Geohydrologic Data Section
Work Plan 2017

June 2017
Preface

The 2017 Geohydrologic Data Section Work Plan lists the projects planned by the Geohydrologic Data Section (GEO) for the next five years (2017 - 2022). The GEO is responsible for the collection of hydrogeologic data and the oversight of monitor well construction activities at the Southwest Florida Water Management District (District). The GEO conducts exploratory core drilling and aquifer testing, and contracts private well drilling firms to construct the monitor wells to support the data collection needs for various District projects.

The Regional Observation and Monitor-well Program (ROMP), administered by the GEO, has historically been the primary source for hydrogeologic data collection. The ROMP was started in 1974 in response to the need for hydrogeologic information by the District. The focus of the ROMP is to characterize the hydrogeology and water quality of the groundwater systems that serve as the primary source of drinking water within southwestern Florida. The original design of the ROMP consisted of an inland 10-mile grid network composed of 122 well sites and a coastal transect network composed of 24 coastal monitor transects of two to three well sites each. The number of wells at a well site varies with specific regional needs; usually two to five permanent monitor wells are constructed at each site. The numbering system for both networks generally increases from south to north with ROMP-labeled wells representing the inland grid network and TR-labeled wells representing the coastal transect network. Currently, 102 inland grid network well sites are complete and 23 coastal transect network well sites have one or more wells in the transect complete. The need for additional ROMP inland and coastal transect well sites will depend on the future priorities of the District.

Recent District initiatives have created the need for data from new well sites outside the original two well networks. These well sites, known as Project Support well sites, facilitate the exploration of target areas within the District such as the Southern Water Use Caution Area, Central Florida Water Initiative, Northern Tampa Bay Phase II Program, and the Northern District Water Resources Assessment Project. Some well sites provide information for multiple projects, as well as enhancing the original two well networks.

The broad objectives at each well site are to determine the geology, hydrology, groundwater quality, hydraulic properties, and to install wells for long-term monitoring. Site activities include exploratory core drilling, aquifer testing, and well construction. These activities provide data necessary for the hydrogeologic and groundwater quality characterization of the well sites. At the completion of each well site, a summary report is generated and can be found at the District’s website at http://www.swfwmd.state.fl.us/data/geohydrologic/. The monitor wells form the backbone of the District’s long-term aquifer monitoring networks, which supply critical data for the District’s regional models, hydrologic conditions, and water quality reporting.
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Conversion Factors

Multiply   | By            | To obtain          |
-----------|---------------|--------------------|
foot (ft)  | 0.3048        | meter (m)          |
gallon (gal)| 3.785         | liter (L)          |
gallon (gal)| 0.003785     | cubic meter (m³)   |
gallon (gal)| 3.785         | cubic decimeter (dm³) |
million gallons (Mgal) | 3.785      | cubic meter (m³)   |
mile (mi)  | 1.609         | kilometer (km)     |
ounce, avoirdupois (oz) | 28.35      | gram (g)           |

Acronyms and Abbreviations

APT           | aquifer performance test |
BLS           | below land surface      |
CFWI          | Central Florida Water Initiative |
CGWQMN        | Coastal Groundwater Quality Monitoring Network |
CME           | Central Mining Equipment |
District      | Southwest Florida Water Management District |
DMIT          | Data, Monitoring, and Investigation Team |
DWRM          | District Wide Regulation Model |
ECFT          | East Central Florida Transient Model |
FDEP          | Florida Department of Environmental Protection |
FY            | Fiscal Year             |
GEO           | Geohydrologic Data Section |
MFL           | Minimum Flows and Levels |
MIA           | Most Impacted Area      |
MCU           | Middle Confining Unit   |
NDDP          | Northern District Drilling Program |
NDM           | Northern District Model |
NDWMN         | Northern District Wetland Monitor Well Network |
NDWRAP        | Northern District Water Resources Assessment Project |
NSCDCP        | Northern Sumter County Data Collection Plan |
NTBWMN        | Northern Tampa Bay Wetland Monitor Network |
PIMS          | Project Information Management System |
ROMP          | Regional Observation and Monitor-well Program |
SWUCA         | Southern Water Use Caution Area |
UDR           | Universal Drill Rigs    |
Work Plan     | Geohydrologic Data Section Work Plan |
WMIS          | Water Management Information System |
Introduction

As the demand for water resources within the South-west Florida Water Management District (District) increases, the need to monitor and evaluate the condition of the water resources also increases. The Geohydrologic Data Section (GEO) Work Plan 2017 (Work Plan) identifies current and future core drilling and testing and well construction sites, details the required work, and prioritizes the well sites to ensure the hydrogeologic data needs of the District are being met for fiscal years (FY) 2017 to 2022. The goal of the data collected from the construction of these well sites is to improve the understanding of the hydrogeologic systems in the District.

The Work Plan is usually updated every two years. The GEO solicits information from the Water Resources, Natural Systems and Restoration, Data Collection, and Water Use Permit Bureaus about future hydrogeologic data collection and well construction requirements of the District. These future project requirements are detailed on GEO scope of work forms. The scope of work forms received for the listed projects are presented in appendix 1.

Data collected at the study sites identified in this plan will be used for hydrologic conditions reporting, water quality monitoring, groundwater modeling, developing minimum flows and levels, estimating long-term water resource availability, monitoring and evaluating well field recovery, and evaluating regulatory guidelines. The data collection objectives for each project will vary depending on the data needs in the particular area. These objectives may include: identifying the potable water thickness, locating the saltwater/freshwater interface, determining the thickness of the Upper Floridan aquifer, determining the presence and groundwater quality of the Lower Floridan aquifers (below middle confining units I, II, and VI), and other similar objectives. A summary of the hydrogeology of the District and the stratigraphic and hydrologic terms used in this Work Plan are given in appendix 2.

Previous Work

The GEO Work Plan 2016 (Gates, 2015) specified the core drilling, well construction and aquifer performance tests (APTs) planned for FY 2016. A post-audit of FY 2016 was performed to identify the planned versus the actual project completion.

The GEO Work Plan 2016 estimated core drilling with the District Core Drilling Rig from 0 to 2,100 feet below land surface (bls) at the Regional Observation Monitor-well Program (ROMP) 131.5 - Morrisston well site in FY 2016 and core drilling from 0 to 2,650 feet bls at the ROMP 88 - Rock Ridge well site in FY 2016. The actual completed core drilling was from 60 to 1,800 feet bls at the ROMP 131.5 - Morrisston well site for FY 2016. Core drilling at the ROMP 88 - Rock Ridge well site did not start until November 2016 (FY2017). Staff were reassigned to install equipment for the ROMP 115 - Royal aquifer performance test (APT) in September 2016 because of a pending license agreement deadline.

The GEO Work Plan 2016 estimated core drilling using a contractor from 0 to 100 feet bls at the East Homosassa well site and core drilling from 0 to 500 feet bls at the West Citrus well site in FY 2016. The actual completed core drilling was from 0 to 130 feet bls at the East Homosassa well site for FY 2016. The contractor was not available to start core drilling at the West Citrus well site until October 2016 (FY2017). The core drilling details for FY 2016 are presented in appendix 3, tables 3-1 and 3-2.

The GEO Work Plan 2016 listed 69 monitor wells for construction in FY 2016. Twenty-five wells were completed, four were deleted and 40 were not completed. Most of the wells were not completed because the well sites were too wet or had not been acquired. In addition, six unplanned monitor wells were installed in FY 2016. The well construction details for FY 2016 are presented in appendix 3, table 3-3.

The GEO Work Plan 2016 estimated completion of eight APTs at three ROMP sites for FY 2016. All three planned APTs were completed at the ROMP 38 – Parrish well site. The two APTs planned at the ROMP 115 - Royal well site were also completed. The three APTs planned for the ROMP 131.5 - Morrisston well site were not completed because the wells had not yet been constructed. A list of the planned versus completed APTs is presented in appendix 3, table 3-4.

Work Plan Organization

Projects in the Work Plan are grouped according to the data collection needs. Projects requiring the highest level of data collection are listed as Core Drilling and Testing projects.
Core Drilling and Testing Projects

Well construction sites selected for core drilling and testing are completed in three phases and require the highest level of data collection. The first phase includes continuous rock core samples that are collected from land surface to as deep as 3,000 feet bgs to delineate formation boundaries, aquifers, permeable zones and confining units. In addition, slug tests are conducted, and water quality samples are collected while core drilling to characterize the hydrogeologic units encountered. Core drilling and testing generally takes from three to nine months to complete depending on the planned depth of data collection. The District-owned Universal Drill Rig (UDR) 200 and Central Mining Equipment (CME) 85 drill rigs are used for core drilling and data collection. The District also contracts private drilling firms for specific core drilling projects as needed. The current and proposed core drilling projects are listed below and presented in table 1.

Phase one of the surficial aquifer, Hawthorn (intermediate) aquifer system, Upper Floridan aquifer, and Lower Floridan aquifer was performed after all wells are constructed. The APTs proposed for core drilling and data collection. The District also contracts private drilling firms for specific core drilling projects as needed. The current and proposed core drilling projects are listed below and presented in table 1.

Phase two includes the construction of the permanent and temporary monitor wells which is performed by private drilling firms contracted by the District. Well construction usually begins after the core drilling and testing is complete. The monitor wells proposed for construction for FYs 2017-2022 are presented in table 2.

Phase three includes conducting APTs which are performed after all wells are constructed. The APTs proposed for FYs 2017 - 2022 are presented in table 3.

ROMP 27 – Scarborough

This well site is located in northern DeSoto County, supports the Southern Water Use Caution Area (SWUCA) and will infill an area of the ROMP inland 10-mile grid network. A detailed characterization of the surficial aquifer, Hawthorn (intermediate) aquifer system, and Upper Floridan aquifer was performed during core drilling at this site.

The District completed core drilling and testing into the Lower Floridan aquifer (below middle confining unit II), ending at a depth of 2,537 feet bgs in February 2012. Monitor wells were constructed in the surficial aquifer, lower Arcadia aquifer, and the Suwannee Limestone portion and Avon Park high-permeability zone, of the Upper Floridan aquifer. APTs were conducted in all aquifers during FY 2017. This well site will be equipped for long-term monitoring of water levels and water quality.

ROMP 75 – Auburndale

This well site is located in Polk County and supports the Central Florida Water Initiative (CFWI) and the ROMP inland 10-mile grid network. A detailed characterization of the surficial aquifer, Hawthorn (intermediate) aquifer system, Upper Floridan aquifer, and Lower Floridan aquifer was performed during core drilling at the site.

Core drilling and testing was completed to a depth of 2,810 feet bgs in the top of the basal confining unit of the Floridan aquifer system in 2013. Monitor wells have been completed in the surficial aquifer, Upper Floridan aquifer, and Lower Floridan aquifer below middle confining unit I. A permanent Lower Floridan aquifer monitor well was completed below middle confining unit II in July 2016, as part of the 2016 CFWI Data, Monitoring and Investigations Team (DMIT) Hydrogeologic Work Plan Update for FY2016-FY2020. The permanent and temporary Upper Floridan aquifer monitor wells will be modified in FY2018 before conducting APTs. APTs are planned in the surficial aquifer, Upper Floridan aquifer, and the Lower Floridan aquifer below middle confining unit I during Fall 2018. This well site will be equipped for long-term monitoring of water quality and water levels.

ROMP 131.5 – Morriston

This well site is located in eastern Levy County. This site supports the Northern District Water Resources Assessment Project (NDWRAP) and also will infill the ROMP inland 10-mile grid network. Exploratory core drilling and testing was conducted at this site to provide a detailed characterization of the surficial and Upper Floridan aquifers, as well as to determine the geographical extent and thickness of any middle confining units and associated Lower Floridan aquifers that may exist.

Exploratory core drilling and testing was completed from land surface to 41 feet below the top of the basal confining unit of the Floridan aquifer system during FY 2016. Both middle confining units I and II were encountered at this location. Permanent monitor wells will be constructed in the surficial aquifer, Upper Floridan aquifer, Lower Floridan aquifer below unit I, and Lower Floridan aquifer below unit II during FY 2017. Temporary test wells will be constructed to accommodate APTs in the Upper Floridan aquifer and the Lower Floridan aquifer below unit I. All permanent monitor wells at this site will be equipped for long-term monitoring of water levels and water quality.

ROMP 88 – Rock Ridge (Green Swamp West)

This is an existing ROMP site located in northern Polk County that contains one permanent Upper Floridan aqui-
Table 1. Planned core drilling and testing projects for fiscal years 2016 - 2021

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Name</th>
<th>Project</th>
<th>County</th>
<th>Starting Year (projected)</th>
<th>Easement Status</th>
<th>Starting Depth (feet bls)</th>
<th>Estimated End Depth (feet bls)</th>
<th>Core Drilling Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROMP 88</td>
<td>Rock Ridge</td>
<td>CFWI, ROMP</td>
<td>Polk</td>
<td>2017</td>
<td>No Expiration</td>
<td>0</td>
<td>2,650</td>
<td>Delineate MCU I, and II, base of FAS</td>
</tr>
<tr>
<td>ROMP 88.5</td>
<td>Northeast Polk</td>
<td>CFWI, ROMP</td>
<td>Polk</td>
<td>2018</td>
<td>Not Acquired</td>
<td>0</td>
<td>2,500</td>
<td>Delineate MCU I, and II, base of FAS</td>
</tr>
<tr>
<td>ROMP 46</td>
<td>Baird</td>
<td>CFWI, ROMP, SWUCA</td>
<td>Polk</td>
<td>2019</td>
<td>TE Expires 1/31/2015</td>
<td>0</td>
<td>2,600</td>
<td>50 feet into LFA below MCU II, or base of FAS</td>
</tr>
<tr>
<td></td>
<td>Stage Coach Trail</td>
<td>NDWRAP, ROMP</td>
<td>Citrus</td>
<td>2020</td>
<td>Not Acquired</td>
<td>0</td>
<td>1,000</td>
<td>50 feet into MCU II</td>
</tr>
<tr>
<td>ROMP 129</td>
<td>Hibiscus Park</td>
<td>NDWRAP, ROMP</td>
<td>Marion</td>
<td>2020</td>
<td>No Expiration</td>
<td>0</td>
<td>1,000</td>
<td>50 feet into LFA below MCU II</td>
</tr>
<tr>
<td>ROMP 118</td>
<td>Tidewater</td>
<td>NDWRAP, ROMP</td>
<td>Marion</td>
<td>2021</td>
<td>Need larger site for coring and wells</td>
<td>0</td>
<td>1,000</td>
<td>50 feet into MCU II</td>
</tr>
<tr>
<td>ROMP 104</td>
<td>Lake Lindsey</td>
<td>NDWRAP, ROMP</td>
<td>Hernando</td>
<td>2022</td>
<td>Not Acquired</td>
<td>0</td>
<td>1,000</td>
<td>50 feet into MCU II</td>
</tr>
<tr>
<td>ROMP 102</td>
<td>Webster</td>
<td>NDWRAP, ROMP</td>
<td>Sumter</td>
<td>2022</td>
<td>Not Acquired</td>
<td>0</td>
<td>1,000</td>
<td>50 feet into MCU II</td>
</tr>
</tbody>
</table>

**Contracted Core Drilling**

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Name</th>
<th>Project</th>
<th>County</th>
<th>Starting Year (projected)</th>
<th>Easement Status</th>
<th>Starting Date (TE Expires)</th>
<th>Estimated Depth (feet)</th>
<th>Core Drilling Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR19-3A</td>
<td>Heather</td>
<td>CGWQMN, NDDP</td>
<td>Hernando</td>
<td>2018</td>
<td>TE Expires 3/23/2051</td>
<td>0</td>
<td>500</td>
<td>Locate saltwater interface</td>
</tr>
<tr>
<td>TRCB-2</td>
<td>Cockroach Bay</td>
<td>CGWQMN, SWUCA</td>
<td>Hillsborough</td>
<td>2019</td>
<td>TE Expires 4/18/2063</td>
<td>0</td>
<td>1,000</td>
<td>Locate saltwater interface</td>
</tr>
</tbody>
</table>

**ROMP 88.5 – Northeast Polk**

This well site will be located in northeastern Polk County. Well construction and testing at this location is being performed in accordance with the CFWI 2016 DMIT Hydrogeologic Work Plan Update for 2016-2020. This site will infill the ROMP inland 10-mile grid network, and improve the calibration of the District Wide Regulation Model (DWRM), Northern District Model (NDM), and the East Central Florida Transient (ECFT) model. Core drilling and testing at this well site will provide a detailed characterization of the Upper Floridan aquifer, and Lower Floridan aquifer and delineate the extent of middle confining units I and II.

Core drilling and testing started during FY2017 and will extend from land surface to the base of the Floridan aquifer system. Monitor wells are required in the Lower Floridan aquifer below middle confining unit I and Lower Floridan aquifer below middle confining unit II. APTs are needed in the Upper Floridan aquifer and Lower Floridian aquifers below confining units I and II. This well site will be equipped for long-term monitoring of water levels and water quality.
Table 2. Planned monitor well construction projects for fiscal years 2017 - 2022.

