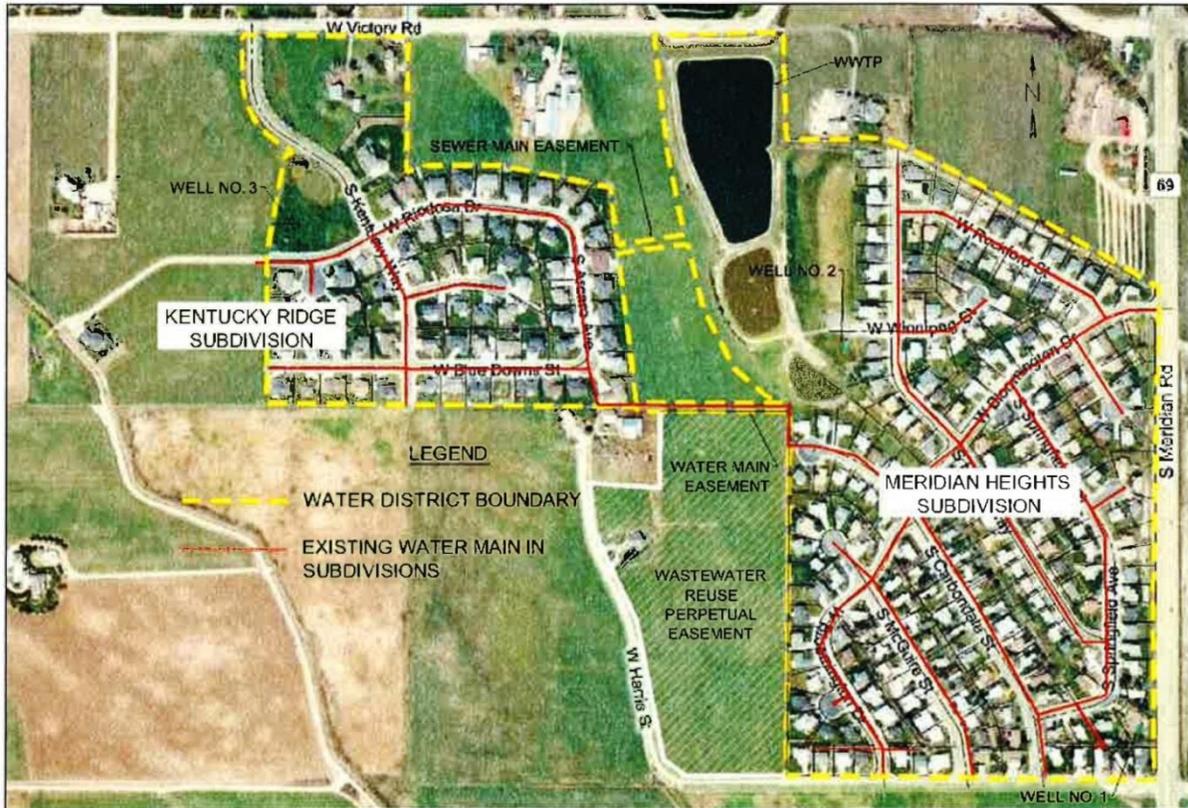


Drinking Water State Revolving Fund Green Project Reserve
- Interim -



Meridian Heights W&SD Drinking Water Project
SRF Loan #DW1402
\$115,000

Interim Green Project Reserve Justification

Categorical GPR Documentation

1. INSTALL 38 NEW WATER METER PITS & SETTERS (Water Efficiency). Categorical GPR per Section 2.2-2: *installing any type of water meter in previously unmetered areas 2.2-2a: if rate structures are based on metered use.* (\$15,100)

Business Case GPR Documentation

2. INSTALLS 1620 FEET OF NEW PVC WATER MAIN PIPING (Water Efficiency). Business Case GPR per the criteria requirements per the criteria requirements 2.4-1...*reducing water consumption*; 2.4-3: *Efficient water use...reducing the amount of energy required by a drinking water system ...therefore, there are also energy and financial savings*; 2.4-4 ... *should address where water losses could be occurring in the system and fix them...by replacing aging infrastructure*; 2.5-2 *Distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks.* (\$81,900)