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Name</th>
<th>County</th>
<th>Easement Status</th>
<th>Monitor Wells</th>
<th>Est Contractor Costs</th>
<th>Est GEO Parts &amp; Supplies</th>
<th>Est Total Capital Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROMP 131.5</td>
<td>Morriston</td>
<td>Levy</td>
<td>TE Expires 11/30/2016</td>
<td>Perm UFA</td>
<td>$379,625</td>
<td>$93,539</td>
<td>$473,164</td>
</tr>
<tr>
<td>-</td>
<td>Citrus, Hernando, Levy, Sumter</td>
<td>License Agreement Expires 9/20/2033</td>
<td>Perm Haworth</td>
<td>$9,750</td>
<td>$0</td>
<td>$9,750</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Polk</td>
<td>In Acquisition</td>
<td>Perm LFA I</td>
<td>$56,544</td>
<td>$10,100</td>
<td>$66,644</td>
<td></td>
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<tr>
<td>-</td>
<td>Lake Amoret</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>Perm LFA II</td>
<td>$51,740</td>
<td>$15,159</td>
<td>$66,899</td>
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<tr>
<td>-</td>
<td>Eagle Lake</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>Perm LFA II</td>
<td>$51,740</td>
<td>$15,159</td>
<td>$66,899</td>
</tr>
<tr>
<td>-</td>
<td>Lake Aurora</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>Perm LFA II</td>
<td>$51,740</td>
<td>$15,159</td>
<td>$66,899</td>
</tr>
<tr>
<td>-</td>
<td>Lake Starr</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>Perm LFA II</td>
<td>$51,740</td>
<td>$15,159</td>
<td>$66,899</td>
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<tr>
<td>-</td>
<td>Lake McLeod</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>Perm LFA II</td>
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<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td>-</td>
<td>Lake Easy</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>Perm LFA II</td>
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<td>$0</td>
<td>$3,500</td>
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<tr>
<td>-</td>
<td>Lake Mabel</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>Perm LFA II</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
</tbody>
</table>

1 Estimated cost is for well casing, cement and contractor cost to construct well only.
Table 2. (Continued) Planned monitor well construction projects for fiscal years 2017 - 2022.

[ -, none; CFWI, Central Florida Water Initiative; Est, estimated; FY, fiscal year; GEO, Geohydrologic Data Section; LFA I, Lower Floridan aquifer below middle confining unit I; LFA II, Lower Florida aquifer below middle confining unit II; ND, Northern District; Perm, permanent; REG, Regulation Department; ROMP, Regional Observation and Monitor-well Program; Temp, temporary; TE, temporary easement; UFA, Upper Floridan aquifer]

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Name</th>
<th>County</th>
<th>Easement Status</th>
<th>Monitor Wells</th>
<th>Est Contractor Costs¹</th>
<th>Est GEO Parts &amp; Supplies</th>
<th>Est Total Capital Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lake Venus</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td></td>
<td>Dinner Lake</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td></td>
<td>Lake Lee</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td></td>
<td>Alston New Cypress</td>
<td>Polk</td>
<td>Well Complete</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>$230</td>
</tr>
<tr>
<td></td>
<td>CFWI Wetland Wells</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>8</td>
<td>$14,400</td>
<td>$0</td>
<td>$14,400</td>
</tr>
</tbody>
</table>

**TOTAL FOR FISCAL YEAR 2017** | **34** | **1** | **0** | **0** | **6** | **2** | **1** | **1** | **1** | **0** | **$688,279** | **$164,505** | **$852,784**

**FISCAL YEAR 2018**

| ROMP 88     | Rock Ridge         | Polk   | District Property | -       | -       | -       | 1       | 1       | 1       | 1   | 1        | $1,232,464 | $289,649 | $1,522,113 |
| ROMP 88.5   | NE Polk            | Polk   | Not Acquired      | -       | -       | -       | 1       | -       | -       | -   | -        | $56,000    | $0       | $56,000    |
| ROMP 75     | Auburndale         | Polk   | TE Expires 6/2/2041 | -       | -       | -       | 1       | -       | 1       | -   | -        | $69,010    | $0       | $69,010    |
| TR 19-3A    | Heather Hernando   | Polk   | TE Expires 3/27/2051 | 1   | -       | -       | 2       | -       | -       | -   | -        | $126,240   | $20,358  | $146,598   |
|             | Lake Annie         | Polk   | Not Acquired      | 1       | 1       | -       | -       | 1       | 1       | -   | -        | $215,412   | $28,876  | $244,288   |
|             | Lake Eva           | Polk   | Not Acquired      | 1       | -       | -       | 1       | -       | -       | -   | -        | $35,308    | $5,028   | $40,336    |
|             | Lake Lowery        | Polk   | Not Acquired      | 1       | -       | -       | -       | 1       | -       | -   | -        | $35,308    | $5,028   | $40,336    |

¹ Estimated cost is for well casing, cement and contractor cost to construct well only.
Table 2. (Continued) Planned monitor well construction projects for fiscal years 2017 - 2022.

[-, none; CFWI, Central Florida Water Initiative; Est, estimated; GEO, Geohydrologic Data Section; LFA I, Lower Floridan aquifer below middle confining unit I; LFA II, Lower Florida aquifer below middle confining unit II; ND, Northern District; Perm, permanent; REG, Regulation Department; ROMP, Regional Observation and Monitor-well Program; Temp, temporary; TE, temporary easement; UFA, Upper Floridan aquifer]

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Site Name</th>
<th>County</th>
<th>Easement Status</th>
<th>Monitor Wells</th>
<th>Est Contractor Costs¹</th>
<th>Est GEO Parts &amp; Supplies</th>
<th>Est Capital Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystal Lake</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>Perm Surfacial</td>
<td>Perm Temp Surfacial</td>
<td>Perm Temp Haw Thom</td>
<td>Perm Temp Haw Thom</td>
<td>Perm UFA Temp LFA I Perm LFA II Perm LFA II Perm LFA II</td>
</tr>
<tr>
<td>North Lake Wales</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Clinch Lake</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CFWI Wetland Wells</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL FOR FISCAL YEAR 2018 | 16 | 1 | 0 | 0 | 6 | 3 | 1 | 2 | 1 | 1 | $1,796,442 | $348,939 | $2,145,381 |

FISCAL YEAR 2019

| ROMP 88.5 | NE Polk | Polk | No Expiration | Perm Surfacial | Perm Temp Surfacial | Perm Temp Haw Thom | Perm Temp Haw Thom | Perm UFA Temp LFA I Perm LFA II Perm LFA II Perm LFA II |
|------------|---------|------|----------------|----------------|-------------------|------------------|------------------|-----------------|----------------|----------------|----------------|
| Cockroach Bay | Hillsborough | TE Expires 4/18/2063 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | $3,500 | $0 | $3,500 |
| Lake Trout | Polk | Not Acquired | 1 | 1 | 1 | 1 | 1 | 1 | 1 | $3,500 | $0 | $3,500 |
| Wetland Wells REG | Polk | Not Acquired | 5 | 1 | 1 | 1 | 1 | 1 | 1 | $3,500 | $0 | $3,500 |
| CFWI Wetland Wells | Polk | Not Acquired | 9 | 1 | 1 | 1 | 1 | 1 | 1 | $3,500 | $0 | $3,500 |

TOTAL FOR FISCAL YEAR 2019 | 17 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 1 | 1 | $1,585,375 | $304,809 | $1,890,184 |

¹ Estimated cost is for well casing, cement and contractor cost to construct well only.
Table 2. (Continued) Planned monitor well construction projects for fiscal years 2017 - 2022.

[ -, none; CFWI, Central Florida Water Initiative; Est, estimated; GEO, Geohydrologic Data Section; LFA I, Lower Floridan aquifer below middle confining unit I; LFA II, Lower Florida aquifer below middle confining unit II; ND, Northern District; Perm, permanent; REG, Regulation Department; ROMP, Regional Observation and Monitor-well Program; Temp, temporary; TE, temporary easement; UFA, Upper Floridan aquifer]

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Name</th>
<th>County</th>
<th>Easement Status</th>
<th>Monitor Wells</th>
<th>Est Contractor Costs¹</th>
<th>Est GEO Parts &amp; Supplies</th>
<th>Est Total Capital Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROMP 46</td>
<td>Baird</td>
<td>Polk</td>
<td>TE Expires 1/31/2015</td>
<td>1 1 2 2 2 2 - - - 1 -</td>
<td>$707,698</td>
<td>$141,899</td>
<td>$849,597</td>
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<tr>
<td></td>
<td>Peace River at Bartow</td>
<td>Polk</td>
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<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td></td>
<td>Peace River at Fort Meade</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td></td>
<td>Lake Bonnie</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td></td>
<td>Coley Deep</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td></td>
<td>Fish Lake Deep</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
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<tr>
<td></td>
<td>Homeland Deep 9</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
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<tr>
<td></td>
<td>Lake Alfred Deep</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
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<tr>
<td>ROMP 73</td>
<td>Winterhaven</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
<tr>
<td>ROMP 87</td>
<td>Green Swamp</td>
<td>Polk</td>
<td>District Property</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
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<tr>
<td></td>
<td>Saloon Ranch</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>1 - - - - - - - - -</td>
<td>$3,500</td>
<td>$0</td>
<td>$3,500</td>
</tr>
</tbody>
</table>

¹ Estimated cost is for well casing, cement and contractor cost to construct well only.
Table 2. (Continued) Planned monitor well construction projects for fiscal years 2017 - 2022.

[-, none; CFWI, Central Florida Water Initiative; Est, estimated; GEO, Geohydrologic Data Section; LFA I, Lower Floridan aquifer below middle confining unit I; LFA II, Lower Florida aquifer below middle confining unit II; ND, Northern District; Perm, permanent; REG, Regulation Department; ROMP, Regional Observation and Monitor-well Program; Temp, temporary; TE, temporary easement; UFA, Upper Floridan aquifer]

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Name</th>
<th>County</th>
<th>Easement Status</th>
<th>Monitor Wells</th>
<th>Est Contractor Costs</th>
<th>Est GEO Parts &amp; Supplies</th>
<th>Est Total Capital Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Perm Surf</td>
<td>Temp Surf</td>
<td>Perm Hawthorn</td>
<td>Temp Hawthorn</td>
</tr>
<tr>
<td>-</td>
<td>CFWI Wetland Wells</td>
<td>Polk</td>
<td>Not Acquired</td>
<td>- 10</td>
<td>- 1</td>
<td>- - - - - -</td>
<td>- - - - -</td>
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<tr>
<td>TOTAL FOR FISCAL YEAR 2020</td>
<td></td>
<td></td>
<td></td>
<td>21 1</td>
<td>2 2</td>
<td>2 2 0 0 1 0</td>
<td></td>
</tr>
<tr>
<td>FISCAL YEAR 2021</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Stagecoach Trail</td>
<td>Citrus</td>
<td>Not Acquired</td>
<td>1 1</td>
<td>-</td>
<td>- - - -</td>
<td>- - - -</td>
</tr>
<tr>
<td>ROMP 129</td>
<td>Hibiscus Park</td>
<td>Marion</td>
<td>No Expiration</td>
<td>- - - - -</td>
<td>- - - -</td>
<td>- 2</td>
<td>- - - -</td>
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<tr>
<td>TOTAL FOR FISCAL YEAR 2021</td>
<td></td>
<td></td>
<td></td>
<td>1 1</td>
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<td>1 1 2 0 0 0</td>
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<td>FISCAL YEAR 2022</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROMP 118</td>
<td>Tidewater</td>
<td>Marion</td>
<td>Need new site</td>
<td>1 - - - -</td>
<td>1 1 1 1 1</td>
<td>- -</td>
<td></td>
</tr>
<tr>
<td>ROMP 104</td>
<td>Lake Lindsey</td>
<td>Hernan-</td>
<td>Not Acquired</td>
<td>1 1 - - -</td>
<td>1 1 - - -</td>
<td>- -</td>
<td></td>
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<td>TOTAL FOR FISCAL YEAR 2022</td>
<td></td>
<td></td>
<td></td>
<td>2 1 0 0</td>
<td>2 2 1 1 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>GRAND TOTAL FISCAL YEARS 2017 - 2022</td>
<td></td>
<td></td>
<td></td>
<td>91 5 2 2</td>
<td>20 11 6 5</td>
<td>4 2</td>
<td></td>
</tr>
</tbody>
</table>

1 Estimated cost is for well casing, cement and contractor cost to construct well only.
Table 3. Planned aquifer performance tests for fiscal years 2017 - 2022.

[ -, none; ROMP, Regional Observation and Monitor-well Program; TE, temporary easement]

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Name</th>
<th>County</th>
<th>Easement Status</th>
<th>Fiscal Year</th>
<th>Aquifer Performance Tests</th>
<th>Surficial</th>
<th>Hawthorn</th>
<th>Upper Floridan</th>
<th>Lower Floridan</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROMP 27</td>
<td>Scarborough</td>
<td>DeSoto</td>
<td>TE agreement expires on 9/19/2017 Wells under construction - easement expires 12/31/2017</td>
<td>2017</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>ROMP 131.5</td>
<td>Morriston</td>
<td>Levy</td>
<td></td>
<td>2017</td>
<td></td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ROMP 75</td>
<td>Auburndale</td>
<td>Polk</td>
<td>Easement expires 2041</td>
<td>2018</td>
<td></td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Lake Annie</td>
<td>Polk</td>
<td>Not acquired</td>
<td>2018</td>
<td></td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>ROMP 88</td>
<td>Rock Ridge</td>
<td>Polk</td>
<td>District owned</td>
<td>2019</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
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<tr>
<td></td>
<td>Thornhill Ranch</td>
<td>Polk</td>
<td>Not acquired</td>
<td>2019</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>ROMP 88.5</td>
<td>Northeast Polk</td>
<td>Polk</td>
<td>Not acquired</td>
<td>2020</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ROMP 46</td>
<td>Baird</td>
<td>Polk</td>
<td>TE Expired 1/31/2015</td>
<td>2021</td>
<td></td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Stage Coach Trail</td>
<td>Citrus</td>
<td>Not acquired</td>
<td>2021</td>
<td></td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>ROMP 118</td>
<td>Tidewater</td>
<td>Marion</td>
<td>Not acquired</td>
<td>2022</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>3</td>
<td>13</td>
<td>6</td>
</tr>
</tbody>
</table>
Figure 1. Geohydrologic Data Section core drilling and well construction sites.

EXPLANATION
EXISTING SITE
- ROMP Inland 10-Mile Grid Network
- Coastal Transect Network
- Project Support

UNDER CONSTRUCTION WELL SITES
- ROMP Inland 10-Mile Grid Network

PROPOSED WELL SITES
- Coring and Testing
- Project Support

aquifer below middle confining unit I and Lower Floridan aquifer below middle confining unit II. APTs are needed in the Upper Floridan, and Lower Floridan aquifers below confining units I and II. This well site will be equipped for long-term monitoring of water levels and water quality.

ROMP 46 – Baird

This well site is located in southwestern Polk County. Well construction and testing at this location is being performed in accordance with the CFWI 2016 DMIT Hydrogeologic Work Plan Update for 2016-2020. This site will infill the ROMP inland 10-mile grid network, supports SWUCA, and will improve the calibration of the DWRM, NDM, and the ECFT models. Core drilling and testing at this site will provide a detailed characterization of the surficial aquifer, Hawthorn (intermediate) aquifer system, and Upper Floridan aquifer, and will determine the elevation of middle confining unit II.

Core drilling and testing is needed from land surface to 50 feet into the Lower Floridan aquifer below middle confining unit II. Monitor wells are required in the surficial aquifer, any of the aquifers present within the Hawthorn (intermediate) aquifer system, and any discrete permeable zones of the Upper Floridan aquifer. APTs are required for any aquifer or permeable zone containing freshwater. This well site will be equipped for long-term monitoring of water levels and water quality.

Stage Coach Trail

This well site (previously named Dames Cave) is located in south-central Citrus County, supports the NDWRAP, and the establishment of minimum flows and levels (MFLs). This site also will infill the ROMP inland 10-mile grid network. Core drilling and testing at this site will provide a detailed characterization of the surficial aquifer and the Upper Floridan aquifer.

Core drilling and testing is needed 50 feet into the Lower Floridan aquifer below middle confining unit II. Monitor wells are required in the surficial and Upper Floridan aquifers. APTs are required for the surficial and Upper Floridan aquifers. This well site will be equipped for long-term monitoring of water levels only.

TR 19-3A – Heather

This well site is located in western Hernando County, supports the Northern District Drilling Program (NDDP), and the Coastal Groundwater Quality Monitoring Network (CGWQMN). Core drilling and testing at this site will provide a detailed characterization of the saltwater interface within the Upper Floridan aquifer.

Core drilling and testing is needed from land surface to the saltwater interface. A private drilling firm will be contracted to perform the core drilling and testing at this site. Monitor wells are required in the surficial aquifer and Upper Floridan aquifer. One additional monitor well may be required in the Upper Floridan aquifer to monitor the water level above the saltwater interface. This well site will be equipped for long-term monitoring of water levels and water quality.

ROMP 129 – Hibiscus Park

This well site is located in eastern Marion County, supports the NDWRAP, and will infill the ROMP inland 10-mile grid network. Core drilling and testing will provide a detailed characterization of the surficial aquifer and Upper Floridan aquifer and will determine the geographical extent of the middle confining units I and II, and the Lower Floridan aquifers (below middle confining units I and II). The movement of the deepwater/freshwater (sulfate) interface will also be monitored at this site.

Core drilling and testing is needed from land surface to 50 feet into the Lower Floridan aquifer (below middle confining unit II). Monitor wells have been constructed in the surficial aquifer and Upper Floridan aquifer. The construction of a Lower Floridan aquifer (below middle confining unit I) monitor well and a deepwater/freshwater (sulfate) monitor well is dependent on the data collected during core drilling and testing. This well site will be equipped for long-term monitoring of water levels and water quality.

ROMP 118 – Tidewater

This well site is located in western Marion County, supports the NDWRAP (Basso, 2007), MFLs, and will infill the ROMP inland 10-mile grid network. Core drilling and testing at the site will provide a detailed characterization of the surficial aquifer and Upper Floridan aquifer, delineate the eastern geographic extent of middle confining I and determine the existence of a Lower Floridan aquifer below middle confining unit I.

Core drilling and testing is needed from land surface to 50 feet into the Lower Floridan aquifer below middle confining unit II. Monitor wells are required in the surficial aquifer, Upper Floridan aquifer, and Lower Floridan aquifer below middle confining unit I. APTs are required for the Upper Floridan aquifer and Lower Floridan aquifer below middle confining unit I. This well site will be equipped for long-term monitoring of water levels and water quality.

ROMP 104 – Lake Lindsey

This well site is located in northern Hernando County, supports the NDWRAP, and will infill the ROMP inland 10-mile grid network. Core drilling and testing at this site will provide a detailed characterization of the surficial aquifer and Upper Floridan aquifer, and the elevation of middle confining unit II.
Core drilling and testing is needed from land surface to 50 feet into the Lower Floridan aquifer below middle confining unit II. Monitor wells are required in the surficial aquifer and Upper Floridan aquifer, and APTs are needed for the surficial aquifer and Upper Floridan aquifer. This well site will be equipped for long-term monitoring of water levels and water quality.

**ROMP 102 – Webster**

This well site is located in central Sumter County, supports the NDWRAP, and will infill the ROMP inland 10-mile grid network. Core drilling and testing at this site will provide a detailed characterization of the surficial aquifer and Upper Floridan aquifer and will determine the elevation of middle confining unit II. Core drilling and testing is needed from land surface to 50 feet into the Lower Floridan aquifer below middle confining unit II. Monitor wells are required in the surficial aquifer and Upper Floridan aquifer. APTs are needed for the surficial aquifer and Upper Floridan aquifer. This well site will be equipped for long-term monitoring of water levels and water quality.

**TR 7-3 – Durante Park**

This well site is located in southwestern Manatee County, is part of the ROMP coastal transect network, and will assist in completing a coastal transect of existing wells within the Most Impacted Area (MIA) of the SWUCA to monitor the saltwater interface. Core drilling and testing at this well site will provide a detailed characterization of the surficial aquifer, Hawthorn (intermediate) aquifer system, and Upper Floridan aquifer. Core drilling and testing is needed from land surface to the saltwater/freshwater interface. Monitor wells are required in the surficial aquifer, any of the aquifers present within the Hawthorn (intermediate) aquifer system, and the Upper Floridan aquifer. This well site will be equipped for long-term monitoring of water levels and water quality.

**West Citrus**

This well site is located in western Citrus County, supports the NDDP, and the CGWQMN. Core drilling and testing at this well site will provide a detailed characterization of the saltwater interface within the Upper Floridan aquifer. Core drilling and testing was completed during FY 2017 from land surface to the saltwater interface. A private drilling firm was contracted to perform the core drilling and testing and well installations at this site. One surficial aquifer monitor well, one saltwater interface monitor well and one shallow Upper Floridan aquifer monitor well (to monitor the water level in the Upper Floridan aquifer above the saltwater interface) was installed during December 2016. This well site will be equipped for long-term monitoring of water levels and water quality.

**TR CB-2 – Cockroach Bay**

This well site is located in southwestern Hillsborough County, supports the SWUCA, and the CGWQMN. Core drilling and testing at this site will provide a detailed characterization of the saltwater interface within the Upper Floridan aquifer.

Core drilling and testing is needed from land surface to the saltwater interface. A private drilling firm may be contracted to perform the core drilling and testing at this site. Monitor wells are required in the surficial aquifer and Upper Floridan aquifer. This well site will be equipped for long-term monitoring of water quality only.

**Project Support Well Construction Projects**

Project support well construction sites require well construction but minimal hydrogeologic data collection. The data collection work is limited to split-spoon sampling, drill cuttings collection, and geophysical logging. Because of the limited data collection activities, these well sites are typically completed in two to three weeks from the start of construction. Some well sites are included in more than one District project. The monitor wells planned for each project are presented in table 2.

**Central Florida Water Initiative**

The boundaries of the St. Johns River Water Management District, the South Florida Water Management District, and the Southwest Florida Water Management District meet in the area of southern Lake, Orange, Osceola, Seminole and Polk Counties. This project involves the collaborative efforts of the three water management districts to determine the sustainable limits of the Floridan aquifer system and study alternative sources of water to address Central Florida’s current and long-term water supply needs (Central Florida Water Initiative, 2014).

The DMIT was created to identify existing hydrologic data currently collected within the CFWI boundaries and to make recommendations for future monitoring activities in the CFWI region. The DMIT produced a Hydrogeologic Work Plan which was updated in July 2016 that identifies and lists monitoring requirements for wetlands, the surficial aquifer, the Upper Floridan aquifer and the Lower Floridan aquifer. Well sites requiring coring and testing, well installation and/or aquifer testing include ROMP 75 - Auburndale, ROMP 88 - Rock Ridge (Green Swamp West), ROMP 88.5 - Northeast Polk, and ROMP 46 - Bereah and are discussed in the previous section. Well installation at lake, river and wetland sites in Polk County are currently underway. Most CFWI sites will
also provide data for the MFL project list summarized below (Central Florida Water Initiative, 2016).

**Minimum Flows and Levels**

This project involves the establishment of MFLs for aquifers, watercourses, and other water bodies to identify the levels at which further withdrawals would cause significant harm to the water resources or ecology of the area (Southwest Florida Water Management District, 2015). Rivers, streams, springs and estuaries require the establishment of minimum flows, while lakes, wetlands, and aquifers require the establishment of minimum levels. These projects require split-spoon sample collection to the top of limestone and the construction of surficial aquifer and/or Upper Floridan aquifer monitor wells adjacent to the water body.

Surficial aquifer monitor wells are required to help establish a minimum level at the following 10 Polk County lakes: Lake Easy, Lake McLeod, Lake Venus, Lake Lee, Lake Mabel, Dinner Lake, Lake Bonnie, Crystal Lake, North Lake Wales, and Clinch Lake. Surficial and Upper Floridan aquifer monitor wells are required for the following eight Polk County lakes: Lake Amoret, Lake Annie, Lake Starr, Eagle Lake, Lake Eva, Lake Lowery, Lake Aurora, and Lake Trout (Central Florida Water Initiative, 2016).

Monitor well construction is required at two locations along the Peace River. Surficial monitor wells are required at Bartow and Fort Meade to quantify the relationship between the Peace River and the surficial aquifer (Central Florida Water Initiative, 2016).

**Coastal Groundwater Quality Monitoring Network**

The CGWQMN is a network of monitor wells that are used to monitor the groundwater quality in areas of the District that are susceptible to saltwater intrusion and/or upwelling of mineralized water (Kraft, 2011). Proposed projects that will be included in this network include: West Citrus, TR 19-3A – Heather, and TR CB-2 – Cockroach Bay.

In addition, 27 Upper Floridan aquifer well sites were proposed and approved in the 2016 Business Plan Update. These well sites will be evaluated in the future to determine if more inland well sites are needed due to saltwater intrusion. As of September 2016, this project is on hold until funds are available (SWFWMD, 2016).

**Wetland Monitoring Networks**

The installation and/or replacement of monitor wells for monitoring wetlands in the northern part of the District was first proposed in 2010. Two wetland monitoring well networks were listed. The objective for both networks is to provide background hydrologic conditions data for setting minimum levels for area wetlands. Each well site requires a split-spoon investigation to the top of limestone and the construction of two surficial aquifer wells. One of the surficial aquifer monitor wells will be constructed in the center of the wetland, and the remaining surficial well will be constructed in the uplands adjacent to the wetland. Selected sites also require installation of an Upper Floridan aquifer monitor well.

The Northern District Wetland Monitor Network (NDWMN) requires the construction of monitor wells in and near wetlands in the northern counties of Levy, Sumter, Citrus, and Hernando. The scope of work submitted in 2010 consisted of 30 monitor well sites containing 55 monitor wells. Several of the original well sites have been removed and other well sites added since 2010. As of April 2017, there are 24 monitor well sites and 37 completed wells in the network. Ten surficial aquifer wetland wells, 23 upland surficial wells, and four upper Floridan aquifer wells have been constructed. Appendix 4, Table 4-1 lists the current completed and deleted wells in the NDWMN.

The Northern Tampa Bay Wetland Monitor Network (NTBWMN) consists mostly of existing monitor wells in Pinellas, Hillsborough, and Pasco county. These wells are being evaluated for proper functioning and are scheduled for replacement as necessary.

This network of monitor wells consists of 78 well sites. As of September 2015 there are 71 existing or completed wetland wells and seven wetland wells that need to be constructed. There are 56 existing or completed upland wells and 11 upland wells that need to be constructed. There are two existing Upper Floridan aquifer monitor wells. No additional Upper Floridan aquifer wells are needed. Appendix 4, Table 4-2 lists the existing and needed monitor wells for the NTBWMN.

**Springs Initiative**

One hundred and fifty well site replacements were proposed and approved in the 2016 Business Plan Update to infill gaps in the existing monitor well networks for nutrient assessments and modeling. These well sites will support the springs restoration initiatives in the northern portion of the District. As of September 2016, this project is on hold until funds are available (SWFWMD, 2016).

**Summary and Conclusions**

Groundwater demand continues to grow throughout the District. With this growth in demand, the potential to adversely affect the water resources increases. Hydrogeologic data and thorough monitoring are necessary to ensure that sound management decisions can be made.

The GEO Section’s data collection programs and monitor well networks serve as the District’s primary source for hydrogeologic data. The Work Plan presented here identifies the hydrogeologic data collection and well construction activi-
ties planned for FYs 2017 to 2022. A total of 146 new monitor wells are planned to support District projects for the next five FYs.

Projects requiring extensive data collection are grouped as core drilling and testing projects. Eleven core drilling and testing projects requiring the construction of 44 wells and completion of 28 aquifer performance tests are planned. These projects support regional District projects including the CFWI, ROMP, NDWRAP, NSCDP, SWUCA, and the CGWQMN.

Projects that require monitor well construction but minimal data collection are grouped as project support well construction projects. One hundred two wells are planned for these projects. The project support well construction projects support District regional projects including the CFWI, CGWQMN, MFLs, and the Wetland Monitoring Networks.

Selected References


Basso, R., 2008, Northern Sumter County Data Collection Plan, Memorandum.


Gates, M.T., 2015, Geohydrologic Data Section Work Plan 2015; Southwest Florida Water Management District, 41p.


Appendix 1. Scope of Work Checklists

ROMP Site Scope of Work Checklist

Site Information

<table>
<thead>
<tr>
<th>Name</th>
<th>ROMP 38 - Parrish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Regional Observation and Monitor-well Program</td>
</tr>
<tr>
<td>County</td>
<td>Manatee</td>
</tr>
<tr>
<td>STR</td>
<td>30/33/19</td>
</tr>
<tr>
<td>Lat/Long</td>
<td>27 35 00 / 81 26 20</td>
</tr>
</tbody>
</table>

Is this an existing District well site?  ○ No  ○ Yes

Geologic Sampling  ○ No  ○ Yes

Depth of exploration:
- [ ] to top of rock
- [x] to saltwater/freshwater interface
- [ ] 50 feet into middle confining unit I
- [ ] 50 feet into middle confining unit II
- [ ] 50 feet into middle confining unit VI
- [ ] to the base of the Floridan aquifer system
- [ ] Other (please specify in comments)

Aquifer Performance Testing  ○ No  ○ Yes

Parameters to be tested:
- [x] surficial aquifer:  T  S
- Peace River aquifer (PZ1):  T  S  L
- upper Arcadia aquifer (PZ2):  T  S  L
- lower Arcadia aquifer (PZ3):  T  S  L
- Upper Floridan aquifer:  T  S  L
- Lower Floridan aquifer below MCU I:  T  S  L
- Lower Floridan aquifer below MCU II:  T  S  L
- Lower Floridan aquifer below MCU VI:  T  S

An APT may not be possible if water quality is poor

Well Construction  ○ No  ○ Yes

The primary long-term use for the well(s) will be:
- [x] Water Level Monitoring
- [x] Water Quality Monitoring
- [ ] Other (please specify in comments)

Check all aquifers that require long-term monitoring:
- [x] surficial aquifer
- [ ] Peace River aquifer (PZ1)
- [x] upper Arcadia aquifer (PZ2)
- [x] lower Arcadia aquifer (PZ3)
- [x] Upper Floridan aquifer
- [ ] Lower Floridan aquifer below MCU I
- [ ] Lower Floridan aquifer below MCU II
- [ ] Lower Floridan aquifer below MCU VI
- [ ] Other (please specify in comments)

Other Data Collection  ○ No  ○ Yes

- [ ] Geophysical Logging
- [ ] Video Logging
- [ ] Flow Logging
- [ ] Sonic Logging
- [ ] Other (please specify in comments)

Comments:

Wells and APTs needed for all aquifers encountered in the HAS.

No changes  ○ Changes noted above  ○ New Site  Initial:
# ROMP Site Scope of Work Checklist

## Site Information

<table>
<thead>
<tr>
<th>Name</th>
<th>ROMP 27 - Scarborough</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Regional Observation and Monitor-well Program</td>
</tr>
<tr>
<td>County</td>
<td>DeSoto</td>
</tr>
<tr>
<td>STR</td>
<td>21/36/27</td>
</tr>
<tr>
<td>Lat/Long</td>
<td>27 20 26.2 / 81 38 44.5</td>
</tr>
</tbody>
</table>

Is this an existing District well site?  
☐ No  ☐ Yes

## Geologic Sampling

- ○ No  ☐ Yes

Depth of exploration:

- [ ] to top of rock
- [ ] to saltwater/freshwater interface
- [ ] 50 feet into middle confining unit I
- [ ] 50 feet into middle confining unit II
- [ ] 50 feet into middle confining unit VI
- [ ] to the base of the Floridan aquifer system
- [X] Other (please specify in comments)

## Aquifer Performance Testing

- ○ No  ☐ Yes

Parameters to be tested:

- surficial aquifer:  
  [X] T  [X] S
- Peace River aquifer (PZ1):  
  [ ] T  [ ] S  [ ] L
- upper Arcadia aquifer (PZ2):  
  [X] T  [X] S  [X] L
- lower Arcadia aquifer (PZ3):  
  [ ] T  [ ] S  [ ] L
- Upper Floridan aquifer:  
  [X] T  [X] S  [X] L
- Lower Floridan aquifer below MCU I:  
  [ ] T  [ ] S  [ ] L
- Lower Floridan aquifer below MCU II:  
  [ ] T  [ ] S  [ ] L
- Lower Floridan aquifer below MCU VI:  
  [ ] T  [ ] S

An APT may not be possible if water quality is poor.

## Well Construction

- ○ No  ☐ Yes

The primary long-term use for the well(s) will be:

- [X] Water Level Monitoring
- [X] Water Quality Monitoring
- [ ] Other (please specify in comments)

Check all aquifers that require long-term monitoring:

- [X] surficial aquifer
- [ ] Peace River aquifer (PZ1)
- [X] upper Arcadia aquifer (PZ2)
- [X] lower Arcadia aquifer (PZ3)
- [X] Upper Floridan aquifer
- [ ] Lower Floridan aquifer below MCU I
- [ ] Lower Floridan aquifer below MCU II
- [ ] Lower Floridan aquifer below MCU VI
- [ ] Other (please specify in comments)

## Other Data Collection

- ○ No  ☐ Yes

- [ ] Geophysical Logging
- [ ] Video Logging
- [ ] Flow Logging
- [ ] Sonic Logging
- [ ] Other (please specify in comments)

## Comments:

Wells and APTs needed for all aquifers present in the HAS.