Approved by the State of Idaho SRF Loan Program
April 2014

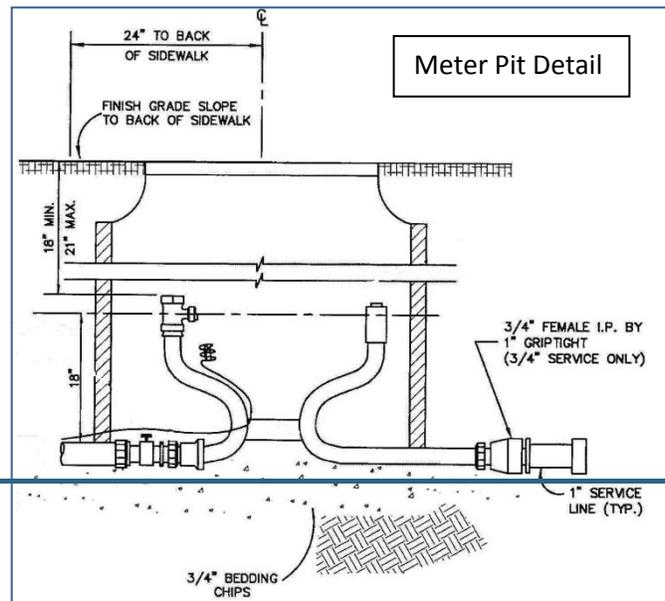
1. WATER METER PITS & SETTERS¹

Summary

- The District is constructing 38 new water meter pits with meter setters to enable the City of Meridian to quickly and efficiently install water meters once the District is incorporated into the City with the completion of this project. After incorporation, metered water flow will enable the City to implement a consumption based billing system for users.
- Loan amount = \$115,000
- GPR portion of loan (meter pits) = 13% (\$15,100)

Background²

- The Meridian Heights Water and Sewer District (District) is located on the south side of Victory Road, between Stoddard and Meridian Road, adjacent to the City of Meridian (City), Idaho.
- The District water and sewer system consists of the Meridian Heights Subdivision and Kentucky Ridge Subdivisions, a wastewater treatment plant (WWTP) and three Public Drinking Water System wells.



Results

- Installing meters will increase water efficiency by decreasing the amount of water lost and by providing more accurate water-use information to customers and the system.
- Decreasing the amount of water lost will save on water pumping and treatment costs.

Conclusion

- Metering of water consumption is an important conservation measure because providing more accurate water bills sends a strong price signal to customers and will result in more efficient consumption
- **GPR Costs:** Constructing water meter pits with installers = \$15,100
- **GPR Justification:** The project is Categorical GPR-eligible (Water Efficiency) per Section 2.2-2: *installing any type of water meter in previously unmetered areas 2.2-2a: if rate structures are based on metered use.*

¹ Ryan Morgan P.E., Keller Associates, March 31, 2014 email

² Facility Plan for Meridian Heights Water Distribution System, Sept 2013, Centra Engineering

2. Distribution System Upgrade

Summary

- The deteriorated shallow and undersized 4” diameter Phase 1 water main piping under the Meridian Heights Subdivision requires replacement in order to (i) prevent water losses (ii) reduce pumping, and (iii) provide safe drinking water. Increased water losses due to catastrophic leaks are attributed to the old and deteriorated Phase 1 water mainlines.
- Estimated loan amount = \$115,000
- GPR (green) portion of loan = \$81,900 (71%)

Background³

- Phase 1 of the Meridian Heights Subdivision was built in 1970. Phase 1 construction included the Harris Well and a potable water distribution system consisting of 4 inch and 6 inch water mains for the new subdivision.
- Some of the original Phase 1 piping is in serious disrepair. This is especially true of the original 4” main lines constructed in W. Bloomington Drive, South McGuire Street, and South Carbondale Street.
- In addition, these mains no longer meet current standards for distribution size or depth: the 4” lines are undersized, and the lines were constructed with a minimum cover of only 36” of soil as opposed to the typical 42” required today. Over the years, this has exposed these pipelines to excessive environmental impacts.
- In 2011 the subdivision experienced four breaks in the original Phase 1 water main lines; these breaks resulted in major water losses, along with the issuance of three ‘boil water’ notices.

Results

- The existing 4” PVC main line, currently installed at a 36” depth, will be replaced with a new 8” PVC main installed at a 42” depth.
- Replacing the deteriorated undersized, shallow lines with properly sized lines at appropriate depths will result in: (i) saving water, as there will be no more water main breaks; (ii) increased system security and reliability through the ability to provide high quality water without need to resort to periodic ‘boil water’ notices, and (iii) saving energy through reduced pumping costs (due to reduced friction, less energy will be required to pump the demand flow through the larger, properly sized line).

Conclusion

- The replacement of deteriorated and undersized water distribution pipe with properly sized pipe and cover, increases system reliability and security, reduces water losses, increases water flow, and decreases pipeline water friction which reduces the amount of pumping required.
- **GPR Costs:** Distribution System Piping Upgrades = \$81,900⁴.
- **GPR Justification:** The prioritized replacement of deteriorated shallow, undersized water main piping as recommended in the Facility Planning Study is GPR-eligible by a Business Case (Water Efficiency) per 2.4-1...*reducing water consumption*; 2.4-3: ...*reducing the amount of energy required by a drinking water system*; 2.4-4 ... *should address where water losses could be occurring in the system and fix them...by replacing aging infrastructure*; 2.5-2 *Distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks*; also (Energy Efficiency) Business Case GPR per 3.5-1: *Energy efficient...upgrades*.

³ Facility Plan for Meridian Heights Water Distribution System, Sept 2013, Centra Engineering

⁴ Ryan Morgan P.E., Keller Associates, March 13, 2014 email