M. Beach email 5/10/2010 - Exploration should intercept the LFA

☐ No changes  ☐ Changes noted above  ☐ New Site  Initial: ____________
## ROMP Site Scope of Work Checklist

### Site Information

<table>
<thead>
<tr>
<th>Name</th>
<th>ROMP 75 - Auburndale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Regional Observation and Monitor-well Program</td>
</tr>
<tr>
<td>County</td>
<td>Polk</td>
</tr>
<tr>
<td>STR</td>
<td>29/27/25</td>
</tr>
<tr>
<td>Lat/Long</td>
<td>28 06 31.7 / 81 50 13.9</td>
</tr>
<tr>
<td>Is this an existing District well site?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Geologic Sampling

- **No**
- **Yes**

**Depth of exploration:**
- [ ] to top of rock
- [ ] to saltwater/freshwater interface
- [ ] 50 feet into middle confining unit I
- [X] 50 feet into middle confining unit II
- [ ] 50 feet into middle confining unit VI
- [ ] to the base of the Floridan aquifer system
- [ ] Other (please specify in comments)

### Well Construction

- **No**
- **Yes**

The primary long-term use for the well(s) will be:
- [X] Water Level Monitoring
- [X] Water Quality Monitoring
- [ ] Other (please specify in comments)

Check all aquifers that require long-term monitoring:
- [X] surficial aquifer
- [ ] Peace River aquifer (PZ1)
- [X] upper Arcadia aquifer (PZ2)
- [ ] lower Arcadia aquifer (PZ3)
- [X] Upper Floridan aquifer
- [ ] Lower Floridan aquifer below MCU I
- [X] Lower Floridan aquifer below MCU II
- [ ] Lower Floridan aquifer below MCU VI
- [ ] Other (please specify in comments)

### Aquifer Performance Testing

- **No**
- **Yes**

**Parameters to be tested**

- **Surficial aquifer:**
  - [T] T
  - [S] S
- Peace River aquifer (PZ1):
  - [T] T
  - [S] S
  - [L] L
- Upper Arcadia aquifer (PZ2):
  - [T] T
  - [S] S
  - [L] L
- Lower Arcadia aquifer (PZ3):
  - [T] T
  - [S] S
  - [L] L
- Upper Floridan aquifer:
  - [T] T
  - [S] S
  - [L] L
- Lower Floridan aquifer below MCU I:
  - [T] T
  - [S] S
  - [L] L
- Lower Floridan aquifer below MCU II:
  - [T] T
  - [S] S
  - [L] L
- Lower Floridan aquifer below MCU VI:
  - [T] T
  - [S] S

*An APT may not be possible if water quality is poor*

### Other Data Collection

- **No**
- **Yes**

- [ ] Geophysical Logging
- [ ] Video Logging
- [ ] Flow Logging
- [ ] Sonic Logging
- [ ] Other (please specify in comments)

### Comments:

Wells and APTs needed for all aquifers present in the HAS. I suspect we should look at the Lower Floridan at this site. But I will defer to M Barcelo on this.

| No changes | Changes noted above | New Site | Initial: MHB |
## Well Site Scope of Work Checklist

**Site Name**: ROMP 115 - Royal  
**Project**: Northern District Drilling Plan  
**County**: Sumter  
**STR**: 4/18/22  
**Lat/Long**: 28 56 08 / 82 06 55

### Geologic Sampling

- **Depth of exploration:**
  - [ ] to top of rock
  - [ ] to saltwater/freshwater interface
  - [ ] 50 feet into middle confining unit I
  - [ ] 50 feet into middle confining unit II
  - [ ] 50 feet into middle confining unit VI
  - [ ] to the base of the Floridan aquifer system
  - [x] Other (please specify in comments)

### Aquifer Performance Testing

- **surficial aquifer:**
  - [ ] T  [ ] S  [ ] L
- **Peace River aquifer (PZ1):**
  - [ ] T  [ ] S  [ ] L
- **upper Arcadia aquifer (PZ2):**
  - [ ] T  [ ] S  [ ] L
- **lower Arcadia aquifer (PZ3):**
  - [ ] T  [ ] S  [ ] L
- **Upper Floridan aquifer:**
  - [x] T  [ ] S  [x] L
- **Lower Floridan aquifer below MCU I:**
  - [x] T  [x] S  [x] L
- **Lower Floridan aquifer below MCU II:**
  - [ ] T  [ ] S  [ ] L
- **Lower Floridan aquifer below MCU VI:**
  - [ ] T  [ ] S  [ ] L

*An APT may not be possible if water quality is poor*

### Well Construction

- **The primary long-term use for the well(s) will be:**
  - [x] Water Level Monitoring
  - [ ] Water Quality Monitoring
  - [ ] Other (please specify in comments)

- **Check all aquifers that require long-term monitoring:**
  - [x] surficial aquifer
  - [ ] Peace River aquifer (PZ1)
  - [ ] upper Arcadia aquifer (PZ2)
  - [ ] lower Arcadia aquifer (PZ3)
  - [x] Upper Floridan aquifer
  - [x] Lower Floridan aquifer below MCU I
  - [ ] Lower Floridan aquifer below MCU II
  - [ ] Lower Floridan aquifer below MCU VI
  - [ ] Other (please specify in comments)

### Other Data Collection

- **Geophysical Logging**
- [x] Video Logging
- [ ] Flow Logging
- [ ] Sonic Logging
- [ ] Other (please specify in comments)

### Comments:

This site is acquired.

Exploration could be limited to 1,500 feet below land. Data from H078 should be used and not duplicated in this data collection effort.

**Initial**: JLM

---

**No changes**  
**No**  
**Changes noted above**  
**Yes**  
**New Site**  
**Initial**: JLM
**Site Name**
ROMP 115 - Royal

**Justification for the work required (cost and benefit):**

**Purpose and Scope:**

This site is critical toward establishing the geographic extent of middle confining units I and II and the extent of the Lower Floridan aquifers below these confining units. This site will be a "full ROMP site" with exploration to the degree necessary to define the boundaries of the surficial aquifer, Upper Floridan aquifer, middle confining units I and II, and the Lower Floridan aquifers. Discrete zone testing for water quality, water level, and hydraulics will be conducted to assist in defining these boundaries and to characterize the water supply potential of the aquifers. Exploration will be through the full thickness of the Floridan aquifer system if water quality remains potable, otherwise, exploration will be stopped at the first hydrogeologic unit boundary after the water quality is no longer potable. If exploration is limited to less than the full thickness of the Floridan aquifer system, Resource Evaluation should be contacted to discuss the termination options.

Wells will be constructed in the surficial aquifer (if present), Upper Floridan aquifer, and the Lower Floridan aquifer below unit I. No well is required in the Lower Floridan aquifer below unit II even if encountered at this site. Additional temporary wells will be constructed in the Upper Floridan and the Lower Floridan below unit I in order to conduct a multi-well aquifer performance test. Multi-well aquifer performance tests are essential in this region to determine the leakance coefficients between the surficial aquifer/surface waters and the Upper Floridan and between the Upper Floridan and the Lower Floridan below unit I.

**Justification:**

1. This site is located in northern Sumter County which has experienced significant population growth due primarily to the Villages resulting in an increased demand for groundwater.
2. This area is also a planned future wellfield for the Withlacoochee River Water Supply Authority (WRWSA).
3. The Villages has begun to utilize the Lower Floridan aquifer below unit I for irrigation to reduce the demand on the Upper Floridan aquifer. The District only has four monitor wells drilled into the Lower Floridan below unit I so additional monitoring of this resource is essential for regulation and resource management. Monitoring of the Lower Floridan below unit I at this site will assist in determining the cause and effect relationship of water use and climate on this aquifer. Data from well and site testing will allow the District to determine the connection between the Upper and Lower Floridan aquifers. It is necessary to know how much withdrawals from the Lower Floridan (which are already occurring) will affect the overlying Upper Floridan aquifer, surficial aquifer, and surface water features.
4. This site is in a region where the middle confining unit I terminates, making the aquifer system framework an unknown in current resource evaluations.

The unit boundaries, hydraulic test data, and long-term monitoring will be utilized by the District and local water users. Based on the current stratigraphic knowledge of this region and the presence of both Upper and Lower Floridan monitors, this site will be used for determining potentiometric surfaces, for refinement of the Districtwide Regulatory and Northern District models, and be key in the determination of the health of the resource in northern Sumter County as this is most certainly an area of future water supply growth. The data collected from this site will also be important to simulate the potential impact of the proposed WRWSA wellfield.

**Benefits:**

Expansion of data collection in this region of future water supply growth will help manage and protect the resource. These data will allow the District to forecast limitation in groundwater supply so cost-effective solutions can be properly planned. This will prevent unanticipated impacts that will need to be resolved with water using users of the region under a recover strategy. These data will also contribute to the prevention of environmental impacts that may not be able to be recovered or mitigated once experienced.

**Supported Projects:**

- MFL Technical Support - Northern District WRAP (P876)
- Data - Aquifer Exploration & Monitor Well Drilling Program - Northern Sumter County - 2009 Plan (H077)
- Data - Aquifer Exploration & Monitor Well Drilling Program (ROMP) Districtwide Initiative (C005)

**Potentially Supported Projects:**

- WUP - Water Use Permitting Program (M002)
- Hydrologic Conditions Reporting
- Upper Floridan Aquifer Potentiometric Surface Mapping
- Regional Water Supply Plan
## Well Site Scope of Work Checklist

**Site Name**: ROMP 131.5 - Morriston  
**Project**: Northern District Drilling Plan  
**County**: Levy  
**STR**: 15/14/18  
**Lat/Long**: 29°15.338' / 82°30.192'  
**PIMS Project No.** (if applicable): P876, C005  
**Justification (cost/benefit)**: Described on Page 2  
**Date**: Jul 12, 2012

### Geologic Sampling
- **Depth of exploration:**
  - ☐ to top of rock  
  - ☐ to saltwater/freshwater interface  
  - ☑ 50 feet into middle confining unit I  
  - ☑ 50 feet into middle confining unit II  
  - ☐ 50 feet into middle confining unit VI  
  - ☐ to the base of the Floridan aquifer system  
  - ☑ Other (please specify in comments)

### Aquifer Performance Testing
- **Parameters to be tested**
  - ☑ surficial aquifer: T S L  
  - ☑ Peace River aquifer (PZ1): T S L  
  - ☑ upper Arcadia aquifer (PZ2): T S L  
  - ☑ lower Arcadia aquifer (PZ3): T S L  
  - ☑ Upper Floridan aquifer: T S L  
  - ☑ Lower Floridan aquifer below MCU I: T S L  
  - ☑ Lower Floridan aquifer below MCU II: T S L  
  - ☑ Lower Floridan aquifer below MCU VI: T S L

An APT may not be possible if water quality is poor.

### Well Construction
- **The primary long-term use for the well(s) will be:**
  - ☑ Water Level Monitoring  
  - ☑ Water Quality Monitoring  
  - ☐ Other (please specify in comments)

- **Check all aquifers that require long-term monitoring:**
  - ☑ surficial aquifer  
  - ☑ Peace River aquifer (PZ1)  
  - ☑ upper Arcadia aquifer (PZ2)  
  - ☑ lower Arcadia aquifer (PZ3)  
  - ☑ Upper Floridan aquifer  
  - ☑ Lower Floridan aquifer below MCU I  
  - ☑ Lower Floridan aquifer below MCU II  
  - ☑ Lower Floridan aquifer below MCU VI  
  - ☐ Other (please specify in comments)

### Other Data Collection
- ☑ Geophysical Logging  
- ☐ Video Logging  
- ☐ Flow Logging  
- ☐ Sonic Logging  
- ☐ Other (please specify in comments)

### Comments:
- Exploration will extend 50 feet into the Lower Floridan aquifer below middle confining unit II (if present). If middle confining unit II is absent, exploration will extend to the base of the FAS.
- Need to discuss the TD. JLM 7/12/2012
- This work can be completed using exploratory drilling if it is deemed more cost-effective.

**Initial**: JLM

- ☐ No changes  
- ☑ Changes noted above  
- ☐ New Site  
- Initial: JLM
Justification for the work required (cost and benefit):

**Purpose and Scope:**
During the last 10 to 15 years, environmental impacts to lakes and wetlands in the Tampa Bay region along with the threat of saltwater intrusion in the Southern Water Use Caution Area has led District staff to focus data collection and drilling activities in these two areas. Consequently, limited information on the groundwater resource exists in the northern part of the District. The Northern District Water Resources Assessment Project was initiated in 1999 to gain a better understanding of the water resource issues from Pasco County north to Levy County within the Southwest Florida Water Management District. As part of this assessment, a data collection program is currently underway to obtain the necessary level of information needed to improve our conceptual understanding of the groundwater resources, characterize the saline water interface, identify areas of poor ground-water quality, determine the nature of flow to major springs, and provide information for regional flow models. This effort will also assist in the evaluation of future Regional Water Supply Plan assessments and minimum flow and level establishment. This data collection site is one of the sites identified in the data collection program for the Northern District.

The development and maintenance of a groundwater flow model (ND Model) assists in the evaluation of future Regional Water Supply Plan assessments and minimum flow and level establishment. The data collection program, which includes this site, is used to refine the ND Model's conceptual framework and improve calibration. The ND Model is being used for the minimum flow and level establishment for the Homosassa, Chassahowitzka, and Rainbow Spring Systems. This model is also being expanded as part of a cooperative project with Marion County and the St. Johns River Water Management District so it can be used for resource assessments for all of Marion County and for the Silver Springs minimum flow and level. The ND Model will be used on an ongoing basis to determine compliance with minimum flows and levels of the regions making ongoing model improvement a beneficial activity.

**Justification:**
1. This site will be the only hydrogeologic data point within this region.
2. This site will refine the hydraulic properties of the Upper Floridan aquifer for use in the Northern District and the District Wide Regulatory models.
3. This site will improve the calibration of the Northern District and the Districtwide Regulatory models.

The unit boundaries, hydraulic test data, and long-term monitoring will be utilized by the District and local water users (e.g., WRWSA). This site will be used for determining potentiometric surfaces, for the refinement of the Districtwide Regulatory and Northern District models, and be key in the determination of the health of the resource in this region.

**Benefits:**
Expansion of data collection in this region will help manage and protect the resource. These data will allow the District to forecast limitation in groundwater supply so cost-effective solutions can be properly planned. This will prevent unanticipated impacts that will need to be resolved with water users of the region under a recover strategy. These data will also contribute to the prevention of environmental impacts that may not be able to be recovered or mitigated once experienced.

**Supported Projects:**
- MFL Technical Support - Northern District WRAP (P876)
- Data - Aquifer Exploration & Monitor Well Drilling Program (ROMP) Districtwide Initiative (C005)

**Potentially Supported Projects:**
- WUP - Water Use Permitting Program (M002)
- Hydrologic Conditions Reporting
- Upper Floridan Aquifer Potentiometric Surface Mapping
- Regional Water Supply Plan
## Well Site Scope of Work Checklist

**Is this an existing District well site?**
- [ ] No
- [x] Yes

**Date:** 7/30/2015

### Site Name:
ROMP 88

### Project:
Central Florida Water Initiative/P005

### County:
Polk

### STR:
16/25/24

### Lat/Long:
28° 18' 38.5" / 81° 54' 40.0"

---

### Geologic Sampling
- [ ] No
- [x] Yes

**Depth of exploration:**
- [ ] to top of rock
- [ ] to saltwater/freshwater interface
- [ ] 50 feet into middle confining unit I
- [ ] 50 feet into middle confining unit II
- [ ] 50 feet into middle confining unit VI
- [x] to the base of the Floridan aquifer system
- [ ] Other (please specify in comments)

---

### Aquifer Performance Testing
- [ ] No
- [x] Yes

**parameters to be tested**

- surficial aquifer:
  - Peace River aquifer (PZ1):
  - upper Arcadia aquifer (PZ2):
  - lower Arcadia aquifer (PZ3):
  - Upper Floridan aquifer:
- Lower Floridan aquifer below MCU I:
- Lower Floridan aquifer below MCU II:
- Lower Floridan aquifer below MCU VI:

---

### Well Construction
- [ ] No
- [x] Yes

**The primary long-term use for the well(s) will be:**
- [x] Water Level Monitoring
- [x] Water Quality Monitoring
- [ ] Other (please specify in comments)

**Check all aquifers that require long-term monitoring:**
- [x] surficial aquifer
- [ ] Peace River aquifer (PZ1)
- [ ] upper Arcadia aquifer (PZ2)
- [ ] lower Arcadia aquifer (PZ3)
- [ ] Upper Floridan aquifer
- [x] Lower Floridan aquifer below MCU I
- [x] Lower Floridan aquifer below MCU II
- [ ] Lower Floridan aquifer below MCU VI
- [ ] Other (please specify in comments)

---

### Other Data Collection
- [ ] No
- [x] Yes

- [x] Geophysical Logging
- [x] Video Logging
- [x] Flow Logging
- [ ] Sonic Logging
- [ ] Other (please specify in comments)

---

### Comments:

Existing ROMP 88 site. Site currently has an Upper Floridan aquifer well. A surficial aquifer well and a minimum of two Lower Floridan aquifer wells below middle confining units I and II are being proposed.

Geologic sampling: Exploratory drilling to determine presence of both middle confining units I and II. Water quality, water level and hydraulic property profiling is necessary to determine presence of both middle confining units I and II.

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**Initial:** JGP

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[checkboxes for: No changes, Changes noted above, New Site]
Justification for the work required (cost and benefit):

Purpose and Scope:
This is an existing ROMP site located in an area that is critical toward establishing the geographic extent of middle confining units I and II and the extent of the Lower Floridan aquifers below these confining units. This site will be improved to a “full ROMP site” with the addition of a surficial aquifer well, a Lower Floridan aquifer well below middle confining unit I and a Lower Floridan aquifer well below middle confining unit II. Exploration will be conducted to the degree necessary to define the boundaries of the middle confining units I and II and the Lower Floridan aquifers. Discrete zone testing for water quality and water level should be conducted to assist in defining these boundaries and to characterize the water supply potential of the aquifers. Exploration will extend to the base of the Floridan aquifer system.

Wells will be constructed in the surficial aquifer and Lower Floridan aquifers below middle confining units I and II. Additional temporary wells in the Lower Floridan aquifers below middle confining units I and II may be constructed in order to conduct multi-well aquifer performance tests. Multi-well aquifer performance tests are essential in this region to determine the sustainability of water quality for the Upper Floridan and the Lower Floridan aquifers below each unit. The multi-well aquifer performance tests will also determine the leakance coefficients between the surficial aquifer and the Upper Floridan, the Upper Floridan and the Lower Floridan below middle confining unit I and between the Lower Floridan aquifers below middle confining units I and II.

Justification:
1. This site is located within Polk County which is part of the Central Florida Water Initiative (CFWI) region. The Lower Floridan aquifers have been identified in the CFWI Regional Water Supply Plan as an alternative water supply as a non-traditional groundwater source. Increased withdrawals from the Lower Floridan aquifers are anticipated due to the expectation of meeting water supply demands within the CFWI region through non-traditional water supply sources.
2. This site has been identified in the Data, Monitoring and Investigations Team (DMIT) FY2015-FY2020 Work plan. The DMIT is a subgroup of the CFWI and has identified this location as a key site to collect water levels and water quality data in the Lower Floridan aquifers below middle confining units I and II.
3. This site will refine the hydraulic properties of the Lower Floridan aquifer below middle confining units I and II for use in the District Wide Regulatory Model (DWRM), Northern District Model (NDM), East Central Florida Transient Expanded Model (ECFTX) and future modeling efforts.
4. This site will improve the calibration of the DWRM, NDM, ECFTX and future modeling efforts.
5. This site will be used for collecting long-term water levels for the Lower Floridan aquifers below middle confining units I and II.
6. This site will improve current knowledge of the extent of middle confining units I and II within the region of the WMD jurisdictional boundary.

The unit boundaries, hydraulic test data, and long-term monitoring will be utilized by the District, local water users and the CFWI. Data collection will be key in the determination of the health of the resource in northern Polk County as future water supply demands from the Lower Floridan aquifers within this region grows.

Benefits:
Expansion of data collection in this region will help manage and protect the resource. These data will allow the District to forecast limitation in groundwater supply so cost-effective solutions can be properly planned. This will prevent unanticipated impacts that will need to be resolved with water users of the region under a recovery strategy. These data will also contribute to the prevention of environmental impacts that may not be able to be recovered or mitigated once experienced.

Supported Projects:
Data - Aquifer Exploration & Monitor Well Drilling Program (ROMP) Districtwide Initiatives (C005)
CFWI - Data, Monitoring and Investigations Team
CFWI - Expansion of East Central Florida Transient Model
Hydrogeological Investigation of the Lower Floridan Aquifer in Polk County (P280)
District Wide Regulatory Model - (P625)
MFL Technical Support - Northern District WRAP (P876)

Potentially Supported projects:
WUP - Water Use Permitting Program (M002)
Regional Water Supply Plan
Water Quality Monitoring Network
Hydrologic Conditions Reporting
Well Site Scope of Work Checklist

Is this an existing District well site?  No  Yes

Date  7/30/2015

Site Name: ROMP 88.5

Project: Central Florida Water Initiative/P005

County: Polk

STR: To Be Determined 08/25/26

Lat/Long: To Be Determined

Geologic Sampling  No  Yes

Depth of exploration:
- to top of rock
- to saltwater/freshwater interface
- 50 feet into middle confining unit I
- 50 feet into middle confining unit II
- 50 feet into middle confining unit VI
- to the base of the Floridan aquifer system
- Other (please specify in comments)

Well Construction  No  Yes

The primary long-term use for the well(s) will be:
- Water Level Monitoring
- Water Quality Monitoring
- Other (please specify in comments)

Check all aquifers that require long-term monitoring:
- surficial aquifer
- Peace River aquifer (PZ1)
- upper Arcadia aquifer (PZ2)
- lower Arcadia aquifer (PZ3)
- Upper Floridan aquifer
- Lower Floridan aquifer below MCU I
- Lower Floridan aquifer below MCU II
- Lower Floridan aquifer below MCU VI
- Other (please specify in comments)

Aquifer Performance Testing  No  Yes

parameters to be tested
- surficial aquifer:
  - T
  - S
  - L
- Peace River aquifer (PZ1):
  - T
  - S
  - L
- upper Arcadia aquifer (PZ2):
  - T
  - S
  - L
- lower Arcadia aquifer (PZ3):
  - T
  - S
  - L
- Upper Floridan aquifer:
  - T
  - S
  - L
- Lower Floridan aquifer below MCU I:
  - T
  - S
  - L
- Lower Floridan aquifer below MCU II:
  - T
  - S
  - L
- Lower Floridan aquifer below MCU VI:
  - T
  - S
  - L

An APT may not be possible if water quality is poor.

Other Data Collection  No  Yes

- Geophysical Logging
- Video Logging
- Flow Logging
- Sonic Logging
- Other (please specify in comments)

Comments:

Geologic sampling: Exploratory drilling to determine presence of both middle confining units I and II. Water quality, water level and hydraulic property profiling is necessary to determine presence of both middle confining units I and II.

No changes  Changes noted above  New Site

Initial: JGP

page 1 of 2
Justification for the work required (cost and benefit):

<table>
<thead>
<tr>
<th>Purpose and Scope:</th>
</tr>
</thead>
<tbody>
<tr>
<td>This site is critical toward establishing the geographic extent of middle confining units I and II and the extent of the Lower Floridan aquifers below these confining units. This site will be a “full ROMP site” with exploration to the degree necessary to define the boundaries of the surficial aquifer, Upper Floridan aquifer, middle confining units I and II, and the Lower Floridan aquifers. Discrete zone testing for water quality and water level should be conducted to assist in defining these boundaries and to characterize the water supply potential of the aquifers. Exploration will be through the full thickness of the Floridan aquifer system. Wells will be constructed in the surficial, Upper Floridan and in the Lower Floridan aquifers below middle confining units I and II. Depending on water quality, temporary wells may be constructed in the Upper Floridan and in the Lower Floridan aquifers below middle confining units I and II in order to conduct multi-well aquifer performance tests. Multi-well aquifer performance tests are essential in this region to determine the sustainability of water quality for the Upper Floridan and the Lower Floridan aquifers below each unit. The multi-well aquifer performance tests will also determine the leakance coefficients between the surficial aquifer and the Upper Floridan, the Upper Floridan and the Lower Floridan below middle confining unit I and between the Lower Floridan aquifers below middle confining units I and II.</td>
</tr>
</tbody>
</table>

Justification:

1. This site is located within Polk County which is part of the Central Florida Water Initiative (CFWI). The Lower Floridan aquifers have been identified in the CFWI Regional Water Supply Plan as an alternative water supply as a non-traditional groundwater source. Increased withdrawals from the Lower Floridan aquifers are anticipated due to the expectation of meeting water supply demands within the CFWI region through non-traditional water supply sources.
2. This site will refine the hydraulic properties of the Upper Floridan and Lower Floridan aquifer below middle confining units I and II for use in the District Wide Regulatory Model (DWRM), Northern District Model (NDM), East Central Florida Transient Expanded Model ECFTX and future modeling efforts.
3. This site will improve the calibration of the DWRM, NDM, ECFTX and future modeling efforts.
4. This site will be used for collecting long-term surficial, Upper Floridan and the Lower Floridan aquifers below middle confining units I and II water levels.
5. This site will improve current knowledge of the extent of middle confining units I and II within the region of the WMD jurisdictional boundary.

The unit boundaries, hydraulic test data, and long-term monitoring will be utilized by the District, local water users and the CFWI. Data collection will be key in the determination of the health of the resource in northern Polk County as future water supply demands from the Lower Floridan aquifers within this region grows.

Benefits:

Expansion of data collection in this region will help manage and protect the resource. These data will allow the District to forecast limitation in groundwater supply so cost-effective solutions can be properly planned. This will prevent unanticipated impacts that will need to be resolved with water users of the region under a recover strategy. These data will also contribute to the prevention of environmental impacts that may not be able to be recovered or mitigated once experienced.

Supported Projects:

- Data- Aquifer Exploration & Monitor Well Drilling Program (ROMP) Districtwide Initiatives (C005)
- CFWI- Data, Monitoring and Investigations Team
- CFWI- Expansion of East Central Florida Transient Model
- Hydrogeological Investigation of the Lower Floridan Aquifer in Polk County (P280)
- District Wide Regulatory Model - (P625)
- MFL Technical Support- Northern District WRAP (P876)

Potentially Supported projects:

- WUP- Water Use Permitting Program (M002)
- Regional Water Supply Plan
- Water Quality Monitoring Network
- Upper Floridan Aquifer Potentiometric Surface Mapping
- Hydrologic Conditions Reporting
## Well Site Scope of Work Checklist

**Is this an existing District well site?**  ☑ No  ☐ Yes  

**Date**  Jul 30, 2012

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Stage Coach Trail (formerly Dames Cave)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>MFL Technical Support - Northern District WRAP</td>
</tr>
<tr>
<td><strong>Justification (cost/benefit)</strong></td>
<td>Described on Page 2</td>
</tr>
<tr>
<td>PIMS Project No. (if applicable)</td>
<td>P876, C005</td>
</tr>
<tr>
<td>County</td>
<td>Citrus</td>
</tr>
<tr>
<td>STR</td>
<td>16/19/18</td>
</tr>
<tr>
<td>Lat/Long</td>
<td>28 45 34.43/ 82 25 52.94</td>
</tr>
</tbody>
</table>

### Geologic Sampling  ☐ No  ☑ Yes

- Depth of exploration:
  - ☑ to top of rock
  - ☑ to saltwater/freshwater interface
  - ☐ 50 feet into middle confining unit I
  - ☑ 50 feet into middle confining unit II
  - ☑ 50 feet into middle confining unit VI
  - ☑ to the base of the Floridan aquifer system
  - ☐ Other (please specify in comments)

### Aquifer Performance Testing  ☐ No  ☑ Yes

- Parameters to be tested:
  - ☑ surficial aquifer
  - ☑ Peace River aquifer (PZ1)
  - ☑ upper Arcadia aquifer (PZ2)
  - ☑ lower Arcadia aquifer (PZ3)
  - ☑ Upper Floridan aquifer
  - ☑ Lower Floridan aquifer below MCU I
  - ☑ Lower Floridan aquifer below MCU II
  - ☑ Lower Floridan aquifer below MCU VI
  - ☐ Other (please specify in comments)

### Well Construction  ☑ No  ☐ Yes

- The primary long-term use for the well(s) will be:
  - ☑ Water Level Monitoring
  - ☑ Water Quality Monitoring
  - ☐ Other (please specify in comments)

- Check all aquifers that require long-term monitoring:
  - ☑ surficial aquifer
  - ☑ Peace River aquifer (PZ1)
  - ☑ upper Arcadia aquifer (PZ2)
  - ☑ lower Arcadia aquifer (PZ3)
  - ☑ Upper Floridan aquifer
  - ☑ Lower Floridan aquifer below MCU I
  - ☑ Lower Floridan aquifer below MCU II
  - ☑ Lower Floridan aquifer below MCU VI
  - ☐ Other (please specify in comments)

### Other Data Collection  ☐ No  ☑ Yes

- ☑ Geophysical Logging
  - ☐ Video Logging
  - ☐ Flow Logging
  - ☐ Sonic Logging
  - ☐ Other (please specify in comments)

### Comments:

Exploratory drilling to define the geology and hydrogeology of the site. This includes water quality profiling, water level profiling, hydraulic property profiling, and geophysical logging. This activity can be exploratory drilling if it is deemed more cost-effective compared to coring.

☐ No changes  ☑ Changes noted above  ☐ New Site  Initial: jlm
Justification for the work required (cost and benefit):

**Purpose and Scope:**
During the last 10 to 15 years, environmental impacts to lakes and wetlands in the Tampa Bay region along with the threat of saltwater intrusion in the Southern Water Use Caution Area has led District staff to focus data collection and drilling activities in these two areas. Consequently, limited information on the groundwater resource exists in the northern part of the District. The Northern District Water Resources Assessment Project was initiated in 1999 to gain a better understanding of the water resource issues from Pasco County north to Levy County within the Southwest Florida Water Management District. As part of this assessment, a data collection program is currently underway to obtain the necessary level of information needed to improve our conceptual understanding of the groundwater resources, characterize the saline water interface, identify areas of poor groundwater quality, determine the nature of flow to major springs, and provide information for regional flow models. This effort will also assist in the evaluation of future Regional Water Supply Plan assessments and minimum flow and level establishment. This data collection site is one of the sites identified in the data collection program for the Northern District.

The development and maintenance of a groundwater flow model (ND Model) assists in the evaluation of future Regional Water Supply Plan assessments and minimum flow and level establishment. The data collection program, which includes this site, is used to improve the ND Model’s conceptual framework and improve calibration. The ND Model is being used for the minimum flow and level establishment for the Homosassa, Chassahowitzka, and Rainbow Spring Systems. This model is also being expanded as part of a cooperative project with Marion County and the St. Johns River Water Management District so it can be used for resource assessments in Marion County and for the Silver Springs minimum flow and level. The NO Model will be used on an ongoing basis to determine compliance with minimum flows and levels of the regions making ongoing model improvement a beneficial activity.

**Justification:**
1. This site is located in south-central Citrus County near a proposed wellfield for the Withlacoochee River Water Supply Authority (WRWSA).
2. This site will establish baseline water levels in this area prior to wellfield development.
3. This site will be the only hydrogeologic data point within the southwest quarter of Citrus County.
4. This site will define the hydraulic properties of the Upper Floridan aquifer for use in the ND Model and the District Wide Regulatory Model.

The unit boundaries, hydraulic test data, and long-term monitoring will be utilized by the District and local water users (e.g., WRWSA). This site will be used for determining potentiometric surfaces, for refinement of the Districtwide Regulatory and Northern District models, and be key in the determination of the health of the resource in south-central Citrus County as this is most certainly an area of future water supply growth. The data collected from this site will also be important to simulate the potential impact of the proposed WRWSA wellfield.

**Benefits:**
Expansion of data collection in this region of future water supply growth will help manage and protect the resource. These data will allow the District to forecast limitation in groundwater supply so cost-effective solutions can be properly planned. This will prevent unanticipated impacts that will need to be resolved with water users of the region under a recover strategy. These data will also contribute to the prevention of environmental impacts that may not be able to be recovered or mitigated once experienced.

**Supported Projects:**
MFL Technical Support - Northern District WRAP (P876)
Data - Aquifer Exploration & Monitor Well Drilling Program (ROMP) Districtwide Initiative (C005)

**Potentially Supported Projects:**
WUP - Water Use Permitting Program (M002)
Hydrologic Conditions Reporting
Upper Floridan Aquifer Potentiometric Surface Mapping
Regional Water Supply Plan
# Well Site Scope of Work Checklist

Is this an existing District well site? ○ No  ○ Yes

<table>
<thead>
<tr>
<th>Site Name</th>
<th>ROMP TR 19-3A - Heather</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Northern District Drilling Plan</td>
</tr>
<tr>
<td>County</td>
<td>Hernando</td>
</tr>
<tr>
<td>STR</td>
<td>17/21/17</td>
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<tr>
<td>Lat/Long</td>
<td>28 32 25.26 / 82 35 10.08</td>
</tr>
<tr>
<td>STR</td>
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</tr>
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</table>

**Geologic Sampling** ○ No  ○ Yes

Depth of exploration:
- [x] to top of rock
- [ ] to saltwater/freshwater interface
- [ ] 50 feet into middle confining unit I
- [ ] 50 feet into middle confining unit II
- [ ] 50 feet into middle confining unit VI
- [ ] to the base of the Floridan aquifer system
- [ ] Other (please specify in comments)

**Aquifer Performance Testing** ○ No  ○ Yes

<table>
<thead>
<tr>
<th>Aquifer</th>
<th>T</th>
<th>S</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surficial aquifer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peace River aquifer (PZ1):</td>
<td>T</td>
<td>S</td>
<td>L</td>
</tr>
<tr>
<td>Upper Arcadia aquifer (PZ2):</td>
<td>T</td>
<td>S</td>
<td>L</td>
</tr>
<tr>
<td>Lower Arcadia aquifer (PZ3):</td>
<td>T</td>
<td>S</td>
<td>L</td>
</tr>
<tr>
<td>Lower Floridan aquifer:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Floridan aquifer below MCU I:</td>
<td>T</td>
<td>S</td>
<td>L</td>
</tr>
<tr>
<td>Lower Floridan aquifer below MCU II:</td>
<td>T</td>
<td>S</td>
<td>L</td>
</tr>
<tr>
<td>Lower Floridan aquifer below MCU VI:</td>
<td>T</td>
<td>S</td>
<td>L</td>
</tr>
</tbody>
</table>

An APT may not be possible if water quality is poor.

**Well Construction** ○ No  ○ Yes

The primary long-term use for the well(s) will be:
- [x] Water Level Monitoring
- [x] Water Quality Monitoring
- [x] Other (please specify in comments)

Check all aquifers that require long-term monitoring:
- [x] Surficial aquifer
- [ ] Peace River aquifer (PZ1)
- [ ] Upper Arcadia aquifer (PZ2)
- [ ] Lower Arcadia aquifer (PZ3)
- [x] Upper Floridan aquifer
- [ ] Lower Floridan aquifer below MCU I
- [ ] Lower Floridan aquifer below MCU II
- [ ] Lower Floridan aquifer below MCU VI
- [ ] Other (please specify in comments)

**Other Data Collection** ○ No  ○ Yes

- [ ] Geophysical Logging
- [ ] Video Logging
- [ ] Flow Logging
- [ ] Sonic Logging
- [ ] Other (please specify in comments)

**Comments:**

Site is acquired with a 50 year easement term beginning 3/23/2001.

Split-spoon investigation to top of rock. Well construction of three wells is needed. One surficial, one Upper Floridan to monitor the saltwater/freshwater interface and another Upper Floridan to monitor groundwater levels.

☐ No changes  ☐ Changes noted above  ☐ New Site  Initial: ____________

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Page 1 of 2

ROMP TR 19-3A - Heather
Northern District Drilling Plan
Hernando

Justification (cost/benefit) Descended on Page 2

Parameters to be tested

- Surficial aquifer
- Peace River aquifer (PZ1)
- Upper Arcadia aquifer (PZ2)
- Lower Arcadia aquifer (PZ3)
- Upper Floridan aquifer
- Lower Floridan aquifer below MCU I
- Lower Floridan aquifer below MCU II
- Lower Floridan aquifer below MCU VI

No changes

Changes noted above

New Site

Initial: ____________
Well Site Scope of Work Checklist

<table>
<thead>
<tr>
<th>Site Name</th>
<th>ROMP 129 - Hibiscus Park</th>
<th>County</th>
<th>Marion</th>
</tr>
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<tbody>
<tr>
<td>Project</td>
<td>Northern District Drilling Plan</td>
<td>STR</td>
<td>7/16/21</td>
</tr>
<tr>
<td>Justification (cost/benefit)</td>
<td>Described on Page 2</td>
<td>Lat/Long</td>
<td>29 06 38 / 82 14 36</td>
</tr>
<tr>
<td>PIMS Project No. (if applicable)</td>
<td>C005, P876, B208, B209</td>
<td>Date</td>
<td>Jul 12, 2012</td>
</tr>
</tbody>
</table>

### Geologic Sampling
- **Option:** Yes
- **Depth of exploration:**
  - to top of rock
  - to saltwater/freshwater interface
  - 50 feet into middle confining unit I
  - 50 feet into middle confining unit II
  - 50 feet into middle confining unit VI
  - to the base of the Floridan aquifer system
  - Other (please specify in comments)

### Well Construction
- **Option:** Yes
- **The primary long-term use for the well(s) will be:**
  - Water Level Monitoring
  - Water Quality Monitoring
  - Other (please specify in comments)
- **Check all aquifers that require long-term monitoring:**
  - surficial aquifer
  - Peace River aquifer (PZ1)
  - upper Arcadia aquifer (PZ2)
  - lower Arcadia aquifer (PZ3)
  - Upper Floridan aquifer
  - Lower Floridan aquifer below MCU I
  - Lower Floridan aquifer below MCU II
  - Lower Floridan aquifer below MCU VI
  - Other (please specify in comments)

### Aquifer Performance Testing
- **Option:** Yes
- **Parameters to be tested**:
  - surficial aquifer:
    - Peace River aquifer (PZ1): T S L
    - upper Arcadia aquifer (PZ2): T S L
    - lower Arcadia aquifer (PZ3): T S L
    - Upper Floridan aquifer:
    - Lower Floridan aquifer below MCU I: T S L
    - Lower Floridan aquifer below MCU II: T S L
    - Lower Floridan aquifer below MCU VI: T S L
    - An APT may not be possible if water quality is poor

### Other Data Collection
- **Option:** Yes
- **Other (please specify in comments):**
  - Geophysical Logging
  - Video Logging
  - Flow Logging
  - Sonic Logging
  - Other (please specify in comments)

**Comments:**
- Exploratory coring objective: 1,500 ft to determine presence of both middle confining units I and II.
- Well construction: Need an Upper Floridan aquifer sulfate monitor well if middle confining unit II is present.
Site Name  ROMP 129 - Hibiscus Park

Justification for the work required (cost and benefit):

Purpose and Scope:
This site is critical toward establishing the geographic extent of middle confining units I and II and the extent of the Lower Floridan aquifers below these confining units. Exploration will be conducted to the degree necessary to define the boundaries of the surficial aquifer, Upper Floridan aquifer, middle confining units I and II, and the Lower Floridan aquifers. Discrete zone testing for water quality and water level should be conducted to assist in defining these boundaries and to characterize the water supply potential of the aquifers. Exploration will be conducted to a depth of 1,500 ft. If middle confining unit II is present, the District will conduct sulfate monitoring as part of the Water Quality Monitoring Program.

The development and maintenance of a groundwater flow model (ND Model) assists in the evaluation of future Regional Water Supply Plan assessments and minimum flow and level establishment. The data collection program, which includes this site, is used to refine the ND Model's conceptual framework and improve calibration. The ND Model is being used for the minimum flow and level establishment for the Homosassa, Chassahowitzka, Gum Spring, Rainbow Spring, and Silver Spring Systems. The ND model is also being expanded as part of a cooperative project with Marion County and the St. Johns River Water Management District so it can be used for resource assessments for all of Marion County and for the Rainbow and Silver Springs minimum flow and level. The ND Model will be used on an ongoing basis to determine compliance with minimum flows and levels of the regions making ongoing model improvement a beneficial activity.

Justification:
1. This site will be used for collecting long-term UFA water levels.
2. This site will assist in the impact analysis and the setting of MFLs for springs, lakes, and the Withlacoochee River.
3. This site will be used to improve the calibration of the Northern District and the District Wide Regulatory models.
4. This site will improve current knowledge of the extent of middle confining units I and II within the region of the WMD jurisdictional boundary.

Benefits:
Expansion of data collection in this region will help manage and protect the resource. These data will allow the District to forecast limitation in groundwater supply so cost-effective solutions can be properly planned. This will prevent unanticipated impacts that will need to be resolved with water users of the region under a recover strategy. These data will also contribute to the prevention of environmental impacts that may not be able to be recovered or mitigated once experienced.

Supported Projects:
MFL Technical Support - Northern District WRAP (P876)
Rainbow River Freshwater System (B208)
Chassahowitzka River & Springs System (B209)
Homosassa River & Springs System (B222)
Upper Withlacoochee River System (B223)
Gum Springs Group Freshwater System (B808)
Data - Aquifer Exploration & Monitor Well Drilling Program (ROMP) Districtwide Initiative (C005)

Potentially Supported Projects:
WUP - Water Use Permitting Program (M002)
Hydrologic Conditions Reporting
Upper Floridan Aquifer Potentiometric Surface Mapping
Regional Water Supply Plan
Water Quality Monitoring Network
Well Site Scope of Work Checklist

Is this an existing District well site? ○ No ○ Yes

Date: July 12, 2012

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<table>
<thead>
<tr>
<th>Site Name</th>
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<tbody>
<tr>
<td>Project</td>
<td>Northern District Drilling</td>
</tr>
<tr>
<td>County</td>
<td>Hernando, Citrus, Marion, Levy</td>
</tr>
<tr>
<td>STR</td>
<td></td>
</tr>
<tr>
<td>Lat/Long</td>
<td></td>
</tr>
</tbody>
</table>

---

Geologic Sampling ○ No ○ Yes

Depth of exploration:
- X to top of rock
- □ to saltwater/freshwater interface
- □ 50 feet into middle confining unit I
- □ 50 feet into middle confining unit II
- □ 50 feet into middle confining unit VI
- □ to the base of the Floridan aquifer system
- □ Other (please specify in comments)

---

Aquifer Performance Testing ○ No ○ Yes

parameters to be tested
- X surficial aquifer:
- □ Peace River aquifer (PZ1): T S L
- □ upper Arcadia aquifer (PZ2): T S L
- □ lower Arcadia aquifer (PZ3): T S L
- □ Upper Floridan aquifer: T S L
- □ Lower Floridan aquifer below MCU I: T S L
- □ Lower Floridan aquifer below MCU II: T S L
- □ Lower Floridan aquifer below MCU VI: T S L

An APT may not be possible if water quality is poor.

---

Well Construction ○ No ○ Yes

The primary long-term use for the well(s) will be:
- X Water Level Monitoring
- X Water Quality Monitoring
- □ Other (please specify in comments)

Check all aquifers that require long-term monitoring:
- X surficial aquifer
- □ Peace River aquifer (PZ1)
- □ upper Arcadia aquifer (PZ2)
- □ lower Arcadia aquifer (PZ3)
- X Upper Floridan aquifer
- □ Lower Floridan aquifer below MCU I
- □ Lower Floridan aquifer below MCU II
- □ Lower Floridan aquifer below MCU VI
- □ Other (please specify in comments)

---

Other Data Collection ○ No ○ Yes

- □ Geophysical Logging
- □ Video Logging
- □ Flow Logging
- □ Sonic Logging
- □ Other (please specify in comments)

---

Other (please specify in comments)

---

Comments:

Most of these wells are located in the coastal region of the northern District and will be used to better monitor the freshwater/saltwater interface.
## Well Site Scope of Work Checklist

<table>
<thead>
<tr>
<th>Site Name</th>
<th>ROMP 104 -Lake Lindsey</th>
</tr>
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<tbody>
<tr>
<td>Project</td>
<td>Northern District Drilling Plan</td>
</tr>
<tr>
<td>County</td>
<td>Hernando</td>
</tr>
<tr>
<td>STR</td>
<td>28/21/29</td>
</tr>
<tr>
<td>Lat/Long</td>
<td>28 37 40.26 / 82 24 53.10</td>
</tr>
</tbody>
</table>

### Geologic Sampling
- Depth of exploration:
  - [ ] to top of rock
  - [ ] to saltwater/freshwater interface
  - [ ] 50 feet into middle confining unit I
  - [x] 50 feet into middle confining unit II
  - [ ] 50 feet into middle confining unit VI
  - [ ] to the base of the Floridan aquifer system
  - [ ] Other (please specify in comments)

### Aquifer Performance Testing
- Parameters to be tested:
  - surficial aquifer:
    - [x] T
    - [ ] S
    - [ ] L
  - Peace River aquifer (PZ1):
    - [ ] T
    - [ ] S
    - [ ] L
  - upper Arcadia aquifer (PZ2):
    - [ ] T
    - [ ] S
    - [ ] L
  - lower Arcadia aquifer (PZ3):
    - [ ] T
    - [ ] S
    - [ ] L
  - Upper Floridan aquifer:
    - [x] T
    - [x] S
    - [x] L
  - Lower Floridan aquifer below MCU I:
    - [ ] T
    - [ ] S
    - [ ] L
  - Lower Floridan aquifer below MCU II:
    - [ ] T
    - [ ] S
    - [ ] L
  - Lower Floridan aquifer below MCU VI:
    - [ ] T
    - [ ] S

### Other Data Collection
- [ ] Geophysical Logging
- [ ] Video Logging
- [ ] Flow Logging
- [ ] Sonic Logging
- [ ] Other (please specify in comments)

### Comments:
This work can be completed by exploratory drilling if determined to be more cost-effective.
Purpose and Scope:
During the last 10 to 15 years, environmental impacts to lakes and wetlands in the Tampa Bay region along with the threat of saltwater intrusion in the Southern Water Use Caution Area has led District staff to focus data collection and drilling activities in these two areas. Consequently, limited information on the groundwater resource exists in the northern part of the District. The Northern District Water Resources Assessment Project was initiated in 1999 to gain a better understanding of the water resource issues from Pasco County north to Levy County within the Southwest Florida Water Management District. As part of this assessment, a data collection program is currently underway to obtain the necessary level of information needed to improve our conceptual understanding of the groundwater resources, characterize the saline water interface, identify areas of poor ground-water quality, determine the nature of flow to major springs, and provide information for regional flow models. This effort will also assist in the evaluation of future Regional Water Supply Plan assessments and minimum flow and level establishment. This data collection site is one of the sites identified in the data collection program for the Northern District.

The development and maintenance of a groundwater flow model (ND Model) assists in the evaluation of future Regional Water Supply Plan assessments and minimum flow and level establishment. The data collection program, which includes this site, is used to refine the ND Model’s conceptual framework and improve calibration. The ND Model is being used for the minimum flow and level establishment for the Homosassa, Chassahowitzka, and Rainbow Spring Systems. This model is also being expanded as part of a cooperative project with Marion County and the St. Johns River Water Management District so it can be used for resource assessments in Marion County and for the Silver Springs minimum flow and level. The ND Model will be used on an ongoing basis to determine compliance with minimum flows and levels of the regions making ongoing model improvement a beneficial activity.

Justification:
1. This site will be the only hydrogeologic data point within the north-central region of Hernando Citrus County.
2. This site will refine the hydraulic properties of the Upper Floridan aquifer for use in the Northern District and the District Wide Regulatory models.
3. This site will improve the calibration of the Northern District and the Districtwide Regulatory models.

The unit boundaries, hydraulic test data, and long-term monitoring will be utilized by the District and local water users (e.g., WRWSA). This site will be used for determining potentiometric surfaces, for the refinement of the Districtwide Regulatory and Northern District models, and be key in the determination of the health of the resource in north-central Hernando County.

Benefits:
Expansion of data collection in this region will help manage and protect the resource. These data will allow the District to forecast limitation in groundwater supply so cost-effective solutions can be properly planned. This will prevent unanticipated impacts that will need to be resolved with water users of the region under a recover strategy. These data will also contribute to the prevention of environmental impacts that may not be able to be recovered or mitigated once experienced.

Supported Projects:
MFL Technical Support - Northern District WRAP (P876)
Data - Aquifer Exploration & Monitor Well Drilling Program (ROMP) Districtwide Initiative (C005)

Potentially Supported Projects:
WUP - Water Use Permitting Program (M002)
Hydrologic Conditions Reporting
Upper Floridan Aquifer Potentiometric Surface Mapping
Regional Water Supply Plan
# Well Site Scope of Work Checklist

**Is this an existing District well site?**
- [ ] No
- [x] Yes

## Site Information

<table>
<thead>
<tr>
<th>Site Name</th>
<th>ROMP 46 - Baird</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Polk</td>
</tr>
<tr>
<td>STR</td>
<td>31/31/24</td>
</tr>
<tr>
<td>Lat/Long</td>
<td>27 44 24.3 / 81 57 02.6</td>
</tr>
</tbody>
</table>

## Geologic Sampling

- [ ] No
- [x] Yes

**Depth of exploration:**
- [ ] to top of rock
- [ ] to saltwater/freshwater interface
- [ ] 50 feet into middle confining unit I
- [x] 50 feet into middle confining unit II
- [ ] 50 feet into middle confining unit VI
- [ ] to the base of the Floridan aquifer system
- [ ] Other (please specify in comments)

## Aquifer Performance Testing

- [ ] No
- [x] Yes

**Parameters to be tested:**
- [ ] surficial aquifer: To T S L
- [ ] Peace River aquifer (PZ1): To T S L
- [ ] upper Arcadia aquifer (PZ2): To T S L
- [ ] lower Arcadia aquifer (PZ3): To T S L
- [ ] Upper Floridan aquifer: To T S L
- [ ] Lower Floridan aquifer below MCU I: To T S L
- [ ] Lower Floridan aquifer below MCU II: To T S L
- [ ] Lower Floridan aquifer below MCU VI: To T S L

*An APT may not be possible if water quality if poor*

## Well Construction

- [ ] No
- [x] Yes

**The primary long-term use for the well(s) will be:**
- [x] Water Level Monitoring
- [x] Water Quality Monitoring
- [ ] Other (please specify in comments)

**Check all aquifers that require long-term monitoring:**
- [x] surficial aquifer
- [ ] Peace River aquifer (PZ1)
- [x] upper Arcadia aquifer (PZ2)
- [x] lower Arcadia aquifer (PZ3)
- [x] Upper Floridan aquifer
- [ ] Lower Floridan aquifer below MCU I
- [ ] Lower Floridan aquifer below MCU II
- [ ] Lower Floridan aquifer below MCU VI
- [ ] Other (please specify in comments)

## Other Data Collection

- [ ] No
- [x] Yes

**Check all data collection methods:**
- [ ] Geophysical Logging
- [ ] Video Logging
- [ ] Flow Logging
- [ ] Sonic Logging
- [ ] Other (please specify in comments)

**Comments:**

- [ ] This site has been acquired.
- [ ] Wells and ATPs need for all aquifers present in the HAS.

## General Information

- [ ] No changes
- [ ] Changes noted above
- [ ] New Site

**Initial:** __________________
Well Site Scope of Work Checklist

Is this an existing District well site?  ○ No  ○ Yes  Date __________________________

Site Name  ROMP 102 - Webster
Project  ____________________________________________
County  Sumter
STR  6/22/23
Lat/Long  28 36 20 / 82 03 12

Geologic Sampling  ○No  ○ Yes
Depth of exploration:
☐ to top of rock
☐ to saltwater/freshwater interface
☐ 50 feet into middle confining unit I
☒ 50 feet into middle confining unit II
☐ 50 feet into middle confining unit VI
☐ to the base of the Floridan aquifer system
☐ Other (please specify in comments)

Geophysical Logging  ○Yes
Video Logging  ○Yes
Flow Logging  ○Yes
Sonic Logging  ○Yes
Other (please specify in comments)  ____________________________________________

Aquifer Performance Testing  ○No  ○ Yes
parameters to be tested
surficial aquifer:  ☒ T  ☒ S  ☒ L
Peace River aquifer (PZ1):  ☐ T  ☐ S  ☐ L
upper Arcadia aquifer (PZ2):  ☐ T  ☐ S  ☐ L
lower Arcadia aquifer (PZ3):  ☐ T  ☐ S  ☐ L
Upper Floridan aquifer:  ☒ T  ☒ S  ☒ L
Lower Floridan aquifer below MCU I:  ☐ T  ☐ S  ☐ L
Lower Floridan aquifer below MCU II:  ☐ T  ☐ S  ☐ L
Lower Floridan aquifer below MCU VI:  ☐ T  ☐ S  ☐ L

An APT may not be possible if water quality is poor.

Well Construction  ○No  ○ Yes
The primary long-term use for the well(s) will be:
☒ Water Level Monitoring
☒ Water Quality Monitoring
☐ Other (please specify in comments)

Check all aquifers that require long-term monitoring:
☒ surficial aquifer
☐ Peace River aquifer (PZ1)
☐ upper Arcadia aquifer (PZ2)
☐ lower Arcadia aquifer (PZ3)
☒ Upper Floridan aquifer
☐ Lower Floridan aquifer below MCU I
☐ Lower Floridan aquifer below MCU II
☐ Lower Floridan aquifer below MCU VI
☐ Other (please specify in comments)

Other Data Collection  ○No  ○ Yes
☐ Geophysical Logging
☐ Video Logging
☐ Flow Logging
☐ Sonic Logging
☐ Other (please specify in comments)

Comments:

Does this site replace an existing ROMP 102 site? Records indicate this site exists but an access easement is required.

☐ No changes  ☐ Changes noted above  ☐ New Site  Initial: _____________
Well Site Scope of Work Checklist

Is this an existing District well site?  ○ No  ○ Yes

Date  Jul 12, 2012

Site Name: ROMP TR 7-3 Durante Park
Project: SWUCA Recovery Strategy
County: Manatee
STR: 25/35/16
Lat/Long: 27 24 52.72 / 82 39 30.00

Geologic Sampling  ○ No  ○ Yes

Depth of exploration:
☐ to top of rock
☒ to saltwater/freshwater interface
☐ 50 feet into middle confining unit I
☐ 50 feet into middle confining unit II
☐ 50 feet into middle confining unit VI
☐ to the base of the Floridan aquifer system
☐ Other (please specify in comments)

Aquifer Performance Testing  ○ No  ○ Yes

parameters to be tested
surficial aquifer:  T  S  L
Peace River aquifer (PZ1):  T  S  L
upper Arcadia aquifer (PZ2):  T  S  L
lower Arcadia aquifer (PZ3):  T  S  L
Upper Floridan aquifer:
Lower Floridan aquifer below MCU I:
Lower Floridan aquifer below MCU II:
Lower Floridan aquifer below MCU VI:

An APT may not be possible if water quality is poor

Well Construction  ○ No  ○ Yes

The primary long-term use for the well(s) will be:
☒ Water Level Monitoring
☒ Water Quality Monitoring
☐ Other (please specify in comments)

Check all aquifers that require long-term monitoring:
☒ surficial aquifer
☒ Peace River aquifer (PZ1)
☒ upper Arcadia aquifer (PZ2)
☒ lower Arcadia aquifer (PZ3)
☒ Upper Floridan aquifer
☒ Lower Floridan aquifer below MCU I
☒ Lower Floridan aquifer below MCU II
☒ Lower Floridan aquifer below MCU VI
☐ Other (please specify in comments)

Other Data Collection  ○ No  ○ Yes

☐ Geophysical Logging
☐ Video Logging
☐ Flow Logging
☐ Sonic Logging
☐ Other (please specify in comments)

Comments:

This site is acquired and there is no expiration date for temporary construction easement.
- Wells are needed for any aquifer present in the HAS.
- Saltwater intrusion well.

☐ No changes  ☒ Changes noted above  ☐ New Site  Initial: JGP

page 1 of 2
Site Name  ROMP TR 7-3 Durante Park

Justification for the work required (cost and benefit):

Purpose and Scope:
This site will be a critical part of the the ROMP coastal transect network used to measure the movement of the saltwater/freshwater interface in Manatee County. The site will assist in completing a transect of existing wells within the Most Impacted Area (MIA) of the SWUCA to monitor the saltwater/freshwater interface. In order to provide detailed information about the location of the saltwater/freshwater interface, exploration will be conducted to the degree necessary to define the boundaries of the surficial aquifer, Hawthorn (intermediate) aquifer system, and Upper Floridan aquifer. Coring and testing will be conducted to the saltwater/freshwater interface.

The development and maintenance of this site will assist in the evaluation of the SWUCA Recovery Strategy and future Regional Water Supply Plan assessments. The data collection program, which includes this site, is used to set minimum aquifer levels within the SWUCA and MIA.

Justification:
1. This site will be used for collecting long-term Upper Floridan water levels.
2. This site will be used for collecting long-term water quality data.
3. This site will be the only hydrogeologic data point located within the Manatee County barrier islands.
4. This site will be used to determine the rate and rate of change of saltwater/freshwater within the MIA.
5. This site will be key for future modeling efforts in this region.
6. This site can potentially be used as an APT site for refining the hydraulic properties of the Hawthorn (intermediate) aquifer system as well as the Upper Floridan aquifer within the SWUCA/MIA.

Benefits:
Expansion of data collection in this region will help manage and protect the resource. These data will allow the District to forecast limitations in groundwater supply and the saltwater/freshwater interface along the coastal regions so cost-effective solutions can be properly planned. This will help prevent additional impacts that need to be resolved with water users of the region under the current recovery strategies (SWUCA and MIA). These data will also contribute to reducing environmental impacts that are not able to be recovered or mitigated.

Supported Projects:
SWUCA Recovery Strategy (P085)
Data - Aquifer Exploration & Monitor Well Drilling Program (ROMP) District-wide Initiative (C005)
Hydrologic Conditions Reporting
Upper Floridan Aquifer Potentiometric Surface Mapping
Regional Water Supply Plan
# Well Site Scope of Work Checklist

**Site Name**: East Homosassa  
**Project**: Northern District Drilling Plan  
**County**: Citrus  
**STR**: 4/18/17  
**Lat/Long**: 28°56'42.34 / 82°35'49.37

### Geologic Sampling
- **Depth of exploration:**
  - [ ] to top of rock
  - [x] to saltwater/freshwater interface
  - [ ] 50 feet into middle confining unit I
  - [ ] 50 feet into middle confining unit II
  - [ ] 50 feet into middle confining unit VI
  - [ ] to the base of the Floridan aquifer system
  - [ ] Other (please specify in comments)

### Well Construction
- **The primary long-term use for the well(s) will be:**
  - [x] Water Level Monitoring
  - [x] Water Quality Monitoring
  - [x] Other (please specify in comments)

Check all aquifers that require long-term monitoring:
- [x] surficial aquifer
- [ ] Peace River aquifer (PZ1)
- [ ] upper Arcadia aquifer (PZ2)
- [ ] lower Arcadia aquifer (PZ3)
- [x] Upper Floridan aquifer
- [ ] Lower Floridan aquifer below MCU I
- [ ] Lower Floridan aquifer below MCU II
- [ ] Lower Floridan aquifer below MCU VI
- [ ] Other (please specify in comments)

### Aquifer Performance Testing
- **parameters to be tested**
  - surficial aquifer: [ ] T  [ ] $  [ ] L
  - Peace River aquifer (PZ1): [ ] T  [ ] $  [ ] L
  - upper Arcadia aquifer (PZ2): [ ] T  [ ] $  [ ] L
  - lower Arcadia aquifer (PZ3): [ ] T  [ ] $  [ ] L
  - Upper Floridan aquifer:
    - Lower Floridan aquifer below MCU I: [ ] T  [ ] $  [ ] L
    - Lower Floridan aquifer below MCU II: [ ] T  [ ] $  [ ] L
    - Lower Floridan aquifer below MCU VI:
      - [ ] T  [ ] $  [ ] L

*An APT may not be possible if water quality if poor*

### Other Data Collection
- **Geophysical Logging**
- **Video Logging**
- **Flow Logging**
- **Sonic Logging**
- [ ] Other (please specify in comments)

### Comments:
*Exploratory drilling to the top of the saltwater/freshwater interface. Well construction is needed for one surficial and one Upper Floridan to monitor the saltwater/freshwater. An additional Upper Floridan well may be needed to monitor groundwater levels.*

**Is this an existing District well site?** [ ] No  [ ] Yes

**Justification (cost/benefit)**: Described on Page 2

**PIMS Project No. (if applicable)**: 

**Initial**: 

- [ ] No changes
- [ ] Changes noted above
- [ ] New Site
**Well Site Scope of Work Checklist**

<table>
<thead>
<tr>
<th>Site Name</th>
<th>West Citrus</th>
</tr>
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<tbody>
<tr>
<td>Project</td>
<td>Northern District Drilling Plan, CGWQMN</td>
</tr>
<tr>
<td>County</td>
<td>Citrus</td>
</tr>
<tr>
<td>STR</td>
<td>20/20/17</td>
</tr>
</tbody>
</table>

**Is this an existing District well site?** Yes / No

**Date** Oct 7, 2015

---

**Geologic Sampling**

- Depth of exploration:
  - ☑️ to top of rock
  - ☑️ to saltwater/freshwater interface
  - ☑️ 50 feet into middle confining unit I
  - ☑️ 50 feet into middle confining unit II
  - ☑️ 50 feet into middle confining unit VI
  - ☑️ to the base of the Floridan aquifer system
  - ☐ Other (please specify in comments)

**Aquifer Performance Testing**

- surficial aquifer:
  - Peace River aquifer (PZ1):
  - upper Arcadia aquifer (PZ2):
  - lower Arcadia aquifer (PZ3):
  - Upper Floridan aquifer:
  - Lower Floridan aquifer below MCU I:
  - Lower Floridan aquifer below MCU II:
  - Lower Floridan aquifer below MCU VI:

**Well Construction**

- ☑️ Water Level Monitoring
  - ☑️ Water Quality Monitoring
  - ☐ Other (please specify in comments)

**Other Data Collection**

- ☐ Geophysical Logging
  - ☑️ Video Logging
  - ☐ Flow Logging
  - ☐ Sonic Logging
  - ☐ Other (please specify in comments)

**Other (please specify in comments)**

- Exploratory coring and drilling to the top of the saltwater/freshwater interface. Well construction is needed for one surficial and one Upper Floridan to monitor the saltwater/freshwater. An additional Upper Floridan well may be needed to monitor groundwater levels.

---

**Comments:**

- Exploratory coring and drilling to the top of the saltwater/freshwater interface. Well construction is needed for one surficial and one Upper Floridan to monitor the saltwater/freshwater. An additional Upper Floridan well may be needed to monitor groundwater levels.

---

**Lat/Long**

**Justification (cost/benefit)** Described on Page 2

**PIMS Project No.** (if applicable)

---

**New Site** ☑️

**Initial:** RB

---

**Is this an existing District well site?** No / Yes

---

**Depth of exploration:**

- ☐ to top of rock
- ☑️ to saltwater/freshwater interface
- ☑️ 50 feet into middle confining unit I
- ☑️ 50 feet into middle confining unit II
- ☑️ 50 feet into middle confining unit VI
- ☑️ to the base of the Floridan aquifer system
- ☐ Other (please specify in comments)

**Parameters to be tested**

- surficial aquifer:
  - ☑️ Peace River aquifer (PZ1)
  - ☐ upper Arcadia aquifer (PZ2)
  - ☑️ lower Arcadia aquifer (PZ3)
  - ☑️ Upper Floridan aquifer
  - ☑️ Lower Floridan aquifer below MCU I
  - ☑️ Lower Floridan aquifer below MCU II
  - ☑️ Lower Floridan aquifer below MCU VI
  - ☐ Other (please specify in comments)

**Geophysical Logging** ☑️

**Video Logging** ☐

**Flow Logging** ☐

**Sonic Logging** ☐

**Other (please specify in comments)** ☐

---

**No changes** ☐

**Changes noted above** ☐

**New Site** ☑️

**Initial:** RB
Justification for the work required (cost and benefit):

**Purpose and Scope:**
This site is critical toward establishing the vertical and geographic extent of saltwater interface within the Upper Floridan aquifer. Discrete zone testing for water quality and water level should be conducted to assist in defining these boundaries and to characterize the hydraulic properties of the groundwater system. Exploration is requested to the top (approximately 1,000 mg/l chloride concentration) of the saline water interface within the Upper Floridan aquifer. The District will conduct chloride and sulfate monitoring as part of the Water Quality Monitoring Program. When completed, this site will become part of the SWFWMD Coastal Groundwater Quality Monitoring Network (CGWQMN).

Information gained from this site will also assist the District in the continued refinement of the Northern District regional groundwater flow model and future simulations of the saline water interface movement. The development and maintenance of a groundwater flow model (ND Model) assists in the evaluation of future Regional Water Supply Plan assessments and minimum flow and level establishment. The data collection program, which includes this site, is used to refine the ND Model’s conceptual framework and improve calibration. The ND Model is being used for the minimum flow and level establishment for the Homosassa, Chassahowitzka, Gum Spring, Rainbow Spring and Silver Spring Systems. The ND model was recently expanded as part of a cooperative project with Marion County, Withlacoochee River Regional Water Supply Authority, and the St. Johns River Water Management District so it can be used for resource assessments for all of Marion County and the SWFWMD’s Northern Planning Region. The ND Model will be used on an ongoing basis to determine the status of minimum flows and levels of the regions making ongoing model improvement a beneficial activity.

**Justification:**
1. This site will be used for collecting long-term UFA water levels.
2. This site will assist in the impact analysis and the setting of MFLs for springs, lakes, and the Withlacoochee River.
3. This site will be used to improve the calibration of the Northern District and the District Wide Regulatory models.
4. This site will improve current knowledge of the vertical and geographic extent of the saline water interface within the Upper Floridan aquifer.
5. This site will become part of the CGWQMN and will be used for collecting water quality samples to monitor long-term trends in salinity.

**Benefits:**
Expansion of data collection in this region will help manage and protect the resource. These data will allow the District to forecast limitation in groundwater supply so cost-effective solutions can be properly planned. This will prevent unanticipated impacts that will need to be resolved with water users of the region under a recover strategy. These data will also contribute to the prevention of environmental impacts that may not be able to be recovered or mitigated once experienced.

**Supported Projects:**
- MFL Technical Support - Northern District WRAP (P876)
- Data - Aquifer Exploration & Monitor Well Drilling Program (ROMP) Districtwide Initiative (C005)
- Data - Coastal Groundwater Quality Monitoring Program

**Potentially Supported Projects:**
- WUP - Water Use Permitting Program (M002)
- Hydrologic Conditions Reporting
- Upper Floridan Aquifer Potentiometric Surface Mapping
- Regional Water Supply Plan
- Water Quality Monitoring Network
## Well Site Scope of Work Checklist

<table>
<thead>
<tr>
<th>Geologic Sampling</th>
<th>Aquifer Performance Testing</th>
<th>Other Data Collection</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Depth of exploration:</td>
<td>parameters to be tested</td>
<td>Geophysical Logging</td>
<td>Packer testing to ensure the well is completed at the saltwater/freshwater interface (1,000 mg/L isochloride limit).</td>
</tr>
<tr>
<td>- to top of rock</td>
<td>surficial aquifer:</td>
<td>Video Logging</td>
<td>Site acquisition has been started on this site.</td>
</tr>
<tr>
<td>- to saltwater/freshwater interface</td>
<td>Peace River aquifer (PZ1):</td>
<td>Flow Logging</td>
<td></td>
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<tr>
<td>- 50 feet into middle confining unit I</td>
<td>upper Arcadia aquifer (PZ2):</td>
<td>Sonic Logging</td>
<td></td>
</tr>
<tr>
<td>- 50 feet into middle confining unit II</td>
<td>lower Arcadia aquifer (PZ3):</td>
<td>Other (please specify in comments)</td>
<td></td>
</tr>
<tr>
<td>- 50 feet into middle confining unit VI</td>
<td>Upper Floridan aquifer:</td>
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</tr>
<tr>
<td>- to the base of the Floridan aquifer system</td>
<td>Lower Floridan aquifer below MCU I:</td>
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<tr>
<td>- Other (please specify in comments)</td>
<td>Lower Floridan aquifer below MCU II:</td>
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<tr>
<td></td>
<td>Lower Floridan aquifer below MCU VI:</td>
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### Well Construction

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<tr>
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<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>- Water Level Monitoring</td>
<td>Geophysical Logging</td>
</tr>
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<td>- Water Quality Monitoring</td>
<td>Video Logging</td>
</tr>
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<td>- Other (please specify in comments)</td>
<td>Flow Logging</td>
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### Geologic Sampling

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
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### Aquifer Performance Testing

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<tr>
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<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The primary long-term use for the well(s) will be:</td>
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<tr>
<td>- Water Quality Monitoring</td>
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<td>- Other (please specify in comments)</td>
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### Other Data Collection

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Other (please specify in comments)</td>
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</tbody>
</table>

### Comments:

Packer testing to ensure the well is completed at the saltwater/freshwater interface (1,000 mg/L isochloride limit).

Site acquisition has been started on this site.
Appendix 2. General Hydrogeology of the Southwest Florida Water Management District

The District is underlain by numerous aquifers of varying productivity and water quality. These aquifers, in general, include, in descending order, the surficial aquifer, the Peace River aquifer (zone 1), the upper Arcadia aquifer (zone 2), the lower Arcadia aquifer (zone 3), the Upper Floridan aquifer, and the Lower Floridan aquifers (fig. 2-1). The surficial aquifer is present, sometimes intermittently, throughout most of the District but does not constitute a major source of water to wells. The Peace River, upper Arcadia, and lower Arcadia aquifers compose the Hawthorn (intermediate) aquifer system. These aquifers are present throughout much of the southern portion of the District (fig. 2-2). The Upper and Lower Floridan aquifers compose the Floridan aquifer system and underlie all of Florida, southern Georgia, and small parts of Alabama and South Carolina (Miller, 1986). Groundwater, mainly in the Upper Floridan aquifer, constitutes approximately 81 percent (Nourani, 2009) of the potable water supply underlying the District. The Lower Floridan aquifers commonly contain saline water, therefore, are not a major source of water within the District at this time. The Lower Floridan aquifer below middle confining unit I contains potable water and is withdrawn in portions of northeastern Sumter County at this time.

There has been a lot of variation in the nomenclature used to describe the District’s aquifers. The Geohydrologic Data Section has followed the convention of the US Geological Survey (Laney and Davidson, 1986) to appropriately rank and name the hydrogeologic units underlying the District. A comparison of the nomenclature used by the Geohydrologic Data Section and other well-known conventions can be seen in figures 2-3, 2-4, and 2-5.

The surficial aquifer occurs throughout most of the District. It contains water under mainly unconfined conditions. The surficial aquifer is composed of mostly undifferentiated sand, but contains shell, gravel, and clay lenses. The surficial aquifer is typically less than 25 feet thick and discontinuous in the northern regions of the District, including Hillsborough, Pasco, Hernando, Sumter, Citrus, Marion, and Levy Counties. The surficial aquifer, within the District, is thickest along the Lake Wales Ridge area where the aquifer can be up to 300 feet thick (fig. 2-2). The surficial aquifer is frequently, but inappropriately, ranked as an aquifer system. Throughout the District, the surficial aquifer is a single aquifer and does not achieve the rank of an aquifer system.

The Hawthorn aquifer system is present in the southern portion of the District (fig. 2-2). This aquifer system has commonly been referred to as the intermediate aquifer system (fig. 2-4). The Hawthorn aquifer system (within the District) contains up to three aquifers; the Peace River aquifer (zone 1), the upper Arcadia aquifer (zone 2), and the lower Arcadia aquifer (zone 3). The Hawthorn aquifer system generally coincides with the Hawthorn Group which is composed of highly variable deposits of siliciclastics, phosphates, a variety of clays, and carbonates. The groundwater within the Hawthorn aquifer system is under confined conditions. The aquifers within this aquifer system have incorrectly been ranked as zones (1, 2, and 3) in the past; however, the Geohydrologic Data Section has made considerable progress in correcting this ranking error. A correlation table containing the majority of the names used for the Hawthorn aquifer system can be seen in figure 2-4.

The Floridan aquifer system underlies all of Florida, southern Georgia, and small parts of Alabama and South Carolina (Miller, 1986). The Floridan aquifer system within the bounds of the District is composed of the Upper Floridan aquifer, middle confining unit I, middle confining unit II, middle confining unit VI, and the Lower Floridan aquifers that occur below these middle confining units. The Upper

<table>
<thead>
<tr>
<th>Era</th>
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<th>Formation</th>
<th>Aquifer System</th>
<th>Confining Unit</th>
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<td>upper Arcadia</td>
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<td>Pliocene</td>
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<td></td>
<td>lower Arcadia</td>
</tr>
<tr>
<td>Miocene</td>
<td>late</td>
<td></td>
<td>Hawthorn aquifer system</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oligocene</td>
<td>late</td>
<td></td>
<td>Upper Floridan aquifer system</td>
<td></td>
</tr>
<tr>
<td>Oligocene</td>
<td>early</td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

Figure 2-1. Formations, aquifers, and confining units commonly found throughout the Southwest Florida Water Management District.
Floridan aquifer contains water under confined condition with the exception of local areas in the northern District. In these areas, the Upper Floridan will still contain groundwater under mostly confined conditions deeper in the aquifer as thin low permeability beds begin to impose confinement.

The Upper Floridan aquifer is the most important source of groundwater in the District. In 2008, 81 percent of the District water supplies came from the Upper Floridan aquifer (Nourani, 2009). Within the southern half of the District two distinct producing zones occur within the Upper Floridan aquifer. In the upper section of the Upper Floridan aquifer the Tampa Formation and Suwannee Limestone form the permeable section of the Upper Floridan aquifer. The development of secondary permeability from dissolution of limestone produces the hydraulic conductivity in the upper section of the Upper Floridan aquifer. The Avon Park high-permeability zone is present within the lower section of the Upper Floridan aquifer and may contain mineralized water. The development of secondary permeability from fractured dolostone produces the high hydraulic conductivity observed in the Avon Park high-permeability zone. These two permeable zones are separated by a lower permeability section of the Upper Floridan aquifer contained within the Ocala Limestone.

Figure 2-2. Location of the Lake Wales Ridge and the extent of the Hawthorn aquifer system within the Southwest Florida Water Management District.
### Table: Aquifer System Correlation

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<tr>
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<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>nonartesian aquifer</td>
<td>Shallow aquifer</td>
<td>water-table aquifer</td>
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<td>unconfined aquifer</td>
<td>surficial aquifer</td>
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<td>surficial aquifer</td>
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</tbody>
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| Confining unit | Confining unit | Confining unit | Confining unit | Confining unit | Confining unit | Confining unit | Confining unit |

**Figure 2-3.** Surficial aquifer correlation.

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<tr>
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<th></th>
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<td>Confining unit</td>
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<td>Confining unit</td>
<td>Confining unit</td>
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<table>
<thead>
<tr>
<th>Sandstone aquifer</th>
<th>Zone 1</th>
<th>Sandstone aquifer</th>
<th>Permeable Zone 1</th>
<th>Tamiami / Peace River zone (PZ1)</th>
<th>Zone 1</th>
<th>Peace River aquifer</th>
<th>upper Arcadia aquifer</th>
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<td>Confining unit</td>
<td>Confining unit</td>
<td>Confining unit</td>
<td>Confining unit</td>
<td>Confining unit</td>
<td>Confining unit</td>
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<table>
<thead>
<tr>
<th>Upper Hawthorn aquifer</th>
<th>Zone 2</th>
<th>Intermediate aquifers</th>
<th>Intermediate aquifer system</th>
<th>Upper Arcadia zone (PZ2)</th>
<th>Zone 2</th>
<th>Intermediate aquifer system / intermediate confining unit</th>
<th>lower Arcadia aquifer</th>
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<td>Confining unit</td>
<td>Confining unit</td>
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<td>Confining unit</td>
<td>Confining unit</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Lower Hawthorn aquifer</th>
<th>Zone 3</th>
<th>Tamiami / upper Hawthorn aquifer</th>
<th>Lower Hawthorn / upper Tampa aquifer</th>
<th>Permeable Zone 3</th>
<th>Lower Arcadia zone (PZ3)</th>
<th>Zone 3</th>
<th>lower Arcadia aquifer</th>
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</thead>
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<td>Confining unit</td>
<td>Confining unit</td>
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<td>Confining unit</td>
<td>Confining unit</td>
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**Figure 2-4.** Hawthorn aquifer system correlation.
<table>
<thead>
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<th>Year</th>
<th>Author(s)</th>
<th>Aquifer System</th>
<th>Confining Unit</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>1936</td>
<td>STRINGFIELD</td>
<td>chief water-bearing artesian formations</td>
<td>confining unit</td>
<td></td>
</tr>
<tr>
<td>1955</td>
<td>PARKER AND OTHERS</td>
<td>Floridan aquifer</td>
<td>confining unit</td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>STRINGFIELD</td>
<td>principal artesian aquifer</td>
<td>confining unit</td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>MILLER</td>
<td>permeable zone</td>
<td>Upper permeable zone</td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>BUSH</td>
<td>Tertiary limestone aquifer system</td>
<td>permeable zone</td>
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<tr>
<td>1986</td>
<td>MILLER</td>
<td>less permeable zone</td>
<td>Intra-aquifer low-permeability zone</td>
<td>Middle confining unit (I, II, or VI)</td>
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<td>2007</td>
<td>REESE AND RICHARDSON</td>
<td>Upper Floridan aquifer</td>
<td>confining unit</td>
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</tr>
<tr>
<td>2008</td>
<td>ARTHUR AND OTHERS</td>
<td>Lower Floridan aquifer</td>
<td>confining unit</td>
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</table>

[Terms shown are for hydrogeologic units present within the Southwest Florida Water Management District]

**Figure 2-5.** Floridan aquifer system correlation.
References


# Appendix 3. Post Audit of Work in Fiscal Year 2016

**Table 3-1. Planned versus completed District core drilling projects in Fiscal year 2016**

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<thead>
<tr>
<th>Site</th>
<th>Start Date</th>
<th>End Date</th>
<th>Start Depth (feet bls)</th>
<th>End Depth (feet bls)</th>
<th>Total (feet)</th>
<th>Comments</th>
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</thead>
<tbody>
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<td>ROMP 131.5</td>
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<td>0</td>
<td>2,100</td>
<td>2,100</td>
<td>-</td>
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<tr>
<td>ROMP 88</td>
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<td></td>
<td>0</td>
<td>2,650</td>
<td>2,650</td>
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<tr>
<td><strong>Total</strong></td>
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<td></td>
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<td></td>
<td><strong>4,750</strong></td>
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<th>End Date</th>
<th>Start Depth (feet bls)</th>
<th>End Depth (feet bls)</th>
<th>Total (feet)</th>
<th>Comments</th>
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<tbody>
<tr>
<td>ROMP 131.5</td>
<td>9/29/2015</td>
<td>8/31/2016</td>
<td>60</td>
<td>1,800</td>
<td>1,740</td>
<td>Delays because of reduced staff; Coring staff relocated to ROMP 115 during APTs</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
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<td><strong>1,740</strong></td>
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**Difference between Planned and Actual Completed Work**

-3,010

**Table 3-2. Planned versus completed contracted core drilling projects in Fiscal year 2016**

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<tr>
<th>Site</th>
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<th>End Depth (feet bls)</th>
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<tbody>
<tr>
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<td></td>
<td></td>
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<tr>
<td>West Citrus</td>
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<td>0</td>
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<td><strong>Total</strong></td>
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<tr>
<td>East Homosassa</td>
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<tr>
<td>West Citrus</td>
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<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Contractor not available until after 2016 fiscal year</td>
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<td><strong>Total</strong></td>
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**Difference between Planned and Actual Completed Work**

-470
Table 3-3. Planned versus completed well construction in fiscal year 2016.

[*, none; CFWI, Central Florida Water Initiative; CGWQMN, Coastal Groundwater Quality Monitoring Network; FY, fiscal year; MFLs, Minimum Flows and Levels; NDDP, Northern District Drilling Plan; NDWMN, Northern District Wetland Monitor Network; NSCDP, Northern Sumter County Drilling Plan; ROMP, Regional Observation and Monitor-well Program; SWIM, Surface Water Improvement Management; SWUCA, Southern Water Use Caution Area]

<table>
<thead>
<tr>
<th>Site Name</th>
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<th>Temporary Well</th>
<th>Comments</th>
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<tr>
<td>ROMP 115</td>
<td>NDWRAP; NSCDP; ROMP</td>
<td>- surficial</td>
<td>-</td>
<td>surficial aquifer not present</td>
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<tr>
<td>ROMP 115</td>
<td>NDWRAP; NSCDP; ROMP</td>
<td>1 Upper Floridan</td>
<td>1 Upper Floridan</td>
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<tr>
<td>ROMP 115</td>
<td>NDWRAP; NSCDP; ROMP</td>
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<td>1 Lower Floridan I</td>
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<tr>
<td>East Homosassa</td>
<td>CGWQMP, NDDP</td>
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<td>-</td>
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<td>ND Wetland Wells</td>
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<td>NDDP</td>
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<td>ROMP 75</td>
<td>CFWI; ROMP</td>
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<td>NDDP</td>
<td>13 surficial</td>
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<td>2 sites deleted, others too wet</td>
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<td>MFLs</td>
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<td>1 surficial</td>
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<td>MFLs</td>
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<td>1 Upper Floridan</td>
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<td>Thornhill Replace-ment Wells</td>
<td>CFWI</td>
<td>1 surficial</td>
<td>-</td>
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<td>Thornhill Replace-ment Wells</td>
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<td>CGWQMN</td>
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<td>CGWQMN</td>
<td>1 Upper Floridan</td>
<td>-</td>
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Table 3-3. Planned versus completed well construction in fiscal year 2016 (continued).

[~, none; CFWI, Central Florida Water Initiative; CGWQM, Coastal Groundwater Quality Monitoring Network; FY, fiscal year; MFLs, Minimum Flows and Levels; NDWMN, Northern District Wetland Monitor Network; NSCDP, Northern Sumter County Drilling Plan; ROMP, Regional Observation and Monitor-well Program; SWIM, Surface Water Improvement Management; SWUCA, Southern Water Use Caution Area]

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<tbody>
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<td>SWUCA, ROMP</td>
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<td>Upper Floridan</td>
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<td>-</td>
<td>Drilled water supply well deeper</td>
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<tr>
<td>ROMP 38</td>
<td>SWUCA, ROMP</td>
<td>1</td>
<td>Upper Floridan</td>
<td>-</td>
<td>-</td>
<td>Lined Avon Park well</td>
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<td>Plugged water supply well</td>
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<td>Upper Floridan</td>
<td>Plug temporary Suwannee well</td>
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Table 3-4. Planned versus completed APTs in fiscal year 2016.

[~, none; APT, aquifer performance test; FY, fiscal year; LFA, Lower Floridan aquifer; ROMP, Regional Observation and Monitor-well Program; SWUCA, Southern Water Use Caution Area; TE, Temporary Easement]

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Fiscal Year 2016 Planned but Not Completed APTs

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## Appendix 4. Wetland Monitoring Well Networks Status

Table 4-1. Northern District Wetland Monitor Well Network Status in 2016. 

[-, none; RD, road; SID, site identification; SR, State Road; UFA, Upper Floridan aquifer]

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### Summary

| Complete | 24 | 10 | 23 | 4 | 0 | 0 | 0 | 0 | 0 |
Table 4-2. Northern Tampa Bay Wetland Monitor Well Network Status in 2016.

[-, none; ID, identification]

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### Table 4-2. Northern Tampa Bay Wetland Monitor Well Network Status in 2016 (continued).

[-, none; ID, identification]

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### Table 4-2. Northern Tampa Bay Wetland Monitor Well Network Status in 2016 (continued).

[.-, none; ID, identification]

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